Dynamic integration in SCM:
- the role of TPL

Master’s thesis within International logistics and supply chain management

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Master’s Thesis in International Logistics and Supply Chain Management

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Abstract

Introduction: Companies are facing an environment with fierce competition therefore to respond to the customers’ needs and to deliver on time at a competitive cost is becoming more and more important. Integration between the actors in the SC is increasing in importance and is seen as a core competitive strategy to respond to the customer’s demands. SCI can be achieved through efficient linkages among various supply chain activities however internal excellence is not enough and SCM seeks to integrate internal functions with external operations of suppliers, customer and other SC members. In SCI the TPL firms are said to play an important role because of their expertise and knowledge.

Problem: Previous researchers have identified gaps in the SCI literature which does not consider the role of the TPL firm. Similar gaps have been found in the TPL literature which does not put emphasis on SCI. Nevertheless the importance of TPL firms in SCI has been pointed out as significant. Therefore this thesis will study the role of the TPL firm in SCI to improve the knowledge and create a better understanding.

Purpose: The purpose of this thesis is to study and uncover the role of the TPL firm Schenker Logistics AB Nässjö in supporting SCI with its customer Relacom and its supplier Nexans to gain a deeper understanding of the phenomenon. By analyzing the drivers, barriers and outcomes of the SCI for each firm, the paper pursues the notion that SCI is a dynamic process and TPL firm plays an important role.

Method: This thesis is based on a qualitative approach where interviews with key persons are the main approach to gathering information. The qualitative approach has its strengths is being able to obtain rich nuances in the information which fits our purpose to go deeper in a phenomenon.

Conclusions: By analyzing the drivers, barriers and outcomes of SCI we have reached the conclusion that the role of the TPL firm is to achieve benefits through the three C’s (the company, its customers and its competitors). The TPL firm also smooths out the friction between other members of the SC and help to create a better, faster, cheaper, smarter and greener SCI. Since the factors influencing SCI are constantly changing, all actors continuously have to keep updated to react to the pressures from the market.
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1 Introduction

In the first chapter the background of the problem will be introduced to the reader, followed by a problem formulation and the purpose of the thesis. The chapter will end with an outline for the reader to get an overview of the different chapters.

1.1 Background

Today, companies are facing a more competitive environment. How to quickly respond to the market while satisfying the customers is a big concern for many firms. Handfield and Nichols (1999) point out that it is not enough for a firm in the twenty-first century to only produce high quality products. What is more important is how to fulfill the customers' needs and wants at a low price and deliver them in a timely fashion. Actors participating in the same supply chain identify tradeoffs with their adjacent customers and suppliers and have started to realize the importance of integration in the chain in order to focus on what is offered to the end customer in terms of cost and service. Internal excellence is not enough anymore; there is also a need for external excellence in the whole supply chain. This management philosophy is called supply chain management (SCM). SCM has received enormous attention in research journals as well as in industry and consultancy firms (Christopher, 1998). The core message of SCM is that companies in a supply chain should create a collaborative atmosphere where mutual trust, the sharing of risks and rewards and extensive information sharing should prevent suboptimization in the supply chain.

Integrated supply chain management is becoming recognized as a core competitive strategy (Handfield & Nichols, 1999). SCM seeks to enhance competitive performance by closely integrating the internal functions within a company and effectively linking them with the external operations of suppliers, customers, and other channel members. The benefit of such supply chain integration (SCI) can be attained through efficient linkage among various supply chain activities, and the linkage should be subject to the effective construction and utilization of various supply chain practices for an integrated supply chain. This implies that a firm that is pursuing the effective construction of SCM practices needs to pay attention to SCI. SCM practices implemented to achieve superior supply chain performance require internal cross-functional integration within a firm and external integration with suppliers or customers to be successful (Narasimhan, 1997, cited by Kim, 2006).

Literatures have revealed widespread support for the idea of supply chain integration, but little evidence of analyzing the potential benefits, barriers, and bridges toward its success as a whole. Knowing and understanding how, when, and why some supply chains succeed while others do not would not only be of interest to SC scholars, but to the managers that daily face the challenge to making strategic SCM a reality (Fawcett, Magnan & McCarter, 2008). That is the reason why the authors started the research job of the thesis with researching and analyzing the elements (drivers, barriers, and outcomes of integration) that influence the SCI.

Through theoretical and empirical research and analyze, the thesis pursues the notion that SCI is a dynamic process, and it is influenced by many factors such as: the change of the underlying drivers, barriers, process and expected outcomes for integration; the
scope of integration, i.e. the nature and number of organizations or participants included in the “integrated supply chain,” may vary (Harland, 1996; Mentzer, DeWitt, Keebler, Min, Nix, Smith and Zacharia, 2001; Jahre & Fabbe-Costes, 2005). Any change of external pressures such as: advances in technology, increased customer demand (Mehta, 2004), complying with a multitude of rules and regulations (Handfield & Nichols, 1999), lowering costs while meeting diverse needs (Cook & Garver, 2002) and the expected outcomes such as improved logistics performance (Christopher, 1998), creating a greener SC (Malcolm, 1997), strengthened partnerships (Langley & Holcomb, 1992) and creating a more innovative and learning organization (Watson, 2001) will affect the process of SCI. At the same time, the barriers of SCI such as technology related barriers (Horvath, 2001) and human related barriers (Mentzer et al., 2001) vary over time. That will also affect the process of SCI. Consequently SCI changes over time and it is a dynamic process.

Puigjaner and Laínez (2008) point out that a major challenge for an enterprise to stay competitive in today’s highly competitive market environment is to be able of capturing and handling the dynamics of its entire supply chain. To succeed with it, firms must know what the challenges are and how to handle a dynamic integrated SC.

TPL (third party logistics) firms play an important role in supporting a dynamic SCI. TPL firms play different role in different SCI (Bolumole, 2003), for example they could be integrated as “tools” used by their customers or could be an actor of supply chain integration. Yet one thing is in common: TPLs are said to improve performance in a supply chain because of their ability (expertise and knowledge) to cooperate both vertically with the different partners of a supply chain and horizontally with other TPL firms (Fabbe-Costes et al., 2009). The effects are not only the reduced costs for the actors along SC and improved customer satisfaction, but also a greener SCI. Because the nature of SCI is cross-functional and integrative and since so many logistical activities impact on the environment, it makes sense for all the actors along SC to take the initiative in this area. Logistics has been a missing link in providing green products and services to the consumer (Malcolm, 1997). TPL firms play an important role in creating a greener SCI by value adding activities such as cross-docking, proper mode selections and freight consolidation (Wu & Dunn, 1995).

From the study of Fabbe-Costes et al. (2009), interesting gaps have been identified: SCI-performance literature hardly takes third party logistics (TPL) into account, TPL literature does not talk much about SCI. It has been suggested that further research would benefit from cross-fertilization between the two literatures. Furthermore Fabbe-Costes et al. (2009) argues that more research is needed in the topic we have chosen about integration in supply chains to provide a better understanding of how and when TPLs contribute to overcoming the barriers to integration.

In summary, the existing literatures have a widespread research on SCI, the reasons, barriers and the outcomes of SCI, the role of TPL and the dynamic SCI, yet no articles has mentioned the relationships and connections between the above mentioned issues, in this thesis, we are going to combine all these issues, finding the connections between them and get a better understanding of SCI as a whole.
1.2 Purpose
The purpose of this thesis is to study and uncover the role of the TPL firm Schenker logistics in supporting SCI with its customer Relacom and its supplier Nexans to gain a deeper understanding of the phenomenon. By analyzing the drivers, barriers and outcomes of the SCI, the paper pursues the notion that SCI is a dynamic process and TPL firm plays an important role.

1.3 Delimitations

1.4 Thesis outline
This thesis is structured as illustrated in table 1.1 below. We start with an introduction and the purpose of the thesis, followed by a theoretical framework which starts by presenting the underlying issue of the network approach. The framework then identifies the conventional definitions of TPL, SCM, the role of the TPL firm, SCI, the potential drivers, barriers and outcomes of the integration. By carefully analyzing the empirical materials and comparing to the literatures, we get into the conclusions and give our suggestions for future research.
### Introduction

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<td>2. Theoretical framework</td>
<td><em>The theoretical framework will present the main areas of the thesis through the work of previous researchers. The chapter will start by presenting the network approach which is considered the bigger issue resulting in partnerships dynamics, the role of the TPL firm and leading to drivers, barriers and outcomes of integration. However in order to provide a deeper knowledge of concepts like TPL and SCM, some definition parts will be included.</em></td>
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<td>3. Method</td>
<td><em>In this chapter we will discuss the main perspectives, the research strategy, basic methodological and procedural considerations. Some methodological considerations for the study are discussed and the practical performance of different activities in the study is explained. Furthermore, remarks on the validity and reliability are given.</em></td>
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<td>4. Empirical material</td>
<td><em>The empirical chapter will present Schenker logistics, Nexans and Relacom, as well as give further information about their relationship. The material is divided in supply chain integration, drivers, barrier and outcomes, leading to the role of the TPL firm and dynamics in partnerships.</em></td>
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<td><em>In this section the empirical material will be analyzed by connecting the theoretical framework with the gathered empirical material. Both primary and secondary data is connected to the framework.</em></td>
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Table 1.1 Thesis outline
2 Theoretical framework

The theoretical framework will present the main areas of the thesis through the work of previous researchers. The chapter will start by presenting the network approach which is considered the bigger issue resulting in partnerships dynamics, the role of the TPL firm and leading to drivers, barriers and outcomes of integration. However in order to provide a deeper knowledge of the concepts like TPL and SCM, some definition parts will be included.

2.1 The network approach

The network approach was chosen because the theory provides an insight into development and management of inter-organizational relationship which is a central feature of TPL (Halldórsson & Skjøtt-Larsen, 2006).

According to Håkansson and Ford (2002) a network is in its most abstract form a structure where a certain amount of nodes are related to each other by threads. If we look at a complex business market which could be seen as a network the nodes are companies in manufacturing and service and the relationship between them are the threads. Thus, a business network is defined as “a set of connected actors that perform different types of business activities in interaction with each other”. (Holmlund & Törnroos, 1997, p.304)

The network approach has its strengths in the high compatibility with the interorganizational environment which firms encounter in their every day operations. The environment has changed towards increasing international competition as well as increasing intra- and interorganizational cooperation and multi-level hierarchical company structures are replaced with horizontally integrated structures to focus on the core competencies. The network approach allows researchers to go beyond to dyadic relationship and study system-wide effects with the knowledge that a relationship cannot be managed in isolation from other relationships (Tikkanen, 1998).

Möller (1994, cited in Tikkanen, 1998) argues the intellectual purpose of the industrial network approach as follows: “The intellectual aims of the network approach are primarily descriptive. Researchers are using the network approach to try to understand systems of relationships from (1) the perspective of a particular focal firm (so called focal firm perspective), and from (2) a network perspective – looking into a network from an aggregate, holistic perspective”.

The industrial network model has a purpose to provide an integrated analysis of stability and development in an industry. The relationships between interconnected actors form the basis in the industrial network approach. Changes take place within and between relationships, bonds and links involving actors, resources and activities (Tikkanen, 1998).

Actor bonds tie actors together and influence how the actors see each other and their identities in the networks. Bonds become recognized in interaction and reflect the interaction process. Organizations, groups of individuals inside organizations and individuals could be actors. Activity links can be activities connected to those of another organization like administrative, technical or commercial. The activities are linked together in many ways and several activity chains form complex activity patterns. Depending on
how the relationship between two organizations has developed resources ties connect various elements (technological, material, knowledge and other intangibles). All the basic groups are related in the overall structure and should not be divided but serve the purpose of identifying different variations in the effects of intercompany relationships. The interplay of bonds ties and links is the origin of change in a relationship. As one variable changes the others are mutually adjusted to the change (Håkansson & Snehota, 1995).

When studying a network the approach has normally been to study the complete network, however Tikkanen, (1998) claims that it would very often be useful to take the focal company viewpoint to the network the focal firms is acting in. To take the focal firms perspective could help researchers develop practical implications for the firm’s network development since the firms is the one who has the best knowledge about their important relationships, only an integrative framework is required. The focal net is a part of a bigger network structure and the main function of the focal firm is to capture all network features that might be of relevance to the focal firm.

Using the focal firm viewpoint only reflects the perception of a single actor operating in the network and could lead to difficulties in recognizing interdependencies not recognized by the focal firm. The advantages with the focal firm’s view are that the research is concentrated to certain operations within the firm and therefore the approach can be used as a tool in analyzing the companies’ existing operations and activities. The focal firm approach is more practically oriented than the basic aggregate network view (Tikkanen, 1998).

2.2 Dynamics

The dynamic or flexible process which emerges through the interaction between the customer and the provider of logistics services is important to consider. Since the stability of a TPL arrangement is challenged by a number of uncertainties which may challenge the initial intent of the arrangement (Halldórsson & Skjøtt Larsen, 2006).

Kumar and Deshmukh (2006) provide several definitions to flexibility which could be summarized as follows: the quality to change or react if the need should arise with little penalty in time, effort, cost or performance to internal and external change.

Thus, for a TPL firm to make profit and grow in an environment with very intense competition and price cutting policies they must either expand its customer base to face the effects of lowered profit per unit product sold. Or maintain the current customers and carry out internal cost cutting measures. At the same time the customers not only expects quality, reliability and competitive pricing but also customized product with just in time deliveries, hence a flexible organization (Kumar & Deshmukh, 2006).

However a buyer-seller relationship and how many year the relationship has lasted is only one dimension of stability and there are also other dimensions. Firstly the dyadic buyer-seller relationship should be seen in a broader context and stability can be analyzed from the total network point of view. The studies of the total network can be performed in an aggregate way to study the amount of newly established, continuing and broken relationships. The total network can also be analyzed to find patterns of trends towards increased or decreased single or dual sourcing. The important issue to consider
Theoretical framework

is that from one year to another few changes take place in the supplier structure and it seems rather to be a gradual shift of adding new suppliers and dropping the old ones. However the smallest changes constitute a new supplier structure and the long-term consequences can be dramatic. Therefore the suppliers have to adapt their position to specific customers not to lose their position in the supplier structure (Gadde & Mattsson, 1987).

2.2.1 Dynamics in partnership

Winning the custom and loyalty of end users becomes more difficult as the competitive environment becomes more volatile. Inefficient and ineffective supply chains characterized by traditional “arms-length” relationships, and “silo” type structures can threaten the survival of the entire chain (Tolhurst, 2001).

Dyer, Cho & Chu (1998) points out that this does not necessarily mean that all relationships with all supply chain members need to be “one size fits all”. This view has been supported by Lambert and Cooper (2000). Since the drivers for integration are different from process link to process link, the levels of integration should vary from link to link, and over time (Lambert & Cooper, 2000, p.74). According to Lambert and Cooper (2000) the key to these relationships is the level of management and integration required, with highly strategic inputs requiring the highest levels of management and integration by the focal company.

Gentry and Vellenga (1996) argue that it is not usual that all of the primary activities in a chain – inbound and outbound logistics, operations, marketing, sales, and service – will be performed by any one firm to maximize customer value. Thus, forming strategic alliances with supply chain partners such as suppliers, customers, or intermediaries (e.g., transportation and/or warehousing services) provides competitive advantage through creating customer value (Langley & Holcomb, 1992).

Partnership is defined by Handfield and Nichols (1999) as a tailored business relationship featuring mutual trust, openness, and shared risk and reward that yields strategic competitive advantage. The partnerships reduce uncertainty and complexity in an ever-changing global environment and minimize the risk while maintaining flexibility. Third-party partnership provides the advantages of ownership without the associated burden and allows organizations to take advantage of “best-in-class” expertise, achieve customer service improvement, respond to competition, and eliminate assets. In order to create a successful relationship, a partnership, between an outsourcing supplier and its client, trust must be established between the two (Augustson & Bergstedt 1999).

In the decision of taking part in a partnership or not, the motives for the partnership should be considered. Every company has their own unique reasons for forming a partnership, which makes it hard to strategically translate the motives into goals for the partnership. One part of the cooperation always risks getting the bitter end of the deal, in worst case both parts are affected negatively (Cooper & Ellram, 1993). Partnerships are complex relationships demanding corporate cultural compatibility, a strong perspective of mutuality, and symmetry between the two sides. To succeed, partnerships must include components that management controls and can put in place, like planning, joint operating controls, risk/reward sharing, trust/commitment, contract style, expanded scope, and financial investment (Handfield & Nichols, 1999).
2.3 Supply chain management

Interest in SCM has steadily increased since the 1980s when firms saw the benefits of collaborative relationships within and beyond their own organization. Firms are finding that they can no longer compete effectively in isolation of their suppliers or other entities in the supply chain (Harland, 1996).

Despite the popularity of the term SCM, both in academia and practice, there remains considerable confusion as to its meaning. Some authors define SCM in operational terms involving the flow of materials and products, some view it as a management philosophy, and some view it in terms of a management process (Tyndall, Christopher, Wolfgang & Kamauff, 1998). Even within the same article, SCM has been conceptualized differently: as a form of integrated system between vertical integration and separate identities on one hand, and as a management philosophy on the other hand (Cooper & Ellram, 1993). Mentzer et al. (2001) make a valuable contribution to the understanding of SCM, they distinguish between SCM as a management philosophy on the one hand, and the actions undertaken to realize the philosophy on the other. The management philosophy, called supply chain orientation, SCO, is a prerequisite for SCM, which should be interpreted as actions undertaken by actors in a supply chain in order to realize the SCO. SCO is defined as “the recognition by an organization of the systemic, strategic implications of the tactical activities involved in managing the various flows in a supply chain” (Mentzer et al., 2001, p.11). In return, SCM is defined as “the systemic strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole” (Mentzer et al., 2001, p.18).

In order to clearly define the term and concept, to identify those factors that contribute to effective SCM, and to suggest how the adoption of a SCM approach can affect corporate strategy and performance, the strategic SCM concept adopted in our thesis is based on Mentzer et al.’s concept and Lewin’s force field theory.

Lewin’s (1951, cited in Fawcett et al., 2008) force field theory implies that “the driving forces (external threats combined with internal benefits) must exceed the resisting forces (e.g. culture, structure, perceptions of how things should be done) so that any organizational entity – in this case a company within a supply chain – can change and survive in changing environments. The ability to scan the environment for the forces driving SCM, to identify the potential barriers (or resisting forces), and to implement bridges (so as to overcome resistance) enables members of a supply chain to maintain competitive success in changing environments and markets and become a successful strategic supply chain.”

2.4 Third party logistics

Despite the large amount of attention and research which has been devoted to TPL since the late 1980s when the concept was first used there is a lack of a single consistent definition. This leaves the concept of TPL somewhat confusing as meanings and definitions are overlapping (Berglund, Laarhoven, Sharman & Wandel, 1999). To illustrate the dissimilarities in definitions we provide some examples from different researchers. The concept of TPL is an essential part in this thesis therefore it calls for further clarification.
Some researchers take a very broad perspective on TPL like for instance, La Londe (2001, p. 9) who argues that “a third party logistics service provider is an independent economic entity that creates value for its client”. La Londe (2001) instead focuses on the changes in value propositions which the TPL can offer its clients which today include highly integrated technological solutions and long term relationship building.

Skjoett-Larsen (2000, p. 113) also chooses a broad definition of TPL based on the argument that “it can be hard to distinguish between different types of relationships” and therefore defines TPL as “a logistics service relationship which include the last three categories of Bowersox, Daugherty, DroEge, Rogers and Wardlow’s scale (1989, cited in Skjoett-Larsen, 2000, p. 2) see figure 2.1, i.e. partnerships, third party agreements and integrated service agreements”. In partnerships the partners try to maintain their independence while simultaneously collaborating to develop more efficient systems. TPL agreements are more formalized with tailored services for a specific client. The last category is an integrated service agreement where the provider takes over the whole logistics process or large parts which include mutual obligations and cooperation for both provider and client (Skjoett-Larsen, 2000).

**Degree of integration**

![Image of the degree of integration diagram](image)

Virum (1993) emphasize a number of aspects in the definition of the TPL such as that they provide a service adjusted to each shipper where all operational and commercial details are planned cooperatively. The relationship between shipper and provider is based on trust and shared benefits as well as a free flow of logistics information to develop win-win situations.

Other researchers choose to emphasize the importance of specific functions within the outsourcing logistics relationship like Lieb (1992, cited in Marasco, 2008, p.128) TPL is “the use of external companies to perform logistics functions that have traditionally
been performed within an organization. The functions performed by the third party can encompass the entire logistics process or selected activities within that process”.

Berglund et al. (1999) goes further in the definition and specifies which functions that can be carried out by a TPL firms and argues the definition of TPL as follows: “Third-party logistics are activities carried out by a logistics service provider on behalf of a shipper and consisting of at least management and execution of transportation and warehousing. In addition, other activities can be included, for example inventory management, information related activities, such as tracking and tracing, value added activities, such as secondary assembly and installation of products, or even supply chain management. Also, the contract is required to contain some management, analytical or design activities, and the length of the co-operation between shipper and provider to be at least one year, to distinguish third party logistics from traditional ‘arm’s length’ sourcing of transportation and/or warehousing”.

As a compromise between the broad and the narrow definition Bask (2001, cited in Marasco, 2008, p.128) defines TPL as “relationships between interfaces in the supply chains and third-party logistics providers, where logistics services are offered from basic to customized ones, in a shorter or longer-term relationship, with the aim of effectiveness and efficiency”.

For this thesis we use the definition of TPL provided by Council of Supply Chain Management Professionals (CSCMP) and Vitasek (2008) which states that “A firm which provides multiple logistics services for use by customers. Preferably, these services are integrated, or "bundled" together by the provider. These firms facilitate the movement of parts and materials from suppliers to manufacturers, and finished products from manufacturers to distributors and retailers. Among the services which they provide are transportation, warehousing, cross-docking, inventory management, packaging, and freight forwarding.” We choose this definition because the CSCMP has a goal to “be the world’s leading source for supply chain profession” therefore they feel like a reliable source and the definition serves our purpose as well.

### 2.4.1 The role of third party logistics in supply chain management

TPL firms have the expertise and knowledge of the service supplier and therefore have the opportunity to be integrated as “tools” used by their customers and to be an actor of supply chain integration. When TPLs are considered to be actors not tools, they are often in the focal firm position acting as a bridge to formulate the linkages between the upper and the lower supply chain parties’ processes. However when a TPL firm is considered to be a tool, the perspective of the manufacturing or the retailing companies’ point of view is often considered. TPLs are also said to improve performance in a supply chain because of their ability to cooperate both vertically with the different partners of a supply chain and horizontally with other TPL firms (Fabbe-Costes et al., 2009).

TPL companies have logistics expertise and can offer cost advantages to other firms since they relieve clients from tied up capital in warehouse and logistics related material such as trucks. TPL companies can also provide economies of scale as volumes increase. A framework consisting of six different roles for evaluating the extent of logistics outsourcing and the nature of the client- TPL relationship on the supply chain role of the TPLs was developed by Bolumole (2003).
The first role, also called functional service provider has the lowest form of supply chain contribution where the TPL typically provides operational-level activities like warehousing and transportation. The relationship is typical in early stage and has the potential for improvements. If no improvements are made to the arrangement it is not likely to result in win-win situations since the TPL does not commit to their clients by tailored solutions. The underlying assumption in logistics is an integrated process which is why the label functional service provider is more appropriate as oppose to third party logistics provider.

In the second role, the service provider takes on the role of a “third-party logistics provider”. The perception is suggested for improving the client-TPL relationship by orientating the client organization towards a cross-functional and external supply chain focus for building competitiveness and internal profitability. The relationships are often developed into long-term where the TPL firm becomes more innovative in applying integrative skills to the client’s operations.

In the third role, the involvement of the TPL has increased in the in-house activities but tends to focus on internal profitability at the cost of supply chain performance. The organization typically adopt industry best practice for their operation with little consideration to the overall supply chain. The TPL is represented by the internal logistics department which acknowledges the importance of mutuality and relationships but traditional ways of operating prevents further progress.

This fourth situation often refers to a one time short-term relationship during excessive peaks which the existing infrastructure is unable to handle. The importance is placed on fast delivery and quick response and the TPLs can act as logistics coordinators in the supply chain which increases the involvement of the TPL and the TPL implement a logistics strategy by supporting the overall supply chain effectiveness. If developed into long-term relationship day-to-day reports are required before the informal trust level necessary for a long-term relationship has been reached.

In this fifth role, the TPL firm attempts to organize and develop the resources aimed at achieving the client’s strategic objectives. However, due to the client’s focus on internal cost there is a tendency from the client’s perspective to move beyond partnerships and strive for ownership leading to joint ventures. The joint ventures such as these can be used to obtain resources embedded in the other organizations and may no longer be labelled a TPL relationship.

In the sixth and final role description, the TPLs have an ability to facilitate the end-to-end coordination of logistics across the supply chain and facilitate logistics integration. This requires a reliable flow of information and a client which outsource with an external, cross-functional focus on supply chain profitability. Then the TPL act as an integrator of information-enabled logistics network and has strategic value-adding responsibilities moving towards logistics partnership.

2.5 Supply chain integration
The definition of TPL provided by CSCMP and Vitasek (2008) emphasizes that the services provided by the logistics firm should preferably be integrated. Integration is defined by Hertz (2001, p. 239) as “a process of coordinating activities, resources and organizations in order to function in concert” from a loose cooperation to a high level of
internal fit and synchronization between the partners. The advantages from increased integration are several including lower costs, higher customer value, shorter lead times and lower risks (Hertz, 2001).

Integration between logistics activities is now, 20 years after studies were first carried out widely recognized by both researchers and managers (Caputo & Mininno, 1996).

A firm that is pursuing the effective construction of SCM practices needs to pay attention to SCI (Kim, 2006). SCI is achieved by integration of the physical flow from suppliers to customers and the information flow in the opposite direction from customers to suppliers (Persona, Regattieri, Pham & Battini, 2007). Another factor included in the SCI is the financial flow including payment schedules, credit terms and consignment and title ownership agreements (Lee, 2000). The functions used in integration include: sharing of planning and control activities, product postponement and mass customization, collaboration with TPL partners, use of electronic data interchange (EDI) and knowledge of inventory levels (Persona et al., 2007).

The concept of SCI was provided by Lee (2000) where the foundation lies in information sharing, the next step is logistics coordination and finally organizational relationship linkage. The first step information sharing refers to sharing of information between supply chain members. Information to be exchanged contains demand information, inventory status, capacity plans, production schedules, promotion plans, demand forecasts and shipment schedules. Logistics coordination refers to shifting of decision rights and resources to the best positioned member in the supply chain. Finally no integration can be complete without organizational relationships between the companies. The relationships are maintained and overlooked with open communication channels whether it is communication over the internet or using EDI, the channels must be defined. Performance measures for both individual units and the supply chain as a whole need to be specified and integrated across the chain.

SCI was further developed by Simatupang and Sridharan (2002) to include four modes of coordination including logistics synchronization, information sharing, incentive alignment and collective learning. The first mode, logistics synchronization is the matching between customer demands and the variety of goods that reach the marketplace. To understand customer demands, plan inventory management and facilitating transportation will help to achieve a better match. Logistic synchronization also assists members to resolve role conflicts so that each member can perform their core activities which provide value to the supply chain. The second mode is information sharing, timely and accurate information is vital for decision makers. The information can be shared online using the internet or specifically developed software. A high level of information visibility between the members of a supply chain will act as the glue in the integration process. The third mode of coordination is incentive alignment. Incentives are often introduced at one stage or with a short term perspective leading to negative effects on the overall performance of the supply chain. Incentive alignment introduces incentives linked to the global performance reflecting both value creation for the customers and profitability. The last mode, collective learning emphasizes the spreading of knowledge throughout the chain and across organizational borders. Special focus is on practical learning from one another and to ensure the buy-in of key collaborators in the implementation phase.
Simatupang and Sridharan (2002) propose three forms of structures to differentiate an integrated supply chain, horizontal, vertical and lateral integration.

The horizontal integration exists when two or more unrelated or competing organizations (at the same level of the supply chain) are working together to share private information or resources such as warehouse space. The functions to be improved are highly related to order management where two types of standardizations are identified. The first refers to the information content of documents and the second to the interface of application system. Further functions to be improved in horizontal integration are warehousing and handling, packaging and unitization meaning the standardization of pallet height for the industry and standardization for the distributors in defining the number of consumer units per carton, finally transport when distributors implements co-ordinated multipack and/or multi-drop and when the number of suppliers is increasing to chose a common carrier (Caputo & Mininno, 1996).

Vertical integration includes two or more organizations (on different levels in the supply chain) i.e. manufacturer, distributor, carrier and retailer that shares their responsibilities and resources to serve customers with similar demands. A close integration of physical and information flows can result in improvements in the trade-off level of service and average stock. Functions to be improved is particularly order management by using telecom-network for the communication of documents, inventory management can be more economical using a continuous replenishment system, warehousing and handling are improved with the cross-docking method, packaging and unitization are modified using standardization of pallet measurements finally the function of transportation can implement a more rational use of couriers. Examples of systems and methods to use in improving functions are EDI, vendor managed inventory (VMI) and collaborative planning, forecasting and replenishment (CPFR) (Caputo & Mininno, 1996). The last form of integration is lateral integration which combines the vertical and horizontal forms of integration to draw benefits such as a better flexibility (Simatupang and Sridharan, 2002).

2.6 The drivers for integration in supply chain management

Mehta (2004) points out that the driving forces of SCI stem from two sources: external pressures and potential benefits from strategic SC alignment.

External pressures include forces such as: advances in technology and increased customer demand across national borders (Mehta, 2004), complying with a multitude of rules and regulations (Handfield & Nichols, 1999) and to lower costs while meeting diverse needs (Cook & Garver, 2002). Seeking a sustainable and defensible competitive advantage has become the concern of every manager who is alert to the realities of the marketplace. The bases for success in the marketplace are numerous, but a simple model is based around the triangular linkage of the company, its customers and its competitors – the “Three C’s” (see figure 2.2). The source of competitive advantage is found firstly in the ability of the organization to differentiate itself, in the eyes of the customer, from its competition and secondly by operating at a lower cost and hence at greater profit (Ohmae, 1983).
Theoretical framework

Customers

![Diagram of competitive advantage and the three C's](image)

Figure 2. 2 Competitive advantage and the three C’s (Ohame, 1983, p. 18)

These external pressures have begun shifting the focus of individual firms vying for market presence and power to supply chains competing against supply chains (Bhattacharya, Coleman & Brace, 1995). SCM involves a significant change from the traditional arms-length, even adversarial, relationships that so often typified buyer/supplier relationships in the past to a more integrated relationship. The focus of supply chain management is on co-operation, trust and the recognition that properly managed “the whole can be greater than the sum of its parts” (Christopher, 1998, p. 18).

The second source of driving forces is potential benefits from strategic SC alignment which leads to SCI. Considering strategic SC alignment, Handfield and Nichols (1999) point out: the very nature of SCM is unique. Because of the incredible complexity and scale involved in managing the flow of goods and information between multiple entities in the supply chain, there exists a broad and ever-changing set of priorities that must be managed at any given moment. As supply chain strategies evolve, managers will encounter new and challenging situations every day. Some of these challenging situations are internal and involving getting people to adopt the new way of thinking. Other challenges relate to government regulation and how to comply with a multitude of rules and regulations as goods traverse international border. Finally, there also exist challenges set forth by customers, who’s needs and requirement change rapidly and continue to escalate. These changes will require a level of responsiveness never before encountered in the business world. As the result of the changes/challenges, organizations now find that it is no longer enough to manage their organizations. They must also be involved in the management of the network of all upstream firms that provide inputs (directly or indirectly), as well as the network of downstream firms responsible for delivery and aftermarket service of the product to the end customer (Handfield & Nichols, 1999).
According to SCM literature, integration in SCM often results in many positive effects (Monczka, Trent & Handfield, 1998; Cooper & Ellram, 1993; Mentzer et al, 2001). Lowered total costs, improved service and shorter lead times are often mentioned in those literatures. Also more intangible effects, such as the wish to strengthen the company’s market position and increase its competitiveness, can be seen as driving forces for SCI.

Overall, SCI potentially creates value for all members in the chain. However, such benefits vary in importance and degree among partnering chain members (Agrawal & Pak, 2001). This variance in importance is further complicated by the potential risks strategic supply chains place upon aligned firms. In this following section, we will discuss these risks and other barriers more in details.

2.7 Barriers of integration in supply chain management

Two main categories of barriers of SCI can be identified in SCM literatures: those related to technology and those related to human beings (Christopher, 1998; Ross, 1998; Handfield & Nichols, 1999; Mentzer et al, 2001). For technology related barriers, a “collaborative technology infrastructure” (Horvath, 2001, p.206) is needed. Hoffman and Mehra (2000) discuss this problem and state that technology barriers still have to be tackled: “If there is one element that can cause the breakdown of any ‘best designed’ supply channel, it is the technology factor. In this stage, a clear understanding of the technology needs of all partners must be assessed followed by information flow planning.” (Hoffman & Mehra, 2000, p. 372)

2.7.1 Technology related barriers

There have been a large number of software applications developed to allow better flow of information integration throughout the supply chain including: enterprise resource planning (ERP) systems (developed from material resource planning II (MRPII) systems); order management systems to automate the order fulfillment process; demand planning systems for managing and monitoring forecasts; warehouse management systems for inventory management, picking and placement; transport management systems for the planning and dispatching of shipments; advance planning and scheduling systems for developing and managing production plans; customer relationship management systems for providing customer service, support and intelligence in customer demographics, data warehousing applications able to store, analyze and report corporate data stored in many different systems in customized format (Hoson & Owens, 2000, cited in Power, 2005). These systems have often been “bottled up” within parts of an organization, or even the supply chain, and have not easily been linked to one another (Hoson & Owens, 2000, cited in Power, 2005). Therefore it is important to recognize that the commonly available IT resources do not create performance gains by themselves. They require standards for integration of data, applications and processes to be implemented before real time connectivity is reached between the systems. The systems also have to be integrated with IT platforms which require significant time and expertise to develop and to embed the patterns of an organization into the IT platforms. When an IT system is truly integrated it enables real-time transfer of information between different applications and SC members (Rai, Robinson, Patnayakuni & Seth, 2006)
Theoretical framework

A powerful emerging application is XML, enabling SCI, as a “middleware” provider between many corporate legacy systems. However Hoson and Owens (2000) consider this to be a short-term solution, having many of its own limitations such as lack of scalability, a reliance on proprietary code, and limited access to useful business intelligence. Even greater problems exist in large distributed databases where there is a lack of common data definitions. Data consistency in supply chains will only be enabled through common definition of units such as customer and product. When there is consistency, the process for integration can be enabled (Rai et al., 2006).

However the systems do not have to be complicated to enable integration, the real ability of information technology to enable true integration is best captured by Christopher (2000, p. 38): “the use of information technology to share data between buyers and suppliers is, in effect, creating a virtual supply chain. Virtual supply chains are information-based rather than inventory-based.” Yet, sometimes the simplest way is the best way to communicate. Kaufman (1997) points to the fact that e-mail provides cheap and easy to use means of staying in contact with trading partners 24 hours-a-day and seven days a week.

Nevertheless, if an organization is aiming at creating a high performing IT solution, there has to be significant involvement and commitment from the whole business. Even from the departments which are traditionally reluctant to getting involved in IT. The people issue of reluctance to change and unwillingness to learn must be addressed to get the necessary cooperation. Commitment is needed because even a very competent and efficient IT department can achieve very little without the commitment from the managers and users in the business. The process of creating a high performing IT solution is also depending on earlier levels of learning, investment, resources and development activity which are not something to be augmented over a short period of time (Peppard, 2001).

There is a new issue emerging as a consequence of technological development. Horvath (2001) argues that the security aspect of the new technology is important in collaborative relationships. Nowadays, when technology has made it possible to integrate and connect actors’ computer systems rapidly and efficiently, the partners must be able to make fast and accurate decisions concerning the other company’s access to sensitive information.

2.7.2 Human related barriers

With regards to human related problems, a main barrier to SCI is the absence of a SCO towards the partners (Mentzer et al., 2001). Fawcett et al. (2008) also point out that “the people issues – such as culture, trust, aversion to change, and willingness to collaborate – are more intractable. People are the key bridge to successful collaborative innovation and should therefore not be overlooked as companies invest in supply chain enablers such as technology, information, and measurement systems.”

In addition, Fawcett et al. (2008) point out that the resisting forces to an integrated SCM come both from the nature of the organization itself and the people that compose the organization. These barriers can be classified under one of two headings: “inter-firm rivalry” and “managerial complexity” (Park & Ungson, 2001). Inter-firm rivalry is a misalignment of motives and behaviors among allying partners within the strategic supply chain (Park & Ungson, 2001). Some barriers under this category include internal and
external turf protection, poor collaboration among chain partners, and lack of partner trust. According to Park and Ungson (2001), the other barrier is the complexity or misalignments in allying firms’ processes, structures, and culture. It includes information system and technological incompatibility, inadequate measurement systems, and conflicting organizational structures and culture. As Fawcett et al. (2008) states “Because many firms are comfortable using their systems for only their own tasks, it is not surprising to see inconsistent information and technology systems as a barrier. People are change averse and unwilling to share information for fear of exposing their weakness and secrets to others.” A revamp in attitude and thinking is necessary when SCM is to be implemented across company borders (Fawcett et al., 2008). Cooper et al. (1997, p.5) commented: Successful supply chain management requires a change from managing both individual functions to integrating activities into key supply chain processes.

### 2.8 Outcomes of integration in supply chain management

#### 2.8.1 Increased supply chain competitive advantage

The integrated management across the supply chain offers the benefits of increasing the value-added by supply chain members, reducing waste, reducing cost, and improving customer satisfaction. Typically, these might be summarized as ‘better, faster, and cheaper’ (see figure 2.3). In other words, superior service quality is achieved in shorter time at a lower cost for the supply chain as a whole. These goals are significant because they combine customer-based measures of performance in terms of total quality with internal measures of resource and asset utilization (Christopher, 1998).

![Figure 2.3 Logistics performance indicators (Christopher, 1998, p. 56)](image_url)

The first advantage behind the integration in SCM is to increase supply chain competitive advantage (Monczka et al., 1998). There are two types of competitive advantage: cost leadership and differentiation (Porter, 1985). Improving a firm’s competitive advantage and profitability through SCM can be accomplished by enhancing overall customer satisfaction. SCM aims at delivering enhanced customer service and economic value through synchronized management of the flow of physical goods and associated information from sourcing to consumption. Competitive advantage grows fundamentally out of the customer value a firm creates, and aims to establish a profitable and sus-
Theoretical framework

tainable position against the forces that determine industry competition (La Londe, 1997). Thus, Christopher (2000) claims that the implementation of SCM enhances customer value and satisfaction, which in turn leads to enhanced competitive advantage for the supply chain, as well as each member firm. This ultimately improves the profitability of the supply chain and its members.

Another advantage is to improve customer service through increased stock availability and reduced order cycle time (Cooper & Ellram, 1993). Customer service objectives are also accomplished through a customer-enriching supply system focused on developing innovative solutions and synchronizing the flow of products, services, and information to create unique, individualized sources of customer service value (Ross, 1998). Low cost and differentiated service help build a competitive advantage for the supply chain (Cooper et al., 1993). Here, SCM is concerned with improving both efficiency and effectiveness in a strategic context to obtain competitive advantage that ultimately brings profitability (Mentzer et al, 2001).

The two final points leading to an increased supply chain competitive advantage is organizational learning and a greener SC. Since companies are actively working with SCM as a part of their strategic work, meaning that they work closely with partners to create value to the end customer there is a necessity in understanding and learning from each other (Fridriksson, 2008). Environmental friendly operations are an important factor today and TPL firms play an important role in creating a greener SCI (Malcolm, 1997).

In summary, the integration in SCM can bring lower costs, improved customer value, increased organizational learning and greener SC to achieve competitive advantage. In the next section, we will give some details about creating learning organizations and a greener SCI.

2.8.2 Creating learning organizations along the SC

SCI means that all actors along the SC choose to work closely to create value to end customers. Learning is an important part of getting a smooth and functional integration. Companies need to learn from each other to create a joint understanding or knowledge of how to conduct the business. Companies need to be more open to share and create knowledge together (Fridriksson, 2008).

Knowledge, which accumulates as a result of learning from research and experience of all the actors along SCs, is also seen by some to be the most valuable asset of the firm. Knowledge relating to the activities of the business helps a firm to maintain a sustainable competitive advantage, long after the value of any particular capital assets has diminished. Yet learning and the creation of knowledge and the subsequent application of it are essentially the achievements of people. The argument, therefore, leads back to human assets again (Malcolm, 1997).

The importance of learning should not be underestimated, particularly in times of more rapidly changing environment. Learning and the creation of knowledge is extremely important for all the actors along SC in a dynamic or turbulent environment where the management of change becomes a vital priority. To keep updated is vital for firms to survival in today's ever-changing environment where we find heightened competition in
world markets, shorter product life cycles, more varied customer demands and rapidly changing technologies, making it less likely that firms can remain isolated from them at least in the long run. Slower, incremental change may be adequate strategy in some circumstances. But other firms may need more radical step changes in order to cope with circumstances of their environment (Malcolm, 1997). In another word organizational learning is essential.

Organizational learning could be described as an organization where testing, reflecting and mutual learning is normal aspects of the work, and in which learning provides an input to individual satisfaction and enables the organization to be innovative and productively adaptive. Such organizations are called Learning organization (Watson, 2001).

Learning organizations continuously acquire process and disseminate throughout the organization knowledge about markets, products, technologies, and business processes. This knowledge is based on information from customers, suppliers, competitors, and other sources. Through complex communication and coordination processes, these organizations reach a shared interpretation of information that enables them to act swiftly and decisively to exploit opportunities and defuse problems. These organizations stand out in their ability to anticipate and act on opportunities in turbulent and fragmenting markets (Rohit, 1999).

Learning organizations are capable of regenerating knowledge, experience and skills of the personnel within a culture that support mutual questioning and provide a shared purpose and vision. The management of companies should encourage processes that release knowledge in individuals and encourages the sharing of knowledge. With such processes in place organizational changes will be embraced more quickly and employees will become better equipped for identifying potential opportunities. Since information and relationships within an organization are both horizontal and vertical, the management should address the importance of social networks where interest groups cooperate and learn from each other. Many new ideas on how to improve operations arise from within an organization and along the SC. By creating an environment that embraces these ideas the company can form and sustain a competitive advantage (Johnson, Sholes & Whittington, 2005) which can benefit the company itself and other actors along the SC.

2.8.3 Creating a greener supply chain

Because the nature of SCI is cross-functional and integrative and since so many logistical activities impact on the environment, it makes sense for all the actors along SC to take the initiative in this area. Logistics has been a missing link in providing green products and services to the consumer. An integrated SC will be greener if the value adding logistics activities also become green. TPL firms play an important role in creating a greener SCI (Malcolm, 1997).

Value adding activities by TPL firms such as cross-docking, proper mode selections, freight consolidation has profound impact on the environment (Wu & Dunn, 1995). Similarly, Bucholz (1993) points out that managers along SCI need to understand environmental management and its implications for the business, respond to increasing consumer demand for “green” products, comply with ever tightening environmental regula-
Theoretical framework

tions so that environmentally responsible strategies can be developed and proper actions framed to minimize total environmental impact.

2.9 Summary of the theoretical framework

The theoretical framework started with presenting the network approach which is the underlying theory to describe the threads which create relationships between the different actors in the supply chain. Since all actors are connected through threads a change in the network will not only affect one actor (Holmlund & Törnroos, 1997). The change will also have an impact on the other actors and the links will be adjusted to the change (Tikkanen, 1998). The framework continues by emphasizing on the challenges of managing a dynamic TPL arrangement. New customers are added and old suppliers are dropped from the supplier structure which means that the companies have to remain flexible and be ready to adapt to new circumstances (Gadde & Mattsson, 1987).

In these dynamic situations with a highly competitive environment it becomes even harder to create customer loyalty (Tolhurst, 2001) and it should be recognize that the relationship between all supply chain members does not have to be “one size fits all” and the level of integration should level depend on the partnership (Dyer, Cho & Chu, 1998).

For the partnership to create a competitive advantage it should be featured by trust, openness, shared risk and rewards (Handfield & Nichols, 1999). If the relationship manages to achieve these goals the partnership can reduce risk and uncertainty while maintaining flexibility. Creating a collaborative atmosphere with mutual trust, risks and rewards between supply chain members is the core message of SCM. SCM is defined as “the systemic strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole” (Mentzer et al., 2001, p.18).

To further develop the TPL firm’s role in facilitating integration the theory gave an overview of different definitions used to explain the concept of TPL. The definition by CSCMP and Vitasek (2008) emphasizing on integration of logistics services was considered suitable for our purpose. TPL companies have logistics expertise and can offer cost advantages to other firms since they relieve clients from tied up capital in warehouse and logistics related material such as trucks (Bolumole, 2003). The TPL firms also have the expertise and knowledge of the service supplier and therefore have the opportunity to be integrated as “tools” used by their customers and to be an actor of supply chain integration (Fabbe-Costes et al., 2009).

A firm that is pursuing the effective construction of SCM practices needs to pay attention to SCI (Kim, 2006). SCI is achieved by integration of the physical flow, the financial and sharing of planning and control activities, product postponement and mass customization, collaboration with TPL partners, use of EDI and knowledge of inventory levels. Mehta (2004) points out that the driving forces of SCI stem from two sources: external pressures and potential benefits from strategic SC alignment to achieve a competitive advantage. SCI is not always easy and two main categories of barriers of SCI can be identified in SCM literatures: those related to technology and those related to
human beings (Christopher, 1998; Ross, 1998; Handfield & Nichols, 1999; Mentzer et al., 2001). The theory continues by describing the positive outcomes of SCI such as creating competitive advantages (Monczka et al., 1998) through cost leadership or differentiation (Porter, 1985), a learning organization (Watson, 2001) and a greener SC (Malcolm, 1997).
3 Method

In this chapter we will discuss the main perspectives, the research strategy, basic methodological and procedural considerations. Some methodological considerations for the study are discussed and the practical performance of different activities in the study is explained. Furthermore, remarks on the validity and reliability are given.

3.1 Research design

Brannick (1997) points out that the decision-making about a specific research strategy is constrained by the nature of the research problem, the background of scientific research and theory relevant to the problem. However, all research processes consist of some predetermined phases (Jacobsen, 2002). We will take you through the different phases and describe the consequences of the choices which were made. The figure 3.1 illustrates the different phases. Our research uses a qualitative approach which is why we focus on describing the qualitative features but also comment on the quantitative approach.

As stated in the figure 3.1 by Jacobsen (2002) the first three steps, developing the problem formulation, choosing the set up of the research and choosing the method approach are roughly the same whether using a qualitative or quantitative approach.

Yin (1989, p.17) states that it is the character of the problem or task to be resolved that is the deciding feature of a research problem.

To develop a problem formulation is an important choice where we limit ourselves and what we want to examine. This also means that some aspects are eliminated when the problem formulation is set. Since qualitative studies are about people and groups of people it is important to delimit in the problem formulation who or which group the research should focus on as well as in what context (Holme & Solvang 1997).

Figure 3.1 The research process (Jacobsen, 2002, p. 60)
Every problem formulation is also aiming at developing the interest in a specific limited topic (Jacobsen, 2002). The problem which was formulated in the first chapter clearly indicates that the research is focused on TPL firms in the context of supply chain integration.

The research design should be guided by the problem formulation but restrain from formulating a hypothesis. The initial understanding the researchers have about the problem could naturally lead to the researchers thinking that they know all about the problem’s character. The authors should keep a natural approach to the problem and be open for new possibilities (Holme & Solvang, 1997).

Before starting this thesis we have read material about SCM, TPL firms and integration however we do not claim to have full knowledge about the subject and can therefore be open minded to unexpected results and discoveries.

There are two dimensions to a research design described by Jacobsen (2002) the first one is when the research goes wide (extensive) or in depth (intensive) and the second dimension is when the research is describing (descriptive) or explaining (causal). This research is intensive because it as Jacobsen (2002) states wants to get close to a phenomenon by interviewing a few people more closely. A more extensive research is not suitable because individual differences and nuances disappear. In the second dimension the research is mainly descriptive which is the most common form and studies the reality at a specific time. This form also suits our time frame since we do not have the time to wait for new data which could take years and we do not have to interview more than once which would be required in a causal research.

### 3.2 Quantitative method

The quantitative method is characterized by a precision where the researcher strives for a maximal reflection of the quantitative variation. The quantitative method goes broad in the perspective by using a small amount of information about many units with structured interviews like a questionnaire with a fixed set of alternatives. There is a great interest in the common factors, the average and the ability to be able to generalize (Holme & Solvang, 1997).

After the method has been chosen the quantitative method consists of four steps shown in figure 3.1. The first step involves how to collect the information. A big part consists of the development of interview questions and how to conduct the interviews though phone or through the mail. The second step is about choosing a representative selection for the purpose. In the third step the analysis of the collected material plays a big role and finally a discussion about the quality of the results should be held (Jacobsen, 2002).

The quantitative research approach was determined not suitable for our purpose since quantitative studies emphasize the measurement and analysis of casual relationships between variables, not processes (Denzin & Lincoln, 2003). Quantitative methods also examine large number of units with a standardized and structured questionnaire to go wider not deeper to be able to focus on the average (Holme & Solvang, 1997). Since we want to go deeper on a specific phenomenon this was a second reason for not choosing the quantitative research approach.
3.3 Qualitative method

Qualitative research is defined as a form of social inquiry that focuses on the way people interpret and make sense of their experiences and the world in which they live. The aim is to understand the social reality of individuals, groups and cultures. Researches use qualitative approaches to explore the behavior, perspectives and experiences of the people they study (Holloway, 1997).

The purpose of this thesis is to study and uncover the role Schenker logistics has in supporting supply chain integration with its customers and suppliers to gain a deeper understanding of the phenomenon. When the purpose of the research is to gain a deeper understanding and uncover a role Holme and Solvang (1997) state that it is appropriate to use a qualitative research model because the qualitative research model has its strength in the ability to be open minded about unexpected results. The qualitative approach also give nuances to the situation and obtain rich information from the interviews to be able go deeper in a phenomenon.

According to Jacobsen (2002) there are four steps to a qualitative method after the choice of method has been made (figure 3.1). Step one is to decide how to collect information both primary and secondary. The most important part of primary data collection is observations, individual interviews and the group interviews. In collecting secondary data it is important to evaluate the relevance of the data. In the second step we have to decide who to interview or observe and the possible effects this has on the research. The third step involves how to analyze the collected data, which methods will be used to get an overview of the material. The fourth step puts emphasize on the trustworthiness of the results and the relevance for the purpose. The last step involves analyzing possible interpretation mistakes and other problem which might have occurred during the research phase this last step is the same for choosing qualitative or quantitative approach.

3.4 Data collection

The sources for this master thesis are interviews, relevant literatures and documents provided by Schenker logistics and their internal databases. As McCutcheon and Meredith (1993) mentioned, the data may be collected from primary sources or secondary sources due to the purpose of why the data is collected. The primary sources are the empirical material, provided by Schenker logistics and its supplier Nexans and its customer Relacom through in-depth interviews. Secondary sources are articles, facts and literatures that relate to the thesis subject. These sources provide a foundation from which to interpret the subject and the empirical data.

3.4.1 Primary data collection

The primary data collection for the study started with interviews of key personnel at Schenker logistics, interviews were also conducted with personnel at Nexans and Relacom. Since this thesis is qualitative research oriented, primary data were collected from interviews via face to face, telephone and e-mail correspondence with key persons at the companies (referred to as the respondents).

The respondents we interviewed are three persons with high knowledge and experience in the logistics area to make sure that they would be able to answer our questions.
Method

The first interview was a personal interview with Bengt Sjöberg who is the manager at Schenker logistics AB in Nässjö. We prepared the interview with Bengt by visiting the site in Nässjö and talked to personnel working there to find out if it would be possible to find relationship with a customer and a supplier in the same chain. Based on that visit we could go more in depth about the relationships at the interview.

The second interview was a telephone interview with Per-Magnus Johansson in Grimsås who works for Nexans. Per-Magnus has been working for Nexans for 25 years and with order planning for about 13 years. Per-Magnus has been involved in the relationship with Schenker logistics since it started in 2003.

The third interview was with Magnus Rickman who is the head of logistics at Relacom. The interview was initially intended to be a phone interview but it proved troublesome to find a time that suited therefore the questions were sent with e-mail and Magnus responded the same way.

To gather information through interviews is a common way of collecting data in many different contexts and therefore it is important to clarify which type of interviews will be conducted, how the people to interview will be identified, contacted and convinced to participate in the study. Moreover it is important to know which type of interview technique is appropriate, how the material will be registered, reviewed and analyzed (Lundahl & Skärvad, 1999).

Yin (2003) gives a classification of three types of interviews. They are unstructured interviews, semi-structured interviews and structured interviews. The first type, the unstructured interview, also called an open-ended interview. In open-ended interviews, the interviewer names a general subject area or theme to the respondent and the interviewer is responsible for facilitating discussion, providing remainders according to issues already expressed by the subject or probing deeply into discursive elements already expressed. The second type of interview is called a semi-structured interview. In a semi-structured interview, the same principle is followed as open-ended interviews. The distinction between a semi-structured interview and an open-ended interview is that in a semi-structured interview there exists a structure guide which consists of a list of questions derived from the theory facilitating the research to bring up a series of subject areas defined in advance. The interview questions may not follow exactly those predetermined lists of questions and questions that are not included in the guide may be asked if the interviewer considers them valuable for the research. However it is important to always let the respondent finish the statement before asking new or further developing questions. The last type of interview is called a structured interview or formal survey involving more structured questions. This type of interview is more commonly used to produce quantitative data.

According to the purpose and nature of the thesis, semi-structured interviews have been carried out in this thesis. The choice of semi structured questions is also based on the arguments from Jacobsen (2002) that the open individual interview is best suited when there is a few numbers of respondents, when we are interested in the individual person’s statements and when we are interested in how the person interprets and put meaning to specific phenomenon.

During the interviews we let the respondents speak freely about the subjects we were asking about. We were careful not to ask follow up questions or additional questions to
get a deeper understanding before the respondent had finished the current statement. Before carrying out the interviews, the authors designed an interview protocol, decided the subject areas, and formed an interview guide with interview questions which served the purpose for the thesis. The interview questions were adjusted slightly depending on who the respondent was, the interview guide can be found in Appendix 1.

The process of arranging interviews is a vital part to ensure an effective data collection and one of the first things to think about is where the interview should take place. All environments will affect the interview in one way or another, called the context effect, and it is therefore important to be aware of the affects. There are two main choices: a natural place for the respondent and an unnatural. A natural place could be at the respondent’s home although many people do not want to let strangers into their private life. The unnatural place could be at the respondent’s work place which would be more common but could lead the respondent acting more forced and give more forced answers. After the interview we have to be able to remember what has been said to perform the analysis. To use a tape recorder is a good way to ensure quotations and a complete word by word transcription but we have to take into considerations the effects the tape recorder could have. A respondent who is uncomfortable with the recorder might freeze and give short uninformative answers. The last thing to consider is the length of the interview and it is hardly ever wise to keep going for more than 1h-1,5h as both parties get tired and lose concentration (Jacobsen, 2002).

The first interview we conducted took place at the respondent’s workplace in a conference room. To choose a natural place was never an option since we scheduled a meeting during business hours and the respondent made use of the company’s intranet to show presentations. The respondent looked at ease and relaxed in the setting, though we are aware of the impact of the unnatural setting and our use of a tape recorder. The interview which lasted for 1,5h felt comfortable.

At a personal interview, the conduct of the interviewers can have a significant importance. In order to get information which is relevant to the research trust must be established. Trust is usually developed over time but there are things we can do not to destroy the initial level of trust. The introduction is important to give the respondent an overview of the research and how it will be presented; it can also be good to start with some general questions to get the interview going. When the respondent is talking the interviewers should listen and not interrupt even if the information is not 100% relevant for the purpose. If the respondent talks for a long time nod and take notes to show that you are listening, this makes the respondent more confirmation that you are listening. If something was unclear or in need of further description further development is necessary. However the most important thing to remember is that people are different and the interviewers should adapt to the situation (Jacobsen, 2002). After the interview is finished the material should as fast as possible be revised and presented as an interview protocol, otherwise details of the interview will soon be forgotten (Lundahl et al., 1999).

At the first interview which was personal we could use the trust which had been built during previous meetings and the respondent had made a previous acquaintance with us as well. We started the interview with general questions about the company and some history which made the respondent open up and share information relevant for our purpose. A tape recorder was used during the interview which was agreed by the interviewees. Some interviews were performed via telephone but this was considered as a secondary option due to the lesser interactivity and expressiveness of the medium. We tried
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to always let the respondent finish talking before asking a new question and even though we were using a tape recorder we showed interest by taking notes at the same time. The tapes and notes were transcribed shortly after the interview.

The second interview was a phone interview and as Jacobsen (2002) states there are some negative aspects of a phone interview. Like that fact that it can be harder to get a personal connection with the respondent and that it is easier for the respondent to lie during a phone interview. However the positive effects from a phone interview were more important in this case in part because the respondent asked for a phone interview and in part because we did not have the opportunity to travel. Other positive effects from a phone interview are that the respondents can remain rather anonymous which reduces the interviewer effect (Jacobsen 2002).

The phone interview was transcribed directly after the call with the use of notes which had been taken during the interview. Since the respondent had had time to look through the question the answers where well structured and thought through which made transcribing the interview much easier.

The last interview was conducted using e-mail which we recognize is not the most appropriate qualitative way of conducting an interview since it is more a quantitative approach. The choice of e-mail was made after several failed attempts to have a phone interview and at the respondents own suggestions. Even though the interview was conducted using e-mail we had extensive contact with the respondent over the phone which is said by Jacobsen (2002) to be the main difference between qualitative and quantitative data collection in which there is no contact at all. Therefore we feel that the interview can be used in our qualitative method.

Swedish was the main language in interviews since all the respondents are Swedish. Bryman and Bell (2007) also point out that using primary language can create more efficient communication. The English interview questions were translated into Swedish before the interview. To ensure correct translation of the interview material, the transcript was first written in Swedish and then translated into English. Since both authors can speak and write English and Swedish fluently, language is not considered to be a barrier for the thesis.

3.4.2 Secondary data collection

While the primary data is about collecting new data about a specific phenomenon there could already exist secondary data relevant for the purpose and the thesis. When using secondary data it is important to take a critical approach when reviewing different sources, secondary data should be relevant, accurate and available. The data should be relevant in the sense that it corresponds with the purpose, most of the time the data is not tailor made for our specific topic and that leads to limitations in the usefulness. Secondary data should be accurate which corresponds to the competence of the author of the material and we have to ask ourselves if the author or publisher has an interest in distorting the material as a final security we can use more than one source which describes roughly the same situation. The last criterion of the secondary data is that it should be available for others to find the same source by using the reference list (Jacobsen, 2002).
When collecting secondary data we used scientific research databases as search engines which we find to satisfy the criterion of both accuracy and availability. The key searching words in literature study were integration, supply chain integration, TPL, SCM and combinations of these. The key words led us to finding relevant information however a selection was sometimes necessary when there were too many results. Most of the articles have been found from ABI/Inform, Emerald, Elsevier Science Direct and Google Scholar. The Jönköping University Library database was also used in order to find relevant text books about our subject. Most of the sources were in English. Only little part of the information was needed to be translated from Swedish to English for the thesis. This is however considered to be a minor problem due to the experience and skill level of the authors. At the end of our thesis the reader will find a reference list from which it is possible to find all the sources of information.

3.5 Selection for interviews

During a qualitative approach interviews will only be performed with a few respondents which leads to that we cannot make a representative selection with just a few respondents however the goal with qualitative research is not to make generalizations but rather to clarify a phenomenon (Jacobsen, 2002).

Jacobsen (2002) suggests several approaches for selecting the respondents to an interview i.e. random selection, typical selection, extreme selection and the snowball method. Of course it is also possible to combine different approaches, which is both a common and adequate method. First the authors should select a rough number of interviews to be conducted limited by time and resources. Then make a random selection from the decided number, the selection should be guided by creating variation. During the interviews take the opportunity to ask the respondent for other respondents to interview using the snowball method. The criteria from which the respondents are chosen should always be guided by the purpose.

To get in contact with the right people for an interview is time consuming and troublesome. A letter is often disregarded and to make contact using the phone is not always appreciated by the company, an alternative could be to use mail. When the potential interview person has been located he or she must be willing to put aside time for the interview. If the interviewers already during the first contact have a professional approach and offers a copy of the finished study the respondent might be more willing to find time for an interview (Lundahl et al., 1999). Literature suggests that senior managers should be contacted first when conducting interviews since they have the authorities, giving permission to continue your research at their company, knowing who the best respondent for your research is and providing senior support in latter research (Voss et al., 2002).

As stated above the selection of respondents should be guided by the purpose and since our purpose is to study the role of Schenker logistics in supporting SCI with its customer Relacom and supplier Nexans therefore we chose respondents from the three different companies involved. The reason why we chose to focus on Schenker logistics as the TPL firm is mainly out of convenience, we had made a field trip to Schenker logistics during our education and thereby established a first contact. We felt that it was important to find knowledgeable people with theoretical understanding who would be able to contribute to the purpose and thus we selected logistics and supply chain managers. The first person we interviewed was the manager of Schenker Logistics AB Nässjö. We
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made use of our previous meetings when we by phone contacted the first respondent who had no problem of participating in an interview. We then made use of the snowball method and the first respondent could refer us to the other managers at the customer company Relacom and the supplier company Nexsans.

3.6 Analysis of the empirical material

When it comes to the qualitative approach the analysis is one of the biggest worries due to the size and the unstructured shape of the material. Therefore it is necessary with structure and organization of the collected material (Holme & Solvang, 1997).

The analyze process as described by Jacobsen (2002) includes three steps:

1. Description, the researchers should as far as possible get a thorough and detailed description of the data rich on details, nuances and variations.

2. Systematization and categorization, involves reducing the material to make it suitable for analysis and to group the material in themes with resemblance. It is necessary to make a reduction of the material to get an outline the detailed description is too comprehensive and rich for us to get an overview.

3. Combination, when the material has been reduced we can start to interpret the data and search for meaning, causes and descriptions. This is where the researcher can go beyond what has been said or done to analyze the underlying meaning and maybe to most interesting relationships.

When using the qualitative approach the three steps describe above do not have to be in that precise order in time. As the research develops and new ideas are formed the analyze process changes and some coding and categorizing is done right from the start of the process (Jacobsen, 2002).

All the interview material, the tape recording, notes and additional brochures and pamphlets were gathered to conduct the first step and get a rich detailed description of the data. After transcribing material from the interview and the brochures and making sense of the notes the raw material was reduced and clustered into groups of themes. The themes were based on the interview guide where the questions we asked were directed toward different themes. The information is presented in the empirical chapter where it was made into a fluent understandable text. In the final step the material was analyzed using the theoretical framework to draw appropriate conclusions.

3.7 Trustworthiness of the results

How trustworthy the results are is often judged by the concepts of internal, external validity and reliability (Jacobsen, 2002).

The internal validity is based on two control methods: number one is to compare the results and conclusions to other people’s results by asking the respondents in group or individually to comment the results. This requires respondents to actively take part of the research and give an individual reaction. The researchers can also compare their results to the results of experts in the field or by using method triangulation. When using method triangulation the same problem formulation is studied using different methodolog-
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cal approaches. Number two, the researchers themselves should critically review the most central phases of the research process. The phases to review are if the most appropriate sources for our interviews and theory were found and if they delivered true information, if the categorization was done according to the data and if the analyze process leads up to real results. External validity describes to what extent the results can be generalized on a bigger population. However, when using the qualitative approach the purpose is not to generalize, but to say something about a phenomenon. Therefore the qualitative approach is good at uncover general phenomenon which we can generalize from an empirical or theoretical point of view but not to make generalizations on a bigger population or frequency (Jacobsen, 2002).

We feel that our internal validity is of satisfying quality because we managed to get in contact with knowledgeable respondents with managerial responsibilities. The categorizing was made according to the theory. Through critique from tutors and opponents we were made aware of difficulties and could make improvements.

When critically reviewing the reliability the researchers acknowledge that the design of the research could have affected the results. The first thing which could have affected is the interviewer effect. The style and content of the interview is inevitable affected by the clothes, body language and personality. It is said to be virtually impossible to control the interview effect and the researchers can only be encouraged to reflect up on the matter. The context effect is the second thing which can affect an interview and it is said that people change their behavior depending on which type of environment they are in. There are both negative and positive aspects of an artificial or a natural environment however most often the choice is made to conduct the interview in an artificial environment which makes it extra important to create a good level of trust. The last thing which could affect the reliability is negligence in transcribing and taking notes during the interviews which could be to a large extent be eliminated through the use of tape or video recorders (Jacobsen, 2002).

During the first interview at Schenker logistics we feel that there was a high degree of trust due to previous meetings and so the context effect could be minimized. With the use of a tape recorder we could accurately transcribe the interview and once the transcriptions were done we reviewed the tape once more to look for parts missing and mistakes. During the other interviews the level of trust was lower however since we had used the snowball method the respondents at Relacom and Nexans were aware that we would call and from who we go the contact information which increased the level of trust. The material from the interviews were translated and transcribed directly after the interviews to ensure the quality accurateness.

With one author who has a background of working at Schenker logistics with order handling at the logistics department we feel the need to bring up the issue of objectivity. The researchers could by being bias effect the results of the interview, the only rational way to deal with this kind of problem is to ensure that the work and results are constantly evaluated during the whole process within the work group and by tutors at Högskolan i Jönköping (Holme & Solvang, 1997). By always naming the reference and by keeping the possible effects of being objective in mind objectivity issues is considered to be of minor influence to the thesis and the research.
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3.8 Interpretation of the results

The interpretation can be done by taking the results from the research and place them in a bigger context by i.e. using theory. By using theory we can get a perceptive of why a phenomenon exists and which the consequences could be, this leads to a greater understanding of the empirical material and the results. When using theory there is always a danger of reading too much into the results and to draw conclusions for which there is no data and it is therefore important to reach coherence between the actual results and the results we think exists (Jacobsen, 2002).

When choosing one specific method it is important to also be aware of the negative aspects of that method and the trustworthiness, we choose the qualitative approach because it was useful for our purpose. The qualitative method has a purpose to capture the specific features in the unit which is studied and the information which is gathered depends to a great extent on the source of information. The situation should be as close to the everyday situation as possible which makes the information trustworthy but not necessarily valid for others. Through a careful testing of the questions followed by corrections and improvements the researchers can remove large parts of this problem even if it can never be eliminated completely (Holme & Solvang, 1997).

We are aware that by choosing the qualitative approach we are not able to generalize our findings to a bigger population and the results are very much dependent on the source of information. The source of primary information in this thesis comes from no more than three companies which could affect the results and should be kept in mind when reading the conclusions. However we feel that due to lack of resources and availability of participants the respondents which we could interview fulfilled our purpose in a satisfying way.
4 Empirical material

*The empirical chapter will present Schenker logistics, Nexans and Relacom, as well as give further information about their relationship. The material from the interviews is divided in supply chain integration, drivers, barrier and outcomes leading to the role of the TPL firm and dynamics in partnerships.*

4.1 Introduction

In our thesis, we will analyse a supply chain which includes the following actor: the third party logistics firm Schenker Logistics AB, the customer Relacom and the supplier Nexans. However the relationship is not as simple as it seems since Relacom is also a second tier customer to Nexans and Nexans is not only a first tier supplier to Schenker logistics but also one of the main suppliers for Relacom. The thesis we will introduce the relationship from the focal company Schenker logistics’ point of view and will therefore focus on the customer relationship to Relacom and the supplier relation to Nexans.

We will start with an introduction of the actors to create a better understanding of the companies represented in the supply chain, about the industry they are operating in and about the relationship in this supply chain.

4.2 Company introduction

4.2.1 Schenker logistics AB

Schenker AB offers everything from land transportation and international sea- and air-freight to consultancy services and storage and logistics solutions. The goal is to be the number one supplier of environmentally sustainable solutions in the world. Schenker logistics is a part of the global Schenker group and thereby has access to one of the world’s leading networks in transportation and logistics. Schenker logistics develops, markets and produces advanced logistics solutions so called third party logistics. The solutions are developed according to the customers’ needs, in that way the customer can receive help to a complete control over the total logistics flow and increased turnover. Schenker logistics has about 420 employees in logistics centers at strategic locations in Sweden and a total warehouse surface of 130 000 square feet (Schenker, 2009).

4.2.2 Relacom AB

With about 17 000 employees in 17 countries Relacom is the leading, independent and global supplier of net based solutions. The business concept includes exceptional, field – managed network services at home, in offices and networks. As well as performing construction, installation and maintenance services being an independent player. Since Relacom is an independent player they can achieve unique synergies, cost savings and quality improvements on a global and local level for many leading telecom operators and system suppliers. Relacom has the ability to be a long- term outsourcing partner or as a partner for specific projects. Relacom’s headquarter is located in Stockholm, Sweden. As an example of an outsourcing agreement is TeliaSonera, the leading telecommunications company in the Nordic and Baltic countries offering voice, image, data, information, transaction and entertainment services. TeliaSonera outsourced all the con-
struction, installation and maintenance of fixed and mobile networks which included customer access and equipment for residential and business customers. Relacom now handles all on-site services like customer exchanges, data communication whether telephones or anything else sold by TeliaSonera. TeliaSonera need to ensure high quality and efficiency for services to customers and therefore the satisfaction of the customers and the technicians’ service out in the field is constantly measured to ensure a long term relationship and a stronger competitiveness (Relacom, 2009).

4.2.3 Nexsans IKO Sweden AB

Nexans is a world leader in the cable industry and offers an extensive range of cables and cabling systems which make life more livable, safer travel and more efficient work. Nexans address market segments such as energy, transportation, telecom networks, shipbuilding, nuclear power and aeronautics. And supply cables and network solutions to small residences as well as public office buildings and big industrial complexes. Nexans is present in more than 30 countries, employs 21,000 people and had a sale in 2006 of 7, 5 billion Euros. With the Swedish main company Nexans IKO Sweden they are one of the broadest cable manufacturers and suppliers in Sweden. The company is located in Grimsås in Västergötland and has about 500 employees. The company in Sweden constitutes and important production resource for Nexans in the power and telecommunication cable area. Grimsås is also the logistical center for the Nordic and Baltic countries as well as marketing divisions for all the sales in Sweden, Denmark, Finland and the Baltic countries (Nexans, 2009).

4.2.4 Background information

It is very important to know the historical relationship among all the actors involved in this supply chain otherwise we cannot understand when, why and how the integration started and how this integration develops over time.

Schenker logistics is as stated earlier the TPL firm supporting two companies which both have operations in the telecom industry, Relacom and Nexans. In this particular supply chain the telecom operator is TeliaSonera, however to study the role of TeliaSonera is not the purpose of this thesis but to provide a better understanding a presentation together with figure 4.1 is provided.

Schenker logistics acquired the warehouse business deal from TeliaSonera when they decided to move their central warehouse to Nässjö in 1978. Earlier the central warehouse of TeliaSonera had been located in Älvsjö. TeliaSonera like other companies are constantly searching competitive advantages by focusing on their core competences and outsourcing other activities which are not considered core competence. TeliaSonera found that warehousing was not their core competence and therefore in 1995, TeliaSonera sold 25% of the warehouse to Schenker logistics. By continuous negotiation and acquisition, by 1997 Schenker logistics became the total owner of TeliaSonera’s central warehouse and the name was changed to NLV Logistics Village AB. Later the name was changed to Schenker logistics Nässjö. Even though the ownership was changed, the business was still maintained in Nässjö. Schenker logistics still took care of part of TeliaSonera’s warehouse. But there were some changes. TeliaSonera decided to outsource all the cable related work to Relacom. Relacom decided to outsource all the cables and cable related components to Schenker logistics. Schenker logistics is responsible for Re-
Empirical material

Relacom for the purchasing and invoicing of those materials. Still, Relacom maintains the power by deciding prices and suppliers (through a general agreement with the supplier) of the materials they outsources to Schenker logistics. For example when Relacom needs a new component, Relacom sends the information to Schenker logistics, Schenker logistics sends out this information to all the relevant suppliers. When Schenker logistics receives all the quotations from the suppliers, Schenker logistics sends the results back to Relacom. It is up to Relacom to decide at which price they want to pay and which supplier they want to have. Once the supplier is decided by Relacom, Schenker logistics does the operational job: taking care of purchasing order and EDI invoicing to make sure that both the information flow and material can flow work out smoothly.

Then Nexans comes into the picture. Nexans has managed to be the major cable suppliers for Relacom over all the years. Schenker logistics takes care of the transport, storage and distribution of these products for Nexans. Value-added activities such as cutting cables to the pre-ordered lengths are also taken over by Schenker logistics.

To improve the understanding for the reader a short presentation of TeliaSonera will follow: TeliaSonera offers telecommunication services in the Nordic and Baltic countries, but also in Eurasia including Russia, Turkey and Spain. The company offers both private and business customers a way of communicating in a simple, efficient and environmental friendly way. TeliaSonera is the leading supplier of telecommunication services in Sweden and the services are marketed under the brand names Telia, Halebop, Skanova and Cygate. Telia offer a wide range of telecommunication services and they have a nationwide telecom net. Telia also have their own stores, customer service and local retailers. The brand Halebop is used to market mobile services to the younger population. Skanova offers unrefined copper and fiber products on equal commercial terms to all operators in Sweden and is responsible for modernizing by increasing the fiber network. Cygate is offering platforms to businesses that want to handle all their communication in one solution with the highest possible security and accessibility.

The relationships between the above mentioned companies can be showed in the following figure 4.1:
Figure 4.1 The relationship between the actors in the supply chain.

Here:

1: TeliaSonera is a direct customer of Schenker logistics. TeliaSonera outsources part of its warehousing to Schenker logistics. (We will not put emphasis on this part since it does not serve the purpose for our study.)

2: TeliaSonera is also a second tier customer to Schenker logistics. TeliaSonera outsources all the cable related work (such as installing cables) to Relacom.

3. Relacom is a first tier customer to Schenker logistics. Relacom outsources purchasing and invoicing of all the cables and cable related components to Schenker logistics.

4. Schenker logistics as a TPL firm purchases materials for Relacom from Nexans which is the main supplier for Relacom. At the same time Nexans outsources part of its warehousing, distribution and transport to Schenker logistics.

The TPL firm Schenker logistics plays an important role in this SC and acts as a bridge among SC members. In this thesis Schenker logistics provides services like purchasing, EDI invoicing, distribution, transport, warehousing to its partners Relacom and Nexans. Many other value-added services showed by the following figure can be provided by Schenker logistics as well. Some of these services are not directly relevant to our research, so we will not go deeper into details on each service showed in the figure 4.2.
4.3 Supply chain integration

In the SC we study, the SCI is achieved by integration of the physical flow started from supplier Nexans to customer Relacom and the information flow started in the opposite direction from customer Relacom to supplier Nexans via the TPL Schenker logistics. Financial flow such as payment schedules, credit terms and consignment is included in the information flow. The following figure 4.3 gives us a picture on how this SCI works.

Figure 4. 3 The SCI between the actors in the supply chain
Relacom place the order in the Movex system; employees at Schenker logistics go into Relacom’s Movex system, sorting out the orders and send them into different suppliers. Nexans is one of the major suppliers. When Nexans receives the order via Movex system, they either sends the goods direct to Relacom or ask Schenker logistics to send the goods to Relacom if Schenker logistics has them in the warehouse, since Schenker logistics take care of part of Nexans’ warehousing and inventory.

A purchasing order (Appendix 2) involving the three actors can give us a glimpse on the SCI we stated above. Information such as buyer, supplier, the contact person at Schenker logistics, order number, article number, payment schedules, credit terms and consignment can be seen from the purchasing order. The TPL firm Schenker logistics acts as a bridge between buyer Relacom and the seller Nexans. Schenker logistics take totally charge of the coordination between Relacom and Nexans. When anything goes wrong between Relacom and Nexans, Relacom will direct turn to Schenker logistics for help. Similarly, Nexans will contact Schenker logistics direct when things need to be changed or they need emergency help. We take the purchasing order for example: Even the contact persons from the three companies are always there in the purchasing order, actually only the employee at Schenker logistics takes care of the coordination between the buyer and the supplier. When anything goes wrong or anything need to be changed, employee at Schenker logistics has to handle these changes (delivery date, price etc.). For example when Relacom wants an emergency delivery of some kind of cables from Nexans, they will never call Nexans. They call Schenker logistics instead, partly because Schenker logistics has all the contacts and knowledge of Nexans, partly because Schenker logistics may have that component in the warehouse and can deliver that component direct to Relacom in couple of hours.

Schenker logistics believes that integration of different actors in a supply chain is important and states:

“there has to be some level of integration otherwise the relationships definitely would not function”

“If you do not integrate there is a big demand to have manual routines and like everything which is manual it has its shortcomings. If you do not have documentation for every situation in a manual setting and a full back up when someone get sick or has a long vacation mistakes are going to happen. Someone will forget the proper order of managing the daily work; like that you have to sign after you have done something.”

Since Schenker logistics thinks that integration is very important they are actively working to achieve integration between the actors by listening to what the customer wants them to do and work out a solution which might suite both the customer and Schenker logistics better than the original plan. Sometimes Schenker logistics can together with the customer develop a solution based on even more integration however most of the time the customer claims that they know best and is not willing to listen to other suggestions.

Nexans agree that integration between the different actors is important; to keep the customers satisfied, to increase the sales for Nexans and to create a win-win relationship. Per at Nexans believes that the importance of win-win relationships is increasing when the number of special orders from the customers is increasing.
“It is important to keep the communication flowing about the demands from the customers but also about which capability Nexans have of delivering.”

The storage of cables in Nässjö operated by Schenker logistics mostly handles standard orders of cables coming from Nexans. By using Schenker logistics Nexans can increase their integration towards customers and suppliers, e.g. if there is a special requirement for unloading the cables or if the cables have to be at a specific place at a specific time then Schenker logistics manages this requirement for Nexans. There is also a contract between Nexans and Schenker logistics saying that if a cable breaks Nexans customers’ number which they can call at any time day or night to Schenker logistics and they can arrange for a fast delivery even in the middle of the night. The order is then adjusted afterwards.

Relacom also agrees that integration between different parties is essential in all businesses to focus on core activities and cost saving activities and states that:

“By working integrated with service providers such as Schenker logistics we have a much better position to react and take actions needed in each particular case.”

Schenker logistics plays a big role in Relacom’s supply chain since they are handling a purchasing, supplier invoices, planning, coordination as well as transport handling and warehousing. Relacom works to achieve integration with Schenker logistics by allowing the employees at Schenker logistics to have access to Relacom’s customers systems and can perform i.e. goods receipt on behalf of Relacom. In fact all the employees working with operational activities at Schenker logistics for Relacom function as consultants and have the authority to perform the task which applies to a specific role. Integration work with other suppliers such as Nexans is made through the EDI system Movex.

Schenker logistics is trying to work vertically in their integration by using cross docking to fill the trucks, however it also depends on the specific case. Schenker logistics also describes it from an environmental aspect, instead of sending one box, and after two weeks you send another box with another car. Then there have been two cars driving the same distance when one would have been enough. Nexans and Relacom both agreed with Schenker logistics that whether the integration work is done vertically or horizontally in the network very much depends on the specific case.

4.4 The drivers for integration

The reasons for integration for all three actors have a very clear focus of keeping customers happy by efficient operations and low costs. Schenker logistics believes that integration of different actors in a supply chain is important to make the relationship work more smoothly but at the same time the costs must remain low without compromising quality.

Nexans agree that integration between the different actors is important to keep the customers satisfied and to increase the sales for Nexans, to create a win-win relationship. Per at Nexans believes that the importance of win-win relationships is increasing when the number of special orders from the customers is increasing.

Relacom states that their reason for integration among members of the supply chain is to focus on their main businesses as a service provider they need to have reliable support processes that guarantees efficient and correct flows of both products and services.
Therefore they need a specialist to provide logistic services which is cost efficient to contribute to the success in total.

4.5 The barriers for integration

4.5.1 Technology related barriers

Integration work is not always problem free and Schenker logistics feels that one of the main barriers for integration is IT. IT systems are often very complex and difficult to change however if Schenker logistics could work long enough and put in all the resources required almost everything would be possible. But in today’s society it is not possible to work on a system as long as you want often someone decides that even though the work is not completely finished no more work can be done and it is time to launch the project. It could be because there is no more time or the cost is getting too high to perform test on everything so the system is launched even though it is not fully tested and to perform corrections or adjustments after that is often very hard. You have to live with a system which is not fully tested and therefore to get an IT system completely integrated at a reasonable cost is a difficult problem.

IT systems at varied levels are used by all three actors in the integration work. At Schenker logistics they are using different systems for different customers. When handling the operations with TeliaSonera Schenker logistics has to use two different systems, SAP and Oracle 1B so depending on the order and product they change between the two systems. Oracle 1B is a business system used by TeliaSonera for ordering broadband connections. When there is something wrong with a cable and TeliaSonera sends a technician coming from Relacom or Eltel to do the work the order is then processed in SAP. In the operations with Relacom and Nexans Schenker logistics is using yet another system called Movex. When an order to Nexans comes from Relacom, Schenker logistics send this information to Nexans. When Nexans has confirmed the order and sends back the conformation to Schenker logistics requires Schenker logistics to deliver them, Schenker logistics then translate the information from Movex to their internal system OWE and get the order delivered.

To connect the systems Schenker logistics is using a system called OWE (open warehouse system). When an order comes from Oracle 1B the information is then sent to OWE. When an order comes from TeliaSonera destined for Relacom to send a technician it is more complicated then TeliaSonera orders in SAP which is then translated to Movex and Movex then sends the information to OWE. In most cases the systems are integrated but when there are unusual flows of orders the data have to be entered manually.

In the communications with Nexans Schenker logistics use the EDI system Movex. Movex is used by Nexans to communicate with Schenker logistics and shows the warehouse in Nässjö on Per-Magnus’ computer screen and based on that he can plan future orders.

Bengt at Schenker logistics says:

“The IT systems are very complex and I barely think that there is anyone who fully understands exactly how it works. I think that we are the ones with the most knowledge; we have the most information about the different flows. We are the spider in the net. But
then there is another problem which is that Schenker logistics since two years back have chosen to focus all the staff functions like the IT department in Gothenburg. Before that we had our own IT personnel and we worked more integrated, now we have to put an errand, leading to a more organized but also more bureaucratic way of working.”

Some years ago Schenker logistics tried to implement their own system to integrate with the customers called web log, the idea was that the system would be able to connect everything but it turned out that it was too much for the system to handle. Today web log is only used for two customers.

IT systems which are getting more and more complex are a problem, at the same time as a small detail can lead to big problems. Bengt at Schenker logistics gave an example:

“Old zip codes cannot be right identified in the newly updated systems at Schenker logistics, yet people from other companies like Relacom still use the old zip codes and send the orders with old zip codes which can be wrongly identified in Schenker logistics’ system and cause the wrong delivery. An employee without the knowledge about the problems in the zip code systems can cause Schenker logistics a lot of money because of the wrong delivery. Goods which should be sent to Stockholm could be delivered to Malmö because of the wrong zip code.”

An example from a recent development at Schenker logistics where very little IT integration is used in the relationship with Relacom construction AB. Relacom has split into two units called Relacom and Relacom construction AB which work with the construction of telecom networks. Relacom construction has not made any investments in an EDI system so instead they are using mail and fax. As the economy is slowing down Relacom construction has chosen to focus on manpower instead of IT which leads to problems. Using a fax machine works very well if the fax reaches its destination however if the machine is out of paper or if the person who sent the fax dialed the wrong number the fax might never get through. Also when using e-mail there are problems, the sender could have the wrong address and therefore never reaches the intended recipient.

4.5.2 Human related barriers

Even though the IT was described to be the main problem from integration Schenker logistics also expressed other problems such as people’s learning curve. It takes time and resources to train personnel to be able to use a system fully, to understand the system and be able to solve problems. It also takes a lot of time in training personnel to operate new systems.

For Per-Magnus at Nexans the main barrier is to solve problems without having to call lots of different people at different locations and departments and therefore he would like to only call one person to solve a problem. Per does not see IT problems as a main obstacle and feels that the system has worked very well since the cooperation with Schenker logistics was initiated.

4.6 The outcomes of integration

4.6.1 Creating a competitive advantage

Schenker logistics describes the outcomes of integration below:
“Everything is about making money but the client has to experience a win-win situation. If it is a three-part relationship then all three parts should make money and it is no good if someone feels left out or tricked. We all have to feel like winners.”

Schenker logistics also experiences a competitive advantage has been gained from integration work but also points out that a very important factor is the price

“The one with the lowest price will most likely get the deal, unfortunately it is the reality”

Schenker logistics also points out that quality has a cost and it might in an initial cost but in the long run the right thing will not be more expensive. However if it is the wrong thing it will lead to big expenditures.

Nexans is also very focused on creating a win-win situation which they are getting by cooperating with Schenker logistics. The cooperation with Schenker logistics has led to better ability to deliver cables at any time. For delivery the same day the customer can place their orders up until 3pm which is also an improvement.

Relacom use cost control early in the process for potential new business and have experienced that by working with integration they gain time and cost efficiency both in volume and competence. They also use well proven processes for quick ramp ups and new business since they feel like there is no need to reinvent the processes.

4.6.2 Creating a learning organization

For Schenker logistics, to keep up-to-date, competent and innovative is the keys for success.

"The ability to offer flexible and tailored solutions along the entire supply chain is now becoming a strategic advantage. The customer should go for the logistics service provider who is adaptable and who can offer the entire chain of services from one single source, as well as having an efficient network.

“Benefits for the customer must be the prime concern. New solutions must prove efficient in difficult times, too, like now in times of economic crisis.” Continuous learning, adaptation and innovation are vital elements for the entire Schenker group’s success.

Nexans has always been aware that the company’s future depends on its ability to develop new products and processes, and to optimize their performance to meet customers’ demand. In close cooperation with their customers’ teams (e.g Relacom), Nexans reorganized its research and officially inaugurated its brand new international research center in Lyon, the NRC in March 2002. The NRC works on various cable components: sheath, metal and insulation, mainly dedicated to applied research.

Key goals of the Research strategy are :

- inventing new products and new manufacturing processes;
- monitoring emerging technology, protecting the innovations through patents,
Empirical material

- **anticipating customer demand: Its goal is to improve existing products in terms of cost and technical performance.** (Nexans, 2009)

By closely working together with their customers’ teams, the job of NRC is to transform the results of applied research into new products or new production processes.

*In 2005, Nexans registered 57 patents, and devoted slightly more than 54 million euros to Research and Development. (Nexans, 2009)*

At Relacom they use their experience which is accumulated through over 40 acquisitions and the 17,000 people working for Relacom to formulate global processes and operating models. Relacom then makes sure that all customers benefits from the accumulated experience.

Schenker logistics encourages the personnel to share their ideas of business improvements and if the suggestion is going to make an improvement and is realistic, changes can be made. However in big systems like SAP there is not much Schenker logistics can do, the system is locked and the company selling SAP is not interested in adapting the system to different customers.

Also Nexans encourages the personnel to come up with things they want to change and Nexans tries to always listen to their personnel. Nexans also feels that it is important to listen to the people working with the cables on a daily basis since they have the most experience of what works and what does not work. The changes could be minor but they are still important since they lead to frustration. Per gave one example:

“To have the right size on the barrels so that they fit and can easily be hung in the storage at Schenker logistics, those are the small things that I don’t think about in my office but that create frustration for the people working with the cables.”

At Relacom they believe that a learning organization creates continuous improvements and high end solutions which strengthens their position on the marketplace and makes them less vulnerable in existing businesses as well as more attractive in offering their services to new potential customers. Therefore they encourage the personnel to share their ideas on improvements through different kinds of team meeting but also via the different media used for communication within the organization.

### 4.6.3 Creating a greener supply chain

The above mentioned outcomes mostly are increased supply chain competitive advantages. Yet ecology and economy are not a contradiction in terms for Schenker logistics and its partners such as Relacom and Nexans along SC.

Nexans are doing their best to develop products that meet the customers’ demands but with a low impact on the environment. Nexans are also involving the suppliers in the process of developing the products.

Relacom emphasizes how important it is that they as a company recognize their responsibility for the environment. Therefore they strive for close cooperation with service partners and customers to improve overall environmental performance.
Environmental aspects play a role when forming partnership and in the integration work. The biggest part which Schenker logistics can affect is when choosing transportation and as Per says,

“We use Schenker logistics as much as we can since Schenker logistics are quite aware of the environment. Schenker logistics trains the chauffeurs in eco driving. There is a goal to reduce emission with 10% through eco driving, lower the speed and so on.”

The most common mode of transport adopted among Schenker logistics, Relacom and Nexans is land transport. The land transport division of Schenker AB in Sweden has launched its own program for reducing carbon emissions.

“This goal was stipulated as part of the Swedish ‘KNEG’ alliance. KNEG stands for ‘Klimatneutrala Godstransporter på Land’, or in English: ‘Climate-Neutral Land Transport for Goods’. The alliance came into being in 2006 on the initiative of Schenker AG. This is a cooperation made up of partners from science and research, the authorities and private business. They all pursue one joint aim: to minimize the impact of road transport on the climate. The cooperation network represents all key companies along the transport chain: manufacturers of trucks and fuel, transport and logistics service providers and infrastructure operators, together with those using transportation services. The alliance has a very high reputation in Sweden, even among political groupings.

To achieve its climate goals, Schenker AB in Sweden has adopted a plan of measures that consists of the following steps:

Fuel-efficient driving: This includes nationwide training of Schenker AG and subcontractor’s drivers in fuel-efficient driving. At the same time, driving speeds are being reduced by 2 km/h on long routes. This leads to a minimum increase in driving time while at the same time saving about 1.5 million liters of diesel fuel every year.

Use of new, modern vehicles: The truck fleet is being successively upgraded to vehicles that meet the Euro 3-5 norm. Hybrid trucks are also to be introduced initially on a test basis as from 2009.

Improved fuels: In 2009, Schenker AB is starting a project with Volvo to test the efficiency of second generation biofuels (synthetic diesel, DME, etc.).

Expansion of intermodal transport: Already today, no other company in Sweden uses more intermodal transport than Schenker AB. To further increase this share, Schenker AB is building new intermodal terminals with access to rail and road.

Local public freight transport: Regularly scheduled local public freight transport services between the individual cities with ideally utilized trucks reduce the distances that have to be driven and thus minimize the impact on the environment.

Intelligent city logistics: Optimum utilization of local transport vehicles together with ideal planning of tours is all part and parcel of intelligent city logistics. (Schenker, 2009)”
Schenker logistics networks its transport not only according to economical aspects but above all from an ecological point of view. These steps can not only reduce the transport cost for the actors along SC but also help to build a greener SC.

4.7 The role of Schenker logistics

Schenker logistics is a TPL company and sees themselves as in between the customer and supplier and states:

“We are the company that makes the relationship work”

Schenker logistics consider also consider themselves as both a tool (used by the actors) and as an actor (in the focal firm position) because they have about 25 customer which spread all across the spectra from the biggest customer who has a turnover of about 35 million a year to the smallest customer who has about 100 000 in turnover. This means that there is a huge difference in what Schenker logistics does and how much they do. For some customers Schenker logistics is only providing storage space and the customer puts 30 pallets that sits put year after years. The customer only wants somewhere to store their material.

The biggest customer for Schenker logistics is TeliaSonera with a turnover of about 35 million and the second biggest is Relacom with a turnover of about 15 million. However in the relationship Relacom is also a supplier to TeliaSonera and Schenker logistics acts as the middle man to make the relationship go smoothly. When TeliaSonera order an installation, construction of a telecom net or a maintenance job the order go through Schenker logistics. Other examples of orders coming from TeliaSonera which go through Schenker logistics is to repair cables breaking or when the customer service at Telia has promised that a technician will come and repair a problem.

The second biggest customer, Relacom has outsourced their flow control, purchasing and invoicing function the Schenker logistics. Magnus at Realcom states that a well developed logistics function is vital in the business segments that Relacom operates in and says that:

“By having the operational logistics function outsourced to Schenker logistics and by having Schenker logistics acting as the link between the strategic function and the operational needs in the field of course makes the role important”.

“Since Schenker logistics is handling operational purchasing, supplier invoices, planning, coordination as well as transport handling and warehousing they play a big role in Relacom’s SCM”.

Another one of Schenker logistics’ customers Nexans, is also the main supplier to Relacom for cables. Nexans has delivered cables to Nässjö before but since 2003-01-01 they use Schenker logistics for storage of cables, distribution and for cutting cables to the pre-ordered lengths. Per at Nexans would like to describe the cooperation as well functioning. The main service Schenker logistics performs for Nexans is storage and distribution of the cables.

Nexans would see Schenker logistics as a tool for performing certain activities which Nexans does not have time to perform or the capability of doing. Thanks to the coopera-
4.8 Dynamics in partnerships

Changes happen all the time in networks and Schenker logistics says they try to foresee the developments and make the necessary adjustments, for instance they know that they will lose a big part of TeliaSonera’s operations during the third quarter. Preparations are made by letting more people go. Since last year Schenker logistics has fired almost half of the people working at Schenker logistics last year they were 150 and now they are 75. This reduction in workforce leads to an increased need for training the remaining personnel.

“We have a lot of training going on. We have also always had two people at each station. One is the main responsible while the other can step in and do exactly the same work. The goal is that the customer should not notice the difference to have well trained employees provide better perquisite for preparing for change and contingency.”

Schenker logistics in Nässjö are not allowed to market their activities in order to attract a new customer that is the marketing department’s job. Schenker logistics in Nässjö are only allowed to market extra value adding services like repairs, customer service or managing the waste of electronic equipment towards existing customers. The marketing department for Schenker AB is situated in Gothenburg and they handle everything concerning new customers to a certain level then their project group take over to integrate the business at a logistics center like the one in Nässjö and then they do a trial run where they remove their helping hand and the relation is supposed to last.

When a new customer is introduced Schenker logistics try as much as possible to make the customer adapt to their systems but it does not always work, if the customer has a working system they are most often unwilling to change. However in some cases when they feel that they do not have a working system Schenker logistics can use the systems available.

Also at Nexans they see how things can change fast and the demands can change. When it comes to special orders Nexans need a certain period to adjust to the new routines. Nevertheless when the orders are more standardized the changes are made much faster. Nexans has not experienced any obstacles when it comes to handling special orders in the IT system, all orders go directly to an EDI system to limit the mistakes which are made during manual work. If there are any problems with the IT system Nexans has their own IT department to handle the unforeseen actions.

Most changes are impossible to foresee. They have a contract with TeliaSonera for about 1-2 years but when that runs out no one knows what happens. Events which Nexans can prepare for are the changes in season, they know that big storms often occur during the fall and so they keep an extra storage of cables during that period.

Not only new customer but also other events could lead to a high work load like after the storm Gudrun there was a lot to do for Schenker logistics and Nexans.

- Schenker logistics handled the work load by making specially adapted boxes with everything needed for a certain job; they even had their own trucks delivering the boxes to
Empirical material

a specific place where the technician was ready to go to work. Then the trucks went to the next place with a box, which shows how important it is that everything is on time.

“You cannot come one hour later or earlier but you have to be there on the decided time.”

- Nexans received more orders than usual and learned to send material faster.

For Nexans the integration work has changed when it comes to the delivery addresses. In the former days TeliaSonera had stations to which the cables were delivered but now the addresses can be construction sites and sometimes in the forest. The addresses are often hard to reach and crane trucks must be used to make delivery. Per-Magnus at Nexans also believes that as changes are happening faster it is becoming more important to help each other and to build long term relationships based on trust. Per thinks that trust between two actors can be built by:

“Through personal contacts and not just by using e-mail a relationship is built were the partners trust each other. It is also important to listen and to follow through on the discussed plans. If an actor says that he will take care of an order and then nothing happens for three weeks the trust is harder to establish.”

Nexans has experienced a positive effect from the changes in the network when TeliaSonera decided that all the telecom operators should order their own cables. This led to more orders and a bigger sales volume for Nexans.

Nexans seems to have established such a long term relationship with Schenker logistics and Per-Magnus thinks that the cooperation will continue as usual. Nexans has also reviewed other services offered by Schenker logistics but has so far not proceeded in the process of adding new services to their contract. However Per-Magnus states:

“Sometimes things can change very fast.”

At Relacom they prepare for changes in the network by having a proactive approach and Magnus states that they: “act rather than react”

Magnus also thinks that:

“Relationship building does not play that big role in an environment with high uncertainty, at the end of the day it all comes down to business.”

A recent development at Relacom is that the company has divided into two companies: Relacom AB and Relacom construction AB. However the impact has been minor for the suppliers, the agreements Relacom writes are valid for all Relacom companies. The goal is to always work with the most competitive supplier and the supplier’s volume may therefore grow or decrease over time. Relacom also strive for more than one supplier for vital and high volume materials and services. With the new development Relacom thinks that the suppliers can benefit from being exposed to competition, making them react to new demand and working more effective and smarter which also gives Relacom a competitive advantage.

With the changes in the network it can be difficult to change old routines however Magnus at Relacom does not see many such difficulties. However depending on the situation the need for investments with a long payback time can be problematic. There can also be positive effects of changes in the network and integration process. Magnus says
that the positive effects can include: “giving Relacom a competitive edge by working smarter, faster and with higher quality.”

4.9 Summary of empirical material

The empirical chapter has presented the empirical material mainly collected through interviews. The chapter started with a description of the relationship between the three actors where Schenker logistics is the TPL firm and then we focus on the supplier relationship with Nexans and the customer relationship with Relacom. Schenker logistics is responsible for the purchasing and invoicing of cable related material for Realcom. Nexans has outsourced transportation, storage and cutting of the cables to Schenker logistics.

All three actors agree that to work with integration is important to satisfy the customers, focus on core activities and create win-win situations. SCI is achieved by integrating the physical flow from the supplier Nexans to the customer Realcom. As well as integrating the information and financial flow from the customer Realcom to the supplier Nexans via the TPL firm Schenker logistics. The drivers for integration among the actors were found to be keeping customers satisfied through efficient operations at low costs to create win-win relationships.

Integration is not always problem free and the main barrier was found to be the technology related barrier. The IT systems are often very complex and difficult to change which in turn makes it sometimes impossible to integrate one system with another. An IT system without integration requires manual handling which can lead to errors when entering new data in the system. The people related barriers were mostly based on the time and resources it takes to train personnel in the complex computer systems.

However when integration is successful it can lead to creating a competitive advantage like in the case with Nexans. They can by working with Schenker logistics deliver cables to their customers at any time of the day which leads to a competitive advantage. The second outcome is to create a learning organization to constantly keep updated in innovation and training personnel. To be environmentally friendly is important to everyone and the actors in the SC studied are no exception. Schenker logistics, Nexans and Relacom all see that their integration work can improve their environmental performance through less transportation, products with low impact on the environment and by using less fuel.

The empirical material continued by exploring the role of Schenker logistics that sees themselves as an actor in between the customer and the supplier making the relationship work. The service Schenker logistics provides for each customer varies depending on their needs and demands. Nexans sees Schenker logistics as a tool they use for performing certain activities which they do not have the time to perform themselves. For Relacom the function Schenker logistics has varies depending on the specific case. Relacom also says that Schenker logistics act as an important link between the strategic function and the operational needs.

The dynamics in the relationships is represented by the adjustments needed to respond to new market opportunities and threats. Schenker logistics train their personnel to be
able to handle new IT systems and new work tasks without losing quality. Nexans says that they need a certain period to adjust to unusual orders and new routines and also put emphasis on how fast things can change. At Relacom they keep a proactive approach by acting rather than reacting to new situations. Relacom has also experienced positive outcomes from changes in the supplier structure. When the suppliers are exposed to more competition they are forced to work more efficient which in turn gives Relacom a competitive edge by working faster, smarter and with higher quality.
5 Analysis

In this section the empirical material will be analyzed by connecting the frame of reference with the gathered empirical material. Both primary and secondary data is connected to the framework.

5.1 Supply chain integration

Schenker logistics has a goal of working with SCM in an effective way to satisfy their customers and therefore agrees that integration is an important factor which deserves considerable attention, this is supported by Kim (2006) stating that if a company wants to pursue an effective construction of SCM they have to take SCI into consideration. Schenker logistics further pursues the concept of integration by saying that there has to be some level of integration for a TPL-client relationship to function. The definition of TPL used in this thesis provided CSCMP and Vitasek (2008) clearly state that a TPL firm is “a firm which provides multiple logistics services for use by customers, preferably these services are integrated” which is a definition that fits Schenker logistics in their goal towards supply chain management.

According to Lee (2000), the foundation of SCI lies in information sharing, logistics coordination and organizational relationship linkages. Schenker logistics are actively working with integration and in accordance with the theory. They are exchanging information with their clients to be able to adapt to the present and future demand. Schenker logistics also achieves logistics coordination in some areas where they have been trusted to store resources like i.e. cables for Nexans because they are the best positioned member of the supply chain. But there are also activities which are not included in the contract between Schenker logistics and their clients. For example Schenker logistics does not decide over the price at which Relacom buys their material that price is made up between Relacom and the supplier in a general agreement and Schenker logistics only calls-off material with a fixed price. The last foundation for SCI described by Lee (2000) is organizational relationship linkages to ensure an open communication, all three actors in the supply chain implements open contact by using various kinds of communication systems like EDI.

Two more modes of SCI were developed by Simatupang and Sridharan (2002) incentive alignment and collective learning. Schenker logistics most often tries to convince the client to adapt to their computer systems and create alignment with Scenker logistics. However most of the time the clients already have a well-functioning system they want to keep. Therefore instead of aligning the systems Schenker logistics has to make necessary adaptations to integrate the systems which in some cases is not even possible. In cases when the systems cannot integrate, manual handling must be included leading to the possibility of errors. Collective learning is something all three actors are working with to spread knowledge across organizational borders but also within the company by encouraging the personnel to share ideas of improvements.

Among the three forms (vertical, horizontal and lateral) suggested for differentiating between different structures of integrated supply chains (Simatupang & Sridharan, 2002; Caputo & Mininno, 1996) Relacom and Nexans stated that it depends mostly on the specific situation which is most suited. Schenker logistics however, described how they try to work with vertical integration by using cross docking to fill the truck which was
also mentioned to be of environmental importance. They also work with a horizontal integration by coordinating the deliveries according to specific routes for drop-offs and pick-ups of materials and packages.

5.2 The drivers for integration

The driving forces for SCI are based on two sources according to Mehta (2004) external pressure and potential benefits for strategic SC alignment. An example of external pressure is to lower costs while meeting divers needs (Cook & Garver, 2002). The empirical findings point out that all three actors in the supply chain, Schenker logistics, Nexans and Relacom emphasize the importance of integration in their daily work and are affected by external pressure. Schenker logistics states that they have a clear customer focus by creating efficient operations at low costs. Nexans has a similar focus of customer satisfaction by meeting diverse needs at low costs. Schenker logistics states that they have a clear customer focus by creating efficient operations at low costs. Nexans has a similar focus of customer satisfaction by meeting diverse needs at low costs. Schenker logistics states that they have a clear customer focus by creating efficient operations at low costs. Nexans has a similar focus of customer satisfaction by meeting diverse needs at low costs.

The second source of driving forces for integration is the potential benefits for strategic SC alignment. In order to achieve those expected benefits, different settings, customer demands and regulations must be managed and the SC must be aligned accordingly (Handfield & Nichols, 1999). At Nexans they have noticed how the numbers of special orders are increasing and therefore believe that aligning the customer demands with their business to create win-win relationships is something which will be even more important in the future.

5.3 The barriers to integration

5.3.1 Technology related barriers

As Hoson and Owens (2000, cited in Power, 2005) describes that there exist a large number of software applications to allow a better flow of information. Between the actors Schenker logistics, Nexans and Relacom a number of such applications are being used. Schenker logistics use SAP and Oracle 1B for order processing, whereas Nexans and Relacom use Movex for order processing. Moreover Hoson and Owens (2000, cited in Power 2005) states that many systems are often bottled up within the organization and the supply chain and are not easily linked to one another. Schenker logistics express that all the systems are very complex and difficult to learn. In an effort to create links between the different systems described above Schenker logistics are using OWE. OWE has managed to create the necessary links for everyday operations but if there are special orders or unusual flows, the data have to be entered manually. Rai et al. (2006) says that an IT system does not create value in itself, they require standards for integration of data as well as to be integrated with IT platforms. The integration requires time and ex-
pertise. Some years ago Schenker logistics tried to implement their own system to integrate with the customers, a system called web-log. However web-log turned out to be yet another proof of how difficult it is to integrate many different systems and now web-log is only used for two customers.

At Schenker logistics and at Nexans they expressly said that they have their own IT departments that handle everything concerning technical problems and development. The IT department at Schenker logistics was centralized two years ago and moved from Nässjö to Gothenburg which led to a less integrated and more bureaucratic way of working. At Nexans they said that in case of problems with the IT system the IT department will handle the problem. In both cases the IT department seems separated from the rest of the organization. Peppard (2001) claims that for an organization with the goal of creating a high performing IT solution there has to be involvement and commitment from the whole business, even from the department which are traditionally reluctant to getting involved in IT.

IT systems do not have to be complicated to enable integration, according to Christopher (2000). E-mail provides a cheap and easy way of staying in contact with partners around the clock (Kaufman 1997). An organization that believes in mail is Relacom construction which has recently been divided from the main company Relacom. Relcom construction has not made any investments in an EDI solution instead they are using mail and fax. Bengt at Schenker logistics expressed his concerns about their methods and said that even though mail is easy and effective you cannot always be sure that the mail reaches the recipient. If Relacom construction in the future wants to create a complex IT solution they will according to Peppard (2001) be depending on earlier levels of learning, investment, resources and development which are hard to increase in a short period of time.

5.3.2 Human related barriers

Schenker logistics expressed people’s learning curve as a barrier to integration. It takes time and resources to train personnel to use new systems and people might not always be willing to learn new systems. The human related problem is also agreed by Fawcett et al. (2008) to be a difficulty which should never be overlooked. Instead aversion to change and willingness to collaborate must be considered when new information or technology systems are implemented. Per-Magnus at Nexans expressed another people related issue, he feels like the main barrier to integration are all the different people he has to talk to, at different locations and departments before he can solve a problem. This could be an example of inter-firm rivalry described by Park and Ungson (2001) where there is a misalignment of motives and behaviours among the partners of a SC. However it could also be an example of managerial complexity also described by Park and Ungson (2001) including incompatibility between information systems and conflicting organizational structures. Since people are unwilling to share their information for fear of exposing weaknesses and secrets to others there will be problems and a change in attitude is necessary to facilitate the integration work (Fawcett et al., 2008).
5.4 The outcome of integration

5.4.1 Increased competitive advantage

Creating a competitive advantage is the first advantage behind integration in SCM according to Monczka et al. (1998) and Porter (1985) classifies two types of competitive advantage, cost leadership and differentiation. However the overall competitive advantage can be enhanced by creating better customer satisfaction since competitive advantage grows out of the customer value a firm creates. We can see from the empirical findings that i.e. Schenker logistics has gained a competitive advantage from their integration work by creating better customer service leading to win-win relationships. Yet to create a competitive advantage by cost leadership is a very important factor and Bengt at Schenker logistics says that the company with the lowest price will most often get the deal. For Nexans it is very important to create win-win situations with their customer and they have increased their customer service in the cooperation with Schenker logistics and hence also their competitive advantage. This is in accordance with La Londe (1997) who describes the competitive advantage as an aim to establish profitable and sustainable positions against competitions.

The third actor in the SC, Relacom also describe costs leadership (Porter 1985) as an important factor to create competitive advantage and they use cost control early in the process for new business.

In summary the integrated management in a SC offers benefits of increasing value to SC members, reduces waste, reducing cost and improving customer satisfaction, summarized as better, faster and cheaper (Christopher, 1998). Examples of better, faster and cheaper were found in the empirical material. Better is the customer service which is enhanced for all three actors through integrating different actors and responding to the customer demands. Relacom said that by working towards a better integration with Schenker logistics they can shorten lead times and react faster to the customer demand which improves customer service. Schenker logistics are also working on achieving better customer service through a high level of integration and trying to eliminate manual handling which often leads to errors. Faster is for example the delivery of cables from Nexans to their customers which can be achieved with the help of Schenker logistics. And to be cheaper through cost cutting is something all three actors are concerned with to create competitive advantages.

5.4.2 Creating learning organizations

Creating learning organizations along the SC is important to accomplish a smooth and functional integration and to meet customer expectations. Companies should be more open and share information to constantly keep their knowledge updated and learn from other actors in the SC (Fridriksson, 2008). Nexans tries to work in close cooperation with their customers’ (e.g. Relacom) teams to share information and transform the results of research into new products. However Schenker logistics and Relacom did not express any clear activities which were designed to learn from other actors in the SC the learning process was mostly focused within the company.

Nexans has always realized that the future of the company depends on the ability to develop new products and therefore they have built a new international research center in
Lyon. The research center works on cable components like sheath, metal and insulation. The importance of learning through research is in accordance with (Malcolm, 1997) who states that knowledge as a result of learning through research can be seen as the most valuable asset the firm has to create competitive advantages. The goal of the research is to invent new product and new manufacturing processes, monitor emerging technology and to anticipate customer demand which is of high importance in today’s marketplace. This is also emphasized by Malcolm (1997) saying that when the competition is elevated, the product life cycles are shorter, the customer demands are more varied and radical steps should be taken in order to keep up with the changes in environment. Also at Schenker logistics they work with continuous learning, adaptation and innovation to keep up with the changes on the market. Continuous learning, adaptation and innovation is not only important to Schenker logistics but for the entire Schenker group’s success. Every day companies receive complex information from suppliers, customers, competitors and other sources. Through communication and coordination these companies can reach a shared interpretation which enables them to exploit opportunities and solve problems. These companies stand out in their ability to act in turbulent markets (Rohit, 1999). Schenker logistics expressed that they are striving towards such ability when they provide new solutions with benefits for the customer in difficult economic times. Bengt at Schenker logistics also says that the customer should always choose the TPL firm that has the ability to adapt to new situations.

At Relacom they work with organizational learning through testing, reflecting and mutual learning as described by Watson (2001). Relacom makes use of the expertise they have in the company through the over 40 acquisitions and their competent employees to satisfy the customer. By making use of the knowledge they have in the company they can work out innovative and adaptive solutions (Watson, 2001).

The management in companies should encourage the personnel to release and share knowledge to embrace changes more quickly but also to make the personnel better at identifying opportunities. In fact many new ideas on how to improve the operations arise from inside the company (Johnson et al., 2005). All three actors follow this theory and encourage their personnel to share ideas and come with suggestions of improvements. Nevertheless Schenker logistics says that it can sometimes be hard to follow the suggestions and that the changes have to be realistic. E.g. it can be hard if not impossible to make changes in computer systems such as SAP and the company selling SAP are not interested in making changes either. At Nexans they feel that it is important to listen to their personnel since they are the ones working with the cables on a daily basis and therefore have the most experience. To listen and make necessary changes is also important because even the smallest thing can lead to big frustration and Nexans has changed the size of the barrels for the cables. Also Relacom believes that a learning organization can strengthen their position on the market place and therefore they arrange meetings for the personnel to share ideas of improvements.

5.4.3 Creating a greener supply chain

The nature of working with integration is focused on cross-functions and cooperation, at the same time many of the logistics activities have a negative impact on the environment and therefore the actors in a SC should work proactively in this area according to Malcolm (1997). Schenker logistics, Nexans and Relacom are all aware of the impact their businesses have on the environment and are therefore in different ways trying to
reduce the environmental impact. For them it means choosing Schenker transportation as much as possible. By doing that it not only creates a greener SCM but also reduces costs. Schenker transportation educates all their chauffeurs in eco driving to reduce emissions with 10%. Schenker logistics is also working with cross docking which according to Wu and Dunn (1995) has profound impact on the environment. Nexans are working hard to combine customer demands with environmental friendly products by involving the suppliers in the process. To respond to the customers’ demands of greener products is a big issue for managers along SCI to understand and react to according to Bucholz (1993). The last actor Relacom explains how they strive together with partners and customers to improve the environmental performance.

5.5 The role of Schenker logistics

The definition of a TPL firm used in this thesis states that a TPL firms is “A firm which provides multiple logistics services for use by customers. Preferably these services are integrated or bundled together by the provider. These firms facilitate the movement of parts and materials from suppliers to manufacturers, and finished products from manufacturers to distributors and retailers. Among the services which they provide are transportation, warehousing, inventory management, packaging and freight forwarding” (CSCMP & Vitasek, 2008). Schenker logistics had a rather short but complex definition of their operations which emphasized parts of the definition by CSCMP and Vitasek (2008) saying that they are in between the customer and the supplier making the relationship work. However they also described how they are providing most of the services from the CSCMP definition of a TPL firm to their customers in an integrated way.

TPL firms have a unique position with the expertise and knowledge of a service supplier and can therefore be integrated as tools used by their customers or as an actor of SCI (Fabbe-Costes et al., 2009). Schenker logistics consider themselves as both tools and as an actor depending on which client they are serving. For the smallest client they only store some pallets of goods and can therefore be said to be a tool used by their clients. Nexans does also see Schenker logistics as a tool for performing certain activities which Nexans does not have time to perform or the capability of doing. For the biggest customer TeliaSonera they are more an actor of SCI when they act as a middleman between TeliaSonera, Relacom and Nexans.

A framework for logistics outsourcing and the nature of the client-TPL relationship was developed by Bolumole (2003). For Relacom which is Schenker logistics second biggest customer they manage the operational purchasing (ordering of materials but at fixed prices determined between Relacom and the supplier in a general agreement), planning, coordination, transport handling and warehousing. Relacom express the role of Schenker logistics as important because they are acting as a link between the strategic function and the operational needs in the field of course. This could be related to Bolumole’s (2003) framework where the description of the TPL-client relationship is focused on operational level functions and long-term relationships. The TPL firm becomes more innovative in applying integrative skills to the client’s operations.

Another of Schenker logistics’ customers Nexans, is also the main supplier to Relacom for cables. Schenker logistics store and cut cables at pre-ordered lengths and also distribute the cables. Schenker logistics also provides the service of emergency distribution of cable, even if a cable breaks in the middle of the night Schenker logistics distributes a
Analysis

cable and the order is settled afterwards. In Bolumole’s (2003) framework the relationship has probably only recently moved beyond the first step where the relationship is in the early stages. The relationship is now better described by the second stage where the relationship is oriented towards building competitive advantage and profitability. The TPL firm, Schenker logistics becomes more innovative in applying integrative skills to Nexans operations. Nexans has the willingness to take the relationship further and has started looking at other services which Schenker logistics can provide.

5.6 Dynamics in partnerships

To be able to understand the dynamic changes in a relationship the network approach is a useful theory. The network approach allows researchers to go beyond the dyadic relationship and study system wide effects keeping in mind that a relationship cannot be managed in isolation from other relationships (Tikkanen, 1998). The network approach also provides insight on management of inter-organizational relationships which is central to a TPL firm (Halldórsson & Skjøtt-Larsen, 2006). Schenker logistics, Nexans and Relacom acknowledges the fact that they are all connected through different relationships, that changes are happening all the time and that most of the time it is impossible to foresee what the changes will lead to. As an example Schenker logistics know that during the third quarter 2009 they will lose a big part of TeliaSonera’s operations, exactly which consequence will follow is hard to say but Schenker logistics is trying to prepare by letting people go and by training the remaining staff. At Relacom they are working with a proactive approach to change and try to act instead of reacting to meet changes in inter-organizational relationships. Also Nexans recognize that they are connected to a network with constant changes, right now they have a contract with one of their customers for about 1-2 years but after that no one knows what will happen. The change will impact all the actors in the network and lead to unexpected results.

For a TPL firm to make profit and grow in competition with other firms they must either expand their customer base or perform internal cut cost activities. At the same time the remaining customers expect a flexible organization with high quality and competitive pricing (Kumar & Desmukh, 2006). This theory goes in accordance with Schenker logistics activities and they are constantly looking for ways to cut internal cost since they are not allowed to market their business to new customers. And even though the logistics center in Nässjö is losing business and letting people go it should never affect the quality. Schenker logistics therefore trains two people at every station, one is in charge and the other fills in during vacations or sick days.

How many years a relationship has lasted is only one dimension to a stable relationship, the network can also be analyzed from the number of new or broken relationships. The smallest change in supplier structure can create long-term consequences and suppliers have to adapt to the new situation not to lose their place in the structure (Gadde & Mattsson, 1987). Such a development can be seen at Relacom where they always strive to work with the most competitive supplier. Since Relacom was divided in two units the suppliers have been exposed to more competition making them more effective which gives all of the Relacom units a competitive edge by working smarter, faster and with higher quality.

Dyer et al. (1998) point out that the relationships with supply chain members do not have to be “one size fits all”. The drivers for integration are different from link to link
and therefore the level of integration should also vary (Lambert & Cooper, 2000). When there is a new customer at Schenker logistics they try as much as possible to make the customer adapt to their IT systems. However they also realize that the customer might have their own IT system which they want to continue working with. Schenker logistics then have to adapt to the customer and provide a customer adapted solution. Schenker logistics did try to implement the web-log system for all customers but “one size does not fit all” just as Dyer et al. (1998) explain, some things just could not be integrated and therefore the system failed.

A partnership with a TPL firm reduces uncertainty in a changing global environment while minimizing risk and maintaining flexibility (Handfield & Nichols, 1999). Nexans has experienced the mentioned advantages from the relationship with Schenker logistics and Per-Magnus sees that the relationship will continue however he also says that one can never be too sure and that sometimes things change fast. However Magnus at Relacom does not agree that relationship building plays a big role in an uncertain environment and states that at the end of the day it all comes down to business.

Handfield & Nichols (1999) states that a successful relationship must include components that management can put in place and control like planning, operation controls, risk, trust, contract style, expanded scope and financial investments. For Per-Magnus at Nexans trust is becoming more important in a fast changing environment and he thinks that trust can be built by personal contact rather than electronic contact as well as to follow through on the promises you make.
Conclusion

The conclusion will go through the main points from the analysis based on our purpose. Table 6.2 illustrates the conclusions in a summarized manner.

To remind the reader, the purpose of this thesis is to study and uncover the role of the TPL firm Schenker logistics in supporting SCI with its customer Relacom and its supplier Nexans to gain a deeper understanding of the phenomenon. By analyzing the drivers, barriers and outcomes of the SCI, the paper pursues the notion that SCI is a dynamic process and TPL firm plays an important role.

The main driver for integration based on external pressure were found to be maintaining customer focus and meeting customer demands while keeping the cost low and the operations efficient. The reason why this was found to be the main driver is probably based on the perception the companies have that cost is a very important factor. The price factor is important in the competition for new customers as well as to create win-win situations with existing customer.

The purpose continued by mentioning the barriers to integration and we found the main barrier to be technology related. The number of IT systems being used, the challenges of integrating the systems and the problems with manual handling were mentioned why technology was the main barrier. Again, cost is an underlying issue in many of these problems; it would be possible integrate all system if enough time and resources would be dedicated but the competitiveness in the market today does not allow those kind of expenditures. This leads to that unfinished systems are launched ahead of time.

The outcomes of successful integration are summarized in three parts; increased competitive advantage (better, faster, cheaper), a learning organization and a greener SCM. However it is also important to improve the customer service which improves the overall competitive advantage. We see a focus on costs and cost leadership as an important factor for creating a competitive advantage and the importance of faster deliveries at any time of the day. To meet customer expectations through a smooth and functional integration requires a learning organization. The nature of integration is to work cross-functional to achieve smoother operations but also a greener SC which reduces the environmental impact. The companies have realized that a green SC does not only benefit the environment but also cut costs since they use fewer trucks with a higher fill up level and less fuel for the trucks. Thus, Schenker logistics helps to create a “better-faster-cheaper-greener-smarter SCI” by activities such as full loading transport, cross-docking, better routing planning and constantly updating and learning with each other. Here “better-faster-cheaper-greener-smarter SCI” is developed from Christopher’s Logistics performance indicators (Christopher, 1998).
Conclusion

Better service quality → Perfect order achievement
Faster time → End-to-end pipeline time
Cheaper cost → Cost-to-service
Smarter learning & innovation → Learning organizations
Greener environmental impact → Greener SC

Figure 6.1 Indicators of a better, faster, cheaper, smarter and greener SCI

The role of Schenker logistics is that they can act both as a tool for integration and as an actor initializing integration depending on the situation. They try to achieve a competitive advantage for their business. At the same time they overcome barriers along the SC by updating the IT system and cross-training employees to meet changes in customer demand. Schenker logistics creates a better, faster, cheaper, greener and smarter SCI which benefits all members.

The process of integration is dynamic. The drivers of integration force the actors in a SC to react to the changes in order to improve their performance, to attract new customers and to keep the old ones. The barriers call for constant change when trying to improve the initial state. New technology is introduced leading to a continuous learning process to master the systems. Finally a TPL firm can encourage further integration to achieve more benefits and better competitive advantages.

With the support of Lewin’s (1951) force field theory, we have analyzed the drivers, barriers and outcomes of SCI for each company in the SC which we are studying. By studying the empirical material and analysis we find out that these elements (drivers, barriers and outcomes) influence each other just as Lewin mentioned. Yet Lewin’s theory does not mention the role of TPL which plays an important role in the SCI according to our analysis. The thesis has tried to over bridge the gap between the SCI which does not mention TPL and the TPL literature which does not mention SCI. The figure 6.1 combines the factors which influence SCI with the role of TPL and pursues the notion that SCI is a dynamic process.
## Factors influence SCI

<table>
<thead>
<tr>
<th>Drivers of SCI</th>
<th>The role of the TPL firm</th>
<th>Dynamic SCI</th>
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</thead>
<tbody>
<tr>
<td>• External pressure</td>
<td>Try to achieve the benefits of three C’s theory.</td>
<td>All the actors react to the pressures from the market, customer and competitor and try to improve their performances and achieve the expected benefits.</td>
</tr>
<tr>
<td>• Potential benefits for aligning the SC.</td>
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<th>Barriers of SCI</th>
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<tr>
<td>• Technology related</td>
<td>Help to smooth the frictions among other actors along SC by continuously updating IT system and cross-training employees to meet the ever-changing demand from both the buyers and suppliers.</td>
<td>All actors continuously keep update with other actors, keeping learning and making adjustment to remove the barriers of SCI.</td>
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<tr>
<td>• Human related</td>
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<tr>
<th>Outcomes of SCI</th>
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<tbody>
<tr>
<td>• Improved SC competitive advantages</td>
<td>TPL helps to create a better-faster-cheaper-smarter-greener SCI by activities such as full loading transport, cross-docking, better routing planning and constantly updating and learning with other actors.</td>
<td>All actors benefit from SCI. Continuous efforts must be put into the SCI by all the actors to achieve sustainable benefits.</td>
</tr>
<tr>
<td>• Greener SCM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Learning organizations</td>
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Table 6. 2 Summary of the conclusions
7 Discussion

In this final chapter we will discuss the conclusions and mention some of strengths and drawbacks to our thesis. Finally, further studies which could be made in the future are suggested.

We consider that our purpose to study the role of Schenker logistics in supporting SCI with Relacom and Nexans is fulfilled. We have improved our knowledge and gained an understanding of the concept of SCI through analysing the drivers, barriers and outcomes of SCI. By pursuing the notion that SCI is a dynamic process we have also strengthen our knowledge about the constant changes that a company, that is working with integration, has to face in a volatile market. Since no existing literature has mentioned the relationships and connections between the following issues: reasons, barriers and outcomes of SCI, the role of TPL and the dynamic SCI, this thesis combines all these issues, find the connections between them, and demonstrate a better understanding of SCI (see table 6.1 and figure 7.1). This thesis contributes to the development of the existing theory on SCI.

Even though the goal of SCI is to create win-win relationships we have also realized that this goal cannot always be achieved and we would like to show what might happen when the actors are not able to adapt to the new situations along the SC. The relationship could end up with another result: a rupture between the members when the relationship does no longer function properly, figure 7.1. With the figure 7.1 we would like to show that a rupture between SC members could be caused by any of the factors in the figure.
We acknowledge that our thesis have weaknesses, if we would have talked to more employees at the different companies mentioned in this thesis we might have gotten more interesting points to relate to the different aspects of integration. We could also have made the effort to travel to the different locations of the respondents to conduct personal interviews. However since we wanted to study the role of Schenker logistics we felt that it was important to conduct a personal interview at the office in Nässjö. We also believe that by interviewing managers, we have talked to the people with the most knowledge about the overall business which strengthens the trustworthiness of our thesis. We could also have included more suppliers and customers in our empirical material to expand the view of the network approach. However due to a limited time and resources we limited the thesis to three actors and we are content that we were able to find one supplier and one customer acting in the same SC.
7.1 Future research

This thesis provides an interesting aspect of SCI, combining different elements such as the drivers, barriers and the outcomes of SCI, the role of TPL and the dynamic SCI together. Yet due to the limited time and resources, the research is carried out in a single SC. However this thesis provides an interesting topic for the future study to gain a more comprehensive understanding of SCI. Further researches could be conducted by a wider and deeper research method involving more participant companies.

Another important point which was emphasized in the conclusions was the high focus on cost which all the actors seemed very concerned about. The high focus on cost also seemed to surpass many other aspects therefore we think that it could be interesting to orient the research towards the cost aspect and study the importance of cost versus quality.

Furthermore during the research process, the following issues were found to be very important: the green issues and learning issues when considering SCI. All the three companies believe that greener and better learning and innovative organizations along SC are the keys to a successful SCI. Therefore to create a managerial framework on how to create a greener SCI while maintaining competitive advantages, how to benefit from the SCI to create learning and innovative organizations is worth further attention.

The last suggestion for further research is that researchers should change the mindset to expand the researching directions not limited by the existing theories, instead, they should think wider and foresee what will happen to SCI in the near future. Further research should benefit from cross-fertilization among different literatures and different industries.
References


References


References


References


Appendix 1-The interview guide

Introduction:
Name:
Function in the company:
Background:

TPL firms:
Which are the core services that Schenker logistics provides and which services are extensions of the core services?

How would you define yourself as a TPL firm?

The role of TPL firms in SCM:
Would you consider yourself as a tool (used by the customers) or as an actor (in the focal firm position) acting as a bridge to formulate the linkages between the upper and the lower supply chain parties’ processes in the supply chain?

Integration:
How important are you to your customers and suppliers? I what way?

How do you co-ordinate with different customers and suppliers?

The reasons for integration:
Why to integration: Find out the reasons for the coordination among the main actors along the supply chain? Primary and secondary reasons.

Barriers:
Which negative effects can you see from integration?

What is difficult in integration work, the main barriers?

Contents of integration:
Do you use IT as a way to integrate, how?

Would you say that you have a specific structure to you integration work, is it vertical, horizontal or lateral?

Outcomes:
Have you experienced positive effects from an existing successful integration, which?

Have you experienced a competitive advantage from integration work?

Do you believe that a learning organization could lead to a competitive advantage, how?
Appendix

Do you encourage your personnel to share their ideas on improvements in business operations, in what way?

What role does relationship building play in an environment with high uncertainty both in demand and customer loyalty?

What would be your objectives for forming a new partnership?

How does environmental issues play a role when you chose a partner or in the integration process?

**Dynamics network:**

Are you affected by dynamic integration, more or less?

Do you prepare for the change of the network since we know that the requisitions and drivers of integration change over time?

What would happen if your biggest customer goes bankrupt?

What are the barriers for dynamic integration, how do you change the old routines to incorporate new methods?

What needs to be done to overcome the barriers of dynamic integration?

What are the positive effects of a successful dynamic integration?
# Appendix 2-Purchasing order

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**Leveransadress**

Relacom AB  
Bergsmansgatan 1  
694 91 HALLSBERG  
694 91 HALLSBERG  
191 83 SOLLENTUNA

**Betalningsvillkor**

Delivered Duty Paid

**Leveranssätt**

Bil

**Via-adress**

Faktureringsadress  
Relacom AB  
Leverantörsreskontrakt  
SE-117 80 Stockholm

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**************DELIVERY NOTE INFORMATION**************

**Godsmärke:**

Simon Rydén 070-2201131

**Ert referensnr:**

CA53223  
X010776405-001

**Godsmottagare:**

Simon Rydén 070-2201131

**Ert referensnr:**

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1  
A9525800  
SKARVKLÅMMA 557-T GRÅ  
0893059  
STANDARDFÖRPACKNING OM 100 ST

09-03-16

Ver vänlig notera biljande: Anga ert mottagnings på varje faktura. Märk varje faktura med ert inköpsordernummer.

Faktureringsadress: Relacom AB, Leverantörsreskontrakt 117 80 Stockholm  
06-653 80 000 Väst

Monetarynr: SE566670214701 Organisationsnummer: 566670:2147 Pluslora: 100600-0  
Bankännet: 5263-5233  
Ricklager är registrerat för F-skatt

Ort och datum:  
Beställarens signatur:

71