Haaga-Helia
University of Applied Sciences

Logistics service integration strategy for Vietnam's domestic logistics companies

Loc Truong

Bachelor's Thesis
Degree Programme in
International Business
2018

Haaga-Helia
University of Applied Sciences

Abstract

Date

Author(s)
Loc Truong

Degree programme
International Business

Report/thesis title
Logistics service integration strategy for Vietnam's domestic logistics companies

Number of pages and appendix pages
52 + 1

This study aims to analyse the current state of a majority of local Vietnamese logistics companies and to illustrate why it is essential for them to integrate more logistics services and transform into 3PL, 4PL, and 5PL to meet with the country's and region's logistics demands. With this objective, the researcher explored relevant concepts and theories related to logistics services integration. The fundamental concepts of 3PL, 4PL, 5PL were discussed along with providing a comparison between them.

Empirical evidence related to the factors affecting the selection and the performance of logistics services providers was collected. To achieve the research objective, the researcher also conducted qualitative analyses, and data was collected from in-depth interviews with five experts. The interviews revealed vital problems and challenges in Vietnamese logistics services providers, including lengthy customs clearances, low infrastructure quality, and high corruption in governmental bodies. In addition, human resource quality, lack of experienced and professional staff, obsolete IT systems, and poor logistics services development strategies were identified as limiting competitive advantages of domestic logistics services providers.

Finally, some strategies were proposed to further improve the performance and competitive advantage of logistics companies in Vietnam. Throughout this study, the researcher brought in support from literature on logistics services as well as an evaluation of the current state of logistics services in Vietnam. In-depth interviews were used to identify the issues further and proposed practical solutions to logistics companies. This is critically important since most logistics companies are operating as small businesses and they mostly focus on 2PL logistics services, with only a few companies that can deliver 3PL or 4PL logistics.

Keywords
Logistics services integration, 1PL, 2PL, 3PL, 4PL, 5PL.

Table of contents

1 Introduction

The purpose of this chapter is to give an overview of the thesis' background to readers. The research questions and objectives will be discussed. The demarcation will help define which aspects will be focused and eliminated depending on the thesis topic. This chapter will then explain the international aspects of the thesis, benefits, and key concepts.

1.1 Background

Logistics is a crucial activity for a country economic development (Hayaloglu 2015, 523). The gap in logistics performance between countries causes the problems related to the connectivity in trade flows and leads to higher logistics cost in global supply chains (Su & Ke 2015, 1). The development of the logistics market in Vietnam is fueled by strong economic growth rate. According to the Asian Development Bank (2019), Vietnam's annual GDP growth rate has been increasing for three consecutive years, from 6.2% in 2016 to 6.8% in 2017 to 7.1% in 2018. Vietnam welcomed more than 26,000 FDI projects with total registered capital of US$379 billion between 1988 and 2017 (General Statistics Office, 2019). Besides Vietnam is becoming the next destination for retail business, and it is evidenced by the fact that the country is among top 6 leading retail markets in the globe (ATKearney, 2019). Total import and export value in 2018 increased by 12% compared to 2017, and the value stood at US$480 billion (Duyen, 2019).

1.2 Problem statement

It is said that Vietnam requires strong logistics performance to support its economic acceleration. In Vietnam, logistics is still at the early development stage with logistics cost has been more than 20% of GDP (Ly 2014, 9). A report from Biinform (2017) showed that logistics cost of Vietnam in 2016 was 20.8% of GDP and it was much higher than average global logistics cost (11.7%) or average logistics cost in the Asia Pacific (13.5%). Two neighboring countries, China and Thailand, also had logistics cost lower than Vietnam. While the logistics cost of China in 2016 was 15.4%, Thailand's logistics cost was about 10.7% (Biinform 2017, 9). Moreover, the logistics market landscape in Vietnam has been highly fragmented with most of logistics companies are in small or medium business scale, and they have been providing low value-added logistics services (Mordor Intelligence, 2019). Indeed, there are about 3,000 logistics companies in Vietnam, and the number of companies with capital less than VND 10 billion accounted for 90% of total companies (Mordor Intelligence, 2019). With small business scale, Vietnamese logistics companies are acting like manufacturers/distributors (1PL logistics) or asset operation or asset intensive transportation services (2PL logistics), according to Biinform (2017). In contrast, there are very

few companies that can deliver contract logistics or asset intensive non-transportation services (3PL logistics) to the customers.

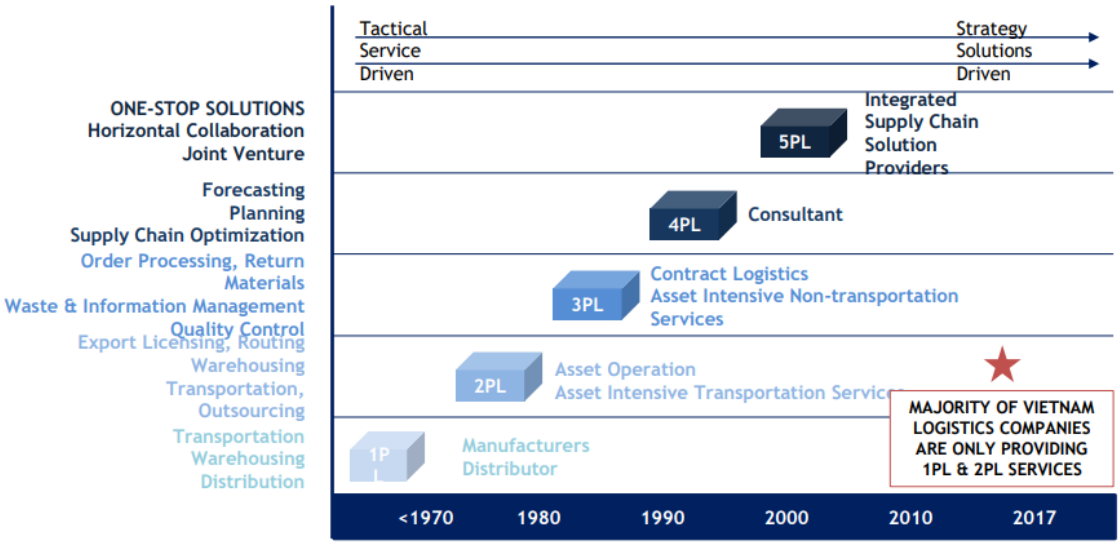

Figure 1. Vietnamese logistics services level (Biinform 2017, 8).

The current situation in Vietnamese logistics services level puts a concern of how logistics companies in Vietnam can upgrade their logistics system and capabilities in the way of 3PL logistics in the short term and 4PL/5PL in the long term. The need for an upgrade to 3PL logistics is visible since the Vietnamese government issued a decision to increase third-party logistics rate to 50-60% by 2025 (Ministry of Industry and Trade 2017). In addition, 3PL logistics is predicted blooming in 2019 due to uncertainty over government funding and increased globalization (Robinson 2019, 1).

Moreover, Vietnam is currently a member of 12 bilateral and multilateral free trade agreements (FTAs). According to WTO Center Vietnam, some of the most important trade agreements include the Vietnam-Japan Economic Partnership Agreement (VJEPA), the Vietnam-EAEU Free Trade Agreement, the ASEAN-India Free Trade Agreement, and so forth. Several more major FTAs, including the Vietnam-Korea Free Trade Agreement (VKFTA), the Trans-Pacific Partnership (TPP11) has been signed in recent years. Furthermore, the country is looking forward to concluding negotiations on four other FTAs, which includes the EU-Vietnam Free Trade Agreement (EVFTA), and the Regional Comprehensive Economic Partnership (RCEP). Such free trade agreements are opening opportunities for Vietnam's economy to grow stronger and foster trade relations with 55 nations. However, due to the lack of competitive logistics capabilities and high logistics service costs, Vietnam's local logistics providers are unable to attract international clients.

1.3 Research question

This thesis aims to analyze the current state of a majority of local Vietnamese logistics companies and illustrates why it is essential for them to integrate more logistics services and transform into 3PL and 4PL to meet with logistics demands of the country and regions. The thesis will also recommend possible strategies and approaches to the logistics companies.

The research question can be worded as **How can logistics service providers of Vietnam integrate their services to become 3PL, 4PL and 5PL?**

IQ 1. What are the persistent problems and challenges that are restraining Vietnam's domestic logistics companies from developing?
IQ 2. What are the limitations in the competitive capabilities of Vietnam's logistics enterprises?
IQ 3. Why do local logistics enterprises need to integrate their logistics service?
IQ 4. Which strategies and approaches should the local logistics companies take to transform into 3PL and 4PL?

Table 1 below presents the theoretical framework, research methods and results chapters for each investigative question.

Table 1. Overlay matrix

Investigative question	Theoretical Framework	Research Methods	Results (chapter)
IQ 1. What are the persistent external problems and challenges that are restraining Vietnam's logistics companies from developing?	Logistics Performance Index (LPI); Trends analysis; Advantages and disadvantages	Desk research; Qualitative research; Literature review; Benchmarking.	▪ Knowing and the current problems that the Vietnamese logistics industry are having. ▪ Understanding how those problems affect the growth of local Logistics service providers (LSPs).
IQ 2. What are the limitations in the competitive capabilities of Vietnam's	SWOT analysis; Characteristic analysis; Value Chain analysis	Desk research; Qualitative research; Literature review.	▪ The current state of most of the local LSPs. ▪ Understanding which elements are local LSPs lacking in order

logistics enterprises?			to convert into 3PL and 4PL.
IQ 3. Why do local logistics enterprises need to integrate their logistics service?	1PL; 2PL; 3PL; 4PL; 5PL	Desk research; Literature review.	▪ Pointing out the benefits of becoming 3PL and 4PL to not only the LSPs but also to the logistics industry.
IQ 4. Which strategies and approaches should the local logistics companies take to transform into 3PL and 4PL?		Desk research; Literature review.	▪ Possible strategies and approaches for local LSPs.

1.4 Demarkation

The primary objective of the study is to suggest how Vietnam's local logistics service providers integrate more logistics services and transform into 3PL and 4PL. Therefore, the focus will be on the current state of the local logistics companies and the possible strategy for them. Any subjects relating to how to improve the logistics industry of Vietnam will not be discussed in this study. In term of time, this study is conducted during Spring 2019 with the questionnaires are developed and sent to the logistics companies in week 11 to 13 the year. The location of the study is in Hochiminh City (hereafter referred to as HCMC) because it is the most dynamic city for business development in Vietnam. Furthermore, HCMC is populated by foreign and local companies in different business areas so that the logistics demands are very high. Key studying object is local logistics companies with capital less than VND 10 billion.

1.5 International aspect

Vietnam locates strategically in the heart of Southeast Asia region and is an ideal trading hub between countries. However, a majority of Vietnamese logistics service providers are small-scale and only serve traditional services. They are only able to offer and supply services domestically. By transforming into 3PL and 4PL, these local companies can compete and offer services to international customers as well. For instance, international clients can outsource different elements of the supply chain, including inbound and outbound freight, distribution, customs, warehousing, and so on.

1.6 Benefits

Firstly, the main beneficiary of the thesis will be the local logistics service providing companies. By knowing the current limitations, they can understand why there is a need to integrate more logistics services in order to transform into 3PL and 4PL companies. The outcome of the thesis might also act as a reference for them. Secondly, this thesis will benefit people who are interested in understanding the logistics industry of Vietnam as a whole picture or the current state of the country's logistics service companies in specific.

Lastly, the author can also benefit from the thesis by applying the knowledge in the logistics field in researching the topic, specifically in the logistics service levels. Besides, through data researching and analyzing, the author will have a further understanding of logistics characteristics of Vietnam. The author can also benefit from being able to conduct a professional thesis using different research methods and data gathering skills. These skills and knowledge are inherently necessary to the author's future studies and career.

1.7 Key concepts

Logistics: can be defined as "the process of strategically managing the procurement, movement, and storage of materials, parts and finished inventory (and the related information flows) through the organization and its marketing channels in such a way that current and future profitability are maximized through the cost-effective fulfillment of orders.'' (Martin, 2011.)

Logistics Performance Index (LPI): is a reciprocal logistics benchmarking tool used to measure a country's logistics friendliness. The tool is created and published by World Bank in 2007 to support countries analyze different challenges and opportunities in their logistics performance and help indicate what they can do to improve their performance. (World Bank)

First Party Logistics (1PL): means that the manufacturer carries out the transportation, warehousing and logistics activities themselves and does not outsource to any logistics parties.

Second Party Logistics (2PL): refers to carriers that are hired to take care of the manufacturer's transportation. Hence, the manufacturer can focus more on their manufacturing operation. The cooperation between 2PLs and the manufacturer is often short-term. (Grondys, Lovasova, Stelmaszczyk & Janik 2014, 42.)

Third Party Logistics (3PL): means that external logistics suppliers perform all or part of the manufacturer's logistics functions. Third-party logistics providers often provide wider range and more complex logistics services that require the use of their equipment, transport, and resources than 2PLs. This will help the manufacturer to cut down costs and capital investments in logistics activities. The cooperation between the 3PL and the manufacturers are often long-term. (Grondys & al. 2014, 42.)

Fourth Party Logistics (4PL): refers to an independent and non-asset based organization which integrates and assembles resources, capabilities, and technologies of its organization and other organization, for example, 3PLs, in order to design, build, and manages supply chain solutions for its clients. (Farahani, Rezapour & Kardar 2011, 80.)

Fifth Party Logistics (5PL): 5PL services providers do not own or have few physical assets and they are relied on technologies to manage the supply chain along with the implementation of strategic logistics solutions. 5PL logistics model requires intensive information technology knowledge and the human resources must be in the position of high expertise on information technology (Hickson, Wirth & Morales 2018).

1.8 Structure of the thesis

In order to answer the research question, this study is developed with 5 chapters.

Chapter 1 – Introduction – is developed to examine some background information related to the studied topic. Then, a problem statement is proposed as the basis for the research aim and research questions.

Chapter 2 – Theoretical Framework – is developed to explore relevant concepts, including logistics concept and the difference between 1PL, 2PL, 3PL, 4PL, and 5PL logistics level. This chapter will examine some empirical evidence related to the logistics service integration strategy. The outcome of this chapter is to propose a research framework for further investigation.

Chapter 3 – Research Method – is developed to choose appropriate research designs and research methods for the study. This chapter will discuss how to collect primary data and secondary data.

Chapter 4 – Analyses and Findings – is developed to examine the current situation in Vietnamese logistics companies and to reveal the current problems that the Vietnamese logistics industry and to evaluate how these problems are affecting the growth of local logistics service providers.

Chapter 5 – Conclusion and Recommendation – is developed to summarize key findings from previous chapters. It is designed with recommendations which help logistics companies in Vietnam to upgrade from 1PL/2PL to 3PL/4PL/5PL logistics level.

2 Theoretical framework

2.1 Understanding of Logistics

2.1.1 Logistics definitions

In this section, some definitions of logistics are covered. According to Li (2014, 2), logistics refer to the activities inside a flow of goods between consumption points and manufacturing points. Before that, Rutner and Langley (2000, 73) define logistics as a business process which is developed in order to create values to companies. Rajuldevi, Veeramachaneni and Kare (2005, 28) consolidated different concepts of logistics and they identified that logistics consists of different activities such as transportation, material handling, packaging, information exchange, inventory, and storage. These activities are combined and controlled to ensure that the right products and services are delivered to the right customer in the right time and the right place. Tlaty and Moutmihi (2015, 2) defined logistics as a whole operation of a company and the information within it. The information is exchanged between the company and their partners, and logistics are conducted to create the bridge between production sourcing and product distribution. Councils of Supply Chain Management Professionals (2019) defines logistics as a part of supply chain management (hereafter referred to as SCM), and it refers to a flow and a reverse flow of goods from origination to consumption. Moreover, SCM activities include planning, implementing, and controlling related activities in order to ensure the requirements are met.

2.1.2 Supply Chain Management definitions

The logistics concept provided by Councils of Supply Chain Management Professionals (2019) highlights the importance of distinguishing supply chain management and logistics management. As mentioned above, logistics is a part of supply chain management. SCM consists of planning and managing logistics sourcing, procurement, and conversion activities. Logistics also refers to the coordination and collaboration between partners inside and outside of a company (Councils of Supply Chain Management Professionals 2019). Another SCM definition by Stock and Lambert (2001, 212) referred to how critical processes from a company to their end users were integrated, and the result of such integration was to bring values to stakeholders of that company. Christopher (1998) defines SCM as a business term stood for upstream and downstream activities, which bring values to customers at a lower cost. Mentzer & al. (2001, 3) consider SCM as a management system in which all businesses of a company was managed systematically and strategically. That management system would be combined with tactics across business functions, and all things supported the business performance of this company in long-term. Frankel, Bolumole, Eltantawy,

Paulraj and Gundlach (2011, 1) perceived SCM as a framework in which different activities within and across a company to be integrated and these activities referred to logistics, productions, operations, sourcing, and distribution.

2.1.3 The differences between SCM and Logistics

Herein, the difference between SCM and logistics gains attention from different researchers. Although logistics is considered as a part of SCM, there are still other viewpoints related to these two terms. According to Larson and Halldorsson (2004, 17), the differences between SCM and logistics were highlighted from four viewpoints, which are traditionalist, relabeling, unionist and intersectionist. Traditionalists indicated that logistics covered SCM or SCM is one of many activities in logistics (Larson & Halldorsson 2004, 17; Larson 2005, 5). While the relabeling viewpoint rejected the independence of SCM and logistics. Relabelings combined both logistics and SCM as an organizational strategy (Larson & Halldorsson 2004, 17; Mangan & Lalwani 2016, 178). Unionist was an inverse viewpoint of traditionalist, and it addressed that logistics was part of SCM (Larson & Halldorsson 2004, 17; Sweeney & Bahr 2015). Finally, intersectionist viewpoint expressed that SCM focuses on strategic and integrative elements of logistics, marketing, and operations while logistics was very straightforward to tactical choice and activities (Larson & Halldorsson 2004, 17; Sweeney, Grant & Mangan 2018, 852). In addition, Larson and Halldorsson (2004) examined more than 200 logistics studies during the 2000s and identified that more than 50% of the researchers followed relabeling viewpoint, and 22% of which was unionist, while traditionalist occupied 16% of the total researchers and only a small fraction was intersectionist, which was 7%.

Besides, the differences between logistics and SCM have been highlighted by numerous researchers. Pache and Colin (2000, 3) indicated that logistics focuses on functional relations inside and outside a company, whereas SCM focuses more on the integration of necessary operations into the production. The information flows in which key entities in the supply chain were also determined and thus, formulating long-lasting relationship. Croom, Romano and Giannakis (2000, 67) emphasized that logistics often refers to the activities in a company while SCM engages more into the interaction and the integration between different entities or companies involved in a supply chain. Similarly, Delfmann and Albers (2000, 7) asserted that the establishment of SCM is to address inter-organizational relationships while logistics aims at intra-organizational relationships. Hugos (2006, 213) acknowledged that SCM covers traditional logistics activities and consists of other activities such as new product development, customer services, marketing, procurement and so forth. SCM is often viewed as a wider scope compared to logistics and SCM involves more activities such as value stream management, product sourcing, distribution, supplier management and so on (Lamming & Hampson 1996, 45; Saunders 1997, 79). A more in-depth

analysis indicated that SCM was originated from logistics activities (Filho, Cerra, Maia, Neto & Bonadio, 2004, 22). A company develops logistics activities in order to reduce inventory level and to better coordinate material flows (Musetti 2000, 22). During the time, companies started to expand the scope of logistics by establishing strategic partnerships with the suppliers and the customers, leading to the emergence of SCM (Maia & Cerra 2009, 59). In this context, the researcher concludes that logistics and SCM are two different business terms. Logistics is a part of SCM, and it refers to the coordination of activities inside a company while SCM is more towards the coordination between different companies involved in a supply chain. By differentiating logistics and SCM, the researcher prevents misunderstandings of or misusing of SCM and logistics.

2.2 Understandings of Logistics Services Integration

The understandings of logistics services integration strategies are achieved through the exploration of five logistics services models. These models are associated with first party logistics (1PL), second party logistics (2PL), third party logistics (3PL), fourth party logistics (4PL) and fifth party logistics (5PL). A mentioned in the first chapter, most of logistics companies in Vietnam are following 1PL and 2PL models and only a few big-scaled logistics companies are able to operate under the 3PL model. In this section, each logistics model is put into the investigation in order to understand its meanings as well as the requirement of each model. The pyramid below depicted only four logistics models also named as four layers of logistics services since the 5PL term is still quite new to the industry.

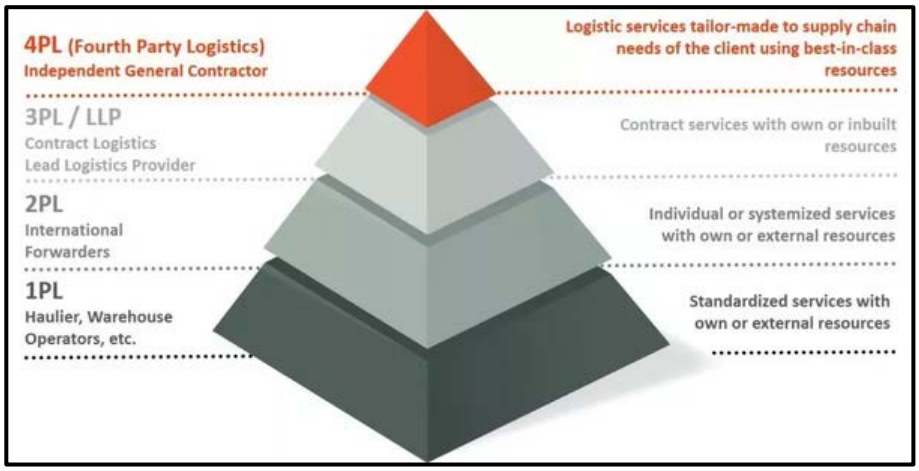

Figure 2. Four layers of logistics services (Quora 2019).

The first layer is 1PL, which refers to the companies with small business scale and they do logistics by themselves (Ozovaci 2016). This logistics layer or model is suitable for companies that are doing business in the same location (Vasiliauskas & Jakubauskas 2007), 68). 1PL model also addresses that all logistics activities are conducted internally to deliver

products from origin location to target destination with owned resources, facilities and human resources (Erkan 2014, 1237). A logistics company is considered as a 1PL model if that company conducts single logistics services like warehousing or transportation activities (Zijm, Klumpp, Regattieri & Heragu 2019, 26). Furthermore, 1PL logistics companies concern the methods to reduce the adverse impacts of their logistics activities on external socio-environment (Gruchmann, Melkonyan & Krumme 2018, 1).

The second layer of logistics service is 2PL. It refers to external logistics companies which can provide logistics services to another company and the services consist of basic logistics functions such as warehousing, transportation and material handling (Odnokonnaya 2017, 12). 2PL operators provide commodity capacity services to other companies and the main reason for using 2PL services is to reduce the cost of investment and operational costs generated from logistics activities. Advanced information technology systems are not required to coordinate between 2PL operators' activities and the logistics system and supply chain of the companies (Hanus 2013, 6). Moreover, 2PL is recognized through the provision of transportation and logistics services without a permanent contract, and it also refers to the distribution of goods through physical channels and modes (Switala 2016, 317). According to Kersten, Becker and Flamig (2008, 17), the most representative members of 2PL are warehousing services, carriers and freight forwarders.

The third layer of logistics services is 3PL. It is defined as independent companies which provide logistics services to a purchasing company to deliver single or multiple logistics services under the requests of the purchasing company. Also, 3PLs' responsibilities are clearly stated by a long-term and beneficial contract (Papadopoulou 2001, 26). 3PL refers to the handover of logistics activities which were conducted by a company before third parties (Njagi 2017, 10). Councils of Supply Chain Management Professionals (2019) defines 3PL as the strategic action of outsourcing logistics operations of a company to a specialized logistics company. 3PL addresses the entities which do not have product ownership but is responsible for receiving, holding and transporting the products under a business flow. The key role of using 3PL services is to reduce logistics and operational costs and the purchasing companies can focus on fundamental business areas which help them to achieve higher customer satisfaction in lower production cost (Patil & Dolas 2015, 586). CERASIS (2016, 1) summarized some key characteristics of 3PL services, including transportation based 3PL services, warehouse and distribution based 3PL services, forwarder based 3PL services, shipper and management based 3PL services, financial based 3PL services and information based 3PL services. Furthermore, 3PL services are also characterized by different levels, including transactional outsourcing, tactical outsourcing and strategic outsourcing (CERASIS 2016, 1).

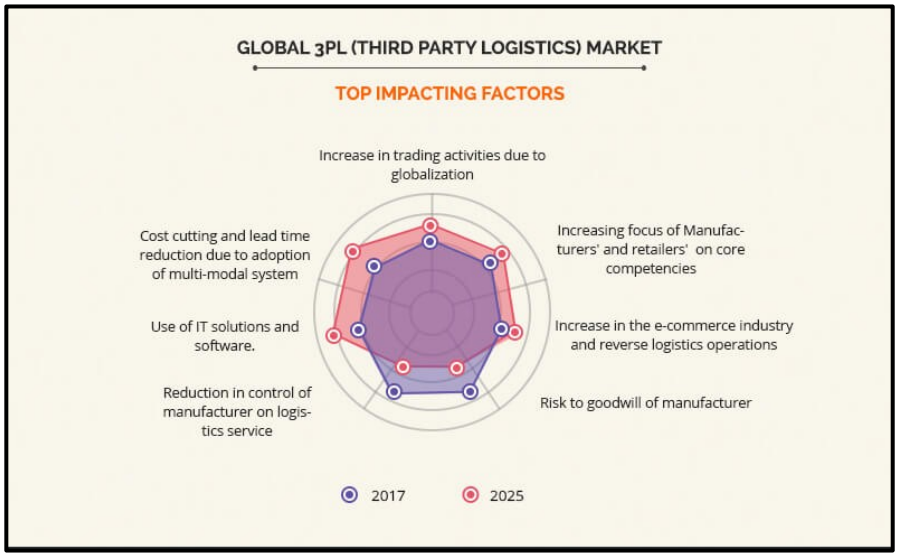

Figure 3. Top impacting factors on global 3PL (Allied Market Research 2018).

Currently, 3PL gains much attention from companies in the globe. It is showing through the global 3PL market was valued at US$869 billion in 2017, and a compound annual growth rate is expected at 7.1% from 2018 to 2025 (Allied Market Research, 2018). The Asia Pacific has gained the highest share in the global 3PL market (Allied Market Research, 2018). Korn Ferry (2019) reported that the percentage of total logistics costs directed to outsourcing activities had increased from 50% in 2017 to 53% in 2019. The Asia Pacific is the region with the highest 3PL revenues, which stood at US$329.3 billion in 2017 with compound annual growth rate was more than 6% (Korn Ferry 2019). Nevertheless, there are still some factors impacting on global 3PL market (see Figure 3), including the increases in trading activities, the reduction in control of manufacturer on logistics services, the application of information technology solutions and software. Futhermore, the increases in e-commerce industry, the reverse logistics operations, the risk to goodwill of manufacturer, the cost-cutting, and lead time reduction due to adoption of multi-modal system were also the impacting elements (Allied Market Research, 2018).

The last two logistics services models are 4PL and 5PL. 4PL is described as the integrator that joins different resources, activities, systems, technologies, and capabilities to manage a complex supply chain (Saglietto 2013, 104). 4PL refers to consulting companies which do not have or have few physical assets, and they combine owned resources with the re-sources from other logistics services providers in order to design and to manage a complex value chain (Cherneva & Voigt 2015, 239). Peters (2018) indicated that 4PL is developed to provide a solution to SCM across different industries and its objective is to improve the collaboration and the synchronization to create more values although this model is complex

and requires high investment on information technologies. Lastly, 5PL refers to the aggregation of logistics demands into a bulk volume, and its objective is to gain favorable service rates with airline and shipping companies (Erkan 2014, 1237). Like 4PL, 5PL services providers do not own or have few physical assets, and they relied on technologies to manage the supply chain along with the implementation of strategic logistics solutions (Hickson & al. 2018, 26).

Table 2. Comparison of different logistics services models (Hickson & al. (2018, 26), Cherneva & Voigt (2015), Vivaldini, Pires & Souza (2008, 17))

Criteria	3PL	4PL	5PL
Type of services	Tactical	Strategic	Strategic information technology
Physical assets	High physical assets such as vehicles, storage, and equipment	Low physical asset required, depended on information system	Low physical asset required, depended on information system
IT Knowledge	Low knowledge	High knowledge	Very high knowledge
Benefits	Focus on logistics cost reduction in companies with lack of supply chain knowledge and resources	Focus on value creation in companies with complex supply chain	Focus on value creation in large companies with a highly complex supply chain
Issues	Focused only on freight management	Risk baring in the long run since there is no control of the supply chain	Risk baring in the long run since there is no control of the supply chain
Shared information	Limited sharing	High sharing	Very high sharing

Currently, most logistics companies are operating under 1PL or 2PL services model. Thus, the next goal of these companies is to transform their logistics services model into 3PL, 4PL, or 5PL. The concept of each logistics model has been discussed, and key differences are recognized throughout some evaluation criteria, including types of services, foundation idea, physical assets, IT knowledge, benefits, issues, and shared information level. It is recommended that small and medium logistics companies in Vietnam should move to 3PL model first since 4PL or 5PL logistics model requires intensive information technology knowledge and the human resources must be in the position of high expertise on infor-

mation technology. 3PL model refers to tactical services, and it is suitable for logistics companies with high asset-based volume, but information technology level is still low. In the next section, the researcher would like to explore empirical evidence related to logistics services integration strategies and the focused point is about what factors affecting 3PL selection as well as key criteria used in a 3PL evaluation.

2.3 Related empirical evidence

There are many empirical evidence which were developed by previous researchers to identify factors affecting 3PL selection as well as key criteria used in a 3PL evaluation. The objective of examining previous empirical evidences is to provide a comprehensive outlook into how other researchers studied about 3PL, and it helps the researcher to formulate better research strategies to resolve research objective and research questions in Chapter 1.

2.3.1 Empirical evidence about the factors affecting the selection of 3PL providers

Tu (2016, 616) studied factors impacting on the selection of 3PL services providers in Vietnam. This study was developed upon quantitative research method with a research model formulated the direct impacts of services cost, reputation, operational performance, financial performance, and long-term relationship on the selection of 3PL services providers. Tu (2016, 621) expected that these factors would affect the selection of 3PL services providers significantly. A set of data was collected via a survey with 200 respondents who were working in the main ports near HCMC. Structured questionnaires were designed using a Likert scale of 5 points, of which 1 was being unlikely and 5 was being likely. By using a linear regression technique, Tu (2016, 617) realized that the selection of 3PL services providers depended on services cost, reputation, operational performance, and long-term relationship. Financial performance of 3PL services providers did not affect the selection significantly. In addition, services cost was determined as the most important criteria while the long-term relationship was the least importance.

Regarding the selection of 3PL services providers, there are related empirical evidence given by other researchers. Ocean Star (2018) reported that three factors must be considered when choosing a 3PL. These factors are experience, information technology services, transparency, and flexibility. The experience of 3PL is significant since 3PL services providers, which have been in the logistics industry for a long time, have good experiences in term of logistics procedures and dealing with challenges. The recommendation of experience level for a 3PL is at least 2-3 years. Information technology services refer to the capabilities of a 3PL services provider that apply technologies related to warehouse

management, transportation management, electronic data interchange, and so forth. Transparency and flexibility are crucial factors to formulate a successful and long-lasting relationship between 3PL service providers and the shippers. Transparency can be understood as the demand of the goods that are delivered from origination to end user in a transparent manner, while flexibility addresses the importance of immediate response to changing demands.

Hwang and Shen (2015, 3) applied an approach into a decision-making process of selecting 3PL services providers in the semiconductor manufacturing industry. They identified five factors affecting the selection of 3PL, namely services cost, quality assurance, logistics performance, information technology, value-added services, intangible asset level. In which, the top three criteria were logistics performance, value-added services, and services cost and these criteria explained for more than 75% of substantial weight.

Anderson, Coltman, Devinney and Keating (2011, 97) provided a study about the drivers of the choice of 3PL providers. Key drivers were identified through a survey-based approach, and there were 309 managers involved in this process. Obtained results showed that there are seven selection criteria, namely reliable performance, services price, customer interaction, customer service recovery, supply chain capacity, supply chain innovation, and professionalism.

Rattanawiboonsom (2014, 16) provided a study to explore criteria which were effectively used in selecting 3PL service providers in the automotive industry of Thailand. The criteria were categorized into three groups, including contextual factors, implementation factors, and other factors. Contextual factors referred to logistics services providers' characteristics such as ownership, age, size, and reputation. Implementation factors focused on services cost, logistics quality, flexibility and reliability of logistics services, and so on. Other factors addressed uncertainty things such as consumer behavior, dispute resolution, new technologies introduction, and adoption.

Gupta, Sachdeva and Bhardwaj (2011, 2345) also introduced some criteria for selecting 3PL services providers and these criteria were selected from previous studies or were generated from a literature-based approach. They are cost saving, specialization, asset reduction, dedicated capacity, service improvement, service quality, flexibility, equipment, labor, technology improvement, innovation in process, carrier reliability. In addition, financial stability, management capability, geographical location, value-added services, range of offering services, research and development (R&D) level, information technology capabilities were also mentioned.

2.3.2 Empirical evidence about the factors affecting the performance of 3PL providers

Previous researchers are not only interested in identifying the factors affecting the selection of 3PL services providers but also the factors affecting the performance of 3PL services providers. Nadarajah (2015, 108) explored some factors influencing 3PL performance in Malaysia through a research framework in which trust is a mediator factor that connects the first set of factors of specific investment, opportunistic behavior, prior satisfaction, 3PL reputation, reciprocity, and communication with the second set of factors of asset reduction performance, channel performance, and operations performance. Nonetheless, Nadarajah (2015, 108) only proposed the research framework and did not verify the relationships between factors through empirical measurements.

Kuen and Tong (2012, 2) developed research to identify main factors influencing the performance of local private 3PL in Southern China. The objective of this research was to provide appropriate strategies for improving performance of 3PL companies. A research model was proposed in which operation and quality management factors affect organizational performance. Operation and quality management factors consist of leadership, strategic planning, customer focus, human resource factor, process management, measurement, analysis, and knowledge management. The organizational performance consists of financial perspectives, customer perspectives, process perspectives, learning and growth perspectives. The data was collected from 74 closed-ended questionnaires. Empirical evidence showed that customer focus, human resource factor, process management, and measurement, analysis, knowledge management affected significantly on financial perspectives and customer perspective. Process management was the only factor that had a significant effect on learning and growth perspectives. In addition, customer focus, human resource factor, and process management significantly affected the process perspective.

Wang, Jie and Abareshi (2015, 323) conducted research about business logistics measurement in 3PL companies in courier logistics services. In this research, logistics performance was measured by customer service performance, delivery operations performance, freight safety, and information accuracy. The data was collected from 98 courier companies in Australia, and there was a total of 162 answered questionnaires collected. After exploratory factor analysis, original factors were regrouped into six components, namely customer satisfaction, on-time and accurate delivery, customer complaint handling, damage and lost freight prevention, customer response time, accurate billing and delivery information, frequency of disruption and delays, and operating costs.

3 Research methods

3.1 Research philosophy

Research philosophy helps researchers develop their studies and to obtain knowledge related to the studied topics (Bajpai 2011, 12). There are four prevailing research philosophies, namely positivism, interpretivism, realism, and pragmatism. Positivism refers to the process of developing knowledge about the social phenomenon with the application of natural science, and the researchers keep minimal interaction with the respondents who are affected by the social phenomenon (Wilson 2010, 17). Interpretivism refers to the researchers' belief in which social phenomenon must be analyzed with subjective input from the researchers, or the knowledge is depended on the viewpoints of the researchers (Myers 2008, 134). Realism refers to the process of reflecting social phenomenon as what it is as direct realism, or the knowledge is developed through multiple verification and evaluation of the researchers as criticism realism (Novikov & Novikov 2010, 12). Experienced researchers often use pragmatism and it is conducted with the belief that social phenomenon must be analyzed by multiple methods (Collis & Hussey 2014, 234). In this study, interpretivism research philosophy is selected. The first reason is that this philosophy is applicable since the researcher would like to adopt a subjective evaluation of the study. It is done through the process of collecting data from in-depth interviews with relevant persons to understand logistics strategies in Vietnam. Positivism research philosophy is often used in case of hypothesis development and validation. Yet, there are no hypotheses to be developed in this study. Realism should not be applied because the researchers want to identify underlying issues that lead to the limitation of 3PL or 4PL development in Vietnam. Pragmatism is applicable to experienced people, and it is the first academic study which is developed by the researcher.

3.2 Research approach

There are two research approaches, namely deductive and inductive (Saunders, Lewis & Thornhill 2009, 156). Deductive approach refers to a process of identifying research problems, proposing research objectives and research questions, examining related literature and theories, developing hypotheses, collecting data, validating hypotheses, and adjusting applied literature and theories (Wilson 2010, 133). Inductive approach refers to a contradicted process in which the researchers do not want to propose or to validate hypotheses but try to collect information and relevant data in order to develop a new theory (Goddard & Melville 2014, 77). In this study, both deductive and inductive approach are selected. The deductive approach is applied for the first two chapters when the researcher determines

research problems, proposes research objectives and research questions. This research approach requires the researcher to collect relevant theories and literature about logistics integration strategies and logistics services models. However, the researcher does not want to develop hypotheses or to validate these hypotheses with quantitative measurement. The inductive approach is applied, and this approach helps the researcher identify core issues in the logistics industry in Vietnam. Therefore, unique logistics integration strategies can be developed in case of local logistics companies.

3.3 Research design

Research design is characterized by conclusive and exploratory (Saunders & al. 2009, 105). Conclusive research design is applied when the researchers want to apply quantitative assessment to achieve the findings inside a social phenomenon (Nargundkar 2008, 256). The exploratory research design refers to the process of developing knowledge without a theoretical basis, and this research design is carried out with qualitative assessment (Saunders & al. 2009, 138). In this study, the exploratory research design is selected. It is because the researcher has a lot of empirical evidence about logistics services integration and related strategies. By applying exploratory research design, the researcher is able to collect information from a smaller sample size. Conclusive research design, nevertheless, demands a larger sample size to achieve desired findings.

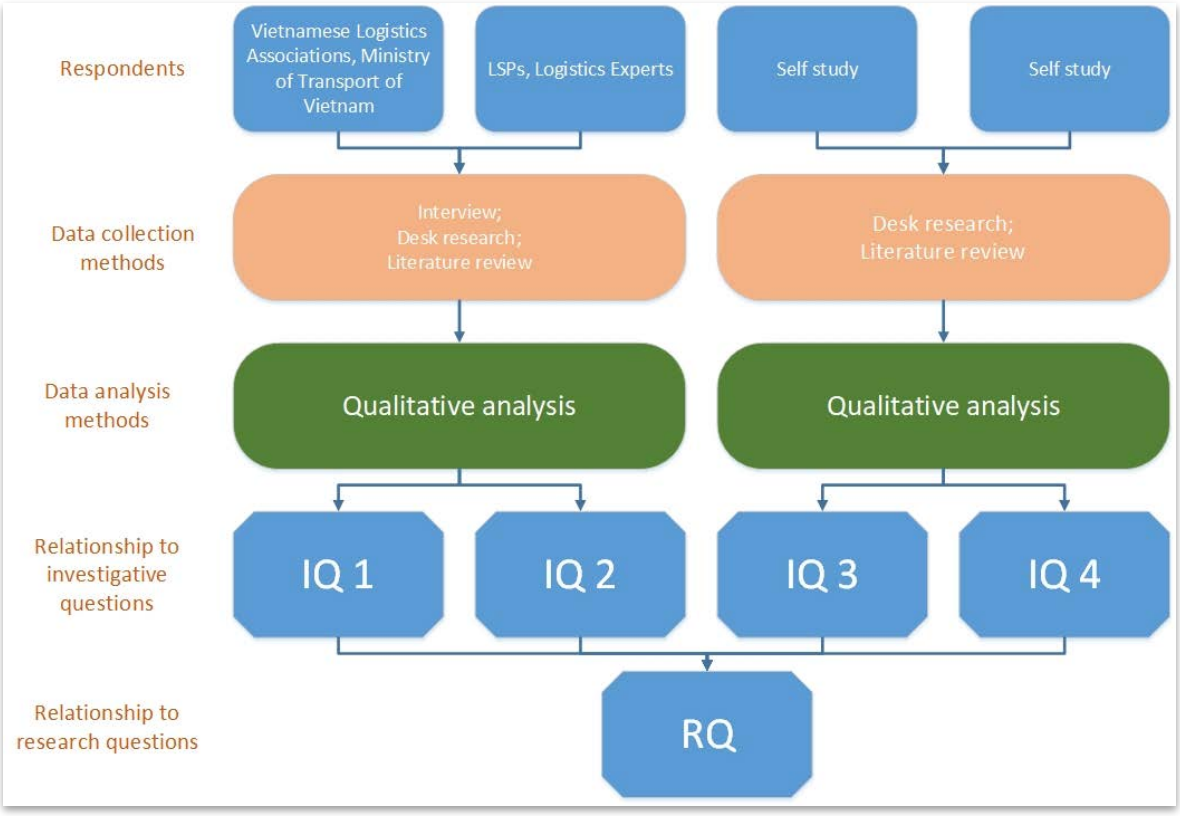

Figure 4. Research design.

3.4 Research method

There are two research methods which are being used by academic researchers, namely quantitative and qualitative (Saunders & al. 2009, 245). Quantitative method is adopted in case collected data is numerical and structured. A qualitative method, however, is applicable in case the researchers analyze unstructured and non-numerical data to achieve key findings (Bryman & Bell 2015, 199). In this study, the qualitative method is selected. That is because the researcher will collect data from in-depth interviews with the relevant persons. This data is unstructured and non-numerical so that quantitative measurement is not available. It is denoted that the quantitative method helps the researcher to achieve consistent and objective findings, but the findings are too generalized. The application of qualitative method allows the researcher to collect in-depth information and thus, the conclusion is specific.

3.5 Data collection

In this study, primary data and secondary data will be used. Primary data refers to the information which is not collected by other researchers, or it is collected for the first time by a particular researcher (Saunders & al. 2009, 291). The value of primary data is proven in case there are no secondary data to support the research, or the researcher wants to collect most up-to-date information related to the social phenomenon (Srivastava & Rego 2016, 163). In this study, primary data is collected from in-depth interviews with relevant persons who have experiences in the Vietnamese logistics industry.

Beside of primary data, the researcher also collects secondary data. It refers to existing information related to the studied topic, and it is published by other researchers in previous empirical evidence (Mohajan 2017, 11). Secondary data is utilized in this study and it helps the researcher to collect relevant information related to the Vietnamese logistics industry. Moreover, the researcher collects secondary data from journals and books with topics about logistics services integration, logistics services model, and empirical evidence about factors affecting logistics services performance.

3.6 Interview design

To collect primary data, the researcher establishes in-depth interviews with relevant people who have rich experiences in the Vietnamese logistics industry. The researcher proposes using some interviews questions and each interview question aims to satisfy proposed research objectives and research questions.

Table 3. Interview questions.

No	Interview question
1	What are the persistent problems and challenges that are restraining Vietnam's domestic logistics companies from developing?
2	What are the limitations in the competitive capabilities of Vietnam's logistics enterprises?
3	Why do local logistics enterprises need to integrate their logistics service?
4	Which strategies and approaches should the local logistics companies take to transform into 3PL and 4PL?

These interview questions were delivered to experts who are working in Vietnamese Logistics Associations, Ministry of Transport of Vietnam, some of notable Vietnam's local logistics service providers. There were only five experts that responded to the interview invitations. Each interview session was conducted in one hour, and the answers of the interviewees are captured by handwriting. The interviews were carried out between week 11 and week 13 of 2019 in the expert's offices.

4 Analyses and Findings

4.1 Problems and challenges related to Vietnam's logistics services providers

As mentioned in the third chapter, the researcher conducted interviews with five experts in the Vietnamese logistics industry. The first interview question is analyzed in this section in order to explore the main problems and challenges that are restraining logistics services providers of Vietnam from developing. Expert A is now working in a big logistics company in HCMC, and he has more than 15 years of experiences in this area. When asking him this question, expert A first provided useful information related to the overall performance of Vietnamese logistics industry. He stated that Vietnam does not have good logistics performance scored by the World Bank, and the major weaknesses are customs procedure and the infrastructure. Expanding information provided by expert A, the researcher collected the logistics performance index of Vietnam, which was published by the World Bank. It is denoted that the World Bank periodically provides logistics performance index (LPI) for different countries. This index measures the performance of logistics activities of a country through 6 aspects, including customs, infrastructure, international shipments, logistics competence, tracking and tracing, and timeliness. In 2018, logistics performance of Vietnam was 3.27 in which the scores of customs, infrastructure, international shipments, logistics competence, tracking and tracing, and timeliness were 2.95, 3.01, 3.16, 3.40, 3.45, and 3.67, respectively. With this score, Vietnam is ranked at 39th position among 160 countries. Logistics performance of Vietnam has been significantly improving compared to 2016 when the overall logistics performance score was 2.98 and ranked at 64th position.

Expert E also emphasized the importance of customs in logistics activities, and he shared that many developing countries have initiated actions to simplify customs procedures as one of the optimal ways to smoothen logistics and trade activities. He implied that one of the most need simplifying customs procedure is customs clearance. Customs clearance can be understood as the documented permission to pass, and it is often used by shipping agents to submit to General Department of Vietnam Customs (GDVC) in order to prove that all customs duties are fulfilled, and the shipment is approved. Expert E compared average days for customs clearance in Vietnam with other countries in the ASEAN. In Vietnam, the procedure usually takes two to three days, while Thailand and Malaysia only take a maximum of two days for the same task. To affirm the information provided by expert E, the researcher collected information related to trading across the border which is provided by Doing Business (2019). The obtained result is captured and presented for import and export activities as in the tables below.

Table 4. Customs efficiency for export activity (Doing Business 2019).

Country	Time to export: Border compliance (hours)	Cost to export: Border compliance (USD)	Time to export: Documentary compliance (hours)	Cost to export: Documentary compliance (USD)
China	25.9	314	8.6	73.6
India	66.2	251.6	14.5	77.7
Indonesia	53.3	253.7	61.3	138.8
Laos	9	140	60	235
Malaysia	28	213	10	35
Myanmar	142	432	144	140
Philippines	42	456	36	53
Singapore	10	335	2	37
Thailand	44	223	11	97
UK	24	280	4	25
US	1.5	175	1.5	60
Vietnam	55	290	50	139

The table above showed that the average time required to complete border compliance in Vietnam is 55 hours while it only takes about 24 hours in the UK and 1.5 hours in the US. Surprisingly, Laos has the lowest average time of 9 hours compared to other countries in the ASEAN. While Myanmar has the highest average time at 142 hours, other countries such as Thailand and Malaysia only need 44 hours and 28 hours for border compliance respectively.

Besides, Thailand and Malaysia also have a lower cost to export compared to Vietnam. Cost to export in Vietnam is US$290 while the cost to export in Thailand and Malaysia are US$223 and US$213, respectively. In term of documentary compliance, Vietnam also requires 50 hours and costs US$139. Thailand only needs 11 hours and costs US$97 while Malaysia needs 10 hours and costs US$35. Although Vietnam does not have the highest time and cost to complete border compliance and documentary compliance, the country was still behind some neighboring countries, especially in documentary compliance.

Table 5. Customs efficiency for import activity (Doing Business 2019).

Country	Time to import: Border compliance (hours)	Cost to import: Border compliance (USD)	Time to import: Documentary compliance (hours)	Cost to import: Documentary compliance (USD)
China	48	326	24	122.3
India	96.7	331	29.7	100
Indonesia	99.4	382.6	106.2	164.4
Laos	11	224	60	115
Malaysia	36	213	7	60
Myanmar	230	457	48	210
Philippines	120	580	96	50
Singapore	33	220	3	40
Thailand	50	233	4	43
UK	3	0	2	0
US	1.5	175	7.5	100
Vietnam	56	373	76	183

The table above shows the import activity efficiency in Vietnam. Vietnam requires 56 hours and costs US$373 to complete border compliance, and the country needs 76 hours and costs US$183 for fulfilling documentary compliance in import activities. Similarly, Vietnam is in the middle in term of efficiency performance. The cost of border compliance and documentary compliance in import activities is much higher than in export activities. The time required to fulfill documentary compliance for import activities was also higher than in export activities. It is concluded that the information provided by expert E can be confirmed.

Expert C indicated that the Vietnamese government had understood the lengthy customs clearance issue. The issue has been addressed partially with the establishment of electronic customs (e-customs) since 2014. There are some benefits from the application of e-customs. At first, e-customs reduce physical inspection and document inspections which are handled by GDVC. While shipping agents can submit all required documents through virtual network anytime and it also contributes to the transparency of overall customs clearance process.

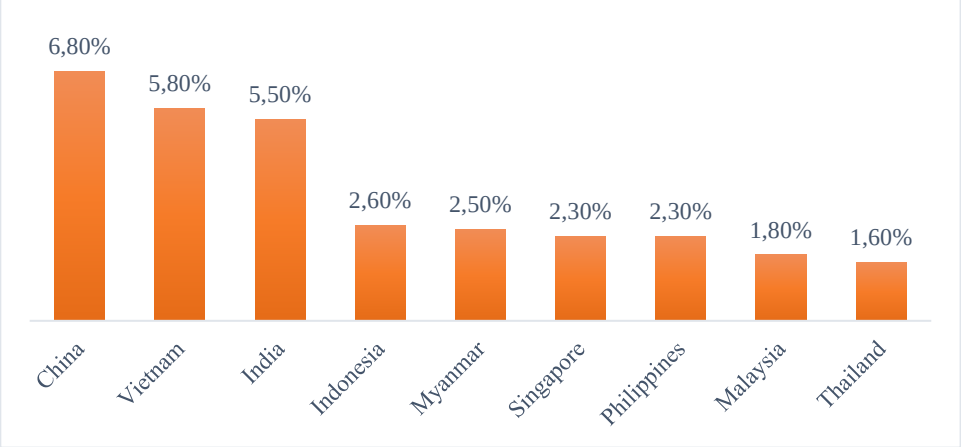

Figure 5. Infrastructure Spending as a % of GDP (Jones Lang LaSalle 2017).

Expert B and expert D agreed that customs clearance is the current obstacle concerns in the logistics industry of Vietnam. They confirmed the issues existed in the infrastructure of the country that causes a practical issue in logistics operation inefficiency. Expert B shared that the Vietnamese government has spent much money in term of improving the physical infrastructure of the country, but it is still not efficient. The opinion of Expert B is confirmed by the evidence of which Vietnam's infrastructure spending as a percentage of gross domestic product (GDP) was 5.8%, which is only below China but higher than India, Indonesia, Singapore, Philippines, and Malaysia (Jones Lang LaSalle 2017). Expert D indicated that the quality of the infrastructure in Vietnam could be evaluated through national roads. However, it is still poorer than other countries in the region and hence, limiting further development of logistics services providers in the country. Secondary data confirm the opinion of Expert D about the poor quality of Vietnamese infrastructure. According to the Netherlands Worldwide (2019), the road is the most critical infrastructure in the way of supporting logistics activities and road transportation accounts for more than 75% of all freight transport, but nearly 40% of roads in Vietnam are under poor condition. Expert D confirmed that when the road quality is poor, logistics companies will face up with higher lead time and that also affects negatively on equipment and transportation means.

Expert B emphasized that infrastructure of Vietnam is not only evaluated through road but also through other transportation ways, including airway, railway, and port and he confirmed that road still has the better condition compared to others. He addressed that airway is vital to logistics activities due to the growth in export volumes. Expert B asserted that the road quality is better than airway, railway, and port quality in Vietnam. This statement is confirmed through the infrastructure quality evaluation of Vietnam, which is provided by the Global Economic Forum (2019).

Table 6. Vietnam's infrastructure quality score and ranking (Global Economic Forum 2019).

Infrastructure indicators	2016		2017		2018	
	Score	Rank	Score	Rank	Score	Rank
Overall quality	3.5 / 7	99 / 140	3.6 / 7	85 / 138	3.6 / 7	89 / 137
Roads quality	3.3 / 7	93 / 140	3.5 / 7	89 / 138	3.4 / 7	92 / 137
Railroad quality	3.2 / 7	48 / 140	3.1 / 7	52 / 138	3.0/ 7	59 / 137
Port quality	3.9 / 7	76 / 140	3.8 / 7	77 / 138	3.7 / 7	82 / 137
Air transportation quality	4.2 / 7	75 / 140	4.1 / 7	86 / 138	3.8 / 7	103 / 137

The table above showed the infrastructure scores of Vietnam from 2016 to 2018. The overall infrastructure quality increased from 3.5 in 2016 to 3.6 in 2018 out of the maximum score as 7. Vietnam was ranked at 89th position out of 137 countries in 2018. Roads quality score also improved. Nonetheless, railroad quality, port quality, and air transportation quality decreased continuously in term the scores. Especially, air transportation quality of Vietnam had a score of 4.2 in 2016, but it decreased to 3.8 in 2018, and Vietnam was degraded from 75th position out of 140 countries in 2016 to 103rd position out of 137 countries in 2018. Air transportation quality is a concern in Vietnam's infrastructure. Expert B stated that the airway quality is poor since Tan Son Nhat International Airport is always in congestion due to over demands. He further mentioned the plan from HCMC People Committee to build a new airport in Long Thanh Province, which is 45 kilometers away from the city center. However, this plan will not be accomplished soon before 2025, and therefore, logistics services providers are still facing with poor quality in air transportations.

Besides road and air transportations, expert A indicated the importance and the value of ports in the logistics industry of Vietnam. He indicated that Vietnam has a competitive advantage to develop modern and high-value ports. His opinion is evidenced with the fact that there are more than 100 seaports in Vietnam and the Vietnamese government has approved a master plan to upgrade and to build new seaports with total capital investment up to US$20 billion. Netherlands Worldwide (2019) reported that Vietnam has 44 seaports, 224 river ports, 219 terminals, more than 8,000 landing stages, and water transportation accounted for more than 20% of all freight transportation of the country. Also, Ho Chi Minh Port is ranked as 26th biggest container ports in the globe and is ranked at fifth position in the ASEAN region (Vietnam Briefing 2018). However, expert A highlighted the current issue

in port transportation is that many ports have been confronting high shipment demands, and that led to frequent congestion and massive delays. Expert A took Cat Lai Port as an example for the mentioned problems, which is a deepwater port located in District 2 of HCMC. Specifically, Cat Lai Port can only handle vessels with a capacity of 18,000 twenty-foot equivalent units (TEU). Bigger vessels cannot load the shipments in Cat Lai Port, and thus they must be first transhipped to Hong Kong's ports or Singapore's ports, and the goods will be shipped to HCMC.

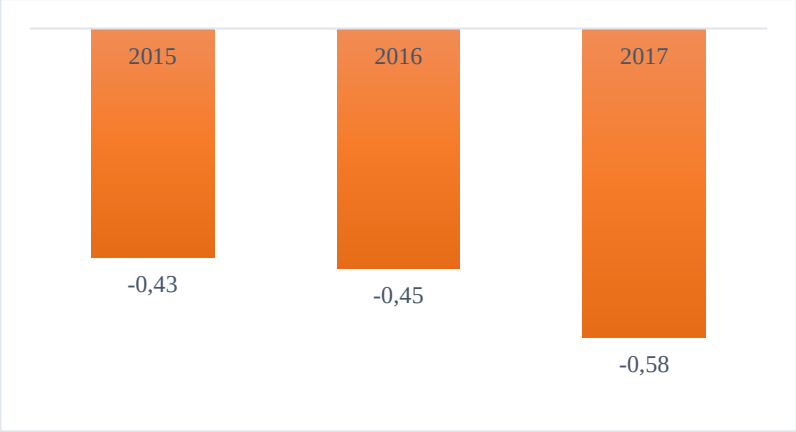

Figure 6. Vietnam's control of corruption (Global Economy 2019).

All experts shared one of the interesting findings. They highlighted a concern related to the corruption in governmental bodies, which is the management of logistics activities. The experts agreed that high corruption leads to non-transparency and higher time of fulfilling logistics requests from shipping agents and logistics services providers. The researcher confirmed the experts' concern through the secondary data, which is the control of the corruption index of Vietnam. The Global Economy (2019) shows that Vietnam has a negative score at -0.58, and the country is being ranked at 30th position out of 49 countries. Moreover, the control of corruption score of Vietnam has continuously decreased, showing that corruption has not been controlled well.

4.2 The limitations in the competitive capabilities of Vietnam's logistics services providers

All experts agreed that the major limitation in the competitive capabilities of Vietnam's logistics services providers is the human resource quality problem. Expert A emphasized that Vietnam's logistics industry requires at least 1.5 million of labors to work for more than 3,000 logistics companies in the country. Nevertheless, the labor market can only fulfill 40% of such demands. Similarly, expert B indicated the lack of human resources in term of labor quantity. He further noted that human resources quality in Vietnam's logistics industry is a serious concern. It is because of the underdeveloped education system in Vietnam, and the

lack of specialized logistics training courses. Expert C provided useful information related to the current situation of logistics education and training in HCMC. He addressed the importance of logistics activities in HCMC since the city has about 40 ports, 88 wharves, and the logistics market needs at least 350,000 labors. In order to find suitable workforces, logistics companies must recruit potential candidates who have just graduated from vocational and education training (VET) colleges. However, there are only two VET colleges in HCMC, and the total number of graduators is nearly 3,000 people per annum. He clearly said that the gap between actual labor demand and actual labor market supply is enormous. Regarding this gap, expert A dictated that HCM Department of Education and Training has cooperated with various international organizations to increase the number of VET facilities to fulfill the demand of nearly 200,000 labors for logistics industry of HCMC by 2020. He provided an example of which HCM Department of Education and Training has worked with Aus4Vietnam Investment Organization, which was under the management of the Australian government to design logistics training programs for the period of 2018-2020. This cooperation aims to increase the number of graduators in logistics area throughout the quality of logistics educations and training. Department of Education and Training and Aus4Vietnam Investment Organization will establish textbooks, curriculum, and teaching plan, which are specialized for logistics activities and logistics management. Expert D, furthermore, noted that there are some logistics teaching groups have been established. The members of those groups are connected through social networking platforms such as Facebook and LinkedIn but they often organized spontaneously, thus, there is no evidence of effectiveness. Expert E provided the information of which he joined into an offline discussion with the Economy Advisory Group to the Prime Minister of Vietnam during July 2018, and they conducted some discussions about Vietnam's logistics challenges and opportunities. During these discussions, the primary concerns such as the lack of human resources, and logistics courses were rarely focused by the local university, colleges, and research institutions in Vietnam were highlighted. He further stated that logistics courses had gained the attention of private schools. For instance, RMIT has recently established a Bachelor of Logistics and Supply Chain Management program, but the cost of attending this course is still prohibitive.

Table 7. Salary for logistics and warehouse managers in Vietnam and Thailand, US$ per month (Adecco Vietnam 2019; Adecco Thailand 2019).

Logistics positions	Vietnam	Thailand
Logistics manager	1,501 - 2,145 (USD)	2,508 - 4,702 (USD)
Warehouse manager	1,501 - 2,145 (USD)	1,881 - 3,762 (USD)

Another concern related to human resources for developing logistics in Vietnam is that small and medium-scale domestic logistics services providers cannot recruit experienced and

professional staffs. Expert B noted that one of the excellent labor sources for logistics activities and management is from Vietnamese students who studied logistics abroad. However, these people prefer working at international and big-scale logistics companies or working overseas because of higher salaries and benefits. The opinion of expert B is valid since expert D indicated that Vietnamese logistics companies had provided an uncompetitive salary package to logistics positions compared to other countries. To validate this information, the researcher collected the salary table for logistics' positions between Vietnam and Thailand, which was published by Adecco.

Table 8. Salary of different logistics officers and supervisors in Thailand, US$ per month (Adecco Thailand 2019).

Positions	Type	New graduate	1-5 years	> 5 years
Logistics supervisors	Corporate positions	-	784 - 1,098 (USD)	1,254 - 1,411 (USD)
	Industrial positions	-	941 - 1,411 (USD)	1,568 - 2,195 (USD)
Logistics officers	Corporate positions	564 – 784 (USD)	784 - 1,098 (USD)	-
	Industrial positions	470 – 784 (USD)	564 - 1,097 (USD)	-

Currently, a logistics manager in Vietnam is paid from VND30 million to VND50 million monthly, which is equivalent to US$1,501-US$2,145 per month, and this salary level is also applied for a warehouse manager. Logistics manager in Thailand, however, is paid US$2,508-4,702 monthly while a warehouse manager is paid US$1,881-3,762 a month for an industrial position. In addition, Adecco Thailand (2019, 1) reported that monthly salary for a logistics supervisor/officer in Thailand is paid based on their corporate position or industrial positions as well as the experiences. Minimum salary for logistics supervisor and logistics officer is US$784 and US$564 while the maximum salary for logistics supervisor and logistics officer is US$2,195 and US$1,097. Expert B noted that new logistics graduators in Vietnam normally received a monthly salary of US$300 maximum, which is a gap with the current salary level for new logistics graduator in Thailand. Expert D and expert E further confirmed that salary is one of the issues that logistics companies could not recruit or invite talented people who have rich experiences in abroad.

Beside of unmatched human resources quality and salary, the interviews with five experts also revealed another limitation in the competitive capabilities of Vietnam's logistics services providers. It referred to unqualified information technology (IT) system and required

knowledge to perform and operate the IT system. Expert A informed that the number of logistics companies have been utilizing IT system increased nearly double compared to the past decade. Nonetheless, he estimated that only about 40% of domestic logistics services providers have been using IT system. Expert B worried about the technological level in small and medium-size domestic LSPs due to the unwilling attitude to adopt new technology from the founders. Expert C also shared his concern about the lack of modern IT system used in Vietnam's logistics industry since the Internet of Thing (IoT) area requires logistics companies to apply sophisticated logistics technologies to better integrate with the global businesses. Expert C and expert E dictated that global logistics companies such as DHL have been applying new technologies, for instance, 3D Printing, Augmented Reality (AR), self-driving vehicles, and drones into logistics activities for many years, but these technologies have just been introduced and are popular in Vietnam yet. Expert D also highlighted the importance of Enterprise Resource Planning (ERP) system since it plays critical roles in connecting various business areas of logistics companies. Expert D further shared three benefits that Vietnam's domestic logistics services provider can achieve from using an ERP system. That are inventory control and inventory optimization, distribution effectiveness improvement, and logistics staffing management.

Furthermore, the ERP system is also important in case of 3PL, 4PL, and 5PL logistics services model because it helps logistics services providers to better connect with other vendors and contractors in a supply chain. Expert D denoted that ERP system can save inventory cost and distribution cost by 23-26% so that ERP is a worth investment for logistics services providers. According to a report from Interlink (2017), only about 10% of Vietnam's logistics services providers have been using ERP system. Expert B also highlighted that Electronic Data Interchange (EDI) is considered as a useful technology in logistics and that technology helps logistics services provider to better manage the movement of raw materials and goods in the supply chain. However, technology is still rarely applied in Vietnam. Expert B and expert E denoted that Vietnam's LSPs are urged to apply new technology because of poor technological knowledge. It is explained by the poor human resource quality, and it limits the capabilities of effectively using IT system in the logistics business.

Finally, Expert C and expert E highlighted the last limitation of Vietnam's domestic logistics services providers. That is the poor logistics services development strategies of LSPs. Expert C said that most of logistics services providers in Vietnam do not conduct outsourcing strategy (3PL logistics model). He emphasized that only 30% of domestic LSPs have conducted this strategy while logistics outsourcing strategy is very common in China or developed countries with outsourcing ratio is more than 60%. Expert C and expert E also shared the importance of constructing a multi-modal transportation system, which is a combination

of different transportation modes and IT system management in order to take advantage of the most inexpensive transportation mode. Expert E shared that a modal transportation system will cover travel supply, travel demand, traffic operation, travel information and guides, transportation services, and inter-organizational coordination. A multi-modal transportation system requires logistics companies to setup ERP to effectively manage the workflow of logistics activities inside and outside the companies. Another gap in development strategies in domestic LSPs refers to the development of logistics centers across the country in order to reduce the transportation cost and therefore further improving logistics effectiveness and efficiency. Expert C highlighted this gap, and he further addressed that the investment into building a logistics center is costly, or it requires massive investment from big logistics services providers or the support from the government.

4.3 The reasons for logistics services integration

In this section, the researcher collected the experts' ideas in order to identify the reasons and the motivations for Vietnam's LSPs to conduct logistics services integration. All the experts agreed that the most motivating factor for conducting logistics services integration is from the further global economic integration of Vietnam. Expert A said that when Vietnam joined Word Trade Organization (WTO) in mid-2006, the Vietnamese government had to reduce or cut import tariffs to the goods imported from member countries of WTO, leading to higher demand of goods shipments to Vietnam. Moreover, WTO accessibility allowed Vietnamese manufacturers to access cheaper raw materials, and hence, their demands of raw material transportations have been increasing. Since the businesses of Vietnamese companies have grown to international level, logistics services integration is must-have setup. That requires Vietnam's logistics services providers to set up its infrastructure and IT system to connect with different suppliers and buyers in the global context. The answer to expert A gained the agreement from all other experts.

On the other hand, other experts stated that the most motivating factor is global economic integration of Vietnam. Expert B said that Vietnamese government has been putting much effort in economic cooperation such as the ASEAN Free Trade Area (AFTA), the Asia-Europe Meeting (ASEM), the Asia-Pacific Economic Cooperation (APEC), and so on. Also, this resulted in higher traffic of goods and raw materials inflow and outflow to Vietnam, leading to higher demand for logistics services integration to save the logistics cost. Expert B and expert E explored that logistics services integration is not only resulted from the higher economic integration and global economy but also from the benefit of conducting this strategy to Vietnam's logistics services providers. They agree that there are four benefits generated from integrated logistics supply chain network, including better matching with the

customers' demands, logistics flexibility, reduction of logistics cost and waste, and achievement of higher profit margins. When a logistics company jointed into the integrated logistics supply chain, it gains the benefit of capturing new rising demands from the customers in different parts of the world. Therefore, they can provide services at competitive prices and win the market share. Expert B emphasized that integrated logistics supply chain network brings more flexibility to logistics services providers because it is designed with intelligent information system and automate optimization process so that the participants can perform monthly or daily logistics planning. Expert C denoted that integrated logistics supply chain allows the companies to reduce logistics cost and unwanted waste and thus, bringing higher profit returns.

Exert E said that logistics services integration is a natural development of Vietnamese logistics industry since there are so many small and medium logistics services providers in the market. Nonetheless, he identified that 70% of logistics revenues are being generated from 30% largest logistics services providers. Hence, smaller players must coordinate with each other through logistics services integration solutions or merger and acquisitions strategy for future growth and to better compete with more prominent logistics services providers. In addition, when small and medium-sized logistics services providers cooperate, they can utilize competitive advantage, distribution network, financial resources, and so forth. It is imperative since small and medium-sized logistics services providers do not have sufficient financial resources to build its owned logistics centers.

4.4 Strategies and approaches for logistics services integration in Vietnamese small and medium logistics services providers

The last and the most important section of this chapter is to identify the suitable strategies and approaches that Vietnam's logistics services providers should take to transform into 3PL, 4PL, and 5PL. It is recapped that Vietnam's LSPs are facing three major challenges that are restraining them from developing, including lengthy customs procedures, inadequate and insufficient infrastructure, and corruption issues. Moreover, Vietnam's domestic LSPs persist some internal issues, including the lack of human resources quality for logistics management, the remuneration for logistics workforces is lower than in other countries. The poor application of ERP, EDI, and other modern IT systems, and the lack of multi-modal transportation modes were also raised by the experts. Being said that Vietnam is on the way to global integration, domestic LSPs are encouraged to conduct logistics integration strategies to reduce logistics cost, to better anticipate customers' needs and demands, and to compete well with other bigger competitors in the market. However, domestic LSPs must wisely choose suitable strategies and implementation approaches in order to ensure that logistics activities are carried out in high effectiveness and efficiency.

This section is fulfilled through the fourth interview question with five experts, and they are asked to provide feasible strategies for the development of 3PL, 4PL, and 5PL logistics services model given to the current situation of Vietnamese logistics context. It is recapped that most of Vietnamese logistics companies are operating under 2PL logistics services model. 2PL refers to the hire of transportation services to deliver goods from manufacturers' locations to the distributors or the customers. 3PL logistics services model is an upgrade from 2PL. An upgrade happens in case a company only want to manage logistics oversight, and it decides to outsource transportation and other logistics or manufacturing operations (i.e., packaging) to a services provider through a subcontract. Expert A said that 3PL logistics services providers must provide a bundle of integrated logistics and supply chain services. That bundle must cover at least six services items as packaging, cross-docking, inventory management, transportation, freight forwarding, and warehousing. Expert B and expert C denoted that a critical success factor for 3PL logistics services model is the capability of customizing the logistics services to customers' needs and demands and the services providers should also expand its business in different industries or sectors in order to gain economies of scale. Expert A, expert D, and expert E agree that the core competency of a 3PL logistics services provider is how it can reach great economy of scale to generate more outputs give to current infrastructure and facilities. Expert D recommended that 3PL logistics services providers must provide technology solutions such as transportation and warehouse management system to control the overall logistics process. Expert A, Expert D, and Expert E also highlighted the business strategy in which 3PL logistics services provides must rely on a decentralized and hyper-connected business model in which a large number of warehouses and distributions to be built across the country so that they are able to deliver goods quickly to the customers' locations. Expert A recommended the customers of 3PL logistics services providers must monitor deeper into logistics and transportation providers since the major caveat of 3PL logistics services model is lack of direct oversight and control. In case 3PL logistics services providers cannot deliver goods to the customers in time and in a qualitative manner, the customers may complain about the product and service quality of the companies. To avoid these issues, different operation models must be used in different industries. Expert A, expert C, and expert D mentioned that the retailers who use 3PL logistics services should use delivery services from small shipping companies with the commitment of delivering goods within 24 hours after the shipment order is placed. In field services, 3PL is often organized by a smaller hub and spoke distributions for rapid and lower cost of responses. The location of the hub and spoke distribution must be based on historical data related to the customers' size, the number of orders, and the locations with high orders.

To enroll 4PL logistics services model, a logistics company must provide a high level of SCM for the customers, according to expert A and expert B. They further noticed that 4PL logistics services model is much different to a 3PL logistics services model. The difference is that 4PL is non-asset based while 3PL requires the ownership of assets related to warehousing and transportation activities. Expert D said that 3PL is suitable for daily operation while 4PL focuses on supply chain optimization. Expert B denoted that 4PL is developed from 3PL with the participation of many 3PL logistics services providers. In this context, a 4PL provider stands out to help its customers to control the supply chain process throughout the application of technologies and the conduct of disciplines for any violations from 3PL providers. A company will utilize 4PL logistics services in case the management team does not want to heavily involve in daily logistics operations, according to Expert E. In retail business, expert A, expert C, and expert E asserted that 4PL provider could help the companies to allocate and to place inventories in optimal locations in order to reduce the mismatch with customers' needs. Then, express delivery services from 3PL providers will be utilized and controlled to ensure same-day inventory replenishment.

Finally, 5PL logistics services model is developed with innovative logistics management solutions. Through the interviews with five experts, the researcher captured that there is little opportunity for the development of 5PL logistics services model in Vietnam for the next 3-5 years because of the high technology gap. For example, expert A said that 5PL logistics services model demands the implementation of latest technologies such as Artificial Intelligence (AI), block-chain, robots, Augmented Reality (AR), and so on. These technologies are very new in Vietnam, and they are still in the research and development stage. The application of these technologies, as affirmed by five experts, bring the highest value into the supply chain and logistics system of every company because it aims at the highest optimization and automation of logistics activities. The cost of developing these technologies is also a concern. In addition, the human resource capabilities to understand and to operate these technologies efficiency is also matter. Expert B and expert C said that some technologies are even in a pilot test in world-class companies such as Amazon and DHL. Therefore, Vietnamese logistics services providers need a long time until they are able to apply to daily business.

Table 9. Summary of logistics services integration strategies.

Logistics services model	Objectives	Actions	Issues	Applicability level
Third Party Logistics (3PL)	▪ Economy of scale ▪ To effectively manage daily operation	▪ 3PL logistics services provider to provide transportation and additional actions to customers ▪ To provide 6 core services: packaging, cross-docking, inventory management, transportation, freight forwarding, and warehousing ▪ To provide basic technology solutions ▪ To establish small hub and spoke distribution ▪ To collect and storage historical data for future optimization	▪ Customers is lack of oversight ▪ To require high integrity and accountability in the internal management	High applicable in current Vietnamese logistics industry
Fourth Party Logistics (4PL)	▪ To control overall SC of a customer	▪ To provide systematic control of all 2PL, 3PL involved into process ▪ To develop and to implement discipline policies and actions to reduce the violation ▪ To place inventory in optimal locations	▪ Required the application of technologies like ERP, EDI	Medium applicable in current Vietnamese logistics industry
Fifth Party Logistics (5PL)	▪ To intelligent manage overall SC of a customer	▪ To develop and use new technologies into SCM process ▪ To automate a large part of logistics activities	▪ High cost of investment ▪ Lack of technology transfers	Low applicable in Vietnamese logistics industry

5 Conclusions and Recommendations

5.1 Conclusion

In recent years, due to the increasing demand for goods circulation of the market, Vietnam's logistics industry has gained increasing attention and investment from the government and private sectors in term of building and applying modern and advanced logistics services integration. Logistics is a synergistically integrated operation. The effectiveness of logistics activities is important to the national competitiveness of each country. In Vietnam, the development of logistics services has been becoming important because it will ensure the operational production and goods delivery of the business and thus, meeting customers' demands. The lack of logistics management and control can lead to customer dissatisfaction and the downturn of business performance. Effective and efficient logistics activities, in contrast, help the companies to optimize the production process, lower inventory cost and timely meet the customers' demands.

For developed countries like Japan and the US, logistics costs account for 10% to 13% of GDP. In developing countries, this cost is about 15-20% and for underdeveloped countries, logistics costs can be up to 30%. In Vietnam, logistics costs are about 25% of GDP, of which sea transport accounts for 50-60%. High logistics cost has a direct and negative impact on production costs, reduce the profit margin and competitiveness position of the companies in the market. It is expected that proper development of logistics services integration strategies allows Vietnamese logistics companies to achieve competitive advantage further and to lower logistics cost. It is explored that most logistics companies are performing under 2PL logistics services model, and only a few companies are able to deliver 3PL and 4PL logistics services.

This study is developed with the primary objective of identifying how Vietnam's logistics services providers integrate their services to become 3PL, 4PL, and 5PL. This research objective is fulfilled through four research questions, and these questions were also used in in-depth interviews with five experts in the Vietnamese logistics industry.

The first research question is to identify the persistent problems and challenges that are restraining Vietnam's LSPs from developing. Throughout the interviews with five experts, there are three major problems to be detected, namely the lengthy customs procedure, poor infrastructure condition, and the lack of corruption control from the government. When the customs procedure is lengthy, the shipment companies must take higher storage cost while

poor infrastructure condition increases transportation time and reduces the quality of vehicles. Corruption, in another way, affects negatively to the competition in the market, and it makes logistics approval to be fulfilled with hidden fees, or it leads to unfair assessments.

The second research question is developed to find limitations in the competitive capabilities of Vietnam's logistics services providers. Throughout the interviews with five experts, the researcher identified that these LSPs could not find sufficient workforces for their logistics demands. Only more than 2,000 students with specialized education in logistics activities every year while the demands are 50 times higher by 2030. In addition, Vietnam's logistics services providers could not attract talented employees due to lower compensation, especially to international-experienced staffs. Another limitation is identified through the lack of a modern IT system used in the operation of logistics services providers. Only about 10% of the country's domestic logistics services are using ERP system and the application of big data, sensor technology, augmented reality, robots, and drones are not conducted even in big logistics services providers.

The third research question tries to identify the key motivations for conducting logistics services integration strategies. The researcher captured that global economic integration is the major motivation factor since there is growing demands from import and export activities of local and foreign companies which come from Vietnam and WTO's membership countries. It is also identified that small and medium logistics services providers in Vietnam gain the benefit from conducting logistics services integration strategies since they can utilize the infrastructure of other logistics partners so that overall logistics process will be optimized further.

The last research question is used to identify the most feasible logistics services integration strategies. These strategies were identified through the interviews with the experts as they provided several actions to help LSP transforms into 3PL, 4PL, and 5PL. However, proposed strategies are only applicable in the case of the logistics industry in Vietnam to be renovated in the overall context, leading to the development of recommendations section.

5.2 Recommendations

The findings from in-depth interviews with five experts explore six recommendations. They are (1) Improving customs procedures through e-customs portal, (2) Improving physical infrastructure, (3) Application of new 4.0 IT system, (4) Establishment of vocational and education training for logistics areas, (5) Reviewing salary for logistics positions, and (6) M&A strategy between small and medium logistics services providers. It is identified that the implementation of these strategies is not only conducted by logistics services providers but

also requiring the intensive effort from Vietnamese governments in term of providing legal framework and incentives to increase and to fasten logistics integration process in the country.

The interviews with five experts revealed some recommendations related to the studied topic. The table below summarizes six key recommendations provided by five experts.

Table 10. Recommendations for logistics services integration

No	Recommendations	Expert A	Expert B	Expert C	Expert D	Expert E
1	Improving customs procedures through e-customs portal	X		X		X
2	Improving physical infrastructure	X	X		X	
3	Application of new 4.0 IT system	X		X	X	
4	Establishment of vocational and education training for logistics areas	X	X	X	X	X
5	Reviewing salary for logistics positions		X		X	
6	M&A strategy between small and medium logistics services providers	X				X

Improving customs procedures through an e-customs portal

E-customs portal has been established since 2014, and it was the first governmental effort to simplify the process of customs procedures to shipping agents when they conduct import and export activities. The current time required for border compliance and documentary compliance in Vietnam is higher than Thailand and Malaysia, and it was much higher when compared to other developed countries like US and UK. Hence, the implementation of e-customs and the encouragement of using this portal are a critical requirement to help the country to improve the customs clearance efficiency and effectiveness further.

Improving physical infrastructure

As identified in previous sections, the infrastructure of Vietnam is not good in term of road, railway, waterway, and airway. Notably, the airway has more unsatisfactory performance over the years since Tan Son Nhat Airport is always congested due to high demands. Therefore, a suitable strategy should be developed with heavy involvement from the government bodies. Especially, the Ministry of Planning and Investment and Ministry of Transportation in which these ministries should allocate good capital from State budget to construct new

roads and a new airport for HCMC quickly. The Vietnamese government should establish an ideal investment environment to attract foreign capital investment inflow to develop physical infrastructure development. The investment must cover the upgrade of seaports in order to reduce the congestion and construct multi-transportation to reduce overall logistics cost. Furthermore, the Vietnamese government should direct the State Bank of Vietnam to provide inexpensive sources of funds for logistics services providers in term of working capital financings and construction financings. When LSPs are able to reach an accessible source of fund, they can construct a multi-modal transportation system as well as logistics center across the country in order to optimize overall their logistics flows.

Application of a new 4.0 IT system

Application of new 4.0 IT system is definitely the most important logistics services integration strategy, and it directly affects the success of upgrading logistics services model from 1PL or 2PL to more advanced 3PL, 4PL, and 5PL. Currently, there are many IT systems and available technologies to be applied in the logistics industry such as tube logistics, de-stressing supply chain, ERP, EDI, self-driving vehicles, cloud logistics, and so forth. These technologies have been captured by DHL (2019) as below:

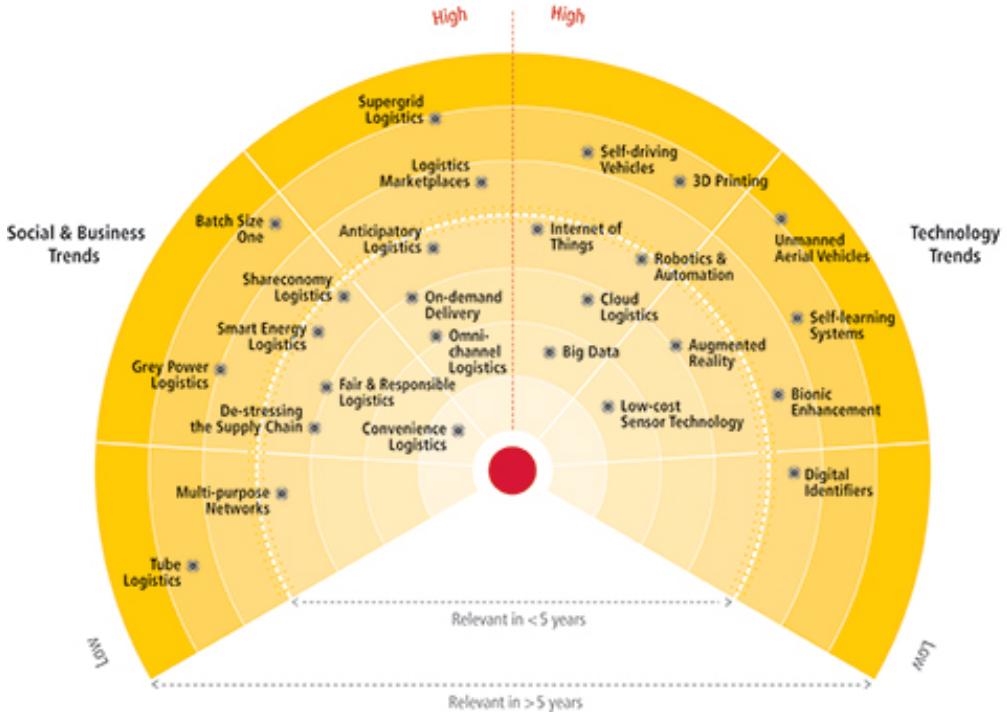

Figure 7. Technologies trends radar in the logistics industry (DHL 2019).

Logistics services providers in Vietnam must be aware of technology trends in the logistics industry. There are five technologies which will be bloomed by 2030, including big data, sensor technology, augmented reality, robots, and drones. Big data refers to the connection

of all firms' business, suppliers, customers, and other shareholders and the data related to each party will be captured and stored for in-deep analyses. Sensor technology refers to depth and motion sensors which are used to identify how much room left on a pallet, a warehouse, or a truck. Augmented reality (AR) will be equipped for staffs who are working in the warehouse, and it is supported by a glass device with barcode scanning and display relevant information to help the staffs quickly organize their workloads. Robots refer to the application of machines to automatically work with orders and goods in warehouse operators. One of the robot applications is self-driving cars to automatically move and load the goods and raw materials to the desired destination. Finally, drones are new transportation method in the logistics industry. Currently, Amazon and DHL have conducted a pilot test on last-mile delivery of goods through flying machines. Although this technology is still an early stage of development, it has positive future growth.

Establishment of vocational and educational training for logistics areas

This strategy is critically important to the future development of Vietnam's logistics industry since there is a big gap between labor force demand and supply. Ministry of Education and Training (MOET) should involve in the process of developing new vocational and educational programs related to logistics activities in public universities, colleges, and vocational schools. MOET should work with international organizations to widen the logistics training programs. In addition, they should work with local and foreign logistics companies to anticipate future workforce demands.

Reviewing salary for logistics positions

As mentioned in the earlier section, Vietnam's logistics services providers find the difficulty to attract talented employees from abroad due to lower salary and benefits. Thailand is an example of a country where logistics officers, logistics suppliers, and logistics managers receive much higher monthly salary compared to Vietnam. The Ministry of Labor - Invalids and Social Affairs (MOLISA) should be participated in this process by encouraging the logistics services providers to raise the salary and welfare budget for talent staffs in logistics areas. MOET should invite some international human resource management and consultant such as Adecco, Robert Walter to develop communication and training to local logistics services providers to raise the awareness in term of attractive compensation and welfare to the employees.

M&A strategy between small and medium logistics services providers

M&A strategy has been blooming in Vietnam for many years, but most of the M&A deals happened in the manufacturing and services industries rather than logistics. StoxPlus (2017) reported that major M&A deals happened between Mekong Capital as acquirer and Nhat Tin Logistics as target companies in 2017. Before that, there was only one major deal which happened between an international acquirer and ITL logistics company in 2015. The year of 2016 witnessed four M&A deals between SoH and Vinlinks, between Bravia Capital and BacKy Logistics Company, between VINFCO and international company, and between Mekong Capital and ABA Cooltrans. StoxPlus (2017) denoted that most of M&A deals were a small value at less than US$5 million.

Figure 8. Successful M&A deals in Vietnam's logistics industry (Stoxplus 2017).

Through M&A strategy, small and medium logistics services providers enable an opportunity to reach a higher market and a better competitive position against big logistics services providers. Some M&A deals were conducted between capital investment companies (i.e., Mekong Capital) and small logistics services providers so that the constraint towards lack of capital requirement for further investment is expected to be resolved.

In summary, the researcher consolidated information and prepared a proposed change management plan as below:

Table 11. Change management plan.

Issues	Proposed recommendations	Proposed actions	Proposed timeline	Proposed resources
Financial resources constraint	To successfully collect a budget of US$600 billion to improve further road quality	▪ Spending state-budget for infrastructure renovation under a national master plan ▪ The overall process is managed by a specific governmental unit with frequent audit	▪ 3-5 years	▪ Ministry of Planning and Investment ▪ Ministry of Transportation ▪ Ministry of Finance ▪ Private sector ▪ World Bank
National corridor	To develop a multi-modal transportation model based on North-South-Mekong corridor	▪ To study the experience of establishing and constructing a multi-modal transportation model in developed countries ▪ To develop a development plan	▪ 1-2 years	▪ Ministry of Planning and Investment ▪ Ministry of Transportation ▪ World Bank
Airway	To increase air cargo transportation capacity	▪ To timely construct new airport in Long Thanh Province ▪ To develop a plan to increase air cargo capacity ▪ To build new cargo storage near to or inside the airports	▪ New airport: 10 years ▪ Other actions: 1-3 years	▪ Ministry of Planning and Investment ▪ Ministry of Transportation
Railway	To increase containerized rail cargo transportation capacity	▪ To develop a plan to increase rail cargo capacity ▪ To connect the railway with seaport and river ports	▪ 1-2 years	▪ Ministry of Planning and Investment ▪ Ministry of Transportation
Coordination	To increase the coordination between different sub-sectors	▪ To measure and to evaluate the transportation and logistics demands ▪ To develop a national logistics data center	▪ 1-2 years	▪ Ministry of Planning and Investment ▪ Ministry of Transportation

E-customs	To increase the use of e-customs	▪ To provide the training of e-customs ▪ To measure the system performance of e-customs	▪ 1 year	▪ General Department of Vietnam Customs
M&A deals	To increase the number of M&A deals in the logistics industry	▪ To establish a committee to connect small and medium logistics players ▪ To potential setup initial evaluation and due diligence for M&A	▪ 1-2 years	▪ Ministry of Planning and Investment ▪ Ministry of Transportation ▪ Ministry of Finance
Employees benefits	To recruit talent staffs in the logistics industry	▪ To increase the benefit for labors in the logistics industry	▪ 1 year	▪ Ministry of Labor - Invalids and Social Affairs ▪ Private sectors
Labor workforce	To prepare a sufficient workforce for the logistics industry	▪ To develop new vocational education and training centers which are specialized in logistics education and training ▪ To put logistics into teaching content in public universities	▪ 1-2 years	▪ Ministry of Education and Training ▪ World Bank ▪ Other countries non-profit organizations
Adoption of new technologies	To widely use of new technologies in the logistics industry	▪ To encourage logistics companies to apply core systems implementation (ERP, EDI) ▪ To encourage big logistics companies to apply robots, drones, big data, AR, sensor technologies ▪ To conduct logistics technology transfer between Vietnam and developed countries	▪ 3-5 years	▪ Ministry of Education and Training ▪ Ministry of Planning and Investment ▪ World Bank ▪ Governments from other countries

5.3 Limitations and future studies

The limitation of this study is highlighted from the application of in-depth interviews to collect primary data. In other words, the primary data is extracted from the discussion with five experts who have enriched experiences in the Vietnamese logistics industry. However, the information which was obtained from the experts was highly subjective since it is dependent on their personal point of view about each aspect of logistics services integration. On the other hand, there are no empirical data to be collected directly from small and medium logistics services providers in Vietnam. Hence, future researchers should convey a survey with many small and medium logistics services providers in Vietnam and collect their opinions about logistics services integration. This action will strengthen the findings by reducing subjective argumentations.

5.4 Learning process

During the research, the researcher has gained deeper insights into the current state of the logistics industry of Vietnam and local logistics companies compared to those of other countries in the ASEAN region as well as the globe. In addition, this research-based thesis helped the researcher expanded knowledge in the logistics services integration with different level of services such as 1PL, 2PL, 3PL, 4PL, and 5PL. The concepts of 4PL and 5PL were especially interesting to the researcher during the research. However, the author faced minor difficulties finding, filtering and screening in order to understand and choose the most reliable definitions for those concepts as they are quite new and was not taught in Haaga-Helia's courses.

Contacting the interviewees was a challenging task as most of them did not respond to the interview invitation. However, being able to work with, and interview with these experts gave the researchers immensely valuable information, facts, aspects, and interesting points of view on Vietnam's logistics industry. Even though the interviews were conducted in Vietnamese, the researcher was still able to use his English skill to translate the script into English as literal as possible in order to serve the purpose of the thesis. The thesis created opportunity for the researcher to apply the qualitative research method into practical use as well as different tools and analyzing techniques.

6 Reference

Adecco Thailand 2019. Supply chain / Logistics. URL: https://adecco.co.th/salary-guide/2019/00013/43#job-des. Accessed: 3 April 2019

Adecco Vietnam 2019. 2019 Vietnam salary guide. URL: https://adecco.com.vn/uploads/knowledge-center/salary-guide/SG%2019/Salary%20Guide%202019_Adecco%20Vietnam.pdf. Accessed: 3 April 2019

Allied Market Research 2018. Third-party logistics (3PL) market by mode of transportation (railways, roadways, waterways, and airways) and service type (dedicated contract carriage (dcc), domestic transportation management, international transportation management, warehousing & distribution, and others): Global opportunity analysis and industry forecast, 2018 – 2025. URL: https://www.alliedmarketresearch.com/3PL-market. Accessed: 6 February 2019

Anderson, E., Coltman, T., Devinney, T. & Keating, B. 2011. What drives the choice of a third-party logistics providers?. Journal of Supply Chain Management, 47, 2, pp.97-115.

ATKearney 2019. The 2017 Global Retail Development Index: The Age of Focus. URL: https://www.atkearney.com/global-retail-development-index. Accessed: 20 January 2019.

Biinform 2017. Sector overview: Vietnam logistics market 2017. Amcham. URL: https://www.amchamvietnam.com/wp-content/uploads/2017/09/StoxPlus_LOGISTICS_Amcham_Deck_final.pdf. Accessed: 23 January 2019.

CERASIS 2016. The essential guide to third party logistics: What is a 3PL, considerations for hiring, & how to select & implement a 3PL. URL: https://cerasis.com/wp-content/uploads/2016/09/working-with-and-the-benefits-of-a-3PL-eBook.pdf. Accessed: 6 February 2019

Cherneva, D. & Voigt, K. 2015. Outsourcing to 4PLs – Opportunities, challenges, future outlook. HICL. URL: https://hicl.org/publications/2015/20/231.pdf. Accessed: 18 February 2019

Christopher, M. 1998. Logistics and supply chain management. (2nd Ed.). London, UK, Financial Times, Prentice Hall.

Christopher, M. 2011. Logistics and Supply Chain Management. 4th edition. Pearson education. Harlow.

Councils of Supply Chain Management Professionals 2019. CSCMP supply chain management definition and glossary. URL: https://cscmp.org/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms.aspx?hkey=60879588-f65f-4ab5-8c4b-6878815ef921. Accessed: 3 February 2019

Croom, S., Romano, P. & Giannakis, M. 2000. Supply chain management: an analytical framework for critical literature review. European Journal of Purchasing and Supply Management, 6, 1, pp. 67-83.

Delfmann, W. & Albers, S. 2000. Supply chain management in the global context. Working Paper No. 102, Department of General Management, Business Planning and Logistics of the University of Cologne.

DHL 2019. Logistics trend radar. URL: https://www.dhl.com/en/about_us/logistics_insights/dhl_trend_research/trendradar.html#.XNJD-I4zbIU. Accessed: 26 April 2019

Doing Business 2019. Trading across the borders. URL: http://www.doingbusiness.org/en/data/exploretopics/trading-across-borders. Accessed: 20 April 2019

Duyen, D. 2019. Total import and export value of Vietnam was US$480 billion in 2018. VnEconomy. Newspaper. URL: http://vneconomy.vn/kim-ngach-xuat-nhap-khau-cua-vietnam-dat-480-ty-usd-nam-2018-20190112110449228.htm. Accessed: 20 January 2019.

Erkan, B. 2014. The importance of determinants of logistics performance of selected countries. Journal of Emerging Issues in Economics, Finance and Banking, 3, 6, pp.1237-1254.

Farahani, R., Rezapour, S. & Kardar, L. 2011. Logistics Operations and Management. 1st Edition. Elsevier. London.

Filho, A., Cerra, A., Maia, J., Neto, M. & Bonadio, P. 2004. Pressupostos da gestão da cadeia de suprimentos: Evidências de estudos sobre a indústria automobilística. URL: http://www.scielo.br/pdf/gp/v11n3/a03v11n3.pdf. Accessed: 5 February 2019

Frankel, R., Bolumole, Y., Eltantawy, R., Paulraj, A. & Gundlach, G. 2011. The domain and scope of SCM's foundational disciplines – Insights and issues to advance research. Journal of Business Logistics, 29, 1, pp.1-30.

General Statistics Office 2017. Foreign direct investment projects licensed in period 1988 – 2017. Online publication. URL: https://www.gso.gov.vn/default_en.aspx?tabid=776. Accessed: 20 January 2019.

Global Economic Forum 2019. Vietnam. URL: https://www.weforum.org/reports. Accessed: 19 April 2019

Global Economy 2019. Control of corruption in Asia. URL: https://www.theglobaleconomy.com/Vietnam/wb_corruption/. Accessed: 19 April 2019

Grondys, K., Lovasova, R., Stelmaszczyk, A. & Janik, W. 2014. Importance of logistics operators in international market. Online publication URL: https://matarka.hu/koz/ISSN_1789-2198/vol_8_no_1_2014_eng/ISSN_1789-2198_vol_8_no_1_2014_eng_041-046.pdf. Accessed: 10 December 2018.

Gruchmann, T., Melkonyan, A. & Krumme, K. 2018. Logistics business transformation for sustainability: Assessing the role of the lead sustainability service provider (6PL). Logistics, 2, 25, pp.1-19.

Gupta, R., Sachdeva, A. & Bhardwaj, A. 2011. Criteria of selecting 3PL provider: A literature review. International Journal of Industrial and Manufacturing Engineering, 5, 11, pp.2345-2349.

Hanus, P. 2013. The business profile shaping and the logistics information systems of 2PL, 3PL, 4PL operators. Journal of Economics & Management, 12, pp.6-21.

Hayaloglu, P. 2015. The impact of developments in the logistics sector on economic growth: The case of OECD countries. International Journal of Economics and Financial Issues, 5, 2, pp.523-530.

Hickson, A., Wirth, B. & Morales, G. 2018. Supply chain intermediaries study. University of Manitoba Transport Institute.

Hugos, M. 2006. Essentials of supply chain management. 2nd Ed. Hoboken: John Willey & Sons. New Jersey.

Hwang, B. & Chen, Y. 2015. Decision making for third party logistics supplier selection in semiconductor manufacturing industry: A non-additive fuzzy integral approach. Mathematical Problems in Engineering, 2015, pp.1-12.

Interlink 2017. Vietnam logistics sector and new opportunities. Online publication. URL: http://interlink.com.vn/en/vietnam-logistics-sector-new-opportunities/. Accessed: 22 April 2019

Jones Lang LaSalle 2017. Vietnam: Spotlight on the accommodation & tourism industry. Online publication. URL: http://www.joneslanglasalle.com.vn/vietnam/en-gb/Research/Vietnam-Spotlight%20on%20the%20Accommodation%20and%20Tourism%20Industry.pdf. Accessed: 20 April 2019

Kersten W., Becker T. & Flamig, H. 2008. Global logistics management: Sustainability, quality, risks. ESV, Berlin.

Korn Ferry 2019. 2019 Third-party logistics industry: The state of logistics outsourcing – Results and findings of the 23rd annual study. Online publication. URL: https://dsqapj1lakrkc.cloudfront.net/media/sidebar_downloads/2019-3PL-Study.pdf.

Kuen, P. & Tong, C. 2011. Major factors influencing the performance of local private third party logistics service providers in Southern China. Journal of Management Research, 4, 1, pp.1-30.

Lamming, R. & Hampson, J. 1996. The environment as a supply chain management issue. The British Journal of Management, 7, 1, pp.45-62.

Larson, P. 2005. SMC: What is it? How to do it?. ICIL 2005, Montevideo, Uruguay. URL: https://www.fing.edu.uy/inco/eventos/icil05/04-thu/J1-Larson.pdf. Accessed: 8 February 2019

Larson, P. & Halldorsson, A. 2004. Logistics versus supply chain management: An international survey. International Journal of Logistics: Research and Applications, 7, 1, pp.17-31.

Li, X. 2014. Operation management of logistics and supply chain: Issues and Directions. Discrete Dynamics in Nature and Society, pp.1-7.

Ly, T. 2014. Orientation of Vietnam logistics development to year 2030 in the context of deeper integration to world economy. Vietnam Journal Online, 6, pp.9-32.

Maia, J. & Cerra, A. 2009. Interrelation between supply chain management and logistics: a case study in the Brazilian plant of a multinational automotive company. Revista Gestao Industrial, 5, 1, pp.59-73.

Mangan, J. & Lalwani, C. 2016. Global logistics and supply chain management. 3rd Ed. Wiley.

Mentzer, J., DeWitt, W., Keebler, J., Min, S., Nix, N., Smith, C. & Zacharia, Z. 2001. Defining Supply Chain Management. Journal Of Business Logistics. 22, 2. p. 1-20.

Ministry of Industry and Trade 2017. Vietnam logistics report 2017. Online publication URL: http://www.moit.gov.vn/documents/36315/0/Bao+cao+Logistics+Viet+Nam+2017.pdf/5b311ed4-c00b-4f8d-9dde-b9ece86f0b75. Accessed: 23 January 2019.

Mordor Intelligence 2019. Vietnam freight and logistics market – Growth, trends, and forecast (2019-2024). Online publication URL: https://www.mordorintelligence.com/industry-reports/vietnam-freight-logistics-market-study. Accessed: 22 January 2019.

Nadarajah, G. 2015. Factors influencing third party logistics performance in Malaysia: The role of trust as a mediator. International Journal of Supply Chain Management, 4, 4, pp.108-114.

Netherlands Worldwide 2019. Transport and logistics in Vietnam. URL: https://www.netherlandsworldwide.nl/countries/vietnam/doing-business/key-sectors/logistics. Accessed: 19 April 2019

Njagi, A. 2017. Effect of outsourcing logistics to third party providers on performance of manufacturing firms in Kenya. Thesis. KCA University.

Ocean Star 2018. Factors to consider when choosing a 3PL. URL: http://oceanstarinc.com/third-party-logistics/. Accessed: 15 February 2019

Odnokonnaya, M. 2017. Logistics outsourcing: Current state of the marketing of outsourcing logistics services. Thesis. South-Eastern Finland University of Applied Sciences.

Ozovaci, E. 2016. The new logistics methods. Proceedings of INTCESS2016 3rd International Conference on Education and Social Sciences, Istanbul, Turkey.

Pache, G. & Colin, J. 2000. Stocking policy in the logistics of large European retailers: from a static to a dynamic way of thinking, Proceedings of the 3rd AFM French- German Conference on Retailing and Distribution in Europe, pp.1-15.

Papadopoulou, C. 2001. Investigating the direct application of chaos theory to detect, analyze and anticipate high-level variability in the logistics demand of third party logistics. Thesis. University of Glasgow.

Patil, G. & Dolas, D. 2015. Role of third party logistics in supply chain management. International Research Journal of Engineering and Technology, 2, 8, pp.586-590.

Peters, N. 2018. 4PL: The evolution of supply chain outsourcing. Online publication. URL: http://npeters.com/studium/4pl_present.pdf. Accessed: 18 February 2019

Quora 2019. Logistics: What is difference between 1PL, 2PL, 3PL, 4PL services? URL: https://www.quora.com/Logistics-What-is-difference-between-1PL-2PL-3PL-4PL-services. Accessed: 18 February 2019

Rajuldevi, M., Veeramachaneni, R. & Kare, S. 2009. Warehousing in theory and practices: A case study at Oob, Clas Ohlson, Stadium, Ahlens. Thesis. University of Boras, School of Engineering.

Rattanawiboonsom, V. 2014. Effective Criteria for Selecting Third-Party logistics Providers: The Case of Thai Automotive Industry. World Review of Business Research, 4, 2, pp.16-205.

Robinson, A. 2019. Trends driving growth of 3PL in 2019. Cerasis. URL: https://cerasis.com/growth-of-3pl/. Accessed: 24 January 2019.

Rutner, S. & Langley, C. 2000. Logistics value: Definition, process and measurement. The International Journal of Logistics Management, 11, 2, pp.73-82.

Saglietto, L. 2013. Towards a classification of fourth party logistics (4PL). Universal Journal of Industrial and Business Management, 1, 3, pp.104-116.

Saunders, M. 1997. Strategic purchasing and supply chain management. Pitman, London, UK.

Saunders, M., Lewis, P. & Thornhill A. 2009. Research methods for business students. 5th ed. Pearson Education Limited. London.

Stock, J. & Lambert, D. 2001. Strategic logistics management. 4th Ed. McGraw-Hill, Boston, Irwin.

StoxPlus 2017. Vietnam logistics market 2017. Online publication. URL: http://36mfjx1a0yt01ki78v3bb46n15gp.wpengine.netdna-cdn.com/wp-content/uploads/2017/09/StoxPlus_LOGISTICS_Amcham_Deck_final.pdf. Accessed: 2 May 2019

Su, S. & Ke, J. 2015. National logistics performance benchmarking for trade connectivity – An innovative approach using World Bank logistics performance index database. Conference Paper LNL-002.

Sweeney, E. & Bahr, W. 2015. Practitioner perspectives on supply chain management and logistics: A study from the United Kingdom. URL: https://pdfs.semanticscholar.org/5f64/31d35f2393c35254004e65cf6ce0e91bed50.pdf. Accessed: 8 February 2019

Sweeney, E., Grant, D. & Mangan, J. 2018. Strategic adoption of logistics and supply chain management. International Journal of Operations & Production Management, 38, 3, pp.852-873.

Switala, M. 2016. Typology of logistics service providers according to the level of innovativeness. Handel Wewnertrzny, 1, 360, pp.317-333.

The Asian Development Bank 2019. Vietnam: Economy. URL: https://www.adb.org/countries/viet-nam/economy. Accessed: 20 January 2019.
The World Bank 2019. Country Score Card: Vietnam 2018. URL: https://lpi.worldbank.org/international/scorecard/line/254/C/VNM/2018?sort=asc&order=LPI%20Rank#datatable. Accessed: 20 January 2019.

The World Bank. About LPI. URL: https://lpi.worldbank.org/about. Accessed: 10 December 2018.

Tlaty, M. & Moutmihi, M. 2015. From the logistics function to the logistics service: A literature review. Global Journal of Management and Business Research: A Administration and Management, 15, 6, pp.1-7.

Tu, B. 2016. Factors impacting on the selection of third party logistics provider. China-USA Business Review, 15, 12, pp.616-627.

Wang, M., Jie, F. & Abareshi, A. 2015. Business logistics performance measurement in third-party logistics: An empirical analysis of Australian courier firms. International Journal of Business and Information, 10, 3, pp.323-336.

Vasiliauskas, A. & Jakubauskas, G. 2007. Principle and benefits of third party logistics approach when managing logistics supply chain. Transport, XXII, 2, pp.68-72.

Vietnam Briefing 2018. Port infrastructure in Vietnam. Online publication. URL: https://www.vietnam-briefing.com/news/port-infrastructure-vietnam.html/. Accessed: 11 April 2019

Vivaldini, M., Pires, S. & Souza, F. 2008. Collaboration and competition between 4PL and 3PL: A study of a fast-food supply chain. The Flagship Research Journal of International Conference of the Production and Operations Management Society, 1, 2, pp.17-29.

Zijm, H., Klumpp, M., Regattieri, A. & Heragu, S. 2019. Operations, logistics and supply chain management. Springer: Cham, Switzerland.

Appendices

Appendix 1. Thesis activities timeline as a Gantt chart