Innovation and network development of logistics firms

LIANGUANG CUI

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It is found that logistics firms focus on customers’ requirements and they provide differentiated services accordingly. Based on the type of customers and the region served, each logistics firm innovates in a different way. The logistics innovation process is complicated and it includes both top-down and bottom-up process. Both intra-organizational interactions and inter-organizational interactions are critical for logistics firms to generate logistics innovation. Besides, the interaction capabilities are crucial for logistics firms to innovate. The development of interaction capabilities enables logistics firms to proactively identify customer needs and to translate customer requirements into new service offerings. The development of interaction capabilities also guides logistics firms to innovate in the right direction and helps them to overcome barriers. Further, a theoretical model is developed to illustrate that logistics firms have clear differences in capabilities and network focus. These firms follow different dominating logics of value creation, developing their service networks in various ways. The thesis addresses two critical issues, logistics innovation and network development. Theoretically, it contributes to the third party logistics literature in general and to the logistics innovation research in particular as well as the network development of logistics firms. Adopting several theoretical frameworks, the thesis takes a closer look at the logistics innovation process in logistics firms. Empirically, the thesis covers logistics firms both in Sweden and China, turning it into an international investigation of the how and why of logistics innovation.
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Lianguang Cui
Abstract

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I. Introduction

In this chapter, I want to provide some background information about my study. I also highlight the problems in the problem statement section. The overall research purpose and three research questions are described afterwards. This chapter also depicts the interconnections among the research components as well as the outline of the thesis.

1.1 Background

The utilization of external resources is a common business practice nowadays. Outsourcing is nothing new in business society. Manufacturing firms, trading firms and retailing firms outsource various kinds of activities in order to focus on their key operations and solve business problems (Andersson and Norrman, 2002). In the late 1980s, the pressure from globalization, worldwide deregulation and the development of IT urged companies to develop better logistics systems while outsourcing of logistics activities to external logistics firms was seen as a beneficial way to meet the challenges (Sheffi, 1990). Since then, the term logistics outsourcing has been recognized and developed.

In a few words, logistics outsourcing can be described as the outsourcing of logistics operations to external logistics firms (Berglund, 2000). Logistics outsourcing is a process in which the customer and the logistics firm come to an agreement for delivering logistics services at specific costs over some identifiable time horizon (Lieb et al., 1993; Lieb and Randall, 1996). The major driving forces for logistics outsourcing are to reducing costs and free the tied-up capital for other purposes.

With the development of logistics outsourcing, there has been a change in the relationship between the customers and the logistics firms. Cooperation between buyers and logistics firms has taken a long term dimension in its development while service offerings have been more customized and have included value-adding activities. The phenomena are termed third party logistics (TPL) (Skjoett-Larsen, 2000). Other concepts, such as logistics alliance (Bagchi and Virum, 1996) and logistics partnership (Andersson, 1997), have been used to denote similar arrangements. Besides, a third party logistics firm can be broadly described as an organization that for external customers manages, controls, and delivers integrated third party logistics services (Berglund, 2000).

Companies have various reasons to outsource their logistics activities and enter into relationship with logistics firms. Cost concern is a crucial factor in the decision-making process. Logistics outsourcing can offer multiple cost-related advantages such as reduction in asset investment and decrease labor costs as well as equipment maintenance (Bardi and Tracey, 1991; van Damme and van Amstel, 1996; Daugherty et al., 1996). According to Wilding and
Juriado (2004), logistics firms can achieve economy of scale by serving several customers and utilizing the capacity in a better way in order to obtain synergy effects.

Even though the cost issue plays a critical role, other issues are also considered in the decision-making process (La Londe and Maltz, 1992; McGinnis et al., 1995; Maltz and Ellram, 1997). As for operational benefits, logistics outsourcing can lead to a decline in inventory levels, order cycle time, lead times and enhancement in customer service (Bhatnagar and Viswanathan, 2000; Daugherty et al., 1996). Through logistics outsourcing, companies can access logistics information systems and achieve technology improvements (Rao and Young, 1994). Besides, external logistics firms can help companies to simplify logistics process (Razzaque and Sheng, 1998).

In addition, strategic concerns exert an influence on logistics outsourcing decision. Outsourcing non-strategic logistics activities can help companies to focus on core competence and exploit external logistics expertise (Sink and Langley, 1997; Boyson et al., 1999). According to van Laarhoven et al. (2000), logistics outsourcing can assist companies to increase flexibility. Further, logistics outsourcing can improve customer service and customer satisfaction (Razzaque and Sheng, 1998).

According to van Damme and van Amstel (1996), the lowest cost solution provider should be selected. However, McGinnis et al. (1995) claim that selection criteria are much more affected by performance issues than cost issues. Maltz and Ellram (1997) maintain that focusing purely on cost issues can result in poor decision making. Thus, non-cost issues, such as service quality, reliability, flexibility and financial stability have been mentioned in the existing studies (Selviaridis and Spring, 2007; Razzaque and Sheng, 1998). Besides, reputation, reference from customers, prior experience of the customer’s industry as well as product types have been regarded as crucial factors by customers (Sink et al., 1996; Sink and Langley, 1997).

The use of third party logistics firms has been the focus both in single studies (e.g Sink and Langley, 1997; Rabinovich et al., 1999) and in annual repeated questionnaires (e.g Lieb series and Langley series). All of these studies provide a similar picture. The usage of TPL firms is prevalent. For instance, in the United States, approximately 80 percent of Fortune 500 companies use third party logistics firms (Lieb and Bentz, 2005). Similar findings have been reported in country specific studies such as China (Hong et al., 2004), Australia (Sohal et al., 2002), Malaysia (Sohail and Sohal, 2003), Ghana (Sohail et al., 2004), Denmark (Larson and Gammelgaard, 2001) and Sweden (Cui et al., 2009). According to Ashenbaum et al. (2005), the usage of TPL firms keeps increasing over the past decades and the expenditure spent on using TPL firms is estimated to grow in the future. With the growth of TPL firms, Berglund et al. (1999) argue that it is needed to treat TPL firms as a separate industry. The third party logistics industry has been developing for more than two decades. According to Berglund (2000), the industry is still in the stage of development and it is on its way to reach an initial stage of maturity.

The development of the third party logistics industry has gone through different waves. Different players have joined the industry at various stages. According to Berglund et al. (1999), the development of the industry can be described with reference to three distinct waves. The first wave dates back to the 1980s when the traditional logistics firms, such as
1. Introduction

ASG in Sweden and Exel in the UK, have developed into third party logistics firms. The second wave can be dated back to the early 1990s when a couple of express and parcel delivery companies, such as DHL, UPS and FedEx, started to offer integrated logistics services by exploiting their developed distribution networks (Selviaridis, 2008). The first two waves consist of logistics firms with a strong functional capability in warehousing and transportation related activities. The third wave can be traced from the late 1990s while players from other industries, such as IT, consulting and financial services entered the market by building on their IT, consultancy and financial skills. The second and the third wave companies usually form horizontal relationships with transport and warehousing firms in order to provide comprehensive service offerings (Persson and Virum, 2001; Crujssen et al., 2007).

Even though the third party logistics industry has been developing constantly, related issues have not been the focus of the existing studies. Instead, customers’ outsourcing to logistics firms has been the focus of the existing literature (Marasco, 2008). Researchers have examined customers’ outsourcing decisions (Rao and Young, 1994; Daugherty and Dröge, 1997), benefits as well as risks of outsourcing (Sink and Langley, 1997; Wilding and Juriado, 2004), selection criteria (Sink and Langley, 1997; Maltz and Ellram, 1997), service usage (Murphy and Poist, 2000; Ashenbaum et al., 2005), purchasing logistics services (Bagchi and Virum, 1996) and customer-supplier relationship (Bhatnagar and Viswanathan, 2000; Knemeyer and Murphy, 2005; Halldorsson and Skjoett-Larsen, 2004; Halldorsson and Skjoett-Larsen, 2006).

In contrast, less research has been conducted from the logistics firm’s perspective. This is due to the fact that in business practice customers are moving quicker and logistics firms are lagging behind. Nevertheless, current studies have touched upon several issues related to logistics firms including service offerings (Murphy and Poist, 2000), marketing of logistics services (Berglund et al., 1999) as well as growing strategies (Sum and Teo, 1999; Panayides, 2004). However, only a few studies have examined the strategic development of logistics firms (Hertz and Alfredsson, 2003).

As for the logistics industry, it is characterized as a highly competitive sector. The competition among logistics firms is often fierce while the profit margin is low. Many logistics firms try to search customers whose requirements neatly fit into the service offer. The practice can help logistics firms to benefit from increased economy of scale, risk sharing and volatility smoothing (Hertz and Macquet, 2006). A lot of logistics firms adopt such a cost reduction strategy to achieve competitive advantage and survive in the market place (Sum and Teo, 1999). However, with more entrants in the industry, the price for standardized services becomes commoditized while the profit margin is getting smaller. A chronic shortage of capital as well as increasing competition among logistics firms are urging executives at logistics firms to innovate with their service process and service offerings (Zinn, 1996). In a highly competitive industry, it is of great importance for logistics firms to be differentiated in order to achieve customer satisfaction and customer loyalty. Logistics innovation is a crucial way to increase customer loyalty (Flint et al., 2008; Wallenburg, 2009).

In addition, current studies have reported that logistics innovation is positively related to logistics firm’s effectiveness and operational service quality (Panayides and So, 2005; Richey et
al., 2005). Logistics firms can also reap first mover advantage and obtain competitive advantage by generating logistics innovation (Persson, 1991; Wagner and Franklin, 2008). Besides, logistics innovation is a possible path for logistics firms to achieve growth (van Hoek, 2001). Thus, it is argued that logistics innovation is a major contribution to logistics firm success (Kandampully, 2002; Grawe et al., 2009).

The logistics industry contains various types of logistics firms. The existing studies offer different categorizations of logistics firms in terms of service offerings, such as carriers, logistics intermediary firms and third party logistics firms (Coyle et al., 2000; Bowersox et al., 2010). Logistics firms differ not only in service offerings but also in service capabilities and service network developments. According to Huemer (2006), there are many logics of value creation behind various kinds of logistics firms. Besides, logistics firms apply multiple ways to develop their service networks to grow and to access foreign markets. In essence, logistics firms are networking firms in the sense that their business idea is based on connecting organizations, coordinating activities, and combining the resources of different organizations (Hertz and Macquet, 2006). How they develop their service networks will have an impact on their business.

1.2 Problem statement

As an important goal of logistics and supply chain management, efficiency and lowering cost has been highlighted in logistics practitioners’ daily agenda (Coyle et al., 2003). In order to increase efficiency and to enjoy economy of scale, logistics executives reduce complexities through standardization of processes. By contrast, the essence of innovation is to have something new. However, a new thing often requires changes. Thus, the idea of innovation seems to be in conflict with the idea of standardization. In other words, tension emerges when innovation and logistics are brought together. This tension could be a reason to explain why logistics innovation is often neglected. Is logistics innovation an unimportant issue? Should we forget about logistics innovation because of the tension? No, of course not.

The importance of logistics innovation has been emphasized by several studies. According to Wallenburg (2009), external market changes can lead to changes in terms of what the customers value most. Organizations are urged to anticipate what customers will value instead of focusing merely on what customers currently value (Flint et al., 2008). In turn, logistics firms need to follow the changes and to provide new services in order to serve their customers better.

Despite the importance of logistics innovation and the growing interests among logistics firms, there is scant knowledge of innovation in logistics research (Flint et al., 2005; Wagner, 2008). In particular, we do not have a clear picture of the innovation process at logistics firms. How should logistics firms innovate? How could they implement the innovation process? Therefore, this thesis is devoted to the topic of logistics innovation with a focus on the innovation process.
Many supply chains are extended globally while the increasing extent of the volume involved and the expanding geographical coverage required has made it particularly difficult for any single logistics firm to provide a full service package. The global players need to cooperate with regional players in many cases. Strong, regional-based, medium-sized players are playing an increasingly important role in the global pipelines, due to their local expertise and good regional presence. Innovation and new service developments are essential for regional players in the sense that they need to adapt to customers’ unique requirements in the region. However, due to the size and the regional focus, the innovation process at regional logistics firms is not the same as the large ones. How do regional logistics firms innovate?

Wagner and Franklin (2008) point out the fact that innovation in the logistics context has a special nature. Logistics innovation is decentralized rather than centralized (Wagner and Franklin, 2008). Thus, logistics innovation is embedded in logistics practitioner’s daily operation. In order to understand the innovation process at logistics firms, we need to take a closer look at logistics practitioner’s daily activities. A crucial question emerges. What daily activities and practices do logistics practitioners conduct to generate innovation?

Logistics firms constantly interact with their customers. Gadde and Hulten (2009) have emphasized the importance of interaction in the TPL-relationships. Closer interaction between logistics firms and their customers can have an impact on the innovation process. Flint et al. (2005) highlight that interaction with customers plays a crucial role in logistics innovation process. However, different logistics firms have different capabilities to interact with their customers. How they develop their interaction capabilities can have an impact on the innovation process.

There are many types of logistics firms in the marketplace. A wide range of names are used to denote a logistics firm and there is confusion about the various types of logistics firms in research (Fabbe-Costes et al., 2009). The existing literature mainly distinguishes logistics firms in terms of service offerings, such as different mode carriers, logistics intermediary firms and third party logistics firms (Coyle et al., 2000; Bowersox et al., 2010; Berglund, 2000). However, the existing literature seldom focuses on the service capabilities and service network developments of different types of logistics firms.

The service network is a crucial capability for logistics firms (Liu et al., 2010). Logistics firms develop their service networks to grow and to access foreign market (Stone, 2001; Selviaridis and Spring, 2007). Logistics firms also develop their service networks in order to obtain access to complementary resources as well as capabilities (Carbone and Stone, 2005; Lemoine and Dagnaes, 2003). Meanwhile, Mason (2009) argues that the exploitation of the network to enhance the utilization of asset is a capability to which logistics firms are increasingly turning to. However, various types of logistics firms have different focuses on the service network development. They could develop their service networks differently. Two critical problems come out. How could various types of logistics firms develop their service networks? How should they develop their service networks?

The growing interest in logistics outsourcing and third party logistics has resulted in many studies. In the past two decades, logistics researchers have published a plethora of studies regarding logistics outsourcing and third party logistics in academic journals as well as
professional magazines. Meanwhile, a couple of literature reviews have been conducted in order to provide an overview of the field. Razzaque and Sheng (1998) provide a descriptive summary of logistics outsourcing studies. Their study is the first attempt to synthesize the existing literature on logistics outsourcing and third party logistics. However, their study does not provide any solid suggestion for future research.

More recently, Ashenbaum et al. (2005) review and evaluate two longitudinal studies of third party logistics usage in order to determine what usage trends have been identified over time. Maloni and Carter (2006) focus on 45 survey-based papers from U.S.-based journals. They examine the topics, methodologies, and analytical approaches to identify future research opportunities. In contrast, two comprehensive literature reviews have been conducted in the recent past. Selviaridis and Spring (2007) concentrate on 114 refereed journal papers published within the period 1990-2005. Their classification scheme combines the dimensions of research purpose (i.e. descriptive or normative) and level of analysis (i.e. the firm, the dyad and the network). Their findings reveal that third party logistics research is empirical-descriptive in nature and it lacks a solid theoretical foundation. In a similar vein, Marasco (2008) examines 152 articles published between 1989 and 2006 in 33 international journals. The analysis framework includes context, structure and process as well as outcome. It is revealed that over half of the studies focus either on the context or the process.

Despite the current efforts to synthesize the research on logistics outsourcing and third party logistics, the existing literature reviews have primarily concentrated on classifying and categorizing relevant studies. These pieces of works have not reflected on the development of third party logistics research over time. Since its first appearance, logistics outsourcing and third party logistics research has been developing for more than two decades. However, we have limited knowledge concerning how third party logistics research has evolved over time. An evolutionary picture of TPL studies would help logistics researchers to identify research areas and to develop the field.

1.3 Research purpose and research questions

The previous sections have touched upon the key arguments concerning why logistics innovation and network development are crucial for logistics firms. To recapitulate, logistics innovation is crucial for logistics firms to meet customer’s changing requirements. Logistics innovation also plays an important role in helping logistics firms to be differentiated in the market place and to achieve customer loyalty. Network development is essential for logistics firms to access various markets and to grow. Through network development, logistics firms can obtain access to complementary resources and capabilities. However, the previous discussion has highlighted the fact that customers’ outsourcing to logistics firms has been the focus of the existing literature. In comparison, less research has been generated from the logistics firm’s perspective. Meanwhile, there is a limited amount of studies focusing on the issues of logistics innovation and network development at logistics firms. Therefore, the overall research purpose is to investigate the TPL phenomena from the logistics firm’s perspective with a focus on logistics innovation and network development.
1. Introduction

The existing studies on logistics innovation have been summarized by two recent literature reviews (Grawe, 2009; Busse and Wallenburg, 2011). These studies have depicted the importance of logistics innovation and have touched upon the antecedents and outcomes of logistics innovation. However, only a few studies have addressed the logistics innovation process. We have limited knowledge regarding how logistics firms manage and implement the innovation process. Busse and Wallenburg (2011) suggest to conduct further research on the topic of logistics innovation while the focus should be devoted to the innovation process. Thus, the first research question is raised: how do logistics firms innovate?

Based on Johanson and Mattsson’s (1992) framework, it is argued that all logistics firms are part of three networks: networks of actors, networks of service systems, and networks of physical flows. Logistics firms have clear differences in their service capabilities and their core business ideas shift with the network in focus. The way they focus on these three networks affects their investments, risks, and how they interact with other firms. However, logistics researchers do not always consider logistics firms from the network perspective. Besides, logistics innovation at logistics firms are embedded in the network. The network development can have an impact on logistics innovation at logistics firms. Therefore, it is necessary to investigate the second research question: how do logistics firms develop their service networks?

Logistics researchers have generated a number of studies on the topic of third party logistics. Several literature reviews have been produced to synthesize these studies. However, little work has been carried out to take an inward look at third party logistics research trends and developments in order to evaluate the progress and the maturity of the field. We know little about how the third party logistics research is developed over time. Thus, the third research question is raised: how has third party logistics research evolved over time?

This thesis focuses on the first research question. There are several reasons for doing it. First, logistics innovation is strategically critical for logistics firms and it is an up-to-date topic. Second, little research has been conducted on logistics innovation, which urges further research. Third, logistics services are complex industrial services. Innovation in such a context is unique. Research on logistics innovation can contribute to the innovation literature in general and offer different perspectives. Besides, this thesis conducts a theory-driven type of research in order to distinguish the research from what is prevalent in the literature. Several theoretical frameworks have been applied to investigate the research questions.

1.4 Interconnections among the research components

This thesis contains five articles. Paper one, paper two and paper three focus on logistics innovation at logistics firms. They intend to answer the first research question. Paper four concentrates on the network development of logistics firms. It intends to handle the second research question. Paper five is an analysis of the existing third party logistics literature. It is an outcome of the third party logistics literature study during the thesis writing process. It aims at
giving an answer to the third research question. Figure 1.1 illustrates the interconnections among the research components.

Figure 1.1 Interconnections among the research components

1.5 Outline of the thesis

This thesis includes the following sections. The first section, introduction, provides the background information and the research purpose. It also describes the interconnections among the research components as well as the outline of the thesis. Section two focuses on the definition of third party logistics. The existing studies regarding the definition of third party logistics are reviewed and discussed. Based on the discussion and reflection, my definition of third party logistics is provided. Section three provides my literature study on logistics innovation. Section four illustrates my theoretical frameworks. Three theoretical frameworks, the resource-based view, the industrial network approach and the strategy-as-practice perspective have been reviewed and synthesized. Section five is a method chapter. It concentrates on methodological issues and describes my research design. Section six presents the results from the appended papers. Section seven describes the analytical process and analyzes the appended papers in combination in relation to each other and the whole thesis. Section eight highlights the contributions and provides implications. Section nine concludes the thesis and depicts future research directions.
2. Third party logistics

In this chapter, I intend to reflect on the definition of third party logistics. I first summarize the existing definitions from the literature and discuss them. Then I follow the discussion and provide my own definition of third party logistics.

2.1 Reflection on the definition of third party logistics

My reflection on the definition of third party logistics and third party logistics firms started very early in my doctoral study. My understanding of these concepts has been developed continuously. It is indeed a cumulative study process. In paper one, I do not define third party logistics in any sense. Instead, I provide a discussion on the concept and I present my understanding of the concept at that time. Afterwards, my reflection has been influenced by other scholars through presentations at conferences as well as submissions to academic journals. As a result, in paper two and paper four, I try to define the concept by building on Berglund’s (2000) contribution. However, my reflection does not end at that stage. I continue to develop my understanding and I receive new inputs from other sources. Therefore, I would like to take the opportunity to summarize my literature study outcomes and to report my reflections in this cover.

A couple of different terms like third party logistics, logistics outsourcing, logistics alliance, contract logistics, and logistics partnership have been introduced in recent years (Andersson, 1995; Berglund, 2000; Halldorsson and Skjoett-Larsen, 2004; Ojala et al., 2006). These terms carry similar messages and they are often used interchangeably. However, as van Laarhoven et al. (2000) highlight, the terminology in this field is not coherent all the time. The existing studies have used a couple of approaches to define the concept of third party logistics (Ojala, 2003; Skjoett-Larsen, 2008). Since the definition of third party logistics is not always consistent, the concept of third party logistics firm is somewhat blurred.

In order to have a clear picture of third party logistics, as a first step, I will try to set out some frequently referred definitions in Table 2.1. This table is not dedicated to provide a comprehensive review of third party logistics definitions. Rather, the intention here is to highlight some of the contrasting meanings of third party logistics. My second step is to compare and to discuss the definitions presented in Table 2.1. The purpose is to identify similarities and differences among the definitions. Afterwards, I will synthesize the existing studies and define the concept of third party logistics firm in my own words.
2.1.1 Comparison of some TPL definitions

My study of the definitions relies on academic works obtained from international logistical journals and Ph.D theses. My search for relevant studies started with five leading international logistics journals: Transportation Journal, Journal of Business Logistics, International Journal of Logistics Management, International Journal of Physical Distribution and Logistics Management and International Journal of Logistics: Research and Application. I chose these journals because they are the major publication outlets for third party logistics research (Selviaridis and Spring, 2007; Marasco, 2008). Third party logistics, TPL, 3PL, logistics outsourcing, logistics alliance, logistics partnership, contract logistics, and logistics service provider, LSP, have been used as key words to search for relevant studies. All identified articles have been examined in order to check whether there is a discussion on the definition of third party logistics. Besides, I have checked the reference list of these articles to identify other studies. Finally, I have used Google Scholar to find the frequently referred studies.

Table 2.1 Summary of some frequently referred definitions of TPL

<table>
<thead>
<tr>
<th>Author(s) and Year</th>
<th>Times Cited</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lieb (1992)</td>
<td>118</td>
<td>“TPL involves 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.” (p.29)</td>
</tr>
<tr>
<td>Virum (1993)</td>
<td>53</td>
<td>“The services offered by a middleman in the logistics channel that has specialized in providing, by contract, for a given time period, all or a considerable number of logistics activities for other firms. It consists of a long term relationship between two parties which regard each other as partners. The logistics solution is worked out in co-operation specifically for each shipper. The goal of the relationship should be to develop into strategic alliances with win-win for both parties.” (p.356)</td>
</tr>
<tr>
<td>McGinnis, Kochunny, and Ackerman (1995)</td>
<td>47</td>
<td>“Third party logistics service refers to situations where a third party (other than the buyer and seller- the first and second parties to a transaction) perform logistics activities that could be performed by the buyer or seller. The third party provider normally takes possession of the goods but does not take title, and provides its services for a price.” (p. 93)</td>
</tr>
<tr>
<td>Leahy, Murphy, and Poist (1995)</td>
<td>65</td>
<td>“Third-party logistics is the outsourcing of all or part of a company’s logistics function. Relative to basic services, contract logistics offerings are more complex, encompass a broader number of functions, and are characterized by longer-term, more mutually beneficial relationships. By contrast, modern third-party logistics involves long-term commitments as well as management of multiple functions and/or supply chain processes.” (p.5)</td>
</tr>
</tbody>
</table>
2. **Third Party Logistics**

<table>
<thead>
<tr>
<th>Source</th>
<th>Page</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bagchi and Virum (1996)</td>
<td>47</td>
<td>“Logistics alliance as a long-term partnership arrangement between a shipper and a logistics vendor for providing a wide array of logistics services including transportation, warehousing, inventory control, distribution and other value-added activities.” (p. 93)</td>
</tr>
<tr>
<td>Sink, Langley, and Gibson (1996)</td>
<td>105</td>
<td>“Third party logistics services are multiple distribution activities provided by an external party, assuming no ownership of inventory, to accomplish related functions that are not desired to be rendered and/or managed by the purchasing organization.” (p. 40)</td>
</tr>
<tr>
<td>Andersson (1997)</td>
<td>40</td>
<td>“Third party logistics is about the procurement of a bundle of services in long term relationships, characterized by mutual trust and sharing of risks and rewards. A characteristic for third party logistics, when viewed as something more than just outsourcing, is the way in which the provider and user of logistics services integrate their business, to achieve mutual benefits.” (p. 7)</td>
</tr>
<tr>
<td>Murphy and Poist (1998)</td>
<td>55</td>
<td>“A relationship between a shipper and third party which, compared with basic services, has more customized offerings, encompasses a broader number of service functions, and is characterized by a longer term, more mutually beneficial relationship.” (p. 26)</td>
</tr>
<tr>
<td>Berglund, van Laarhoven, Sharman, and Wandel (1999)</td>
<td>153</td>
<td>“As 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. Also, we require the contract to contain some management, analytical or design activities, and the length of the cooperation 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.” (p. 59)</td>
</tr>
<tr>
<td>Berglund (2000)</td>
<td>38</td>
<td>“Organization’s use of external providers, in intended continuous relationships bound by formal or informal agreements considered mutually beneficial, which render all or a considerable number of the activities required for the focal logistical need without taking title. A TPL provider is an organization that for external clients manages, controls, and delivers third party logistics.” (p. 19)</td>
</tr>
<tr>
<td>Bask (2001)</td>
<td>82</td>
<td>“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 relationship, with the aim of effectiveness and efficiency.” (p. 474)</td>
</tr>
<tr>
<td>Evangelista and Sweeney (2006)</td>
<td>34</td>
<td>“Third-party logistics are activities carries out by a logistics service provider on behalf of a shipper and consisting of at least transportation. In addition, other activities can be integrated into service offering, like warehousing and inventory management, information-related activities, such as TandT; and value added supply chain activities, such as secondary assembly and installation of products.” (p. 60)</td>
</tr>
</tbody>
</table>

Note: The number of times cited is gathered from Google Scholar

Table 2.1 shows that it is not difficult to notice that TPL is regarded as different things. TPL can be situations, services, use of external companies, and outsourcing of a company’s logistics function, a relationship, a partnership arrangement or a company. Actually, TPL is a
label used for several concepts among them third party logistics firm, third party logistics arrangement and third party logistics service. Therefore, it is necessary to distinguish between these concepts.

What is a third party logistics firm? The definitions in Table 2.1 tend to agree on the term third party. Third party is meant as an external company on behalf of the shipper (Berglund et al., 1999), external companies (Lieb, 1992), a middle man in the logistics channel (Virum, 1993), external party (Sink et al., 1996). However, only McGinnis et al. (1995) explicitly depict the essence of ‘third party’ and clearly state that it is other than the buyer and the seller – the first and second parties to a transaction. In addition, only McGinnis et al. (1995) and Sink et al. (1996) clearly mention that the third party does not own the title of the goods. Can we therefore define third party logistics firm as an external company providing any logistics service without owning the title of the goods? If so, then any transportation firm or warehousing provider can be named third party logistics firm. Apparently, the answer is no. The distinction between external logistics service providers and third party logistics firms should be made here. External logistics service providers include third party logistics firms. The third party logistics firm is definitely an external logistics service provider but an external service provider is not necessarily a third party logistics firm.

2.1.2 Different types of external logistics service providers

Muller (1993) appears to be the first to propose different types of external logistics service providers. The following four types of vendors are suggested as classification scheme (Razzaque and Sheng, 1998, p.94):

1. **Asset-based vendors.** Companies which offer dedicated physical logistics services primarily through the use of their own assets.
2. **Management-based vendors.** Involved in offering logistics management services through systems databases and consulting services, acting as a subcontracted traffic department but do not own assets.
3. **Integrated vendors.** They own assets but they are not limited to using those assets and they will contract with other vendors on an as-needed basis.
4. **Administration-based vendors.** Firms which mainly provide administrative management services.

Africk and Calkins (1994) propose a similar classification which contains asset-based, non-asset-based and hybrid service providers. There are various benefits of choosing asset-based service providers (Africk and Calkins, 1994). For instance, they have the knowledge and experience in handling and maintaining equipment, facilities and physical operations. They can pass on savings to users and they help to reconfigure operations to improve efficiency, reduce costs and improve service (Razzaque and Sheng, 1998). Following the above classification, can we distinguish between third party logistics firm and other types of external logistics service provider? The answer is still no. TPL firms can be either asset-based or non-asset-based. They might use their own resource or combine their resource with other vendors. However, TPL
firms do provide administrative management services which are different from other external logistics service providers.

2.1.3 Third party logistics arrangement

Some of the definitions have shed light on the type of relationship between the external logistics service providers and the buying companies. Third party logistics is characterized as long-term relationship (Virum, 1993; Andersson, 1997), long-term commitment (Leahy et al., 1995), long-term partnership (Bagehi and Virum, 1996), as well as long-term and mutually beneficial relationship (Murphy and Poist, 1998; Berglund, 2000). The desire to emphasize the long-term aspect is to differentiate third party logistics from traditional ‘arm’s length’ sourcing (Berglund et al., 1999)

Third party logistics arrangement is treated in this research as a type of relationship between the third party logistics firm and its customer. Bowersox (1990) classifies the relationship between the external logistics service provider and its customer on a continuous scale, starting from single transaction to integrated service arrangements. The classification is based on degree of integration and degree of commitment. Single transactions and repeated transactions are normally short term and informal and carry no commitment except the specific transaction. In partnerships the partners try to maintain their independence, while simultaneously collaborating to develop more efficient systems and procedures. Third party arrangements are more formalized and binding than partnerships. Services are much more tailored to the requirements of a specific client. Integrated service agreements are the most extensive means of cooperating. The provider offers to take over the whole of the logistics process.

Skjoett-Larsen (2000) claims that third party logistics arrangement should be defined as all logistics service relationships that include the last three categories of Bowersox’s scale, i.e. partnerships, third party arrangements and integrated agreements. I agree with Skjoett-Larsen’s argument and I will treat third party logistics arrangements as all logistics service relationships including partnerships, third party arrangements and integrated agreements. By contrast, logistics outsourcing, contract logistics only stand for the first two categories of Bowersox’s scale, i.e. single transactions and repeated transactions.

In comparison, Halldorsson and Skjoett-Larsen (2004) propose a typology of TPL arrangements based on three dimensions: competence, degree of integration and asset specificity. The lowest level is called Market exchange, which means the relations between the logistics service providers and their clients are short term and adversarial. The next level, customized logistics solutions, the logistics service providers offer a broad range of standard services from which the customer can select a package of modules. At the third level, Joint logistics solutions, the shipper and the logistics service provider jointly develop a logistics solution that is unique for the particular TPL relationship. The fourth stage is In-house logistics solutions. Here, logistics is perceived as a core competence in the company and the asset specificity is usually high. It is critical to point out that the various forms of logistics solutions are not a successive progress from one stage to another and in-house solutions should not be treated as the final stage (Halldorsson and Skjoett-Larsen, 2004). Accordingly, in the third
party logistics arrangement, the logistics service provider supplies customized logistics solution and joint logistics solution.

2.1.4 Activities conducted and typology of third party logistics firm

As far as the activities are concerned, most of the definitions in Table 2.1 attach importance to it. However, there is a great variance among the definitions. According to Lieb (1992), activities conducted by TPL provider can encompass the entire logistics process or selected activities within that process. According to Virum (1993), the activities conducted include all or a considerable number of logistics activities. As for Leahy et al. (1995), it contains all or part of a company’s logistics function, encompassing a broader number of functions. Murphy and Poist (1998) and Knemeyer et al. (2003) take one step further and emphasize the customized aspect. They claim that it includes more customized offering and encompasses a broader number of service function. Sink et al. (1996) mention multiple distribution activities, while Bagchi and Virum (1996) have broader coverage and they maintain that TPL means a wide array of logistics services including transportation, warehousing, inventory control, distribution and other value-added activities. Evangelista and Sweeney (2006) reflect on the development of logistics and supply chain management and they proclaim that value added supply chain activities can be integrated.

One way to distinguish between a third party logistics firm and other external logistics service providers can be based on the degree of customization. Here are some examples. Delfmann et al. (2002) claim that logistics service providers can be grouped with regard to the standardization of their services and the degree of customization. The first type of Logistics Service Provider (LSP) is named standardizing LSPs, which consists of service providers only offering standardized and isolated logistics services or distribution functions. The second group, bundling LSPs, consists of companies which combine selected standardized services to bundles of logistics services according to their customers’ wishes. The third group, customizing LSPs, contains companies which design logistics services and logistics systems according to the preferences of their customers (Delfmann et al. 2002, p.205).

Stefansson (2006) basically agrees with Delfmann’s classification while he clusters in a slightly different way: carriers, logistics service providers (LSPs) and logistics service intermediaries (LSI). Carriers contain the prime asset providers which can only provide narrow scope of services. In addition, the degree of customization is also low. In contrast to carriers, LSIs can provide wide scope of services and the degree of customization is high. As for LSPs, the scope of services they provide are relatively wide and the degree of customization is relatively high. In sum, in Delfmann et al. (2002)’s classification, third party logistics service provider will be bundling LSP and customizing LSP. In Stefansson (2006)’s classification, TPL provider will cover the last two types: LSP and LSI.

Hertz and Alfredsson (2003) provide another way to distinguish between third party logistics firms and other external logistics service providers. As Figure 2.1 shows, based on two dimensions, general ability of problem solving and ability of customer adaptation, TPL firms are distinguished from integrators, standard transportation firms and brokers.
2. **Third Party Logistics**

Furthermore, Hertz and Alfredsson (2003) classify the third party logistics firms in a matrix based on both the dimension of customer adaptation and general problem-solving ability. Thus, the TPL firms are divided into *standard TPL provider, service developer, customer adapter and customer developer* (see Figure 2.2).

![Figure 2.1 Third party logistics service providers’ classification](source)

The standard TPL provider could be seen as supplying the standardized TPL services and they often offer these services at the side of their normal business. Service developer is seen as offering advanced value-added services, which could involve differentiated services for different customers. The customer adapter could be seen as the TPL firm taking over customers’ existing activities and improving the efficiency in the handling but actually not making much development of services. The customer developer is the most advanced and difficult form which includes a high integration with the customer often in the form of taking
over its whole logistics operations. The customer developer is similar to what Accenture calls 4PL (Hertz and Alfredsson, 2003). This research is in favor of Hertz and Alfredsson's classification but would modify the classification slightly. I would treat service developer and customer adapter as normal third party logistics firms while customer developer as advanced third party logistics firms.

2.2 Synthesis

In light the previous discussion, I can conclude that third party logistics firms have several characteristics. First of all, they are external to the transaction without owning the title of the goods. They are firms other than the buyer and the seller – the first and second parties to a transaction that conduct not only logistics activities but also value added supply chain activities. Those activities are provided in an integrated way, not on a stand-alone basis. In addition, third party logistics firms provide customized services. Their general ability of problem solving and ability of customer adaptation are relatively high. The relationship between the third party logistics firms and their customers is more than simply a repeated transaction and is intended to be continuous and mutually beneficial.

Third party logistics firm in this research is therefore defined as an external company, external to both the buyer and the seller – the first and second parties to a transaction, providing multiple third party logistics services and value added services for their customers who compensate the company for its services. Activities carried out by third party logistics firms are highly customized and offered in an integrated way, not on a stand-alone basis. The cooperation and relationship between the shipper and the third party logistics firm is intended to be continuous and mutually beneficial.

2.3 Chapter summary

This chapter provides my reflections on the definition of third party logistics. To begin with, some frequently referred definitions of third party logistics are summarized in a table in order to highlight the contrasting meanings. The similarities and the differences among the definitions are identified and discussed. It is found that third party logistics is a label used to stand for several concepts including third party logistics service, third party logistics service provider and third party logistics arrangement. Therefore, there is hardly a consensus on the definition of third party logistics.

This chapter also discusses the meaning of third party logistics firms. It is argued that a distinction between external logistics service providers and third party logistics firms should be made. Third party logistics firms can be either asset-based or non-asset-based while they provide logistics services as well as value added supply chain activities in an integrated way. Relative to external logistics service providers, third party logistics firms have a long term mutually beneficial relationship with the buying firms. Activities conducted by the third party logistics firms are highly customized and are offered in an integrated way.
3. Literature review of logistics innovation

In this chapter, I intend to report my literature review of logistics innovation. First, the concept of logistics innovation is discussed. Second, the existing studies of influencing factors on logistics innovation are examined. Third, a logistics innovation process model is introduced.

My understanding of the concept of logistics innovation has been developed over time. It can be described as a journey of learning in the course which I have learned new things through literature study, presentations at conferences as well as submissions to academic journals. My learning outcomes are reflected in paper one, paper two and paper three. In paper one, I refer to service innovation literature but I do not define logistics innovation in a straightforward way. In paper two, I build on Wagner and Busse’s (2008) definition to define logistics innovation. In paper three, I build on Flint et al.’s (2005) definition instead. My treatment of the concept is partly inconsistent. However, the inconsistency is a result of the learning journey itself. During the journey, I gain different insights. Learning is a positive outcome.

Besides, I want to make a point of my literature study during the learning journey. I try to rely on the logistical literature in order to develop my understanding of logistics innovation. I choose to do so because I want to position my studies in the field of logistics and supply chain management. Since my key aim is not to contribute to the innovation literature in general, I will not dwell at length on the large volume of studies concerning innovation. Rather, I have opted for some basic works. These basic works are useful for me to understand logistics innovation. The existing logistics innovation studies have built on these basic works. I am aware that my approach is not broad. I am also aware of the consequences by using my approach. Due to the limited space in my appended papers, I could not present my understandings and awareness in detail. Therefore, I want to discuss here in some detail the insights I have of my own study of the literature.

3.1 Logistics innovation

The existing studies offer a number of definitions concerning innovation. In particular, Rogers’ (1995) work, which is oft-cited in many logistics innovation studies (Flint et al. 2005; Wallenburg, 2009; Grawe, 2009; Grawe et al., 2009). According to Rogers (1995, p.11), “Innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption”. That is to say an innovation does not have to be new to the world. An innovation can be merely new in the eyes of the beholders. Therefore, a distinction can be made between inventions and innovations. Flint et al.’s (2005) definition builds on Rogers’ (1995) work. They define logistics innovation as follows:
“By logistics innovation, we mean any logistics related service from the basic to the complex that is seen as new and helpful to a particular focal audience. This audience could be internal where innovations improve operational efficiency or external where innovations better serve customers” (Flint et al., 2005, p.114).

According to Flint et al.’s (2005) definition, logistics innovation includes new logistics related services and a new use of existing logistics related services. The robustness of the idea as ‘new to a particular focal audience’ needs to be considered. Putting existing logistics related services to a new use raises the issue of imitation. How can we distinguish between logistics innovation and logistics imitation? This question is not easy to handle.

Wagner and Busse (2008, p.2) offer another definition: “Innovation is a subjective novelty which is the result of a conscious management process and which aims at economic exploitation”. This definition also touches upon the idea of subjective novelty and imitation. However, the authors specifically claim that logistics service providers can and must regard imitation as innovation (Wagner and Busse, 2008, p.3). The consequence to treat imitation as innovation is that an innovation in the logistics context might not be considered as an innovation in another context. Thus, adopting these definitions in my studies may hinder communication with other disciplines. Nevertheless, I want to communicate with scholars in the field of logistics and supply chain management. The existing studies tend to agree with the idea as ‘new to a particular focal audience’ and many studies of logistics innovation build on Flint et al.’s (2005) definition. Therefore, I also refer to Flint et al. (2005) but I have the limitation of the definition in mind.

3.2 Influencing factors on logistics innovation

Several researchers have shed light on the factors influencing logistics innovation. The existing studies can be categorized into two groups. One group of studies analyzes the driving forces, or drivers, for logistics innovation. Another group of studies depict the barriers to logistics innovation. Literature review findings are summarized in Table 3.1 and Table 3.2.

Zinn (1996) claims that increasing competition as well as shortages of available capital are driving forces for logistics firms to innovate. In a conceptual paper, Chapman et al. (2003) propose that knowledge and technology play an important role in fostering logistics innovation. They also suggest that relationship networks can lead to logistics service innovation (Chapman et al., 2003). Panayides and So (2005) point out that organizational learning mediates the relationship between relationship orientation and logistics innovation.
3. Literature review of logistics innovation

Table 3.1 Literature review of driving forces for logistics innovation

<table>
<thead>
<tr>
<th>Driving Forces</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing Competition</td>
<td>Zinn (1996)</td>
</tr>
<tr>
<td>Shortage of available capital</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Chapman et al. (2003)</td>
</tr>
<tr>
<td>Technology</td>
<td></td>
</tr>
<tr>
<td>Relationship Networks</td>
<td>Hakansson and Persson (2004)</td>
</tr>
<tr>
<td>Combining of resources across supply chains</td>
<td></td>
</tr>
<tr>
<td>Customer Orientation</td>
<td></td>
</tr>
<tr>
<td>Employee Orientation</td>
<td></td>
</tr>
<tr>
<td>Have a leading edge in Industry</td>
<td></td>
</tr>
<tr>
<td>Operational Performance</td>
<td></td>
</tr>
<tr>
<td>Competition</td>
<td></td>
</tr>
<tr>
<td>Shareholder Orientation</td>
<td></td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>Soosay and Sloan (2005)</td>
</tr>
<tr>
<td>Intended continuous Improvement</td>
<td></td>
</tr>
<tr>
<td>Relationship Orientation</td>
<td>Panayides and So (2005)</td>
</tr>
<tr>
<td>Organizational Learning</td>
<td></td>
</tr>
<tr>
<td>Extent of supply chain learning management</td>
<td>Flint et al. (2008)</td>
</tr>
<tr>
<td>Extent of innovation management</td>
<td></td>
</tr>
<tr>
<td>Acquisition of knowledge</td>
<td>Wagner (2008)</td>
</tr>
<tr>
<td>Training and Education</td>
<td></td>
</tr>
<tr>
<td>Structural capital</td>
<td>Autry and Griffis (2008)</td>
</tr>
<tr>
<td>Relational capital</td>
<td></td>
</tr>
<tr>
<td>Supply Chain knowledge development</td>
<td></td>
</tr>
<tr>
<td>Customer Orientation</td>
<td>Grawe et al. (2009)</td>
</tr>
<tr>
<td>Competitor Orientation</td>
<td></td>
</tr>
<tr>
<td>Decentralization</td>
<td>Daugherty et al. (2011)</td>
</tr>
<tr>
<td>Formalization</td>
<td></td>
</tr>
</tbody>
</table>

Soosay and Hyland (2004) examine and compare factors driving innovation in distribution centres in Australia and Singapore. They have found financial reasons, customer orientation, employee orientation to have a leading edge in industry, operational performance, competition and shareholder orientation as driving forces while they have classified these factors as external/internal and push/pull (Soosay and Hyland, 2004). Further, Soosay and Sloan (2005) find that customer satisfaction and intended continuous improvement are the most important driving forces.

Based on an empirical analysis, Flint et al. (2008) claim that direct antecedents to logistics innovation include the extent of supply chain learning management and the extent of
innovation management. Wagner (2008) identifies acquisition of knowledge and training and education as key activities to spur logistics innovation. Similarly, in their conceptual paper, Autry and Griffis (2008) propose that structural capital, relational capital and supply chain knowledge development are positively linked to logistics innovation. Further, Grawe et al. (2009) empirically show that customer orientation and competitor orientation positively affect service innovation capability. Last but not the least, Daugherty et al. (2011) find out that decentralization and formalization are structural antecedents of a firm’s logistics service innovation capability.

Despite of the driving forces to innovate, multiple factors might impede management of innovation by logistics companies. However, as Table 3.2 shows, there are significantly fewer studies dealing with barriers compared to the number of articles analyzing the driving forces presented in Table 3.1. The reason for this gap is not self-evident. However, it does argue for more studies to investigate the barriers for logistics innovation.

Table 3.2 Literature review of barriers for logistics innovation

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation</td>
<td>Gellman (1986)</td>
</tr>
<tr>
<td>Labor influence</td>
<td></td>
</tr>
<tr>
<td>Lack of channel member innovation</td>
<td></td>
</tr>
<tr>
<td>Reactive versus proactive innovations</td>
<td></td>
</tr>
<tr>
<td>Peculiar customers</td>
<td></td>
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<tr>
<td>Ineffective transfer of knowledge</td>
<td></td>
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<tr>
<td>Inability to protect innovations with patents</td>
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<tr>
<td>Technology as a major source of innovation</td>
<td></td>
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<tr>
<td>Lack of effective development processes</td>
<td></td>
</tr>
<tr>
<td>Lack of long-term relationships</td>
<td>Gammelgaard (2008)</td>
</tr>
<tr>
<td>Information abusing and resource-consuming due to information sharing</td>
<td></td>
</tr>
<tr>
<td>Improper cooperation</td>
<td></td>
</tr>
<tr>
<td>Lack of openness</td>
<td></td>
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</tbody>
</table>

Gellman (1986) claims that regulation, labor influence, and lack of channel member innovation are barriers to innovation in the railroad industry. Oke (2004) and Oke (2008) have identified several barriers including lack of clear definition of innovation, reactive versus proactive innovations, peculiar customers, ineffective transfer of knowledge, inability to protect innovations with patents, technology as a major source of innovation, lack of effective development processes and difficulty in concept testing (Oke, 2008; Oke, 2004). In addition, Gammelgaard (2008) reveals four potential pitfalls including lack of long-term relationships, information sharing, improper cooperation and lack of cooperation openness.
3.3 Logistics innovation process

A recent article by Flint et al. (2005) has generated good interest logistics innovation research. Relying on grounded theory (Strauss and Corbin, 1998) and intensive interviews, a model of logistics innovation process is provided (see Figure 3.1). The model starts with “setting the stage activities”. These activities are devoted to encourage employees to understand customers’ requirements (Flint et al., 2005). “Setting the stage activities” include educating employees to ask relevant questions, meeting the customers in an appropriate place and putting resources in place. Second, “customer clue gathering activities” concentrate on being closer to customers and developing in-depth insights about them (Flint et al., 2005). These activities are aimed at collecting information about customers through interviews, meetings and company visits.

Third, “negotiating, clarifying and reflecting activities” are conducted to reflect on the “voice of the customer” and to clearly comprehend customer’s exact wishes (Flint et al., 2005). Managers can then discuss internally and work together to identify an appropriate way to use the information. Last, “inter-organizational learning” refers to the new knowledge and insights that appear for managers from the logistics service provider and customer organizations (Flint et al., 2005). The four sets of activities occur in a repeated loop and logistics innovations are generated as outcomes of this process.

Flint et al.’s (2005) model offers a dynamic picture of the innovation process. However, the model is based on the voice of customer. The voice of supplier is neglected (Su et al., 2011). Besides, the model does not say a lot concerning the internal focal organization and the importance of support from this side (Su et al., 2011). In addition, the model describes the process in a general sense while it does not consider the differences of the focal organization’s size and characteristics. Further, the model does not say much the daily activities conducted by
the logistics managers. Since logistics is practice-oriented and logistics managers are tied up with daily operations, it is necessary to take a closer look at logistics manager’s daily activities.

3.4 Synthesis

As Table 3.1 shows, the existing studies on logistics innovation have already touched upon the antecedents. Many influencing factors have been identified and analyzed. However, the majority focus on the firm level. Few studies have shed light on inter-firm level factors. According to Panayides and So (2005), relationship orientation is a crucial driver for logistics innovation. As for logistics firms, they are dependent on a number of relationships and innovations are embedded in the relationship network (Chapman et al., 2003). Therefore, it is necessary to investigate the relational and inter-firm level factors in logistics innovation research. Paper three combines two theoretical perspectives in order to examine the influence of inter-firm level factors on logistics innovation.

Many firms move to countries like China, India and Eastern Europe to reduce their costs and have better access to markets. According to Lieb and Bentz (2004), these firms would prefer to utilize only one TPL firm in managing their global pipelines. However, the large volumes involved and wide geographical coverage required has made it particularly hard for one TPL firm to offer a comprehensive package (Lieb and Bentz, 2005). Thus, large players need to cooperate with the regional-based, medium-sized players. In fact, regionally strong players do exist in many regions and they can play a crucial role in global supply chain management due to their local expertise. Like large players, regional TPL firms also need to innovate in the market place. However, compared to their global counterparts, regional TPL firms have clear differences in terms of size, characteristics and focused markets. The way they innovate differs from the global players. The existing studies on logistics innovation have largely neglected regional players. Therefore, paper one focuses on regional TPL firms and explores innovation as well as new service development for regional TPL firms.

According to Wagner and Franklin (2008), logistics innovation has a unique nature since it is decentralized rather than centralized. It means the innovative activities are embedded in logistics manager’s daily operations. Owing to the fact that logistics services are complex services, the innovation process in a logistics context is far-from simple. In order to have a deeper understanding of the innovation process, it is argued that we should examine the process in detail and get down to the daily activity level. Thus, paper two takes a theoretical perspective and analyzes what daily activities and practices logistics managers conduct to generate innovation.

Recently, two literature reviews on logistics innovation have been published in leading logistics and supply chain management journals (Grawe, 2009; Busse and Wallenburg, 2011). Both studies point out that most of the existing literature on logistics innovation is not theory-based. Besides, the literature on third party logistics research in general is not well grounded in theory (Marasco, 2008). Thus, this thesis adopts several theoretical frameworks to investigate logistics innovation and third party logistics phenomena. The following chapter will address my theoretical frameworks.
4. Theoretical frameworks

In this chapter, I want to provide my theoretical considerations. First, I try to explain and justify the adopted theoretical frameworks of my research. Second, I try to illustrate how I have adopted these theoretical frameworks into my research.

According to Stock (1997), logistics researchers need to borrow and adopt theories from other fields in order to achieve theoretical development. In particular, the resource-based view (RBV) is relevant to strategic logistics research and it has the potential to be applied to critical areas of logistics research such as logistics outsourcing (Olavarrieta and Ellinger, 1997). Skjoett-Larsen (1999) argues that the resource-based view is useful for firms to understand and to create sustainable competitive advantage by developing advanced logistics systems. Further, companies can focus on their core competencies and develop logistics capabilities through strategic partnerships with TPL firms (Halldorsson and Skjoett-Larsen, 2004). Besides, as for TPL firms, the resource-based view is a useful perspective to comprehend their capabilities and the contribution of the capabilities to their competitiveness (Liu et al., 2010). In particular, the RBV is a beneficial way to understand what capabilities are crucial for TPL firms in new service offerings and network development.

As service providers, logistics firms are connected with various counterparts through multiple relationships. The importance of interaction in the TPL-relationships has been emphasized by Gadde and Hulten (2009). According to Deepen et al. (2008), the major drivers of logistics outsourcing performance reside within the relationship with the TPL-provider. This finding highlights the need for understanding the type of capabilities that might be developed by logistics firms to recognize and exploit the opportunities for innovations through their customer relationships. Panayides (2007) takes the discussion one step further and argues that the key issue is to develop relational capabilities. Logistics innovation at logistics firms is a complex social process and it is embedded in the network (Cui et al., 2010). Closer interaction between logistics firms and customers can exert an influence on the innovation process. Therefore, the industrial network approach can be a useful theoretical framework to analyze the innovation process at logistics firms.

The logistics industry is a practice-oriented industry. Logistics practitioners are tied-up with daily practical activities. The innovation process at logistics firms is closely related to daily practices. However, little is written about what logistics practitioners do over time in order to innovate. It is argued that studying the activities of logistics practitioners can benefit from the emerging strategy-as-practice perspective (Johnson et al. 2003; Jarzabkowski, 2005; Whittington, 2003). The approach is relevant for my study since it views strategizing “as a socially accomplished, situated activity arising from the actions and interactions of multiple level actors” (Jarzabkowski, 2005, p.6). Adopting strategy-as-practice approach can help to depict the daily activities of logistics practitioners in the innovation process.
4.1 Resource-based view

The RBV has its roots in earlier studies like Penrose (1959) and it been developed over time. The body of knowledge has been augmented by Wernerfelt (1984) and Barney (1991). It advocates that firm performance can be influenced by the manner in which the distinguished resources of the organization are positioned and managed. That is to say the presence of certain organizational resources, and how these resources are employed, are essential to allowing a firm to achieve competitive advantage over other firms (Wernerfelt, 1984). Empirical studies, illustrating that firm-specific factors are more critical than environmental or industry-structure characteristics in explaining firm superior performance, have advanced the early conceptual work on RBV (Hansen and Wernerfelt, 1989; Rumelt, 1991). Thereafter, the increasing popularity of the theory has generated a considerable volume of diverse literature.

According to Wernerfelt (1984), firms are bundles of resources. The presence of certain organizational resources and the employment of these resources are crucial to allowing a firm to achieve competitive advantage (Barney, 1991). According to Barney (1991), the definition of firm resources is extended to recognize the strategic impact of unique experience, knowledge, and information held by a firm that may allow an organization to implement strategies which can lead to improved efficiency. Olavarrieta (1996) maintains that firm resources contain all inputs that make the firm to operate and to implement its strategies. There are different classifications of resources offered in the literature and it can be summarized in three categories: input factors, assets, and capabilities (Olavarrieta and Ellinger, 1997).

Input factors are basic resources that can be obtained externally in the market. Logistics-related input factors can be raw factors like tracks and packing machines. Input factors do not directly lead to output of the firm. It has to be transformed or applied and to become part of the firms’ assets or capabilities in order to contribute to the firm (Olavarrieta and Ellinger, 1997). Assets are inventories of available factors that are owned or controlled by the firm (Amit and Schoemaker, 1993). Assets can be tangible or intangible and examples of assets are patents, brand names, and capital equipment, etc. (Schulze, 1994).

In contrast, capabilities are complex bundles of individual skills, assets and accumulated knowledge that enable firms to coordinate activities and make use of their resources (Amit and Schoemaker, 1993; Schulze, 1994). According to Bogaert et al. (1994), the difference between assets and capabilities is that assets are connected to ‘having’ while capabilities are related to ‘doing’. Capabilities are knowledge-based resources while action and cognition are combined (Day, 1994). Capability is the capacity of a firm to carry out specific tasks and operations (Grant, 2002). “They reside in the collective memory of the personnel of an organization” (Olavarrieta and Ellinger, 1997, p.563). Capabilities are different from input factors and assets since they will be dominated and enhanced by daily usage (Nelson, 1991). It is manifested in a routine or a group of interactive routines (Nelson and Winter, 1982). Grant (1991) stresses that capabilities are the main source of a firm’s competitive advantage and other resources are the source of these capabilities. Since capabilities are inherently complicated, the creation of new capabilities is often a slow, difficult, and complicated process.
4. Theoretical frameworks

Capabilities are developed constantly by selecting an appropriate path of investments and through complex interactions among the firm’s resources (Amit and Schoemaker, 1993).

According to Schulze (1994), the major point of the RBV is that “differences in resources are causally connected to differences in product or service attributes and thus to competitive advantages and differences in performance” (Olavarrieta and Ellinger, 1997, p.565). Strategic resources are those firm-specific resources that are non-sustainable, valuable, scarce and imperfectly imitable that generate rents (Barney, 1991) and bestow a company with competitive advantage (Schoemaker and Amit, 1994). There are different sources of imperfect imitability: causal ambiguity, tacit knowledge, social complexity and the characteristics of the resource development (Olavarrieta and Ellinger, 1997).

As for causal ambiguity, Lippman and Rumelt (1982) suggest that one of the major barriers to imitation is the lack of understanding by competitors of the association between the resources they own or control and their performance. Tacit knowledge is related to causal ambiguity that cannot be presented, lies in the collective memory of the organization and which is embedded in the processes and capabilities of the organization (Nelson and Winter, 1982). Social complexity stands for the interpersonal relations within a management team and a firm's reputation among suppliers or customers (Olavarrieta and Ellinger, 1997). It cannot be completely managed by the firm and it is hard to imitate. Regarding the characteristics of the resource development process, Dierickx and Cool (1989) maintain that “resources such as assets and capabilities have to be developed by choosing appropriate paths of flows, such as investment, over a period of time. This accumulation process may affect imitability” (Olavarrieta and Ellinger, 1997, p.566).

According to Day and Wensley (1988) and Day (1994), strategic resources consist of superior assets and distinctive capabilities. Distinctive capabilities at the corporate level are “core capabilities” (Prahalad and Hamel, 1990). Prahalad and Hamel (1990) define core capabilities as “specific types of strategic resources that have the additional characteristic of being able to span and support a wide variety of markets” (Olavarrieta and Ellinger, 1997, p.566). Besides, according to Leonard-Barton (1992), core capabilities are knowledge system that distinguishing an organization from other firms and granting the organization a competitive advantage. Core capabilities help to develop the new capabilities or enhancing the old ones (Olavarrieta and Ellinger, 1997). Core capabilities also contribute to articulating and formulating an organization’s dominant logic and help to define the route a firm selects and its future positions in the market (Bettis and Prahalad, 1995). Further, core capabilities can enable a firm to develop and to diversify successfully into new markets by exploiting the competence in new product market settings (Prahalad and Hamel, 1990).

Even though the resource-based view has been adopted in various subjects, applying the RBV to the field of logistics research is somewhat lagging behind and it did not started until the late 1990s (Olavarrieta and Ellinger, 1997). Table 4.1 summarizes some studies combining the RBV and logistics research. Olavarrieta and Ellinger (1997) conduct the initial work and ask for more research. Their study is based on an intensive literature review on the resource-based view. They also illustrate how the RBV can be applied to logistics research. Halldorsson (2002)
combines the resource-based view as well as other strategic management theories and creates an understanding of third party logistics arrangements as a means to configure logistics resources and competences.

Drawing on the RBV, Lai (2004) empirically examines if there exist different types of logistics service provider and whether the types differ in service performance. His result suggests that there are four types of LSP according to service capability. Besides, he finds that higher capability to perform different logistics services enhances service performance (Lai, 2004). Halldorsson and Skjoett-Larsen (2004) discuss TPL from a resource and competence perspective. They maintain that executives can develop logistics competencies through third party relationships rather than developing the necessary expertise in-house (Halldorsson and Skjoett-Larsen, 2004). Halldorsson and Skjoett-Larsen (2006) provide a dynamic perspective of TPL arrangements through a particular case. It is found that the resource-based view has a strong explanatory power in the beginning of the logistics outsourcing process (Halldorsson and Skjoett-Larsen, 2006). Richey et al. (2007) look at a firm’s capability, technological readiness, and its relationship to a firm’s logistics service quality and to performance.

A recent application of RBV to third party logistics research is conducted by Liu et al. (2010). Their study investigates the capabilities of logistics service providers and analyzes how these capabilities lead to competitiveness in the context of China. Their results show that the most critical capability to a Chinese LSP’s competitiveness is service quality (Liu et al., 2010). In addition, Chen et al. (2010) adopt the RBV and investigate the relationships between human capital resources and TPL-buyer collaboration as well as the connection between collaboration and buyer firm’s logistics performance.
Table 4.1 Summary of studies combining the RBV and logistics research

<table>
<thead>
<tr>
<th>Authors (Year)</th>
<th>Contribution</th>
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<tr>
<td>Olavarrieta and Ellinger (1997)</td>
<td>Provide an intensive literature review on the resource-based view and demonstrate how the resource-based view can be applied to logistics research.</td>
</tr>
<tr>
<td>Halldorsson (2002)</td>
<td>Combines the resource-based view as well as other strategic management theories and creates an understanding of third party logistics arrangements as a means to configure logistics resources and competences.</td>
</tr>
<tr>
<td>Lai (2004)</td>
<td>According to their service capability, logistics service providers can be categorized into traditional freight forwarders, transformers, full service providers, and nichers. Different types of logistics service providers pursue different strategies while a higher capability to perform different logistics services enhances the service performance.</td>
</tr>
<tr>
<td>Halldorsson and Skjoett-Larsen (2006)</td>
<td>Based on a particular case, the paper provides a dynamic perspective of TPL arrangements. The authors find that the resource-based view has a strong explanatory power in the beginning of the logistics outsourcing process.</td>
</tr>
<tr>
<td>Richey et al. (2007)</td>
<td>Examine the linkage between a firm’s capability, technological readiness, and a firm’s logistics service quality as well as performance.</td>
</tr>
<tr>
<td>Liu et al. (2010)</td>
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<td>Investigate the relationships between human capital resources and TPL-buyer collaboration as well as the connection between collaboration and buyer firm’s logistics performance.</td>
</tr>
<tr>
<td>Hsiao et al. (2010)</td>
<td>Present a decision-making framework for outsourcing levels of logistics activities by combining resource-based, transaction cost and supply chain management theory. The authors find that logistics activities at different levels are outsourced for different reasons.</td>
</tr>
<tr>
<td>Daugherty et al. (2011)</td>
<td>Investigate the structural antecedents of a firm’s logistics service innovation capability. The paper shows that both decentralization and formalization are positively related to a firm’s logistics service innovation capability.</td>
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</table>

Hsiao et al. (2010) present a decision-making framework for outsourcing levels of logistics activities by combining the resource-based view, the transaction cost economics and supply chain management theories. They illustrate that logistics activities at different levels are outsourced for different reasons (Hsiao et al., 2010). Further, Daugherty et al. (2011) investigate the organizational antecedents of a firm’s logistics service innovation capability and find out that both decentralization and formalization are positively related to a firm’s logistics service innovation capability.

Even though the resource-based view has played a crucial role in strategic management research and it has been applied to investigate strategic logistics issues, the theory has certain limitations. The resource-based view can be regarded as tautological thereby limiting its applicability (Olavarrieta and Ellinger, 1997). It applies a stringent perception to the firm’s boundaries and it maintains that resources and capabilities can only be acquired externally (Halldorsson et al., 2007). Besides, the resource-based view is limited to an internal view of the firm’s resources and capabilities (Skjoett-Larsen, 1999). Further, the RBV says little concerning how strategic resources can be identified in advanced and developed by companies (Olavarrieta and Ellinger, 1997). Hence, it is a useful way to complement the RBV with other theoretical perspectives in order to examine strategic logistics issues.
4.2 Industrial network approach

Håkansson and Snehota (2006) state that no business is an island but depends on interactions embedded in networks of actors, resources and activities. A firm in a supply chain network can exert an influence on its suppliers and customers as well as its suppliers’ supplier and its customers’ customer (Skjoett-Larsen, 1999). The industrial network approach assumes that a firm’s constant interaction with other actors is a crucial factor in the development of new resources and skills (Håkansson and Ford, 2002). This assumption indicates a shift in focus away from allocation of the firm’s internal resources towards how it connects to other actors’ activities and resources in the network (Skjoett-Larsen, 2000). Companies can utilize resources and skills controlled by other actors through cooperation with TPL firms who have the complementary competences (Halldorsson et al., 2007). Further, the industrial network approach can potentially offer insights about the service design decisions and TPL relationships (Selviaridis and Spring, 2007; Marasco, 2008). Therefore, according to Skjoett-Larsen (2000), the industrial network approach is a useful way to explain the dynamics in third party cooperation.

The interaction approach was originally developed by the industrial marketing and purchasing (IMP) group in order to generate a framework for understanding and depicting buyer-seller relationships and interactions (Håkansson, 1982). The interaction approach argues that studies on business markets should focus on the relationship between buyers and sellers (Håkansson, 1982). The relations between firms in a network develop through two types of interaction: exchange processes and adaptation processes (Johanson and Mattsson, 1986). Exchange processes include four elements: product/service, information, financial and social processes (Håkansson, 1982). Through interaction, the involved parties develop mutual bonds such as technical bonds, social bonds, administrative bonds and legal bonds (Håkansson and Johanson, 1990). The interaction approach changes the focus from allocation of firms’ internal resources towards how firms connect themselves to other actors’ activities and resources in the external environment (Skjoett-Larsen, 2000).

During the second phase of the IMP project, a network model was developed by extending the perspective from the dyad to the dyad embedded in the network of other relationships (Axelsson and Easton, 1992). The network model is based on three classes of variables: actors, activities, and resources (Håkansson and Johanson, 2002). The actor-resource-activity (ARA) model suggests that different actors in the business landscape control resources and carry out activities through relationships (Håkansson and Snehota, 1995). The embeddedness is emphasized by the network approach that each business relationship is embedded in a broader network of both social and economic relations (Ford et al., 2003). A business unit is a social unit characterized by specific knowledge about and an ability to work together with certain counterparts (Håkansson and Waluszevski, 2002).

Johanson and Mattsson (1992) present a network model for the analysis of an industrial system (See Figure 4.1). They distinguish between production systems and the network of exchange relationships between industrial actors. The actors are engaged in and develop exchange relationships with each other and handle the interdependencies between the
4. Theoretical frameworks

resources they control (Johanson and Mattsson, 1992). In addition, Lundgren (1995) depicts an industrial network as the union of a network of actors and a technological system. These models can be adapted to analyze logistics firms and logistics systems.

Figure 4.1 Network and production system (Adapted From Johanson and Mattsson, 1992).

4.3 Strategy-as-practice perspective

In paper two, I study the actions and interactions of logistics practitioners over time in an international TPL firm. TPL firms are characterized by a network of representative offices and daughter companies and a plethora of organizational levels. The complicated organizational settings indicate that strategizing is seldom the responsibility of one group of managers representing a single organizational level. These firms usually have multiple localized entities engaged in the strategy process (Paroutis and Pettigrew, 2007). Their customers are often multinational companies operating in different geographical markets. In such settings, strategizing is constituted by inter-organizational interactions with external customers as well as intra-organizational interactions amongst multiple entities from various organizational levels. Therefore, it is necessary to examine managers representing multiple levels across firms. Nordqvist and Melin (2008, p.328) argue that “this shift in the level of analysis allows us to examine in greater detail what characterizes the work and performance of individual practitioners.”

Several scholars have attempted to study the action and interaction of strategists across levels. Regnér (2003) studies the managerial actions at the center and the periphery of four multinational organizations. Floyd and Lane (2000) have investigated the various roles of top, middle and operational level managers in organizations. Paroutis and Pettigrew (2007) take a step forward and study the actions and interactions of strategy teams over time in a multi-business firm. They investigate the nature of interactions over time between strategy teams located at the corporate center and the business units. While both studies contribute to our understanding of actions and interactions across levels within a firm, they do not dwell on inter-organizational interactions (Jarzabkowski and Spee, 2009).

Paper two adopts Jarzabkowski et al.’s (2007, p7-8) definition of strategy as “a situated practice that they draw upon in accomplishing that activity”. According to Johnson et al. (2007)
and Whittington (2006), the strategy-as-practice approach has concentrated its broad research parameters as studying practitioners, practices, praxis and profession. Johnson et al. (2003) suggest moving to a greater emphasis on how people, rather than the firm, can exert influences on strategic outcomes. The strategy-as-practice approach focuses on a set of change events from a firm level of analysis, as many process studies tend to do (Jarzabkowski and Spee, 2009). Following this approach, my study investigates the activities of logistics practitioners and contributes to our understanding of what logistics practitioners do during the strategy process.

Strategy-as-practice perspective is concerned with what people do and focuses on strategy practitioners (Johnson et al., 2007). However, according to Jarzabkowski and Spee (2009), the existing literature provides relative broad definitions of who might be considered a strategy practitioner. Jarzabkowski and Whittington (2008) treat strategy practitioners as those directly involved in strategy making and those with indirect influence. Whittington (2007) regards strategy practitioners as a diverse set of managers at the top and below as well as actors both internal and external to the organization. Jarzabkowski et al. (2007) and Whittington et al. (2003) claim that strategy practitioners are not only from inside the organization but also outside the organizational boundary. The wide perspective on strategy practitioners has inspired logistics scholars to define logistics practitioners. In logistics management literature, the concept of logistics practitioners is not clearly defined while it usually means logistics managers at the buying company or managers working at the logistics firms. Paper two defines logistics practitioners broadly as managers and practitioners at various levels in the logistics firms, logistics managers at buying firms and logistics consultants, gurus and regulators.

4.4 Synthesis

In line with Olavarrieta and Ellinger (1997), this research considers the RBV as a useful framework to comprehend logistics outsourcing and third party logistics. Besides, the capability perspective has a good potential to be applied in investigating innovation and network development at logistics firms. However, on the one hand, current research mainly focuses on the intra-firm capability development. On the other hand, the importance of interaction and the relationship between logistics firms and their customers need to be considered. It requires an approach to examine inter-firm capability. The industrial network approach is brought in and it is combined with the RBV in order to understand the relationship between the inter-firm capability and innovation as well as network development at logistics firms. The following discussion further illustrate how the RBV and the industrial network approach is combined.
4. Theoretical frameworks

As Figure 4.2 shows, paper three combines the RBV and the industrial network approach in order to investigate the relational and inter-firm level factors in logistics innovation. As Flint et al. (2005) point out, it is crucial to understand the importance of interaction with customers in logistics innovation process. Besides, logistics firms are usually dependent on a number of relationships and innovations at logistics firms are embedded in the relationship networks (Chapman et al., 2003). Thus, paper three combines the capability perspective and the interaction approach to investigate a relational capability, and interaction capability. Johnsen and Ford’s (2006) model is brought in. Paper three builds on Johnsen and Ford’s (2006) interaction capability set and investigates the influence of interaction capability development on logistics innovation.

Figure 4.3 Theoretical framework of the appended paper four

Paper four also combines the RBV and the industrial network approach while the focus is placed on the network capability and the network development of logistics firms. As shown in Figure 4.3, paper four combines the capability perspective and the network perspective in order to develop a theoretical framework. Paper four argues that different types of logistics firms have distinguished capabilities in managing various kinds of networks. The theoretical framework is developed to show that logistics firms have different service capabilities and that their core business ideas shift with the network in focus. The theoretical framework can be
used to comprehend multiple types of logistics firms and to analyze related strategic moves. The theoretical framework is built on Johanson and Mattsson’s (1992) framework and it argues that there are three distinguished networks: networks of actors, networks of systems and networks of physical flows. The theoretical framework further illustrates how the capabilities of three basic types of logistics firms differ in managing these networks.

In contrast, paper two puts on the practice lens, investigating innovation, a crucial strategic issue, at a TPL firm. Innovation in the logistics context has a unique nature due to the fact that it is decentralized rather than centralized (Wagner and Franklin, 2008). Innovation practice and innovative activities are embedded in logistics practitioners’ daily life. Using the strategy-as-practice-perspective approach enables us to describe and to analyze how innovations emerge and evolve over time in logistics firms.
5. Methodology and research process

This chapter concentrates on the issue of methodology. It describes how my field work has been conducted. It starts with a brief discussion on philosophy of science. Methodological considerations are addressed. It concludes with the research process and field study.

5.1 Philosophical considerations

My understanding of science and scientific research has been developed over time. When I first became a doctoral student and took the first doctoral course concerning philosophy of science, I started to consider some philosophical issues seriously. Through discussions with my colleagues, attending methodology courses, and reading related literature, I develop my concepts of philosophy of science. I do believe the process will move on as my academic research continues. However, I can present a general discussion on philosophical issues in order to show that I am modestly versed in and aware of the philosophy of science.

As human beings, we all have assumptions regarding the world and the nature of knowledge. Our debate often starts with a discussion of the ontological question: should reality be perceived as ‘objective’ and given ‘out there’ or as a subjective product of one’s mind (Burrell and Morgan, 1979). According to Guba (1990), the ontological debate concerns the nature of reality and it is the fundamental assumption about reality. On one extreme, one can view reality as an entity that exists out there and stays independent of human mind. On the opposite direction, one views reality as a subjective interpretation by actors themselves and a product of one’s mind. The debate on nature of reality goes hand-in-hand with a discussion regarding actors’ epistemological assumptions. According to Burrel and Morgan (1985), epistemology concerns how one might comprehend the world and communicate that understanding as knowledge to others.

As a researcher, I join the scientific community by sharing and publishing academic essays. As Kuhn (1970) states, working in a particular field of study, we are influenced by a paradigm and we either consciously or subconsciously use assumptions in order to make sense of our observations and thoughts. In the field of logistics and supply chain management, positivism is believed to be the predominant research paradigm (Mentzer and Kahn, 1995; Mears-Young and Jackson, 1997; Spens and Kovacs, 2006; Craighead et al., 2007). As for me, positivism is just a theoretical perspective. I take it in relation to my understanding when I read academic literature. I want to understand and communicate with other researchers in the community. However, it does not mean that I fully agree with the presumptions and results presented. My understanding of scientific research is more in line with critical realism.

Critical realism adopts realist ontology. It assumes that the world exists independently of the researchers. However, the world is not flat. The world is differentiated and stratified (Sayer,
1992). According to Bhaskar (1978), critical realism has a stratified rather than flat ontology while there are three domains of reality: the empirical domain, the actual domain and the real domain. The empirical domain is created when events are experienced by the observers (Bhaskar, 1975). The empirical domain is where observations are conducted and experienced by the observer. The empirical domain consists of what we experience and observe, directly and indirectly (Bhaskar, 1978). In scientific contexts, the empirical domain contains our empirical data, which is always theory-laden and mediated by our theoretical conceptions (Danermark et al., 2002). In other words, we always put on some theoretical lens to investigate the data.

The empirical domain is separated from the actual domain where events happen whether we observe them or not (Bhaskar, 1978). What happens in the world is neither always nor necessarily the same as what is experienced and observed. Events happening in the actual domain may not be observed at all or may be understood rather differently by observers while there is a process of interpretation that intervenes between the actual and the empirical domain (Easton, 2010). The events can be either regular or non-regular and can be either one-offs or patterned (Easton, 2001). However, the actual domain exists independently from the observers. In turn, the actual domain is separated from the real domain. The real domain contains the generative mechanisms existing not only independently from their activations but also independently from the observers (Bhaskar, 1978). The mechanisms in the real domain produce events which occur in the actual domain. Table 5.1 demonstrates the connections among mechanisms, events, experiences and the real domain, the actual domain as well as the empirical domain.

Table 5.1 Mechanisms, events and experiences (Adapted from Bhaskar, 1998)

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<th>Domain of Real</th>
<th>Domain of Actual</th>
<th>Domain of Empirical</th>
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<td>Mechanisms</td>
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</tbody>
</table>

According to Bhaskar (1998), the fundamental assumption of critical realism is the existence of generative mechanisms that conduct events. Besides, critical realists accept that reality is socially constructed but it is not entirely so (Easton, 2010). Following the distinction into three domains, it is crucial to comprehend the reality as constituted by actual events and the empirical experiences as well as to connect the generative mechanisms and the actual events in causal analysis (Aastrup and Halldorsson, 2008). According to Sayer (1992), the world consists of events and objects, including structures, which have powers and liabilities capable of generating events. Structure is a set of internally related objects or practices and structures are nested within structures (Sayer, 1992). Collier (1994) expresses that objects and events have
5. **Methodology and research process**

the power they do due to their structures while structures cause powers to be exercised, give some inputs and efficient cause.

Easton (2010) maintains that the most fundamental purpose of critical realism is to explain and to answer the question concerning what caused those events to happen. Hence, researchers in critical realism are to conduct causal analysis exploring the generating mechanisms and to investigate relationships as well as non-relationships between what we experience, what actually occurs and the underlying mechanisms that generate the events in the world (Danermark et al., 2002). As shown in Figure 5.1, Sayer (1992) illustrates the structure of causality from a critical realism position.

![Figure 5.1 Structure of causality from a critical realism position (Adapted from Sayer, 1992)](image)

The critical realist perspective is also discussed in logistics and supply chain management research. Aastrup and Halldorsson (2008) adopt a critical realist perspective and discuss the epistemological role of case studies in logistics research. Aastrup and Halldorsson (2008) distinguish two types of explanandum in logistics research: logistics performance and logistics practices. Meanwhile, Aastrup and Halldorsson (2008) argue that both logistics performance and logistics practices are produced in open system structures.

### 5.2 The research design

This research has been inspired by the literature on qualitative research method. My research design has been influenced by Maxwell’s (2005) interactive research design framework. As shown in Figure 5.2, the research questions are set as the core of the research design framework. The framework also contains the research goal, theoretical perspectives, methods applied and evaluation criteria. The following discussions present how the framework has guided my research design and what I have done to conduct the research.
5.2.1 Motivations for using case study

The overall research purpose of this thesis is to investigate the TPL phenomena from the logistics firm’s perspective with a focus on logistics innovation and network development. The first and the second research questions are practical oriented problems. Given the aim of the thesis, an in-depth investigation is needed. This thesis applies various theoretical perspectives and intends to become closer to the actors and the arenas. In order to meet the challenges, a case study design is used in this thesis. The following paragraphs discuss my motivations for employ case study approach in my research.

Logistics problems are usually practical oriented problems and logistics research applies multi-disciplinary and cross-functional approaches (Frankel et al., 2005; Naslund, 2002). “In order to provide value to the industry, education in the classroom, the discipline as a whole, logistics researchers must gain “extreme relevance” by understanding what is going on within and between firms” (Frankel et al., 2005, p.203). Dingwall (1997), for example, claims that there are only two basic methods in social research. One is “asking questions”, the other one is “hanging out”. In order to gain extreme relevance, logistics researchers have to spend more time in organizations – by “hanging out” (Naslund, 2002). As for me, relying on the qualitative case study approach is a good way to have a deep understanding.

Case study design has been used synonymously with qualitative research design. Although case studies are typically considered to be qualitative studies, they are not necessarily only qualitative. Case studies can be based on both qualitative and quantitative evidence –
sometimes only quantitative (see e.g. Yin, 1994; Eisenhardt, 1989; Ellram, 1996). Yin (1994) claims that case study does not imply the use of a particular data collection method. What the case study does represent is a research strategy. Eisenhardt (1989, p. 534) goes on: “The case study is a research strategy which focuses on understanding the dynamics present within single settings”. Yin (1994) concludes that the case study as a research strategy is preferred when we are examining contemporary events.

The case study is an ideal method when a holistic, in-depth investigation is required (Feagin et al., 1991). For instance, it allows researchers to consider not only the perspective of the actors within the research but also of the interaction between them (Tellis, 1997). Furthermore, this research strategy can help the researcher to stand and to become closer to the actors and the arenas involved in the processes of interaction among them. In addition, it is important to note that “case and observation research methods appear to be very useful and appropriate for much of the relationship-based (individual to individual and/or organization to organization) research that is becoming increasingly important and popular in the logistics discipline” (Frankel et al., 2005, p.204).

A case study can be used to accomplish various aims. According to Eisenhardt (1989), the case study is a form providing a rich description to testing or generating theories. There is also a discussion whether to use one or multiple cases and what generalizations can be made from case studies. Both Eisenhardt (1989, p. 534) and Yin (1994) mean that one or many cases can be included in a case study. However, both of them seem to prefer many cases, at least for theory building. Other researchers, like Ellram (1996), claim that a single case is useful for theory test. According to Ellram (1996, p. 100), a single case study can be employed to “test a well-formulated theory, an extreme or unique case, or a case which represents a previously inaccessible phenomenon”. Multiple cases, on the other hand, “represent replication that allow for development of a rich theoretical framework” (Ellram, 1996, p.102).

With their approach to case studies and their strong emphasis on validity and reliability, Yin, Eisenhardt and Ellram all seem to belong to a positivist paradigm (Frankel et al., 2005; Naslund, 2002). However, other researchers have a somewhat different opinion (see e.g. Silverman, 1993; Stake, 1994). Stake (1994) argues that the major concern of a case study is to learn from the in-depth investigation of a single case. Although we may simultaneously carry on more than one case study, each case study is a concentrated inquiry into a single case. Consequently, he states: “Generalizations from differences between any two cases are much less to be trusted than generalizations from one” (Stake, 1994, p.242).

The lack of consensus regarding case study research is perhaps an explanation why case studies have not been frequently used in logistics research, as indicated by many authors (Mentzer and Kahn, 1995; Ellram, 1996; Naslund 2002). Ellram (1996, p.93) also states that: “The case study method is one of the least understood and most often criticized research methods today.” Furthermore, the few case studies performed in logistics seem to be primarily based on a positivist paradigm. As Ellram (1996) clearly shows, they are often used in the initial steps in positivist research. To some extent, case studies in logistics can thus mainly be interpreted as minor surveys.
This research applies the qualitative case study approach. Paper one, two and three adopt the case study approach in order to understand logistics innovation at logistics firms. During the research process, various kinds of innovation practices have been captured. Paper four also adopts the qualitative case study approach while the focus is to illustrate a theoretical framework. Paper four combines the resource-based view and the industrial network approach and it develops a theoretical framework in order to explain the network development practices at logistics firms. Paper four uses two cases and connects the network development practices with the developed theoretical framework.

### 5.2.2 Selection of cases

Case selection, in qualitative case study research, is often argued to be made based on purposeful and emerging rather than representative case selection or random sampling (e.g., Lincoln and Guba, 1985). In qualitative case study research, it is even suggested that purposeful sampling is preferred. For example, Eisenhardt (1989, p.537) notes, “The cases can be chosen to replicate previous cases or extend emergent theory, or they may be chosen to fill theoretical categories and provide examples of polar types. While the cases may be chosen randomly, random selection is neither necessary, nor even preferable.” The opportunity to learn is important when selecting cases (Stake, 1994). This means that access, not just to a particular organization, but also to the actual subject for study is important when selecting cases. The subject must be ‘transparently observable’, as Pettigrew (1990) puts it. Keeping this in mind, I follow the logic of ‘purposeful sampling’ (Maxwell, 1998) when I start to look for appropriate cases to study. This involves selecting cases on the grounds of specific criteria originating from theoretical and practical considerations. On case selection, Patton (1990) elaborates further on purposeful sampling and recommends a number of different strategies, for example selecting the unique, critical, important or typical case.

Regarding the number of cases, Eisenhardt (1989, p.545) recommends case research to include between four and ten cases. According to Eisenhardt (1989), fewer than four cases will make it difficult for the researcher to generate a thorough analysis across cases. With more than ten cases, several problems occur. Firstly, the amount of material makes a qualitative case study design unsuitable. Second, it becomes difficult for any reader to grasp and form an overview across cases. Ellram (1996, p.102) maintains that “six to ten cases should provide compelling evidence to support or reject an initial set of propositions”.

Even though the above arguments seem reasonable, I do not find them convincing. As I mentioned before, Yin, Eisenhardt and Ellram seem to belong to a positivist paradigm. Thus, it is not surprising to find out that they are all concerned with issues of validity and generalization. In contrast, I agree with those who argue that one case might be enough and that is not the number of cases but the quality and scope of the empirical material that is the most important factor (Easton, 2003). I also agree with Pettigrew (1990, p.276), for example, who argues that there is a limit to the number of qualitative cases that a single researcher can manage on his or her own:

“The other critical practical consideration which stands alongside the choice of sites is how many sites? Again there is no absolute answer to this question. …In
5. Methodology and research process

our experience, reasonably high standards of input and output can be sustained if each experienced full time researcher conducts no more than four to six cases over a three-year period.”

While there is some advice available on how to choose cases and how many to select for study, the final number of cases to choose is up to the researcher’s judgment. There are no general rules to follow like designing a study where the aim is not statistical generalization. Following the above discussion, paper one chooses and studies three cases. Paper two relies on only one case. Paper three builds on six cases while paper four uses two cases to illustrate a developed theoretical framework. Table 5.2 provides further information about my case companies. Transfargo Logistics has been selected and used as a pilot case study for my research. The pilot case company is selected due to convenience, access and geographic proximity. The pilot case study has provided me with pre-understanding of my research assignment. Afterwards, seven case companies, Aditro Logistics, Oriental Logistics, Dimerco Group, Schenker Logistics, Bring Logistics, Geodis Wilson, and King Freight have been selected and studied in depth. My selection criteria are their market reputation in logistics innovation, openness to share their experience, willingness to participate in our research, and the research project budgetary constraints. I have also taken geographical location into consideration in order to explore the differences in various markets.

As shown in Table 5.2, paper one draws on Transfargo Logistics, Oriental Logistics and Dimerco Group. These three companies are regional players and they are known for being innovative. Paper two uses only one case, Dimerco Group, due to the high quality and the wide scope of the empirical material. Paper three investigates six cases including Oriental Logistics, Bring Logistics, Geodis Wilson, King Freight, Aditro Logistics and Schenker Logistics. Schenker logistics is a global player while the others are regional firms. Paper four uses Oriental Logistics and Dimerco Group as case examples to illustrate a developed theoretical framework.

Table 5.2 Information about the case companies

<table>
<thead>
<tr>
<th>Name of the Company</th>
<th>Focus Market</th>
<th>Way of usage in my study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfargo Logistics</td>
<td>Sweden, Nordic Countries</td>
<td>Paper one</td>
</tr>
<tr>
<td>Dimerco Group</td>
<td>Asia and U.S.A</td>
<td>Paper one, two and four</td>
</tr>
<tr>
<td>Oriental Logistics</td>
<td>China</td>
<td>Paper one, three and four</td>
</tr>
<tr>
<td>Bring Logistics</td>
<td>Sweden, Nordic Countries</td>
<td>Paper three</td>
</tr>
<tr>
<td>Geodis Wilson</td>
<td>Global</td>
<td>Paper three</td>
</tr>
<tr>
<td>King Freight</td>
<td>Asia and U.S.A</td>
<td>Paper three</td>
</tr>
<tr>
<td>Aditro Logistics</td>
<td>Sweden, Nordic Countries</td>
<td>Paper three</td>
</tr>
<tr>
<td>Schenker Logistics</td>
<td>Global</td>
<td>Paper three</td>
</tr>
</tbody>
</table>

My research could have been conducted completely in Sweden with Swedish firms. However, I have decided not to do so. My underlying assumption is that logistics firms in different
regions might operate in various ways. Studying a number of logistics firms in various markets with different cultural background can give me a chance to compare and to analyze both differences and similarities.

5.3 My fieldwork design and research process

5.3.1 Data collection issues

It is believed that interviews, direct observations and documentation are three types of empirical sources that complement each other very well. Pettigrew argues in a more straightforward way (Pettigrew, 1990, p.277):

“Interviews can provide depth, subtlety, and personal feeling. Interviews may also be staged occasions where feeling and evocation is high and factual detail low. Documents can provide facts but are subjected to dangers of selective deposit and survival. Direct observation provides access to group processes and can confront the researcher with discrepancies between what people have said in their interviews and casual conversations, and what they actually do. Crucially, data collection is concerned with observation and verification, and in longitudinal field studies these are iterative processes. One observes, follows themes and trails, identifies patterns, have those patterns disconfirmed or verified by further data, and the process moves on.”

I have several reasons for using multiple empirical sources. Firstly, I want to have rich material for my case presentation and collect as much data as possible for my case analysis. Secondly, as mentioned before, in order to obtain extreme relevance, conducting interviews and asking questions would not be sufficient. By observing daily operation and participating in different meetings, I can get useful insights regarding how people speak and act. Thirdly, I can compare different data generated by different sources and identify discrepancies. By doing so, it gives me clues and hints to perform follow-up data collection. Table 5.3 shows the usage of various data collection methods in different cases.

Table 5.3 The Usage of various data collection methods in the case companies

<table>
<thead>
<tr>
<th></th>
<th>Transfargo Logistics</th>
<th>Bring Logistics</th>
<th>Geodis Wilson</th>
<th>King Freight</th>
<th>Aditro Logistics</th>
<th>Oriental Logistics</th>
<th>Dimerco Group</th>
<th>Schenker Logistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Observation</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Documentation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
5. Methodology and research process

5.3.2 A longitudinal study process

My doctoral thesis is a longitudinal study process in the sense that I conduct interviews and observations with my case companies at different points of time and I collect relevant documents constantly. Figure 5.3 visualizes the longitudinal study process.

![Figure 5.3 Visualization of the longitudinal study process](image)

The study process started in December 2007 when I conducted the pilot study with Transfargo logistics. In January 2008, I started to study Dimerco Group. I visited various offices of Dimerco Group and conducted interviews as well as observations at different points of time. In January 2008, I also initiated the process to study Oriental Logistics. In December 2008, I visited the firm again and collected further information. In April 2008, I initially got in contact with Aditro Logistics. Then I interviewed several people at different offices in October 2008, April 2009 and May 2009 respectively. In November 2008, I started to investigate Schenker Logistics and Geodis Wilson while I accessed these firms multiple times to conduct interviews and observations. Due to practical reasons, I only approached King Freight and Bring Logistics twice within a month in December 2008 and April 2009.

5.3.3 Conducting interviews

Interviews are not unusual in our daily life. People conduct interviews under various situations and different purposes. Few people would argue against the notion that interviewing is one of the most common and useful ways in which we try to understand fellow human beings. Literally consisting of inter and view, the word interview stands for a way in which at least two people exchange views to each other. However, conversation, chatting and other types of informal talking are also ways of exchanging views. Then what makes interview different to conversation? Keats (2000) is not reluctant to provide a definition of the interview which helps us to distinguish it from other ways of exchanging views.
“An interview is a controlled situation in which one person, the interviewer, asks a series of questions of another person, the respondents. It is possible, however, for more than one person to be asking the questions, as in the case where there is a panel of interviews, or for more than one person to be the respondent, as in the case where the interview is with a delegation. The interview is in charge of the direction of the questions, which the respondent agrees to answer. The degree to which the situation is controlled varies greatly according to the purpose to be served” (Keats, 2000, p.1).

Interviewing has been applied widely for different intentions. For instance, interviews are conducted for marketing research, collecting political opinion, therapeutic reasons, or doing academic analysis. The interview can be used for the purpose of measurement or its scope can be the understanding of an individual or a group perspective. Qualitative researchers have realized that interviews are not neutral tools of data gathering but active interactions between two (or more) persons leading to negotiated, contextually based communication (Fontana and Frey, 2000).

During my fieldwork, I have conducted semi-structured interviews with open-ended questions. Conducting open-ended questions in a semi-structured interview situation is a way to avoid bringing bias and this allows the interviewer to provide answers without imposing any predetermined categorization (Fontana and Frey, 2000). Furthermore, the semi-structured interview allows the researcher to ask follow-up questions which help the interviewer to get deeper into the case. In addition to semi-structured interviews, I have also conducted group interviews. In total, 42 interviews have been conducted. A list of interviewees is provided in Table 5.4. A full list of interviewees with all relevant information can be found in appendix A.
## 5. Methodology and research process

The selection of respondents has followed the snow ball principle. After the initial interview with the key respondent in the company, I ask for relevant respondents. When a respondent is reached and interviewed, I ask for the next suitable respondent. Elwood and Martin (2000) argue that the choice of an interview site or location plays a crucial role in qualitative research because of implicit meaning related or associated to a specific place and power relations. Thus, I have conducted most of the interviews in the meeting room or the production site of the company so the interviewee will not feel unfamiliar with the environment. The interviews have been to the greatest possible extent conducted by face-to-face interviews. As for me, the face-to-face interview is a crucial way to build trust. The establishment of trust is key for the

### Table 5.4 A list of interviewees

<table>
<thead>
<tr>
<th>No.</th>
<th>Company</th>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transfargo Logistics</td>
<td>Per Johansson</td>
<td>Deputy CEO</td>
</tr>
<tr>
<td>2</td>
<td>Oriental Logistics</td>
<td>Eric Kei</td>
<td>Management Accounting Manager</td>
</tr>
<tr>
<td>3</td>
<td>Oriental Logistics</td>
<td>Ivan Lo</td>
<td>Senior Project Manager</td>
</tr>
<tr>
<td>4</td>
<td>Oriental Logistics</td>
<td>Raymond Chan</td>
<td>Senior Operation Manager</td>
</tr>
<tr>
<td>5</td>
<td>Oriental Logistics</td>
<td>Stephen Masters</td>
<td>Assistant General Manager, Marketing Dept.</td>
</tr>
<tr>
<td>6</td>
<td>Oriental Logistics</td>
<td>Raymond Chan</td>
<td>Senior Operation Manager</td>
</tr>
<tr>
<td>7</td>
<td>Oriental Logistics</td>
<td>Udo Willhoft</td>
<td>General Manager</td>
</tr>
<tr>
<td>8</td>
<td>Dimerco</td>
<td>Edward Lin</td>
<td>Corporate Vice President</td>
</tr>
<tr>
<td>9</td>
<td>Dimerco</td>
<td>Joey Chou</td>
<td>General Manager</td>
</tr>
<tr>
<td>10</td>
<td>Dimerco</td>
<td>Vickey Wen</td>
<td>Corporate Marketing Manager</td>
</tr>
<tr>
<td>11</td>
<td>Dimerco</td>
<td>Stewart Gao</td>
<td>Director, Northern China</td>
</tr>
<tr>
<td>12</td>
<td>Dimerco</td>
<td>Michael Wan</td>
<td>Assistant General Manager, Northern China</td>
</tr>
<tr>
<td>13</td>
<td>Dimerco</td>
<td>Holly Fan</td>
<td>MNC Team</td>
</tr>
<tr>
<td>14</td>
<td>Dimerco</td>
<td>Yan Geng</td>
<td>Assistant Manager</td>
</tr>
<tr>
<td>15</td>
<td>Dimerco</td>
<td>Lucy Lu</td>
<td>Manager, Import Department</td>
</tr>
<tr>
<td>16</td>
<td>Dimerco</td>
<td>Bin Cui</td>
<td>Manager</td>
</tr>
<tr>
<td>17</td>
<td>Dimerco</td>
<td>Jason Kang</td>
<td>Export Manager</td>
</tr>
<tr>
<td>18</td>
<td>Dimerco</td>
<td>Wang</td>
<td>In-house representative</td>
</tr>
<tr>
<td>19</td>
<td>Dimerco</td>
<td>Steven Kuo</td>
<td>General Manager, North America</td>
</tr>
<tr>
<td>20</td>
<td>Dimerco</td>
<td>John Farry</td>
<td>Assistant Branch Manager, North America</td>
</tr>
<tr>
<td>21</td>
<td>Dimerco</td>
<td>Greg Spudic</td>
<td>Regional Vice President, North America</td>
</tr>
<tr>
<td>22</td>
<td>Dimerco</td>
<td>Paul Chien</td>
<td>President</td>
</tr>
<tr>
<td>23</td>
<td>Bring Logistics</td>
<td>Peter Thulin</td>
<td>Marketing director</td>
</tr>
<tr>
<td>24</td>
<td>Bring Logistics</td>
<td>Mattias Danielsson</td>
<td>Warehouse manager</td>
</tr>
<tr>
<td>25</td>
<td>Geodis Wilson</td>
<td>Victor Wong</td>
<td>Operation Director, CEN China</td>
</tr>
<tr>
<td>26</td>
<td>Geodis Wilson</td>
<td>Stefan Wallman</td>
<td>Business Solution Manager</td>
</tr>
<tr>
<td>27</td>
<td>Geodis Wilson</td>
<td>Jesper Axell</td>
<td>Sales Manager, Sweden</td>
</tr>
<tr>
<td>28</td>
<td>King Freight</td>
<td>J.P. Tseng</td>
<td>Chairman</td>
</tr>
<tr>
<td>29</td>
<td>King Freight</td>
<td>Tim Wang</td>
<td>General Manager, H.KandGuangdong Region</td>
</tr>
<tr>
<td>30</td>
<td>Aditro Logistics</td>
<td>Fredrik Nygren</td>
<td>Sales Development Manager</td>
</tr>
<tr>
<td>31</td>
<td>Aditro Logistics</td>
<td>Fredrik Nygren</td>
<td>Sales Development Manager</td>
</tr>
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<td>32</td>
<td>Aditro Logistics</td>
<td>Fredrik Kronander</td>
<td>Operation Manager</td>
</tr>
<tr>
<td>33</td>
<td>Aditro Logistics</td>
<td>Johan Widheimer</td>
<td>Sales Manager, Jonköping</td>
</tr>
<tr>
<td>34</td>
<td>Aditro Logistics</td>
<td>Leif Dahlander</td>
<td>Managing Director, Borås Office</td>
</tr>
<tr>
<td>35</td>
<td>Aditro Logistics</td>
<td>Maria Andersson</td>
<td>Key Account Manager, Borås Office</td>
</tr>
<tr>
<td>36</td>
<td>Aditro Logistics</td>
<td>Claes Larsson</td>
<td>Operations development manager</td>
</tr>
<tr>
<td>37</td>
<td>Schenker Logistics</td>
<td>Marcus Balzereit</td>
<td>General Manager, Central/North China</td>
</tr>
<tr>
<td>38</td>
<td>Schenker Logistics</td>
<td>Schnell Jeng</td>
<td>Managing Director</td>
</tr>
<tr>
<td>39</td>
<td>Schenker Logistics</td>
<td>Michael Tung</td>
<td>Director, South China</td>
</tr>
<tr>
<td>40</td>
<td>Schenker Logistics</td>
<td>Arnold Svensson</td>
<td>Account Manager, Näsajo</td>
</tr>
<tr>
<td>41</td>
<td>Schenker Logistics</td>
<td>Thommy Brewitz</td>
<td>Sales manager and customer service manager</td>
</tr>
<tr>
<td>42</td>
<td>Schenker Logistics</td>
<td>David Hoffmann</td>
<td>Regional Manager, Gothenburg</td>
</tr>
</tbody>
</table>
follow-up interview. In some cases, some respondents have been interviewed more than once for different purposes. I have worked hard to interview them to their convenience. However, given the fact that some respondents are situated far away and it is costly to interview them face to face all the time, I have conducted some telephone interviews as a way to conduct follow up interviews.

Before each single interview, I had prepared the interview questions thoroughly and made an interview guideline including a set of questions. As mentioned before, this doctoral thesis is a longitudinal study process. During this process, I constantly learned new things from the interviewees. As a result, I continuously developed the interview guideline in order to have a better interaction with the respondent and to get deeper insights. When I was scheduling an interview with the respondent, I first explained my purpose of the project and my study. Then I presented my research interests. I have also sent the interview guideline to the respondent so the respondent could have a general picture regarding what the interview is about. During the interview, I asked for permission of using a tape-recorder or a digital recorder. If the respondents felt uncomfortable with the recorder, I took clear notes instead. The respondents were encouraged to speak as much as possible. After the interview, I transcribed the dialogue and sent the transcript to the respondent. The respondent was asked to check the transcript and have it approved before making any use of it in the research.

Originally, all the interviews were designed to be conducted in English. However, some respondents felt more comfortable to use their native language. In most cases, I have tried to use the language that my respondents prefer. If the interview was not conducted in English, I translated the interview transcript into English. Then I sent the translated transcript to the respondent and the respondent was asked to check if the translation was accurate or not. If the translation did not reflect the original meaning of the respondent in a correct way, the respondent was required to provide comments. Afterwards, I improved the translation based on the comments.

At some instances, I was accompanied by some fellow researchers during the interviews. There are two reasons for so doing. First, I need the fellow researcher to introduce me to the firm and the respondent. It helps me to build the relationship and trust. Second, I am involved in a research project and the interviews are part of the research project. Thus, I conduct the interview jointly with my colleagues. In these cases, I would discuss with my colleagues to clarify our roles and agree upon some issues before the interviews took place. During the interviews, I would explain to the respondents the role of my colleagues so that they would feel at ease with their presence. Third, the language concern has prompted me to cooperate with Swedish speaking students. Mandarin and Cantonese are my mother tongues while English is my working language. However, my Swedish is not good enough to be my working language. When I interviewed Swedish speaking executives, I often did it together with some Swedish speaking students. These students joined me since they also needed to collect data for their work. After the interview, we jointly transcribed the it and discussed the meaning of certain sentences together.
5. **Methodology and research process**

### 5.3.4 The use of observations as empirical material

According to Hammersley and Atkinson (1983), all social research can be seen as a form of observation. Observational research is characterized as a fundamental base of all research methods in social science (Angrosino and Mays de Pérez, 2000). In this research, observations are used in order to fulfill different purposes. Firstly, they are used as an essential complementary source to interviews and other empirical material. Secondly, visiting the premises of the TPL firms and their customers involved in interaction of logistics service development gave me a sense of the environment and surrounding. It is a good chance to take photos of the surrounding and daily operation. Thirdly, the field visits can be a crucial way to establish a good relationship with key respondents. Additionally, it is a good way for me to provide them with the impression that I could be trusted and that they and their organizations can make use of the research. Fourthly, I also tried to join other types of formal or informal communication, such as coffee breaks, meals, trade fairs, conferences, and company presentations, etc. in order to catch other types of information and data.

During my field work, I first of all asked for permission to visit the premises of the companies, sites of daily operation and join the meetings. When the access is granted, I kept track of my observation by recording the meetings, making intensive filed notes, taking photographs, writing down specific reactions and expression of those actors, and taking notes about the general setting. Furthermore, during the formal and informal communication, I also took notes of my impressions and reflection of the interaction and content of what I saw and heard. Even though I make as many notes as possible, I concentrated on the issues around the content of interaction in generating logistics innovation as well as service network development.

### 5.3.5 The use of documentation as empirical material

When meeting and interacting with the respondents in my research, I collected secondary data in the form of documentation for each case. The minutes helped me to compare my own notes of the meetings with the minutes taken by the secretary in order to see if I had missed something essential. During my field work, I tried to keep track of the documentations such as company material and websites.

When I was using the documents, I was trying to be critical with the material. I tried to find out the original source of the documents. I was fully aware of the fact that all of the documents were made for other purposes rather than made for my study specifically. I always made an effort to find out what the documents were made for. Then I kept this information in mind when using the documents.

### 5.4 Data handling process

The data analysis process was a long learning process. I constantly looked at my empirical material and tried to make sense of it. At the first stage, I conducted a pilot case study with
Transfargo Logistics. The pilot case study brought me into the field and gave me the first learning experience. Afterwards, I summarized my learning experience and modified my interview guidelines accordingly. Through the pilot case study, I learned that people at logistics firms do not use academic language. They do not like abstract concepts while they prefer straightforward communications. I kept these issues in mind and conducted further interviews with Oriental Logistics and Dimerco Group. In turn, paper one was written while Sawhney et al.’s (2006) innovation radar was applied to analyze the empirical material. The analysis process was a coding process. All of the empirical data were coded and analyzed along the innovation radar model.

Thanks to the openness and the support of Dimerco Group, I had the opportunity to visit a couple of sites in China and the U.S. A larger number of interviews were carried out while a lot of empirical material was collected. It is interesting to point out the fact that all of the interviews with American executives were easy to understand. I basically did not need to interpret the data. In contrast, the interviews with Chinese executives were rather difficult to handle in the sense that there were many hidden messages and I needed to interpret the data from different perspectives. Nevertheless, most of the information was related to daily activities and practical issues. Paper two was built on this case study and adopted a strategy-as-practice perspective. The empirical data was also analyzed according to the coding process with the focus placed on activities of logistics practitioners.

Later in the research process, Bring Logistics, Geodis Wilson, King Freight, Aditro Logistics and Schenker Logistics were studied. In addition, Oriental Logistics was approached again while further interviews were conducted. Thanks to the previous experience in the research process, a great deal of material was gathered. Even though the number of interviews for each of the case company was low, a lot of empirical data had been collected. All of the empirical data was analyzed along the interaction capability set according to the coding process. As a result, paper three was produced.
5. **Methodology and research process**

Table 5.5 Summary of empirical evidence and the relation to the appended papers

<table>
<thead>
<tr>
<th>Title</th>
<th>Paper One</th>
<th>Paper Two</th>
<th>Paper Three</th>
<th>Paper Four</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
<td>How do Regional Third party Logistics Firms Innovate? A cross-Regional Study</td>
<td>Innovation in an international third party logistics firm: A strategy-as-practice perspective</td>
<td>The impact of interaction capability development on logistics innovation</td>
<td>Networks and capabilities as characteristics of logistics firms</td>
</tr>
<tr>
<td><strong>Research purpose</strong></td>
<td>Analyze how regional TPL firms interact with their clients to generate innovation</td>
<td>Describe and analyze how innovation emerge and evolve over time in logistics firms</td>
<td>Investigate the influence of interaction capability development on logistics innovation</td>
<td>Describe and analyze how logistics firms differ in terms of core competence and network development and the effects of the difference</td>
</tr>
<tr>
<td><strong>Type of research</strong></td>
<td>Empirical paper</td>
<td>Empirical paper</td>
<td>Empirical paper</td>
<td>Theoretical paper</td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>Qualitative case study</td>
<td>Qualitative case study</td>
<td>Qualitative case study</td>
<td>Qualitative case study</td>
</tr>
<tr>
<td><strong>Number of Interviews</strong></td>
<td>7</td>
<td>15</td>
<td>28</td>
<td>20</td>
</tr>
<tr>
<td><strong>Case Companies</strong></td>
<td>Transfargo Logistics, Dimerco Group, Oriental Group</td>
<td>Dimerco Group</td>
<td>Schenker Logistics, Oriental Group, Aditro Logistics, King Freight, Geodis Wilson, Bring Logistics</td>
<td>Oriental Group, Dimerco Group</td>
</tr>
</tbody>
</table>

Paper four used two case companies in order to illustrate a developed theoretical framework. The material comprised extracts from Oriental Logistics and Dimerco Group. The analysis process was also a coding process while the focus was placed along the developed theoretical framework. Table 5.5 summarizes the types of empirical evidence and the relation to the appended papers as well as the research questions. It is crucial to point out that Paper five is not discussed in this section. It is not included in Table 5.5 either. The reason is due to the fact that paper five is a study of the existing third party logistics research. It does not rely on any of the case companies. The analytical process of paper five is described in chapter seven instead.

### 5.5 Evaluation criteria

As for academic research, evaluation criteria are needed so readers can base on the criteria and judge the quality, especially trustworthiness of the work. In addition, readers also need the criteria to judge if the author has conducted the work in a scientific way. Influenced by the dominating functionalism paradigm, logistics researchers tend to agree on evaluation criteria like validity and reliability and argue that science in logistics should provide consistency in method, exclusion of human values and emotions, as well as external and internal validity (Dunn et al., 1994). In a similar way, Mentzer and Kahn (1995) assert that the concepts of validity, reliability, and precision must be incorporated in order to assure the acceptability of
study findings. However, as discussed above, logistics management as a research field is experiencing a movement towards placing more reliance on naturalistic and interpretivist-inspired qualitative methods. According to Halldorsson and Aastrup (2003), if alternative quality views are not discussed, a methodological misfit might appear. Therefore, depending on the actual research objects, empirical setting, theoretical and methodological approaches, it might be superficial and artificial to simply apply the traditional criteria to justify and judge our research conducts (Halldorsson and Aastrup, 2003).

Instead, as for qualitative research, several researchers argue that other criteria of interpretations of the original measurements are needed when assessing quality and trustworthiness (Guba and Lincoln, 1989; Lincoln and Guba, 1985; Maxwell, 1992). Perhaps the most widely applied criteria to judge the trustworthiness of qualitative research are the concepts developed by Lincoln and Guba (1985): credibility, transferability, dependability and confirmability. These criteria are applied in order to evaluate my work. I therefore go through these criteria in some detail and I will make a couple of points showing how I have reasoned when I was planning and conducting my work.

First, credibility indicates the level of confidence that the material has from the interviewee’s and respondent’s viewpoint. According to Lincoln and Guba (1985, p.301-315), credibility can be enhanced by, for instance, persistent observation, triangulation, referential adequacy material, peer debriefing, member checks and prolonged engagement. Regarding credibility, first of all, I have tried to conduct multiple rounds of interviews and observations over time. Through this type of prolonged engagement and persistent observation in all cases, I have been able to see the developments taking place in the course of my research process. I have also tried to use various empirical sources when reporting my cases. I have compared my interview transcription with my notes of observations and collected documentations. I have also tried to detect discrepancy among these sources of material and find out if the respondents are consistent in different environments. In addition, I have picked up several respondents representing different views within the same focal firm in order to extend the perspective to more than merely the managers’ views.

As far as I am concerned, another point also becomes crucial in terms of credibility. How can I have the respondents to tell the truth and say as much as they want? I have done several things to achieve my purpose. I have used different ways to establish trust with the respondent. In informal circumstances, I try to socialize with the respondent and diminish the mental distance. When planning and conducting the interviews, I work hard to generate a comfortable feeling for the respondents and encourage them to speak freely. If the respondent feels hesitated with certain things, I try to give them the assurance of confidentiality and anonymity. Last but not least, in most of the cases, I have tried to use the respondents’ native language to facilitate the process.

Second, transferability is the degree of applicability of the findings and how they can be transferred and translated to other setting or cases. A similar term to transferability is generalizability. When people discuss generalizability, they often tend to discuss the conventional notion of statistical generalization. It refers to the extent to which findings can be claimed to be valid for the whole population of cases from which the sample investigated
5. **Methodology and research process**

In the study, statistical generalization becomes a problem since the sample of qualitative research is seldom large and random. This is also true for my doctoral thesis. In many cases, the conventional notion of statistical generalization is a critique of qualitative research for not being able to generate valid results. In contrast, qualitative researchers discuss and argue for other types of generalization. A brief discussion regarding the meaning of generalization in qualitative research might be in order.

In my eyes, outcomes of qualitative research are important while knowledge and theoretical concepts originated and generated from the interpretations are also crucial. As Merriam (2002) points out:

“If one thinks of what can be learned from an in-depth analysis of a particular situation or incident and how that knowledge can be transferred to another situation, generalizability in qualitative research becomes possible.” (p.28)

As such, a different type of generalization is dealt with. Generalization in qualitative research should probably indicate the interpretations, concepts, theoretical notions and models that can stimulate and encourage understanding, thinking and reflection of others. As Maxwell (1998, p.77) suggests, “[A] useful theory is one that tells an enlightening story about some phenomenon, one that gives you new insights and broadens your understanding of that phenomenon”. Hence, transferability could be interpreted as the extent to which the interpretations, results and conclusions can lead to reflectivity and new thinking. This is a key point which I have strived for in my data collection and interpretation.

Third, **dependability** means the degree of trustworthiness the material can demonstrate in terms of minimizing researchers’ idiosyncrasies. This issue becomes critical in qualitative research since the interpretations of empirical material are usually subjective operations. Lincoln and Guba (1985, p.316-p.318) relate the relationship between dependability and credibility to the relationship between validity and reliability. They recommend that researchers can use an external auditor to authenticate both the progress and process of a research project.

In my research, respondents are allowed to access the text. In all cases, I have sent my translation, transcription and interpretation of the interview to my respondents. The respondents were required to check and to provide me with feedbacks. As for me, it is a good way to avoid misusing facts and statements. Additionally, it is also a beneficial method to investigate whether my interpretations and conclusions appear reasonable and plausible to the people active in the context under study. Respondents are also requested to give me the authority for using and publishing the material. In some occasions, I was accompanied by senior researchers. I presented my transcription to the senior researchers and asked for their comments. In other instances, I passed my material to my colleagues knowledgeable with the focal firms and my research topic. Their comments have also been taken into consideration.

Fourth, **confirmability** is related to the findings of a study and states that trustworthiness can be discussed in terms of level of confirmation and corroboration by others. In my case, I have transcribed all the interviews and sent it out for comments. I have created a database to include all of my empirical data. I have written detailed case description based on my empirical data. All information can be traced back to its original source.
5.6 Methodological limitations

Even though I have tried my best to conduct a solid research, this study has several methodological limitations. First, despite the fact that I have observed some daily meetings at my case companies, there has been no direct participation or observation of strategic meetings concerning innovations and network developments. Thus, an in-depth understanding of the strategic issues is hindered. Second, the data analysis has been carried out by the researcher himself. Even though I have made a lot of efforts to avoid personal bias, I still cannot be sure that my analysis is unbiased.

Third, all the case companies are logistics firms. This is not consistent with my understanding of logistics innovation. In this research, logistics innovation is comprehended as something new to a focal audience. It means that the newness depends on the customer. Therefore, I should have taken some customers into the study. During the research process, I did try to approach the customers of my case companies. However, none of them were willing to participate. Meanwhile, my case companies were reluctant to actively approach the customers for my study. Therefore, I do not have any customers’ perspective in my research. As for the future research, it would be beneficial to take the buying firm’s perspective into considerations. I could start my research with a customer and ask the customer to communicate with logistics service providers.
6. Results from appended papers

This chapter provides the results from the appended papers. An overview of the appended papers is provided in Table 6.1. The results from each appended paper are presented in sequence.

Table 6.1 An overview of appended papers

<table>
<thead>
<tr>
<th></th>
<th>Paper One</th>
<th>Paper Two</th>
<th>Paper Three</th>
<th>Paper Four</th>
<th>Paper Five</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
<td>How do Regional Third party Logistics Firms Innovate? A cross-Regional Study</td>
<td>Innovation in An International Third Party Logistics Firm: A Strategy-as-Practice Perspective</td>
<td>The Impact of Interaction Capability Development on Logistics Innovation</td>
<td>Networks and Capabilities as Characteristics of Logistics Firms</td>
<td>Research and Knowledge Creation Approaches in Third party Logistics Studies</td>
</tr>
<tr>
<td><strong>Research focus</strong></td>
<td>Innovation at logistics firms</td>
<td>Innovative works at logistics firms</td>
<td>The underlying mechanism on logistics innovation</td>
<td>Distinguish logistics firms in terms of service capability and network development</td>
<td>Describe and analyze the evolution of TPL research</td>
</tr>
<tr>
<td><strong>Research purpose</strong></td>
<td>Analyze how regional TPL firms interact with their clients to generate innovation</td>
<td>Describe and analyze how innovation emerge and evolve over time in logistics firms</td>
<td>Investigate the influence of interaction capability development on logistics innovation</td>
<td>Describe and analyze how three types of logistics firms differ in terms of core competence and network development and the effects of the difference</td>
<td>Describe and analyze the evolution of TPL research with a focus on the level of analysis, research methods and knowledge creation approaches</td>
</tr>
<tr>
<td><strong>Type of research</strong></td>
<td>Empirical paper</td>
<td>Empirical paper</td>
<td>Empirical paper</td>
<td>Theoretical paper</td>
<td>Analysis of literature</td>
</tr>
<tr>
<td><strong>Theoretical framework</strong></td>
<td>Service innovation literature Innovation Radar</td>
<td>Strategy-as-practice perspective</td>
<td>The resource-based view The Industrial network approach</td>
<td>The resource-based view The Industrial network approach</td>
<td>Logistics research literature</td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>Qualitative case study</td>
<td>Qualitative case study</td>
<td>Qualitative case study</td>
<td>Qualitative case study</td>
<td>Literature study</td>
</tr>
<tr>
<td><strong>Contribution</strong></td>
<td>Addresses innovation with a focus on the regional third party logistics firms</td>
<td>Applies a micro perspective to describe and to analyze innovative works</td>
<td>An attempt to find out the underlying mechanisms on logistics innovation</td>
<td>A first attempt to classify logistics firms in terms of service capabilities and service networks</td>
<td>An initial attempt to take an inward look at third party logistics research trends and developments</td>
</tr>
</tbody>
</table>
Paper 1:
How Do Regional Third-Party Logistics Firms Innovate? A Cross-Regional Study

By: Cui, Lianguang, Su, Shong-lee, and Hertz, Susanne (2009)

Companies are facing various challenges such as complexities of global trade, increased competition worldwide and continued downward pressure on prices and margin (Sheffi, 1990; Wilding and Juriado, 2004; Lieb, 2008) In order to meet the challenges, many companies outsource their logistics activities to third party logistics firms (TPL). Even though TPL users would like to work with a single TPL provider, the extent of the volume involved and geographical coverage required has made it very hard for one provider to fulfill the requirements (Lieb and Bentz, 2005) Thus, the global players need to cooperate with regional-based medium-sized players. Despite the fact that regional TPL firms are critical in global supply chain management, little work has been conducted to investigate regional TPL firms. There has been even less research in innovation and new service development for regional third-party logistics firms. This paper seeks to address the following research question: How do regional TPL firms interact with their clients to generate innovation?

This paper reviews TPL literature and service innovation studies. Sawhney et al.’s (2006) innovation radar is applied to analyze the empirical findings. A qualitative case study approach is adopted in this paper. The research follows a multiple case study approach, a purposive sampling and multiple data collection methods (Eisenhardt, 1989; Yin,1994). Empirical findings are gathered with the key managers of three regional 3PL firms, Dimerco Express Group, Oriental Logistics, and Transfargo Logistics. The empirical is analyzed along the innovation radar model.

The paper finds that all case companies are innovative in that they offer more service products than do traditional TPL firms. The three companies rely on their core competences (platforms) to generate new service products. They either combine several existing service products in order to provide new offerings or add new services to their existing service offerings. These three case companies are client oriented and make good use of their building blocks to provide customized services to their clients. Besides, the case companies attach great importance to their core operating processes and constantly look for new ways to improve efficiency and effectiveness. Through innovation and new service development, the three case companies have leveraged their brands into new domains.

In sum, three regional TPL firms based in Hong Kong, Sweden and Taiwan have been studied. Each firm has developed new services for its clients. By providing innovative offerings, these firms have achieved customer satisfaction and loyalty. The international comparative analysis provides interesting information regarding the innovation development of the three regional TPL firms. Each TPL firm is unique based on the type of clients and the region it serves.
Paper 2:
Innovation in An International Third Party Logistics Firm: A Strategy-as-Practice Perspective

By: Cui, Lianguang, Hertz, Susanne, and Su, Shong-lee (2010)

Logistics firms are critical for the economy but they have received very little attention in strategic management and logistics management literature. This paper tries to fill in this gap by looking at a specific strategizing process, innovation, at an international third party logistics firm (TPL). Innovation in the logistics context has a unique nature due to the fact that it is decentralized rather than centralized (Wagner and Franklin, 2008). Innovation work and innovative activities are embedded in logistics practitioners’ daily life. Using strategy-as-practice perspective, this study is to describe and to analyze how innovations emerge and evolve over time in logistics firms. The research question of this study is: what daily activities and practices do logistics practitioners conduct to generate innovation?

Since this study intends to depict the practice of logistics practitioners at an international logistics firm, it is appropriate to follow the qualitative approach. This research is based on empirical findings obtained through a single case study with empirical data collection through semi-structured interviews, observations and documentations with an international TPL firm, Dimerco Group, in different regions. The empirical data has been analyzed according to the coding process (Miles and Huberman, 1994; Ellram, 1996). The coding process has focused on activities of logistics practitioners. This study has generated eight categories in the practices of logistics practitioners. The eight categories include focusing, interacting, analyzing, idea generating, justifying, developing, transferring and creating atmosphere.

The focusing concerns the strategic focus of a firm to generate innovation. Customers outside the core business area will not be taken into consideration for innovation. Interacting refers to the most common day-to-day activities conducted by logistics practitioners. It contains sharing information among practitioners, customers, regional offices, customers’ suppliers and customers. Analyzing concerns the analysis of reports and documents created by logistics practitioners. Idea generating occurs when there is a gap between customer needs and service offerings. Based on customer’s requirements and company capabilities, logistics practitioners come up with new ideas in order to serve customers.

Justifying refers to activities taken by regional offices and the head office to justify the investment and investigate the costs and benefits. Developing concerns the development of new ideas and new service offerings. Transferring occurs when new ideas are developed into new service offerings and successfully implemented. The successful case will be transferred to other regional offices. Creating atmosphere refers to activities taken by the head office and regional offices of a firm aimed at creating a positive environment to encourage change and new ideas.
In short, the empirical findings of these practices are useful for guiding practitioners to innovate in the logistics industry. This paper provides a unique revelation of how innovations emerge and evolve over time. It is proposed that intra-organizational interactions as well as inter-organizational interactions are essential in the innovation process at logistics firms. The innovation process at logistics firms is a complicated process including both top-down and bottom-up processes. It is vertically decoupled and multidirectional. Innovation at logistics firms emerges as a combination of an ad hoc response to a customer request and a purpose driven interactive process.

Paper 3:
The Impact of Interaction Capability Development on Logistics Innovation.

By: Cui, Lianguang (2011)

This study combines industrial network approach and resource-based view in order to examine the impact of inter-firm capability development on logistics innovation. Drawing on Johnson and Ford's (2006) theoretical framework, the research purpose of this paper is to investigate the influence of interaction capability development on logistics innovation. The following research question is addressed: how does interaction capability development impact logistics innovation in logistics firms?

This paper applies a qualitative case study approach in order to enable a holistic examination. This research adopts theoretical and purposeful sampling. Six logistics firms have been selected and studied. The six-case companies include Schenker Logistics, Oriental Logistics, Aditro Logistics, King Freight, Geodis Wilson and Bring Logistics. This study collects data through interviews, observations and documentations. In all, 28 interviews have been conducted with 25 respondents. The empirical data has been analyzed according to the coding process.

The empirical findings have shown that the four elements of the interaction capability set are all necessary for logistics firms to innovate. Human interaction capability enables bilateral development of knowledge between logistics firms and their customers. It is crucial for forging logistics innovation through daily operations. Technological interaction capability helps logistics firms to use their knowledge and resources in order to turn customers’ requirements into innovative offerings. Managerial system interaction capability triggers logistics firms to catch opportunities and exploit opportunities to conduct innovation. It also helps logistics firms to overcome barriers during the innovation process. Cultural interaction capability drives logistics firms to proactively search for innovative solutions.

In sum, interaction capabilities developed by logistics firms enable them to proactively identify customer needs and translate customer requirements into new service offerings. The development of interaction capability guides logistics firms to innovate in the right direction and it helps them at the same time to overcome barriers in the process. Executives at logistics
firms need to understand the importance of interaction capability development. They can concentrate on the development of interaction capabilities to capture and to exploit opportunities in order to generate innovative offerings. Besides, cultural interaction capability is the most critical element of the interaction capability set for logistics firms to innovate along the whole innovation process. Executives need to aim for and consider the development of cultural interaction capability at each stage of the whole innovation process.

This study has only focused on interaction capability development from the logistics firm perspective. Due to the design of this study, customer perspective is not addressed nor analyzed. Logistics firms and their customers might have different opinions on interaction capability development. Future research can take both the logistics firm and customer perspectives into consideration and analyze the differences.

Paper 4:  
Networks and Capabilities as Characteristics of Logistics Firms

By: Cui, Lianguang and Hertz, Susanne (2011)

This paper also draws on the resource-based view and the industrial network approach in order to show that logistics firms have different service capabilities and that their core business ideas shift with the network in focus. The research purpose of this paper is to describe and analyze how three types of logistics firms differ in terms of core competence and network development and the effects of the difference.

The paper argues that there is a logistics service supply chain. The three basic types of logistics firm, carriers, logistics intermediaries and third party logistics firms are interdependent and they interact with each other in the logistics service supply chain forming a vertical network of different logistics firms. The three types of logistics firms cooperate horizontally with each other and with their own types.

Further, this study argues that logistics firms are networking firms because their business idea is based on connecting organizations, coordinating activities, and combining the resources of different organizations. These tasks take place in three different networks: networks of actors, networks of service systems, and networks of physical flows. Logistics firms are part of these three networks but the focus of logistics firms differ. As for the network of actors, carriers have varying geographical coverage from narrow to wide and the horizontal networks of actors differ. Logistics intermediary firms have very wide geographical coverage by establishing subsidiaries of forming alliances with local partners. The horizontal network of actors is wider than that of carriers. In comparison, third party logistics firms have narrower coverage and the horizontal network of actors is the narrowest.

As for the networks of systems, carriers invest heavily in means of transport, transport equipment, and related infrastructures. The know-how of carriers lies in moving products
from point A to point B in the most efficient way. In contrast, the major task of logistics intermediary firms is to consolidate physical goods. They focus on coordinating multiple clients and carriers. However, their capability in operating networks of systems is lower than that of carriers. TPL firms attach great importance to effectiveness. They try to make good use of their warehouses while they also provide various value-added services to their clients. Their capability in operating networks of systems is even lower.

The third network of vital importance to the logistics firms is the network of clients’ physical flows. As for carriers and logistics intermediary firms, they are usually part of several industrial supply chain networks. They have a large number of clients. Due to their large number of clients, they cannot go deeper in any clients’ supply chain. Their capabilities of managing physical flows of any specific industrial supply chain are low. In comparison, TPL firms are taking over more activities and investing in the resources needed for the customers’ physical flows along the industrial supply chain. TPL firms have a relatively small number of clients and they go deeper in their clients’ supply chain. The capabilities of TPL firms in managing physical flows of any specific industrial supply chain are high.

In order to demonstrate how the framework can be used, two case studies of logistics firms have been used. As a third party logistics firm, Oriental Logistics has seen new business opportunities in providing freight forwarding services and has tried to add freight forwarding services to its service portfolio. The process shows that there cannot be two logics of value creation at the same time. As a result, a new daughter company is created. In contrast, DEG started to provide mainly air freight forwarding service. It intended to offer a wider scope of services and moved into third-party logistics business. However, it had no capabilities in managing networks of vertical actors and networks of clients’ physical flows. Thus, DEG created a separated unity acting as a third-party logistics firm.

In sum, logistics firms have clear differences in capabilities and network focus. These firms follow different dominating logics of value creation that make them develop in different ways and think totally differently. This research enhances our understanding of the different logics of logistics firms and their interdependence. They are complementary and interacting in the logistics service supply chain. Moving between the basic types of logistics firms means changing the capabilities and network focus, which is costly and difficult. The conceptual framework can be used as a tool to comprehend multiple types of logistics firms. It also helps us to analyze related strategic moves.
Paper 5:
Research and Knowledge Creation Approaches in Third Party Logistics Studies

By: Cui, Lianguang (2011)

In the past two decades, logistics researchers have published a plethora of articles regarding TPL in academic journals as well as professional magazines. During this time period, several intensive reviews of TPL literature, such as Razzaque and Sheng (1998), Maloni and Carter (2006), Selviaridis and Spring (2007), Marasco (2008) as well as Lukassen and Wallenburg (2010) have been published. These publications reveal that the existing studies are mainly empirical and descriptive in nature and lack theoretical foundations. Several researchers have argued that TPL as a research field is still in its early stage of development (Selviaridis and Spring, 2007; Marasco, 2008).

Despite efforts to synthesize research on TPL, the existing literature reviews have primarily concentrated on classifying and categorizing relevant articles. Further, these pieces of works have not reflected on the development of TPL research over time. Little work has been carried out to take an inward look at TPL research trends and developments in order to evaluate the progress and maturity of the field. Hence, as an initial attempt to fill this gap, this paper intends to describe and analyze the evolution of TPL research with a focus on the level of analysis, research methods and knowledge creation approaches.

In order to fulfill this research purpose, the paper concentrates on articles from five established logistics and supply chain management journals: International Journal of Logistics Management (IJLM), Transportation Journal (TJ), Journal of Business Logistics (JBL), International Journal of Physical Distribution and Logistics Management (IJPDLM) and International Journal of Logistics: Research and Application (IJLRA). This study follows Selviaridis and Spring (2007) and Marasco (2008) to decide the searching keywords. Third party logistics, TPL, 3PL, logistics outsourcing, logistics alliance, logistics partnership, and contract logistics were used as keywords to search for relevant articles from the target journals. According to Marasco (2008), there no contributions were made in this particular area prior to 1990. Thus, this research chose 1990 as the starting year and 2010 as the ending year to identify publications. In sum, 131 articles were found during this time period.

This study has found out that TPL research has been developing constantly during the last two decades. Logistics researchers are switching their focus from the buyer’s perspective to the provider’s perspective and the dyad perspective. Survey-based method has been the most popular approach for logistics researchers to study TPL phenomena over time. Logistics researchers have been publishing storytelling type of research continually while the research field has been evolving gradually by generating new concepts and refining the existing knowledge. However, TPL research has yet to mature since only a few studies have been carried out in order to expand the knowledge base.
This paper is an initial attempt to track the evolution of TPL research. It takes an inward look at third party logistics research trends and developments in order to evaluate the field’s progress and the development it has made on the path to maturity. The study provides logistics researchers with an evolutionary picture of TPL studies. However, it has only focused on the articles from five selected journals. Thus, it is not an all-inclusive research.
7. Analysis

This chapter illustrates how the analysis was conducted. It clarifies how the empirical evidence was transformed and analyzed. It also provides a combined analysis of the appended papers one, two and three. Instead of looking at each single paper separately, this chapter makes analyses of these articles in combinations. It also combines the research questions and the results of the appended papers in order to show the thesis’s contribution as a whole.

The first appended paper is entitled: “How do regional third-party logistics firms innovate? A Cross-Regional Study”. The research purpose of the first appended paper is to explore innovation and new service development for regional third party logistics firms. The paper is a cross-regional study of innovation and new service development of third party logistics firms in Taiwan, Hong Kong and Sweden. It collects empirical evidence from three case companies: Dimerco Group, Oriental Logistics and Transfargo Logistics. In total, seven interviews were conducted. The empirical evidence was analyzed according to Sawhney et al.’s (2006) innovation radar model. Figure 7.1 visualizes the process.

Figure 7.1 Visualization of the analytical process of appended paper one

The innovation radar model is a useful framework to analyze the empirical data. The empirical evidence has shown support for all the dimensions except networking. The three case companies are innovative in providing service products. The innovative offerings are generated on the base of their core service platforms. The case companies either combine several existing service products or add on new services to the existing services. Besides, the case companies attach great importance to their core operating processes and constantly look for new ways to improve efficiency and effectiveness. The innovative offerings have helped the case companies to enter new markets and to leverage their brands into new domains.
Further, the innovative work has triggered the case companies to cooperate with other logistics firms in order to enlarge their service portfolios. The empirical data also shows that each case company is unique in providing innovative services, based on the type of clients and the region it serves.

The second appended paper is entitled: “Innovation in an international third party logistics firm: A strategy-as-practice perspective”. The research purpose of the second appended paper is to describe and analyze how innovations emerge and evolve over time in logistics firms from a strategizing point of view. The paper draws on an in-depth longitudinal case study of an international TPL firm, Dimerco. In total, 15 interviews were conducted. The empirical evidence has been analyzed according to the strategy-as-practice perspective. Figure 7.2 demonstrates the process.

![Figure 7.2 Visualization of the analytical process of appended paper two](image)

By putting on the strategy-as-practice perspective as the theoretical lens, the empirical data has supported eight categories of practices and activities carried out by logistics practitioners during the innovation process. The eight categories include focusing, interacting, analyzing, idea generating, justifying, developing, transferring and creating atmosphere. The empirical evidence has shown that the logistics practitioners at the case company are constantly interacting with each other across multiple levels. Besides, logistics practitioners interact continuously with customers and customers’ partners. Therefore, it is argued that intra-organizational interaction as well as inter-organizational interactions are essential in the innovation process at logistics firm. Based on the empirical data and the eight categories of practices and activities, the paper also speculates that the innovation process at logistics firms is complicated and includes both top-down as well as bottom-up processes. The process is vertically decoupled and multidirectional. Further, innovations at logistics firms emerge and evolve as a combination of an ad hoc response to a customer request and a purpose-driven interactive process.

The third appended paper is entitled: “The impact of interaction capability development on logistics innovation”. The research purpose of the third appended paper is to investigate the influence of interaction capability development on logistics innovation. The third paper employed six cases: Schenker Logistics, Oriental Logistics, Aditro Logistics, King Freight, Geodis Wilson, Bring Logistics. In sum, 28 interviews were conducted. The empirical
evidence has been analyzed according to Johnsen and Ford’s (2006) theoretical model of interaction capabilities. Figure 7.3 presents the process.

Figure 7.3 Visualization of the analytical process of appended paper three

The empirical data has shown strong support for interaction capability set. As for human interaction capability development, the case companies have stressed the importance to interact with customers actively and openly. They also implement various kinds of mechanisms to educate their employees. As for technological interaction capability development, the case companies have relied on their IT systems to exchange technological knowledge and to integrate with customer's technological systems. They develop their IT systems either by purchasing relevant components externally or by establishing joint programs.

The case companies put a lot of efforts to develop their managerial systems interaction capability. They train their staff to be flexible and customer-oriented in order to fully understand customers’ needs and to come up with innovative ideas proactively. They also encourage their employees to apply different kinds of relationship management approaches to cope with customers from various countries. The empirical data shows that the cultural interaction capability is the most important capability in the interaction capability set. The case companies have developed their cultural interaction capability in different ways. However, the focus is the same. They want to be close to their customers and to develop new services in an active way.

The first research question is: How do logistics firms innovate?. Paper one, paper two and paper three have addressed this research question from various perspectives. Besides, these three articles are inter-related. When I was writing paper one, I noticed the unique characteristics of logistics innovation process at logistics firms. As a decentralized process, logistics innovation is embedded in practitioners’ daily activities. Therefore, I started to write paper two and applied the strategy-as-practice perspective. Further, I also realized the importance of interaction in the logistics innovation process. I began to take a close look at
logistics firms’ interactions with their customers. Then I initiated the writing process of paper three.

Nevertheless, the three papers point out the fact that logistics firms focus on clients’ demands. However, clients’ demands are diversified due to the differences of geographical locations and positions in the supply chain. Therefore, logistics firms need to provide differentiated services. In order to provide customized services, logistics firms have to first articulate clients’ unique requirements.

The geographical location is a critical factor influencing clients’ operations. For instance, many firms enter China for sourcing and outsourcing. They have needs for cross-border services. In contrast, Hong Kong is the logistics center in East Asia. Companies tend to select Hong Kong as a distribution center for their global pipelines so they often require related distribution services. Western Europe is a well-developed region. Firms usually concentrate on sophisticated end customers in this region. Innovative services are needed in order to meet the fast changing customers’ requirements.

Meanwhile, logistics firms’ clients are operating in diversified industries. Each industry has its unique characteristics. In addition, logistics firms’ clients have their distinguished positions in the supply chain. Given the differences in the country of origin, the industry, and the product characteristics, each single client has their own requirements. In order to obtain and to develop relevant knowledge, logistics firms have been constantly interacting with their clients. Interacting is the most common daily practice in the innovation process. Besides, the daily interacting practice is closely related to human interaction capability. The stronger the human interaction capability the better the interaction. Thus, a solid pool of knowledge can be generated. The pool of knowledge is a critical base for logistics firms to innovate.

Based on the pool of knowledge, logistics firms need to move forward. It is not enough to understand clients’ unique requirements. Logistics firms have to analyze several issues in order to have a deep understanding of clients’ businesses. For instance, they need to analyze and foresee the market trends as well as the changing rules and regulations. The analyzing practices are crucial for logistics firms to generate ideas. The analyzing practices can help logistics firms to identify the gaps between clients’ needs and service offerings. In order to close the gap, logistics firms are generating and developing new ideas into solid service offerings. The analyzing practices, the idea-generating practices and the developing practices are influenced by the human interaction capability as well as the technology interaction capability. A stronger human interaction capability can result in a better analysis. A stronger technology interaction capability helps logistics firms to generate new ideas and to convert the new ideas into concrete innovative offerings.

The pool of knowledge is a solid base for logistics firms to innovate. Logistics firms need to have various approaches to make use of the pool of knowledge. Logistics firms need to assimilate the knowledge and share it with other parts of the firm. The transferring practice is essential for logistics firms to share important knowledge and experience. How to transfer the knowledge becomes a critical issue in the innovation process. The transferring practice is related to the managerial interaction capability. The managerial interaction capability
influences the transfer of knowledge in the sense that it has a critical impact on organizational routines and practices in terms of creating and controlling the knowledge.

The innovation process at logistics firms is a complex and time consuming process. It requires an innovative corporate culture in order to trigger and drive the process. Therefore, the creating atmosphere practices are important for logistics firms to innovate through the whole process. The creating atmosphere practice is similar to ‘setting the stage’ in Flint et al.’s (2005) model. It refers to activities taken by logistics practitioners aimed at making a positive environment to encourage changes and new ideas. The creating atmosphere practice is the key to encourage co-workers to be service minded and react proactively to clients’ demands. It drives logistics firms to proactively come up with innovative solutions. Besides, it helps the co-workers to understand the benefits of being innovative. The creating atmosphere practice is driven by the cultural interaction capability. A stronger cultural interaction capability leads to a stronger desire to meet clients’ requirements and to search for innovative solutions.

Logistics firms have diversified clients from different industries. Each single client requires a customized solution. However, logistics firms often have expertise in various areas. They usually make use of their building blocks to develop new solutions and to innovate. Therefore, it is very difficult for logistics firms to innovate for all of their clients. They need to focus on strategically important clients. The focusing practices help logistics firms to identify certain market segments and concentrate on specific groups. How to identify the relevant market segments? Which groups of clients to concentrate on? These questions are related to opportunity recognition and opportunity exploitation. In order to initiate the innovation process, logistics firms need to be aware of the opportunities to innovate. They also need to find the right way to innovate. The managerial interaction capability plays a role here. The managerial interaction capability relies on human interaction capability as well as technological interaction capability. It enables logistics firms to capture and exploit opportunities.

The second research question concerns how logistics firms develop their service networks. This question is handled by paper four. The literature suggests that there are different types of logistics firms. The three basic types of logistics firms include carriers, logistics intermediary firms and third party logistics firms. They are situated in different levels of the logistics service supply chain while they are interacting as well as complementary with each other. It is argued that logistics firms differ in various ways. They follow diversified logics of value creating that make them develop their networks in different ways and think totally differently.

Carriers’ tasks are to move the physical goods from point A to point B in the most efficient way. In order to enable the transfer, carriers invest heavily in means of transport, transport equipment, and related infrastructures. Carriers aim at covering wider geographical locations so they develop their service networks by extending their network of service systems. Meanwhile, carriers attach great importance to their operation efficiency. The development of service networks also concerns the development of service system operations.

Logistics intermediary firms are concerned with consolidating physical goods. They focus on coordinating multiple clients and carriers. Owing to the fact that logistics intermediary firms have a connecting role in the logistics service supply chains, a high capability of managing horizontal network of actors is required. Meanwhile, logistics intermediary firms need to have
a very wide geographical coverage. They often invest in their IT systems and building geographical representations in different locations. Logistics intermediary firms develop their service network by setting up their own offices and collaborating with other logistics intermediary firms.

Third party logistics firms provide multiple third party logistics services and value added services in an integrated and a customized way. Their focus is to satisfy the demands of various external organizations. In comparison with carriers and logistics intermediary firms, third party logistics firms attach much more attention to effectiveness. They have a deep understanding of clients’ businesses and they often have smaller groups of clients. Third party logistics firms develop their service networks by increasing their capabilities in managing clients’ physical flows in a specific industrial supply chain. They also develop their service networks by enhancing their capabilities in managing other types of logistics firms in the logistics service supply chain.

The third research question focuses on the way third party logistics research evolve over time. Paper five addresses this question by analyzing 131 articles published between 1990 and 2010 from five established logistics and supply chain management journals. The focus is placed on the level of analysis, research methods and knowledge creation approaches. The paper concentrates on TPL studies from five journals: International Journal of Logistics Management (IJLM), Transportation Journal (TJ), Journal of Business Logistics (JBL), International Journal of Physical Distribution and Logistics Management (IJPDLM), and International Journal of Logistics: Research and Application (IJLRA).

There are two major reasons for selecting these journals. First, these journals are among the top ranking journals in logistics and supply chain management (Gibson and Hanna, 2003). Second, these journals are the primary publication outlets for TPL research (Marasco, 2008). Based on Selviaridis and Spring (2007) and Marasco (2008), third party logistics, TPL, 3PL, logistics outsourcing, logistics alliance, logistics partnership, and contract logistics were used as key words to search for relevant articles. According to Marasco (2008), there no contributions were made prior to 1990. Thus, I chose 1990 as the starting year and 2010 as the ending year to identify related publications. In sum, 131 articles were found during this time period. Table 7.1 summarizes the articles by the selected journals.
## Table 7.1 Summary of TPL studies by the selected journals

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<th>Journal</th>
<th>TPL studies</th>
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All the articles were first coded according to the year of publication and the source journal. Afterwards, the articles were examined in terms of research purpose, research question(s), the research method applied, literature review and/or theoretical framework as well as research findings. Based on Selviaridis and Spring (2007), the articles were further coded regarding the level of analysis. In order to track the evolution of TPL research in terms of research approaches, the articles were classified along the dimensions of the Meredith et al. (1989) framework. In order to track the evolution of TPL research in terms of knowledge creation approaches, the next coding procedure focused only on empirical studies. Thus, literature reviews and conceptual papers were excluded. In sum, 113 empirical studies were coded along both dimensions of the Arlbjorn and Halldorsson (2002) framework. Figure 7.4 visualizes the research process.
Figure 7.4 Visualization of the analytical process of appended paper five
8. Contributions and implications

This thesis contributes both empirically and theoretically to the logistics literature. As for the theoretical contributions, this thesis addresses two issues, innovation and network development, which are strategic to the logistics industry. By taking several theoretical frameworks, the thesis takes a closer look at the logistics innovation process in logistics firms. Besides, the thesis touches upon the issue of network development and highlights the opportunities as well as challenges in managing different kinds of networks. Further, it includes logistics firms both in Sweden and China. The similarities and the differences have been pointed out and analyzed.

As for the theoretical contributions, the thesis adds to the body of knowledge in third party logistics research. First, the thesis summarizes the existing definitions of third party logistics and reflects on the definitions. The thesis makes efforts to clarify and to define the concept. Second, the thesis investigates the TPL phenomena from the logistics firm’s perspective. By combining several theoretical frameworks, the thesis focuses on logistics innovation and network development at logistics firms. Third, Selviaridis and Spring (2007) and Marasco (2008) caution that the predominant research orientation of positivism in third party logistics research should be confronted. The thesis tries to take up the challenge and employs a qualitative research approach. Fourth, the thesis examines TPL studies and takes an inward look at third party logistics research trends and developments. An evolutionary picture of TPL studies is provided. The thesis highlights opportunities and challenges of TPL research for logistics researchers.

Besides, the thesis contributes to the theoretical development in logistics innovation research. Paper one, paper two and paper three have put on various theoretical lenses to investigate logistics innovation in logistics firms. Paper one addresses innovation with a focus on the regional third party logistics firms. Paper one borrows Sawhney et al.’s (2006) model and it builds on the model in order to analyze how regional third party logistics firms generate innovation. Paper one shows that the borrowed model is useful to analyze innovation in the logistics context.

Paper two regards innovation as a strategizing process and it describes and analyzes how innovations emerge and evolve over time in logistics firms. The paper argues that innovation activities and actions are embedded in logistics practitioners’ daily life. In order to have a closer look at logistics practitioners’ daily life, paper two adopts the emerging strategy-as-practice perspective and examines the innovation process at logistics firms. The strategy-as-practice perspective guides the researcher to analyze the empirical material and helps the study to generate eight categories of practices. Based on the strategy-as-practice perspective and the eight categories of practices, paper two points out that the innovation process in logistics firms is a complicated process and it is vertically decoupled as well as multidirectional. Besides, it is found that innovation in logistics firms emerges as a combination of an ad hoc response to a customer request and a purpose driven interactive process.
Based on the existing studies, paper three argues that the relational capability is crucial for logistics innovation. Therefore, paper three combines the RBV and the industrial network approach in order to examine the effect of a relational capability on logistics innovation at logistics firms. Johnson and Ford’s (2006) theoretical framework is applied and the paper examines how interaction capability development impacts logistics innovation in logistics firms. The empirical findings have shown that the applied theoretical framework drives logistics innovation and helps logistics firms to overcome barriers. The four elements of the applied theoretical framework are all necessary for logistics firms to innovate while different elements having different impacts.

Further, the thesis adds to the research in logistics firms’ service network development. Based on the industrial network approach and the RBV, paper four generates a conceptual framework. The framework contains three networks: networks of actors, networks of service systems, and networks of physical flows. The paper has illustrated that all logistics firms are part of these three networks but they have different capabilities in different networks. The framework is a first attempt to classify logistics firms in terms of service capability and service networks. The framework can be used to enhance our understanding of various kinds of logistics firms. The framework can also be used to analyze the strategic moves by logistics firms.

In addition, the thesis contributes to the RBV and the industrial network approach. The RBV applies a stringent perception of the firm’s boundaries (Halldorsson et al., 2007). The RBV is also limited to an internal view of the firm’s resources and capabilities (Skjoett-Larsen, 1999). By combining the RBV and the industrial network approach, the thesis contributes to the body of knowledge on capabilities from a relationship and a network perspective. As well, the combination may further the discussion of the industrial network approach on the substance of interactions and relationships (Halldorsson, 2002).

This thesis has several implications for three groups:

- **Practitioners**—First, innovation and network development are strategically important for logistics firms. Executives in logistics firms need to comprehend the importance of innovation as well as network development. Second, logistics innovation is a complicated process. It requires logistics firms to constantly interact with their partners. Executives need to realize that logistics innovation is multidirectional. Managers should combine the ad hoc response to customer requirements as well as the purpose-driven process in order to generate innovations. Third, different types of logistics firms have their distinguishing core capabilities in managing various kinds of networks. Moving from one type of logistics firm to another type of logistics firm means changing core capabilities and network focus. Executives at logistics firms may foresee opportunities to step into new business areas. However, they should not underestimate the challenges and the problems in such strategic moves.

- **Researchers**—Third party logistics research has been developing during the last two decades. In order to advance the research field, logistics researchers should refine extant theories and apply theories from other fields. Besides, logistics researchers
8. Contributions and implications

should employ more diversified research methods to investigate the complex TPL phenomena.

• Educators-The thesis develops several frameworks, which can be used in executive education. Educators can use these frameworks as tools to illustrate why and how to innovate and to develop the networks.
9. Conclusions and future research

Research Question 1: How do logistics firms innovate?

Logistics firms focus on what clients demand, and provide differentiated services. However, based on the type of clients and the region it serves, each logistics firm innovates in a different way. The way logistics firms innovate illustrates the characteristics of different regions. As for the innovation process, intra-organizational interactions as well as inter-organizational interactions are critical for logistics firms. The innovation process at logistics firms is complicated and includes both top-down and bottom-up process. It is vertically decoupled and multidirectional. Innovation at logistics firms emerges as a combination of an ad hoc response to a customer request and a purpose-driven interactive process.

Besides, it is found that interaction capabilities are crucial for logistics firms to innovate. Interaction capabilities developed by logistics firms enable them to proactively identify customer needs and translate customer requirements into new service offerings. The development of interaction capability guides logistics firms to innovate in the right direction and helps them at the same time to overcome barriers in the innovation process. All elements of the interaction capability set are necessary for logistics firms to innovate while the cultural interaction capability is the most critical one.

Research Question 2: How do logistics firms develop their service networks?

Logistics firms have clear differences in capabilities and network focus. They follow different dominating logics of value creation that make them develop in different ways and think totally differently. The three basic types of logistics firms, carriers, logistics intermediary firms and TPL firms, are interacting in the logistics service supply chain and they are complementary with each other. Meanwhile, they are situated in different levels of the logistics service supply chain and they have different tasks in managing their horizontal network of actors. Carriers are asset-based and their core capabilities lie in their network of systems and management of their horizontal network of actors. Logistics intermediary firms are usually non-asset based and their core capabilities are consolidating goods for customers and managing their horizontal network of actors. TPL firms develop their core capabilities to manage the logistics network and physical flows along the client’s supply chain. Moving between the basic types of logistics firms means changing the capabilities and network focus.

Research Question 3: How has third party logistics research evolved over time?

TPL research has been developing constantly during the last two decades. Logistics researchers are switching their focus from the buyer’s perspective to the provider’s perspective and the dyad perspective. Survey-based method has been the most popular approach to study TPL phenomena over time. Logistics researchers have been publishing storytelling type of TPL research continually while the research field has been evolving gradually by generating
9. Conclusions and future research

new concepts and refining the existing knowledge. However, TPL research has yet to mature since only a few studies have been carried out in order to expand the knowledge base.

This thesis has only touched upon the logistics innovation process in East Asia, Europe and North America regions. Other regions, such as South America, Africa and Middle East Asia regions, have not been addressed. Firms operating in those regions might have different requirements. The logistics innovation process in these regions would probably look differently. Future research can investigate the logistics innovation process in these regions and compare it with other regions in order to identify differences and to provide additional insights.

Besides, the thesis has focused on the logistics innovation process only from the logistics firm’s perspective. As mentioned before, the logistics innovation process is an interactive process between logistics firms and clients. Therefore, it is beneficial to investigate the logistics innovation process from a dyad perspective. Future research can take both firms and clients into considerations.

This thesis addresses the issue of logistics firms’ service network development from a theoretical perspective. A theoretical model is generated and it is illustrated by two case examples. Future research can empirically apply the model and analyze the strategic moves conducted by logistics firms. In relation to the reality and the practices, the model can be improved and further developed. Besides, the model has a potential to be applied to other types of service firms. It would be interesting to see if the model is also valid and useful in other context.
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References


References


References


Easton, G. 2003. One case study is enough: Lancaster University.


References


References


References


References


