



THE POTENTIAL OF LOGISTICS OUTSOURCING INDUSTRY IN THAILAND

By

PARINDA KITCHAROEN

A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of

Master of Business Administration

Graduate School of Business
Assumption University
Bangkok Thailand

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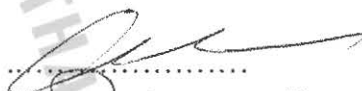
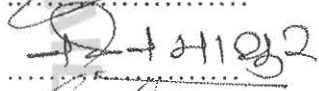

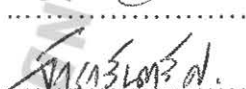
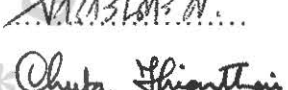
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Examination Committee :

- | | | | |
|----|-----------------------------|----------------------|--|
| 1. | Dr. Chittipa Ngamkroeckjoti | (Advisor) |  |
| 2. | Prof. Navin Mathur | (Member) |  |
| 3. | Dr. Sirion Chaipoopirutana | (Member) |  |
| 4. | Dr. Jakarin Srimoon | (Member) |  |
| 5. | Prof. Dr. Chuta Thianthai | (MUA Representative) |  |

Examined on : 1 December 2003

Approved for Graduation on :

Graduate School of Business
Assumption University
Bangkok Thailand
December
2003

ABSTRACT

Logistics outsourcing has become an attractive option in order to improve customer service and to enable focusing on core competencies. Similarity to the logistics industry in Thailand, numbers of logistics service providers are developing themselves to provide more complete and integrated logistics services to supply the market demand. To succeed, they need to understand the influence of external environment. There is more than adding “logistics” to the company name.

The purpose of the study is to the main driving forces behind changes in logistics outsourcing in Thailand and their influences, as well as the future direction of industry. The study is examined the relationship of societal environment and expansion form of logistics outsourcing, and the expansion form of logistics company in the future. The research methodology used is descriptive case study with three logistics outsourcings and supplements by the survey with fifty-seven traditional logistics companies. To conduct the survey method, the descriptive method and correlation method are used.

The results show the influences of societal environment and task environment behind changes in logistics industry and the future direction of logistics companies. The study point out that there is a positive correlation of the societal environment and the expansion form of logistics companies.

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CHAPTER I

GENERALITIES OF THE STUDY

1.1 Introduction

Outsourcing seems to be an attractive option to take advantage of global opportunities, to acquire state of the art logistics capacities, significant improvement on customer service and most importantly to focus on core competencies. The idea of outsourcing is not new; it is currently a very popular strategy and commonly used by many companies. The outsourcing of logistics functions in business is known as Third-Party Logistics (3PL). The use of logistics outsourcing is seen as an example of focusing on the core business, which in the theory leads to specialization and cost effectiveness. Its industry plays a significant and increasing role in developed nations and developing nations. The growth in the number of outsourcing partnerships has contributed to the development of more flexible organizations, based on core competencies and mutually beneficial longer-term relationships.

In recent years in Thailand, many companies have been focusing on acquiring assistance by outsourcing some traditional operations such as warehousing and transport services. While these remain the key focus of logistics outsourcing activities in this country, many firms are increasingly seeking service providers who can provide additional value-added activities. Generally, most providers also offer their specialized skills, such as warehouse management and IT infrastructure to customers. These skills are difficult to develop within the customer's organizations where logistics are not their core operations. Most outsourced logistics contracts, though,

still tend to focus on the key physical processes – storage, materials handling, picking and packing, dispatching, delivery and returns collection. However, customers are increasingly demanding additional services as part of an overall logistics warehousing and distribution contract, such as purchasing, freight management, inventory management and distribution requirement planning. Some of these functions may also have been outsourced in the past, particularly to freight forwarders but are increasingly being sought from single service providers. In many cases, the freight forwarders are moving into the third-party logistics service providers' (3PLs) operating space, while at the same time the 3PLs are moving into the freight forwarders' space (Elliott & Niruntasukkarut, 2003).

Due to the growth and expansion of third-party logistics providers (3PLs), several variables are converging that make the current business environment. These variables are considered from external environment, which consists of societal environment (general forces) and task environment (industry analysis), such as the rapid shift toward a more information-intensive way of conducting business, which requires many corporations to enlist the services of an outside provider; the explosion of globalization and the increasing complexity of getting goods from one place to another, both of which increase the complexity of logistics; the trend toward consolidation in the form of mergers and acquisitions, which creates a need for outside help to facilitate the consolidation; and so on. The variables will be monitored to detect the strategic factors that are likely to have a strong impact on corporate success or failure.

1.2 Statement of Problem

Logistics is increasing its impact on business, as it creates value for companies and assists in delivering improved profits. The application of logistics varies across continents. The outsourcing of logistics may be thought of as an external supplier that performs all or part of company's logistics functions. It is desirable that these suppliers provide multiple services and that these services are integrated in the way they are managed and delivered. These suppliers continues to grow strongly, with companies seeking to accelerate the uptake of logistics skills, which aims to bring about market growth at lower cost and thereby deliver improved shareholder returns.

There are numerous companies in Thailand that provides logistics-related services such as freight forwarders, transportation providers or warehousing providers. Those companies are developing themselves to provide more complete and integrated logistics services to supply the market demand. Since the enterprises in Thailand are forced by multinational companies to concentrate on their core businesses, outsourcing support activities and they are reevaluating their logistics processes, thereby creating growth opportunities for logistics outsourcings. Large organizations may run or develop their own logistics or supply chain management efficiently because of their potential capacities. As the medium or small ones will have limitations in such developments. However, to develop and maintain a competitive advantage in the marketplace, they may outsource the particular experts and resources that they do not exist internally, and so do large organizations. As the result, the future of outsourcing is significant. The logistics outsourcing in Thailand is still in an early growth stage. Outsiders assume that this kind of business is growing rapidly, but in fact it slightly expands according to market mechanisms.

Environmental variables in the industry will determine the future of corporation. Changes in the environment, therefore, inevitably affect the industry. There are many relevant studies concerning the logistics, but they are emphasized on the practice in the manufactures. A few study or research in Thailand has not involved directly to the logistics outsourcing against the environments. Interviewing with the experts or experienced people within the industry including the secondary information, and supplementation by survey can identify the variables changed in the logistics industry and determine its future directions.

Generally, the main research problem and the sub-problems can be summarized as follows:

Main problem: -

What are the major driving forces behind changes in the logistics outsourcing industry in Thailand?

Sub problems: -

- How do the societal environmental variables influence on expansion form of logistics outsourcing?
- What are the future directions of logistics outsourcing industry in Thailand?

1.3 Objective of the Study

In order to address the research question, the following objectives were identified:

- To present and evaluate the main driving forces behind changes in the logistics outsourcing industry in Thailand.

- To identify the relationship between societal environment variables and the expansion form of logistics outsourcing (3PL).
- To recommend the perspective of logistics outsourcing in Thailand.

1.4 Scope of the Study

The scope of the study will mainly cover the areas of external environmental scanning, which consists of societal environment and task environment, in logistics outsourcing industry in Thailand. The societal environment includes general forces and the task environment concerns industry analysis. The internal environment and corporate strategy will be excluded in the study because of sensitive of and access to data including the confidentiality of each company.

The study will identify the major driving forces behind the changes in the logistics outsourcing industry in Thailand and their influences on the industry. The study also explores the future direction of logistics outsourcing in Thailand. The target respondents for interview are the logistics outsourcing companies that provide the complete logistics service and locate in Thailand. On the other hand, the target respondents for survey are logistics companies that have represented their electronic mail address in A Guide to Export-Import Transportation Year 2002 – 2003.

1.5 Limitation of the Study

Due to very few logistics outsourcing companies in Thailand, there is no particular logistics directory available in Thailand. It is hard for the outsiders to specify which one provides the complete logistics services because most freight

forwarders, transport providers, or warehousing providers claim that they provide logistics service.

For the interview process, the interviews will be conducted within the logistics outsourcings, which provide the complete logistics service, in Bangkok Metropolitan and sub-urban area because most of those company headquarters are located in those areas. The contacts for interview sometimes may deny because the interviewee might not want to disclose the information to others. Therefore the potential list will be shortened.

For the survey process, the questionnaire will be distributed by electronic mail to the logistics companies that represent their e-mail addresses in A Guide to Export-Import Transportation Year 2002 – 2003. However, the questionnaires might be returned as undeliverable and the researcher cannot control the response of questionnaire, so reducing the effective sample size.

1.6 Significance of Study

One of the hottest trends today is the outsourcing of logistics or third-party logistics because today's competitive global environment, with the rapid changes that it engenders, necessitated that companies utilize the logistics outsourcing to heighten competitiveness. A number of logistics outsourcing continues to grow accordingly. This study is assumed for the following:

- Presenting the concept of logistics and supply chain management, and the introductory of logistics outsourcing (3PL).

- Providing an overview of the analysis for logistics outsourcing business through environmental scanning framework.
- Identifying the societal environmental variables and their influences in logistics outsourcing industry.
- Exploring the future direction for logistics outsourcing industry.

1.7 Definition of Term

Descriptive Research: The research designed to describe characteristics of a population or a phenomenon (Zikmund, 2000).

E-Logistics: A dynamic set of communication, computing, and collaborative technologies that transform key logistical processes to be customer centric, by sharing data, knowledge and information with the supply chain partners (Viswanadham and Gaonkar, 2001).

Economic Forces: The forces that regulate the exchange of materials, money, energy, and information (Wheelen and Hunger, 2000).

Expansion of Logistics Outsourcing (3PL): Trend of traditional logistics providers in expanding their services in section of freight forwarding service or warehousing management service or transport and distribution service including the awareness of environmental concern, which provides to the customers (Rogers and Tibben-Lembke, 1998).

External Environmental Variables: The variables are outside the organization and not typically within the short-run control of top management (Wheelen and Hunger, 2000).

Forth-Party Logistics (4PL): A supply chain integrator that assembles and manages the resources, capabilities, and technology of its own organization with those of complementary service providers to deliver a comprehensive supply chain solution (Bauknight and Miller, 1999).

Freight Forwarders: Specialists in arranging the transportation, storage and handling of goods along with associated documentation activities between and within countries (Heaver, 2001).

Green Logistics or Ecological Logistics: The understanding and minimizing the ecological impact of logistics. Its activities include measuring the environmental impact of particular modes of transport, ISO 14000 certification, reducing energy usage of logistics activities, and reducing usage of materials (Rogers and Tibben-Lembke, 1998).

In-house Logistics: As an alternative to hiring third-party providers, firms assign their own staff to manage logistics functions. In smaller firms, staff having related responsibilities often performs these functions (Industry Canada report, 2000).

Logistics Alliance: An interfirm cooperative arrangement by both parties, which involves a mutual sharing of information and the benefits and burdens of a relationship (Moore, 1998).

Logistics Management: A part of the supply chain process that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements (Ruther and Langley, 2000).

Logistics Outsourcing or Third-party Logistics (3PL): The use of external companies to perform logistics functions, which have traditionally been performed within an organization. The functions performed by the third-party firm can encompass the entire logistics process or selective activities within that process (Lieb *et al.*, 1993).

Pilot Study: The collection of data from the ultimate subject of the research project to serve as a guide for the larger study (Zikmund, 2000).

Political Forces: The forces that allocate power and provide constraining and protecting laws and regulations (Wheelen and Hunger, 2000).

Reverse Logistics: All efforts to move goods from their typical place of disposal in order to recapture value. It also refers to the need for activities such as handling return loads, disposal of packaging materials, obsolete products and materials, as well as the return (or recycling) of appliances, components and equipment (Rogers and Tibben-Lembke, 1998).

Societal Environment: General forces that do not directly touch on the short-run activities of the organization but that can, and often do, influence its long-run decisions (Wheelen and Hunger, 2000).

Sociocultural Forces: The forces that regulate the values, mores, and customs of society (Wheelen and Hunger, 2000).

Supply Chain Management: Supply Chain Management is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders (Lambert, 2001).

Technological Forces: The forces that generate problem-solving inventions (Wheelen and Hunger, 2000).

Task Environment: The elements or groups that directly affect the corporation and, in turn, are affected by it (Wheelen and Hunger, 2000).

Traditional Service Providers: These establishments in industries such as transportation (e.g. trucking), freight forwarding, customs brokering and warehousing specialize in selected logistics services. However, they often offer several related value-added services (Industry Canada report, 2000).

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CHAPTER II

LITERATURE REVIEW

This chapter presents a review of the literature and researches related to the study. It provides the concept of logistics and supply chain management, influences of external environment variables, the future directions of logistics outsourcing industry in Thailand.

2.1 Defining Logistics and Supply Chain Management Concept

2.1.1 Logistics Management

The concept of logistics as we know today is the result of the development of number of related concepts. The concept of logistics has been formed by the changing pressures in industry through history, and as the result of the changing challenges in logistics. New concepts have emerged and have been integrated with old ones.

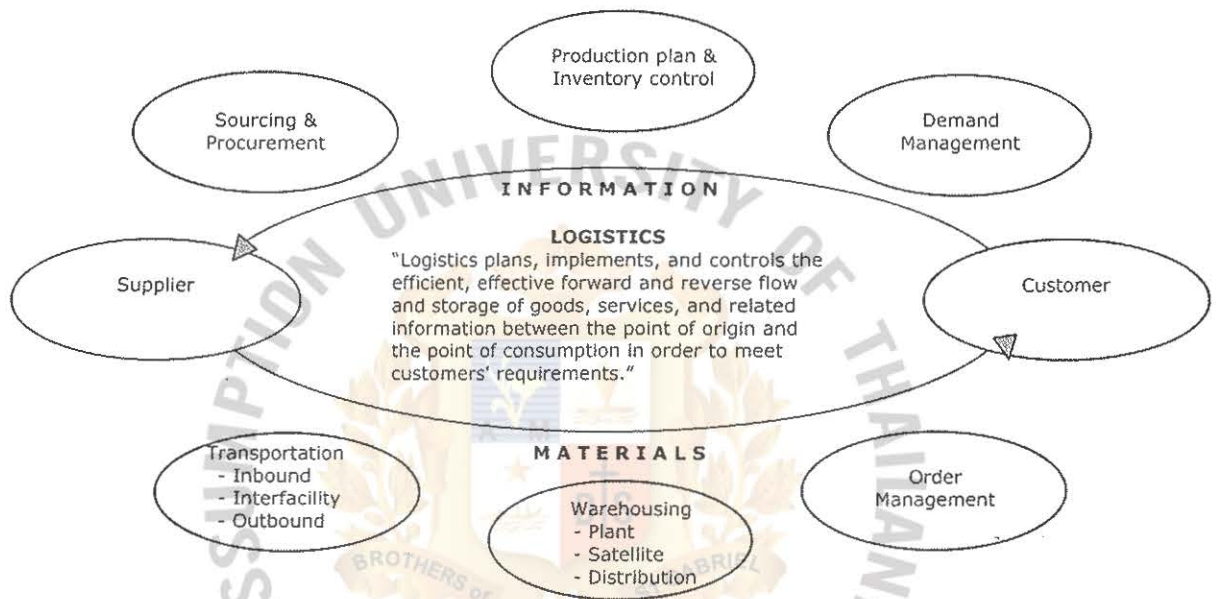
One simple definition is the “Seven R’s of Logistics” (Ruther and Langley, 2000), which has stated as:

“To ensure the availability of the right product, in the right quantity, and in the right condition, at the right place, at the right time, for the right customers, and at the right cost.”

Another definition is one that is adopted by the US Council of Logistics Management (Ruther and Langley, 2000) as:

“Logistics is that part of the supply chain process that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers’ requirements.”

Figure 2.1: The logistics value chain



Source: Denali Consulting report (2002), Logistics Trend: Achieving Supply Chain Integration

Ruther and Langley (2000) summarize that there are a number of accepted definitions of logistics that focus on the time and place aspects of the value created by logistics, and customer service is a critical component of any definition of logistics or logistics value. However, the term value is neither clearly defined nor tangible. Finally, the idea of quality is either incorporated in definitions of logistics value or used as a substitute.

Novack, Rinehart and Well (1992) have identified that Logistics involve the creation of time, place, quantity, form and possession utilities within and among firms and individuals through strategic management, infrastructure management, and resource management with the goal of creating products/services that satisfy the customer through the attainment of value. This definition of logistics applicable to raw material suppliers, manufacturers, distributors, retailers, consumers and such service providers as transportation carriers.

Lambert and Stock (1993) recommend that in the past, logistics have a variety of names such as “Physical Distribution”, “Business Logistics”, “Supply Chain” and so forth. However, “Logistics Management” is the most widely accepted term among professionals.

Based on the presentation by Christopher in 1993, Logistics management can be viewed as the detailed process of planning, implementing and controlling the efficient, cost-effective flow and storage of materials and products, and related information within a supply chain to satisfy demand. Effective logistics management provides a major source of competitive advantage if it can control cost and enhance service differentiation. This unique role will help firms become both cost and value leaders. Thus, good logistics management is increasingly recognized as the key enabler, which allows a company to gain and maintain its advantage and ensure maximum customer satisfaction. Truly, logistics is the last frontier in business competition (Goh and Pinaikul, 1998).

2.1.2 Supply Chain Management (SCM)

The current focus of business improvement has shifted from logistics to SCM. The external market pressures have forced organizations to monitor more closely their interaction with their environment, most importantly with their suppliers and customers. As a result there is a strong tendency towards integration of logistics activities. The integration of a company's logistics into those of its external environment is called supply chain management (Demkes *et al.*, 1999).

(Lambert, 2001) The definition of SCM develops and uses by the members of The Global Supply Chain Forum as follows:

“Supply Chain Management is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders.”

In Macro-Logistics (Larson and Rogers, 1998), Supply Chain Management is defined as:

“The systematic effort to provide integrated management to the Supply Value Chain in order to meet the needs and expectations, from suppliers to raw materials through manufacturing and on to end-customers.”

The US Council of Logistics Management (2003) also defines SCM as:

“The systematic, strategic co-ordination of the traditional business functions and tactics across these business functions within a particular company and across businesses within the supply chain for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.”

Lambert (2001) briefs that the supply chain is not a chain of businesses with one-to-one, business-to-business relationships, but a network of multiple businesses and relationships. SCM offers the opportunity to capture the synergy of intra- and inter-company integration and management. In that sense, SCM is dealing with total business process excellence and represents a new way of managing the business and relationships with other members of the supply chain. Successful SCM requires integrating business processes with key members of the supply chain.

2.1.3 Logistics Management VS Supply Chain Management

Larson and Rogers (1998) recommend that Logistics essentially assumed cooperation between buyers, suppliers and service providers. SCM considers additional behavioral dimensions between actors, such as conflict, dependence and power. Logistics strives to minimize total cost while serving customers. SCM is concerned with profitability of serving customers-and customer's customers. Finally, the focus of logistics is often intra-organizational, while SCM is inherently inter-organizational.

The literature by Johnson, Wood, Wardlow and Murphy in 1999 supported above comments that supply chain management was a somewhat larger concept of logistics, because it was dealing with managing both the flow of materials and the relationships among channel intermediaries from the point of origin of raw materials through to the final consumer. As such, supply-chain management must link logistics more directly with the user's total communications network and with the firm's engineering staff (Kauffman, 2002).

2.2 Defining Logistics Outsourcing (Third Party Logistics, 3PL)

According to the discussion by Menon, McGinnis and Ackerman (1998), Third-party logistics service, which emerges as a significant topic in the literature in the middle 1980s, refers to a for-hire provider performing logistics activities for the buyer or seller of raw materials, goods in process, or finished products. The third party performs services that might be done by the buyer or seller, is actively engaged in the movement of goods and information relevant to the transaction, but does not take title. Third party logistics service covers a wide range of products.

Lieb, Millen and van Wassenhove (1993) define third-party logistics as the use of external companies to perform logistics functions, which have traditionally been performed within an organization. The functions performed by the third-party firm can encompass the entire logistics process or selective activities within that process. Similarly, Lomas (1997) also defines the logistics outsourcing or third party logistics as the selection of a third party to perform all or a portion of a company's logistics activities under contract and for a fee. Outsourcing is not a decision for the short term; rather, it is a commitment that was made for long-term advantages. Today, logistics outsourcings (3PLs) provided an array of services, including warehousing, carrier selection, and dedicated fleet operation, transportation, and inventory management (Cooke, 1998).

Outsourcing to external or third party providers allow corporations to focus the use of their assets on what they do best, and purchase selected products and service functions from outside suppliers. Firms can thus focus on their core business

and use external expertise to increase corporate responsiveness to market changes. Logistics services are such as transportation and warehousing make ideal candidates for outsourcing (Daugherty *et al.*, 1996). Craig (2000) points out that it is more than just transferring assets or internal functions to outsiders. True, logistics outsourcing (3PL) is developing a tailored, customer-specific logistics program to meet the requirements of your business and your customers. The scope includes the elements of logistics - transportation, warehousing, systems, planning, and whatever else is required the use of outside companies to perform part or all of a logistics element. The emphasis on logistics outsourcings (3PLs) is on asset-based providers. An asset-based provider contrasts with the Logistics Service Providers. Many asset-based third parties are part of an organization, which also have transportation, warehousing, freight forwarding or other capabilities.

Glow (2002) identified that in the past; a company might outsource planning by using a consultant or their own in-house professional to plan, a for-hire transportation company to execute and their in house systems to control. A 3PL will provide all three aspects of managing logistics activity under a single service. Thus, a key differentiating factor between a logistics outsourcing (3PL) and a typical transportation or other logistics service provider is that a 3PL's primary value is to manage information and knowledge versus providing non differentiated service at the lowest cost.

The advantages of good logistics outsourcing are numerous, if the partnership benefited the manufacturer in a few key areas. First, using a logistics outsourcing (3PL) must free a company to utilize its own internal resources and assets in its core

competencies, leveraging the logistics outsourcing's assets and expertise to achieve value-added benefits. The logistics outsourcing's global infrastructure and network should enable the company to respond faster and more efficiently to changes in market conditions. And, finally the logistics outsourcing's centralized management should improve the integration of all the company's logistics processes: warehousing, distribution, inventory control, export, import, technology and electronic visibility of goods (Global Logistics Solution report, 1999).

2.3 Identify The External Environmental Variables

According to Wheelen and Hunger (2000), the external environment consists of variables (Opportunities and Threats) that are outside the organization and not typically within which the corporation exists. They may be general forces and trends within the overall societal environment or specific factors that operate within an organization's specific task environment – often called its industry.

The four factors that have changed logistics since the 1980s are the political-legal environment, globalization of business, structural changes in options and the explosion of technology (Manrodt and Davis, 1992). Novack *et al.* (1992) presents that external influences are probably the most commonly cited elements of the environment because they are the most pervasive and least likely to be controlled. Examples of these elements are government, competition, the economy, technology, market structure, culture, and customers. These environmental factors influence logistics decisions at the firm and channel levels.

Table 2.1 Major studies about the driving forces behind logistics industry

Year, Author and Topic	Concept, Focus, Empirical basis, and Type of model	Variables influencing on Logistics industry
<ul style="list-style-type: none"> • 1992 • Manrodt and Davis • The evolution to service response logistics 	<ul style="list-style-type: none"> • Total cost concept, System concept, and customer service concept • Dynamic of logistics and service response logistics • Conceptual model 	<ul style="list-style-type: none"> • The political-legal environment • Globalization of business, • Structural Changes • Technology
<ul style="list-style-type: none"> • 1992 • Novack, Renihert, and Well • Rethinking Concept Foundations in Logistics Management 	<ul style="list-style-type: none"> • Control systems, quality focus, and the environment • Strategic management, infrastructure management, and resource management • Conceptual model 	<ul style="list-style-type: none"> • Government • Competition • Economy • Technology • Market structure • Culture • Customers
<ul style="list-style-type: none"> • 1993 • Lieb, Millen, and van Wassenhove • 3PL: A comparison of experienced American and European manufacturers 	<ul style="list-style-type: none"> • Extent of use of third party logistics, decision-making process, and impact on the manufacturer and its logistics system, employees and customers • Survey instrument 	<ul style="list-style-type: none"> • Technology • Regulation • Development of trading blocks • Distribution networks
<ul style="list-style-type: none"> • 1993 • Virum • Third party logistics development in Europe 	<ul style="list-style-type: none"> • The degree of integration and interdependency between the providers and the shippers • TPL term, Driving forces, strategic possibilities, and practice • Case study 	<ul style="list-style-type: none"> • Customers' service quality requirements • Deregulation of transport • Information technology

Source: Literature reviews during 1992 – 2003

Table 2.2 Major studies about the driving forces behind logistics industry
(Continued)

Year, Author and Topic	Concept, Focus, Empirical basis, and Type of model	Variables influencing on Logistics industry
<ul style="list-style-type: none"> • 1996 • Daugherty, Stank, and Rogers • Third-party logistics service providers: purchasers' perceptions. 	<ul style="list-style-type: none"> • The purchasers' perceptions regarding the service providers' capabilities and performances • Survey 	<ul style="list-style-type: none"> • Customer's perception • Cooperative relationships • The complex and uncertain global environment
<ul style="list-style-type: none"> • 1998 • Menon, McGinnis, and Ackerman • Selection criteria for providers of third-party logistics services: An exploratory study 	<ul style="list-style-type: none"> • Perceived performance, perceived capability, and the role of prices • The Roles of Strategy and External Environment • Questionnaire 	<ul style="list-style-type: none"> • Level of competition, • Severity of regulatory restrictions • Unfavorable demographic trends • Customer taste • Technology • Competition
<ul style="list-style-type: none"> • 2001 • Persson and Virum • Growth strategies for logistics service providers: A case study 	<ul style="list-style-type: none"> • Strategic management: the positioning model, the resource-based perspective, and inter organizational perspectives • Supply chain alliances, and the perception of future trends and future position • Case Study 	<ul style="list-style-type: none"> • Economy • Alliance • Third-party operator • Communication technology • International networks
<ul style="list-style-type: none"> • 2001 • Goh • External environmental barriers for SCM 	<ul style="list-style-type: none"> • The external environmental barriers that confront business in general and SMEs in particular 	<ul style="list-style-type: none"> • Regional differences • Political instability • Currency instability • Restrictive laws and regulations • Lack of coordination • Logistics infrastructure

Source: Literature reviews during 1992 – 2003

Table 2.3 Major studies about the driving forces behind logistics industry
(Continued)

Year, Author and Topic	Concept, Focus, Empirical basis, and Type of model	Variables influencing on Logistics industry
<ul style="list-style-type: none"> • 2001 • Industry Canada report • Logistics and Supply Chain Management 	<ul style="list-style-type: none"> • Changing condition and industry response • Growth perspective 	<ul style="list-style-type: none"> • Trade • Technology • Investment • Human Resources • Government and regulation • Sustainable development
<ul style="list-style-type: none"> • 2003 • Lieb and Kendrick • The year 2002 survey: CEO perspectives on the current status and future prospects of the third-party logistics industry in the United States 	<ul style="list-style-type: none"> • The evolution of the 3PL industry, the industry's service offerings, the selling of third-party services, and the current status and future prospects of the industry • Survey 	<ul style="list-style-type: none"> • Economy • E-Commerce • Mergers and Acquisitions

Source: Literature reviews during 1992 – 2003

Table 2.1 – 2.3 show the driving forces behind changes in logistics industry worldwide, which are the external and internal environments. They have studied through different geography and different time period. External environment, that is economy, information technology, socioculture, politic-legal, government, customers, competition, business consolidation, logistics alliance, and human resources, are considered as main driving forces.

2.4 Scanning Societal Environment

2.4.1 Economic Forces

(Cunningham, 1996) Any organization, which reduces its logistical costs, can easily improve its competitiveness. The economies occur when companies are consistently able to provide a product at a lower price to consumers. The cost reductions occur because a company is able to provide its product or service in an efficient and effective manner. An effective logistics system involves managing (planning, implementing and controlling) the flow of goods from point of origin to point of use to meet the identified needs of customers.

Stone (1999) identifies that the explosion of globalization is another trend shaping the business environment. It is not only the biggest companies now that are concerned with global markets. Even the lower tiers are, if not trading directly with overseas corporations, at least intimately involve in supply chains that do.

Governments around the world are increasingly lowering tariff and non-tariff barriers, bringing strong international trade growth. International trade raises logistics challenges and put upward pressure on costs due to the multiplicity of business cultures, customs procedures, foreign regulatory regimes and related compliance, which must be dealt with. This increases complexity coupled with the ever-increasing importance of international trade represented opportunities for logistics services providers is positioning themselves as the facilitators of international trade. Growth in international trade contributes to the growing trade in logistics services and the related rise of logistics outsourcing (3PL) firms globally (Industry Canada report, 2000).

Heaver (2001) suggests that the recent and expected expansion of the economies means that adds infrastructure in transport and communications is needed. Investments are needed to expand capacity and to improve the speed and reliability of logistics services. The investment requirements are specific to the geographic and economic conditions of countries.

Third-party logistics providers have enjoyed steady growth for years, but the flagging economy would significantly slow their growth rate (Anonymous, 2002). According to the year 2002 survey done by CEO of logistics outsourcing, Lieb and Kendrick (2003) represented that the soft economy has led not only to lower volume from existing customers, but also to reluctance on the behalf of potential clients to finalize new 3PL contracts. If the economy rebounds, the volume offered under existing contracts would increase, and the reluctance of non-users to sign their first logistics outsourcing (3PL) contract is likely to lessen. However, if the economy fails to rebound, the picture is likely to look rather different. Volume from existing clients will remain flat, at best, and it would appear unlikely that half of the industry's revenue growth would come from new clients.

2.4.2 Technological Forces

According to Manrodt and Davis (1992), Logistics is facing dramatic change. New technology is reshaping the relationship between the customer and the organization. Many transactions that once require personal interaction could now be done electronically, with little human involvement. This technology has made customers increasingly sophisticated as to what products and services they can and should expect. Now that customers expect to be freed from the hassle of routine

interactions with the supplier, they demand the complete involvement of the front-line personnel when they have a non-routine problem requiring specialized knowledge or skills.

Stank (1998) presents that communication and computer technologies enable world-class logistical capabilities. The increased availability of affordable information at one's fingertips has allowed forward-thinking firms to develop flexible and responsive logistical service capabilities tailored to actual customer needs and desires rather than providing a generic solution based on aggregate market characteristics. Suppliers and customers could coordinate logistical activities and exchange goods and payments regardless of their geographic location. Electronic infrastructures enable goods, information, and funds to travel at the "speed of business."

Adshead (2002) supports that Information Technology (IT) is changing the face of the logistics sector, enabling capacity optimization and variable pricing. Few companies have used IT to cut costs from logistics operations. But this is changing. Analyst predicts that businesses would spend \$4.9 Billion on IT to support logistics and pricing worldwide by 2005.

Stone (1999) points out that several factors are coming together at present that made the current business environment especially favorable for the growth and expansion of logistics outsourcings (3PLs). First is the rapid shift toward a more information-intensive way of conducting business. E-commerce is just the most visible of the many facets of this shift; others included ERP (Enterprise Resource Planning) systems, infrared and radio frequency tagging, tracking, and the like. Many

corporations, especially smaller to midsize ones, are not in a position to expend resources, either in time or in money, on such things as state-of-the-art ERP systems or complex tracking solutions, for example. So by enlisting the services of an outside provider, they gain the advantages of economies of scale without having to commit their own resources, since the third-party provider, with its numerous clients, can invest in those systems.

Nixon (2001) presents that E-commerce is a primary factor propelling the forces of increased globalization and increased customer expectations. The Internet and related technologies are dramatically improving the ways in which companies transact all aspects of business with their suppliers and customers. Viswanadham and Gaonkar (2001) support that E-commerce is facilitating increased outsourcing of logistics functions and the growth of third party logistics, which is known as E-Logistics. The transformation of logistics processes through electronic means of moving, storing, and manipulating data, information and knowledge or e-logistics, would equip companies with greater agility to deliver customer-configured products and value added services faster than competition.⁹

Lieb and Kendrick (2003) refer to their survey in 1999, which identified e-commerce as the most significant opportunity available to logistics outsourcings (3PLs), and the strategic plans of many of the large providers were heavily focused upon developing broad e-commerce offerings. Due to the volatility of time space during the past three years, they found that E-commerce is no longer “front page news” in the 3PL provider community, and its related client list and service offerings are far more modest than they were during the past several years.

2.4.3 Socio-Cultural Forces

According to Novack *et al.* (1992), Logistics is a very “people” oriented discipline. As such, the personal and psychological characteristics of the individuals involved in logistics transactions would influence their outcomes. Common psychological factors that influence the transactions include values, motives, learning, perception, beliefs, and attitude. Personal characteristics include age, sex, general physical condition, formal education level, and professional affiliations. These individual factors would influence transactions within and between firms in the channel.

The increased use of logistics outsourcings (3PLs) is frequently prompted by desires to reduce costs. An internal or “do it yourself” approach may be more expensive in terms of time or resource commitment. More firms are realizing that all or a portion of their logistical needs can be provided by an external third-party source more economically or at higher quality levels. Other reasons commonly cited as a rationale for outsourcing include lower labor costs, flexibility, access to better information systems and improve delivery and service (Daugherty *et al.*, 1996).

According to the surveys conducted by five European universities in 1993 and 1998 and involved in-depth interviews with 55 shippers in Germany, Holland, Belgium, Britain and Sweden, the reason most shippers outsource are cost reduction as the main driver, but other considerations such as service and quality improvement, the need for strategic flexibility and focusing on their core business are becoming increasingly important to shippers. The idea of outsourcing is as a facilitator for change implementation. On the list of shipper concerns, the ability of logistics providers to offer adequate information technology and quality of service remain

high. Shippers also express a lack of confidence in the supply-chain design capabilities of 3PL providers, preferring to handle the task themselves and to use a third party only to execute their strategy (Parker, 1999).

2.4.4 Political-Legal Forces

Spira (1999) presents that there are legal issues common to many logistics transactions. Employment law, information technology, equipment finance and transportation regulation are often pieces of the logistics puzzle. Logistics services providers must have knowledge of and comply with an extended set of regulations affecting transportation, warehousing and the international movement of goods. Logisticians must be knowledgeable of such regulations in all the countries reached by the supply chain. Regulations have a profound impact on supply chain management. For example, regulations in some Asian countries prevent the integration of warehousing and transportation services into a single entity. The changing regulated environment requires that logisticians adapt quickly to new environments (Industry Canada report, 2000).

In APEC SME 2001, Goh (2001) had presented that with supply chains that extends into Asia and other emerging markets, there is also substantial political instability that can affect product cost or disrupted supply of critical raw materials, components and finished goods into other parts of the world. This is a strong barrier particularly for supply chains that suffers from long lead times and short product life cycles.

From a supply chain management perspective, it is vital to understand the impact of government regulations on players in the supply chain. Restrictive laws and regulations can create artificial resources scarcity. The impact of Government intervention on resources scarcity is a concern for buyers and suppliers. Furthermore, related to the rules and legal framework found in many countries, today is the evidence of sometimes-unnecessary Customs delay. As materials and goods traverse from one country to another, borders are inevitably crossed, and any item shipped become subject to Customs authorities control. The trade literature reports that Customs delays can be a bane to efficient physical flow of goods and for many practicing logistics professionals; Customs clearance is a necessary evil. Under today's legal environment, moving goods either globally or regionally will implicitly meant having to impede the velocity of goods flow, and exacerbate the extent of documentation handling, to the detriment of fast time to market (Goh, 2001).

2.5 Scanning Task Environment

2.5.1 Government

Demkes *et al.* (1999) discuss that government policy plays an important role in maintaining and enhancing economic competitiveness. Governments are also committed to reducing the negative effects of transport upon the environment. Policy measured design to mitigate the undesirable effects of freight transport demand need not only be aimed at vehicle or infrastructure, but can also be designed to influence the structure and behaviour of the supply chain and individual companies' logistics strategies. However, Shah (2002) point out that inconsistent government policies are a big part of the problem.

Powell (2001) presents that it appears that governments generally acknowledge that infrastructure plays an important role in underpinning the ability to cope with projected growth. It therefore must be a priority to integrate infrastructure development so as to maximize the benefits of investment. Government should endeavor to develop infrastructure plans based on economic considerations and consider all modes from a complementary point of view. They should also consider other initiatives such as inland container depots and transport interchanges, as well as streamlining processes and regulations for the integration of cargo across all modes. The standardizing of documents and consistent regulations relating to items such as dangerous goods could make it easier for businesses to operate.

Goh (2001) adds that backward logistics infrastructure of country or region as another external barrier. A supply chain is only as strong as the weakest link in that chain. The quality of the supply chain in turn is predicted by the state of development of the logistics infrastructure, be it hardware (technology, system, facilities) or software (manpower, knowledge). The absence of either type of infrastructure could lead to low handling capacity, slow responsiveness, less flexibility and decrease productivity.

2.5.2 Suppliers

Longer-term, cooperative relationships between purchasers and suppliers are becoming more common. The benefits of long-term integrated relationships between firms are particularly evident in service industries where efficiencies associated with repetitive or continuing exchanges yield reduce costs per transaction or enhanced customer satisfaction. These benefits have encouraged manufacturing firms to form

strategic relationships with external, or third party, service providers (Daugherty *et al.*, 1996).

The trend has been to develop closer relationships, but to be very selective about potential partners. Today, manufacturers generally rely on “fewer, smarter suppliers”; emphasis is frequently placed on developing a smaller, but more stable supplier base. This can result in more “systematized” relations that allow for the development of day-to-day rhythms and routines, and provided sufficient time for proactive planning and dealing with exceptions. Benefits accrue to both parties; purchasers get a better quality of service than they could provide internally, and suppliers select for partnering arrangements typically handle a significant portion of the purchaser's business needs (Daugherty *et al.*, 1996).

2.5.3 Related Logistics Providers

According to Heaver (2001), it has long been customary for firms with small volumes of international traffic destined for or originating in a foreign country to use freight forwarder. Freight forwarders have long been specialists in arranging the transportation, storage and handling of goods along with associated documentation activities between and within countries. They manage the activities through their own offices and through those of partners. They are prepared to play the roles of designing and managing a logistics system, not just being responsible for its administration or in words typical of their advertisements, they are “providers of customized integrated logistics management solutions.” In the last two decades, they have increased the number of countries in which they had a direct presence and have increased the

intensity of their presence in most countries. They had generally done this by acquisitions and mergers.

Heaver (2001) also states that a major shift that has taken place in the logistics services industry was the entry of carriers. They are responding to the interests of shippers to deal with fewer suppliers and to outsource logistics activities. The services differ in some important respects from those offered by freight forwarders. They are more focused to the needs of importers for monitoring the movement of goods to consolidation points, managing the consolidation of goods and shipping according to the specifications of the buyers. The companies are aided in the development of these services by existing familiarity with the buyers' needs through their shipping services. They are able to offer consolidation services with high visibility by utilizing their existing links with the shipping lines' documentation processes.

Hannon (2003) presents that the logistics outsourcings (3PLs) market is consolidating faster during the slower economic times and going through an identity crisis of sorts. Many logistics companies that are not; in fact, full-service 3PLs while the full-service companies are buying up the niche players, are misusing the term "3PL". This is creating confusion for shippers. Based on a December 2002 report from ARC Advisory Group, the 3PL industry is still highly fragmented, both in terms of the number of providers in the market and their capabilities. There would be more international freight forwarders acquiring domestic 3PLs over the next two years, providing shippers with a single provider for both services, similar to what happened in the small package market.

2.5.4 Employees

Binkley (2001) discovers that during the 1990s, businesses came to appreciate the ability of logistics to cut costs and enhance service to customers. At the same time, companies found it increasingly difficult to hire the skilled workers they needed because the demand for them exceeded the supply. The shortage of skilled workers is the result of a rapid growth in demand and an educational and training system that do not turn out enough qualified workers. Companies that are finding it hard to source logistics workers should be encouraging governments and post secondary institutions to put more emphasis on educational programs for logisticians.

Capofari (1998) presents that certainly recent events have made us very aware of the impact of the labor environment because of the quantity and quality of operations personnel. There are more than a handful of excellent universities providing the basis of logistics schooling. High quality logistical education also is available through some of the major port authorities and various academy-based programs. The theoretical knowledge received through this coursework is valuable and was encouraged; however, it does not provide the appropriate tools for long-term logistics success. More so than any corporate function, the logistician needs to be knowledgeable of a myriad of corporate activities. In the course of a day, the financial, legal, marketing, manufacturing and other departments internally, and regulatory and government agencies externally, might all interface with the logistics department. To facilitate this understanding and develop staff members, a cross training structure that allows interaction with both internal and external operations was ideal.

Logistics employees are key assets in the logistics industry's ability to adapt to changing conditions and seize new market opportunities. The logistics profession and the skill sets required for excellence are evolving, confirming the importance of logistics and supply chain management in the knowledge-based economy. Consequently, logistics jobs are increasingly characterized by their demanding skill sets across traditional logistics functions, including integration skills, a sound knowledge of the corporate culture and the ability to work in multidisciplinary teams including analytical and multi-logistics functional skills (Industry Canada report, 2000).

2.5.5 Competitors

Heaver (2001) presents that businesses today is viewed as supply chains in recognition of the complex systems of which individual firms are a part. In effect, firms competed as parts of supply chains. Competition is among chains. The management practices of firms in some supply chains were well integrated. This does not imply that all relationships were long-term with "partnership" characteristics. It implies that all parties recognize the importance of their contributions to supply chain needs and that the success of the supply chain and of their own business have much in common. Firms have a supply chain perspective in their dealings.

2.5.6 Customers

Hamington (1996) states that contract logistics offers a number of opportunities for manufacturers. With regard to inbound flow management, a manufacturer has a variety of outsourcing options. It can outsource the inbound transportation itself e.g. replace a private truck fleet with a dedicated contract carriage

operation. Or, that same company can outsource the whole logistics inbound flow, allowing the third party to manage the flow of all incoming material from vendors.

Many customers are forced to concentrate on their core business; outsourcing support activities and they are reevaluating their logistics processes, thereby creating growth opportunities for logistics service providers. The changes in customer needs are forcing the logistics service providers to address several new strategic issues. They have to develop strategies to improve performance and profitability in their existing business; and, they have to develop strategies for further growth, making choices related to their products, markets and market segments, resources, and relationships and alliances (Persson and Virum, 2001).

The Continental Group's Lynch recommends how the customers protect their interests and avoid problems, as "You should understand exactly what the various providers would be doing for you--in detail. The biggest cause of (outsourcing) failure came from a user trying to outsource activities they themselves did not understand and the provider performing functions that they don't understand. This understanding should be documented, with process plans, work assignments, and responsibilities of each participant clearly mapped out." (Harrinton, 1999)

According to the survey by Lieb (2001), the typical buyer of 3PL services used a variety of such services, and bought those services from multiple providers. While the most frequently used services are related to transportation and warehousing, many other logistics services have been used extensively. Many 3PL users' rely upon their providers on IT supports. The most frequently outsourced information

applications are transportation planning/optimization, freight payment services, warehouse management systems, shipment tracking and international documentation.

2.5.7 Business Consolidation

Stone (1999) presents that the trend toward consolidation in the form of mergers and acquisitions also play a part in making the market favorable for third-party logistics providers. When two or more companies of any size attempt to pull together their various departments and functions, the risk of major glitches in the smooth flow of daily operations is very real, not least in shipping and transportation. Many recently merged corporations are looking to outside sources to help with the transition; a role 3PLs are well suited to fill. There also is a trend toward consolidation among freight forwarders and shipping associations, which often find it advantageous to align themselves with logistics providers as a means of maximizing their leverage with carriers, according to some industry observers.

For example, American President Lines late in 2000 acquired GATX to fatten its portfolio of services, particularly in the e-logistics area. Kuehne & Nagel International AG last summer bought USCO Logistics of Hamden, Conn., to strengthen its presence in the Americas. Exel and MSAS Global came together in May of 2000 and now operate as one with a broad global reach. United Parcel Service last year added Fritz Companies to its corporate structure. And Schneider Logistics continued to extend its sphere of influence through alliances with leading service providers on distant continents (Hoffman, 2002).

According to the research by Lieb and Kendrick (2003), The merger and acquisition movement continues to change the 3PL competitive landscape, and is facilitating the industry's movement toward globalization and broader service offerings. It appears that considerable industry energy and resources are being consumed in integrating the recent acquisitions into the acquiring company.

2.5.8 Logistics Alliances

There are several key aspects of logistics alliance. First, logistics alliances are inter-firm relationships that have a long-term rather than a short-term, transactional orientation. This suggests that logistics alliances require relationship commitment by both parties to endure. Secondly, logistics alliances exhibit cooperative behaviors between parties, suggesting that logistics alliances involved a mutual sharing of information and the benefits and burdens of a relationship. Finally, the details of a logistics alliance can vary widely depending on the buying firm's logistics requirements and the third party's capabilities. Many buying firms established alliances with logistics firms that are capable of providing fully integrated, multiple services. The firms were willing to perform part or all of the logistics requirements for a buying firm, including transportation, warehousing, order fulfillment, information management, light assembly, inventory management, and strategic distribution consultation (Moore, 1998).

Bagchi and Virum (1998) discuss that increased competition, higher customer expectations, and rising costs have forced companies to seek radically new ways to succeed in the marketplace. Strategic alliances are often used to rationalize business operations and improved the overall competitive position of a company. The process

of forming a strategic alliance is important because of the sheer speed and dynamism of technological changes that have opened up a wide range of new activities. The emphases are often on combining capabilities to speed development, achieve new performance levels, and meet customer needs better. A strategic alliance allows a company to take advantage of what it did well and enables it to seek partners who have strengths in other areas.

Harrington (1999) supports that in cases of customer-driven expansion, alliances were attracted to 3PLs because they not only allow them to meet their customer's needs, but also limit their exposure and risk. Alliances have spread the capital investment across multiple parties and shortened the time required to deliver solutions. They also enable 3PLs to quickly adapt to their customers' increasingly complex service requirements. In summary, corporations are trying to make their lives easier by consolidating their third party logistics (3PL) supplier base.

The logistics "alliance" Case devised as the talents of Fritz Companies Inc., Schneider Logistics Inc., and GATX Logistics Inc. Under a long-term agreement signed in July 1996, Fritz was the lead integrator, managing international moves and the complex task of getting the alliance operating and sharing shipment data on the same information system. Schneider's job was to control over-the-road and inter modal transportation for all of North America. GATX manages Case's nine stocking depots and did such value-added tasks as packaging, kitting, and some subassembly work (Minahan, 1996).

Late in 1998, Exel Logistics and BDP International Inc., two 3PL providers with complementary offerings, formed a strategic alliance to provide a wide range of integrated logistics services and solutions to the chemical industry. BDP and Exel were not the only 3PLs looking at strategic alliances. Caliber Logistics Inc. of Hudson, Ohio, and MSAS Global Logistics of Burlingame, California, recently entered into an alliance. Such alliances were the only way to tackle the real opportunities that lied at the heart of efficient supply chain management, that was, managing and reducing global inventories (Harrington, 1999).

2.5.9 Logistics Associations

It is recognized that there are certain sources of worldwide discussion on logistics and supply chain management such as Council of Logistics Management, European Logistics Association, and so on.

The US Council of Logistics Management is a not-for-profit professional business organization consisting of individuals throughout the world who have interests and/or responsibilities in logistics and the related functions that make up the logistics profession. Its purpose is to enhance the development of the logistics profession through logistics professionals by providing them with educational opportunities and relevant information through a variety of programs, services, and activities (The Council of Logistics Management report, 2003).

The European Logistics Association is a federation of 30 national organizations, covering almost every country in Central and Western Europe. The goal of ELA is to provide a forum for co-operation for any individual or society

concerned with logistics within Europe and to assist industry and commerce in Europe. ELA formulates European Logistics Education Standards and encourages the acceptance of these standards by each of its member nations. A Vocational Qualification procedure is in place to enable the standards to be accepted on a pan-European basis (The European Logistics Association report, 2003).

These organizations have similar purpose, as they maintain standard of knowledge and professional training to the members as well as sharing the update information among the members.

2.5.10 Supply Chain Integration

The role of supply chain management and logistics excellence in the quest for lower costs, better service and increased productivities are of prime importance. Experience has shown that cost reductions and greater efficiency in the supply chain can be achieved through integration. Integration minimized the friction between various functions and processes in the supply chain and maximized speed as well as efficiency. The successful deployment of information and communication technologies enabled such integration. This increases awareness of the role of supply chain integration created opportunities for growth in the 3PL market, as the integration of the supply chain was a complex task and firms increasingly rely on 3PL firms' expertise in this area (Industry Canada report, 2000).

2.6 Future Direction of Logistics

2.6.1 Growth in Logistics Outsourcings (3PLs)

Vincent (1997) comments that the third-party logistics industry has exploded in the last decade due to its ability to deliver flexibility, cost savings, expertise and other benefits. Some predictions call for growth rates of 15%-20% over the next several years.

According to the research by Randall and Lieb in 1998 indicated that a corporation's decision to use a third party often was triggered by a particular event. Nearly three-quarters of the survey respondents said they had decided to outsource as a result of corporate restructuring, a change in top management, or a company-wide benchmarking effort. In the coming year, third-party logistics providers would grow as existing corporations turn over more distribution activities to an outside provider. Lieb refers that they (3PLs) will spend more energy on selling to existing clients than on getting new clients, as the growth would come from existing customers (Cooke, 1998).

Weiskott (1999) insists that outsourcing to third-party logistics providers (3PL), either wholly or in part, is on the upswing. Outsourcing is also on the rise because today's business environment encouraged a return to "core competencies." A company returning to its own core business may opt to delegate its distribution effort to specialized service providers whose core competency is logistics, a niche that is becoming a rapidly growing industry itself.

Persson and Virum (2001) also present that many international buyers increasingly want to consolidate the number of logistics suppliers that they use. The supplier is expected to be able to provide more complete and integrated logistics services, adapts to the specific needs of the buyers. Suppliers are expected to have the capability to design, implement, and operate all or parts of the logistics processes of the customer. This can be observed in the growth of the third-party logistics markets. Although the third-party logistics market is small in comparison, but is expecting to grow faster over the next decade.

Lou (2002) refers to the study, which was sponsored by Cap Gemini Ernst & Young, Georgia Tech Institute of Technology and Ryder Logistics & Transportation and includes Canadian companies in 2002, found no major shift in usage patterns but rather a more intense utilization of existing 3PL services. The activities most frequently outsourced to 3PLs were outbound transportation (68%); warehousing (65%); inbound transportation (52%); freight bill auditing/payment (48%); Customs brokerage (44%); freight forwarding (43%); and Customs clearance (41%).

There are, as a result, several industry segments each offering similar services with feature stem from the parent's area of logistics expertise and asset strategies. Customers of 3PL's have decided to use their service for a number of reasons. In fact, most customers justify their choices to outsource for more than one of the following benefits: concentration on core competencies, improved negotiating leverage, access to state-of-the-art technologies, track and trace capabilities, capital for investment in logistics assets and technologies, expert and skill staffs, and well-designed and

executed processes. Obviously, the 3PL business is evolving rapidly (Denali Consulting report, 2002).

2.6.2 One stop service

According to Parker (1999), the trends of globalization and outsourcing have created a need for one-stop shopping on a global scale. Cooke (2000) presents that third-party logistics (3PL) service providers are extending activities from their traditional transportation and warehousing offerings. The industry is also expanding with a slew of new entrants, and many of these firms, known as third-party fulfillment providers (3FLs), are targeting Internet retailers and offering warehousing, shipping, and order-management services.

Coia (2000) insists that one-stop shopping would ensure that a company remains relevant to its logistics partner, however, that one-stop shopping would only be in demand when multinational manufacturers work as single operational units with global ERP systems. If the market is too diverse and complex, some shippers prefer to use a mixture of logistics providers to take advantage of specialists' capabilities or simply to compare services.

Lynch (2001) states that while technically not a classification of logistics service companies, the concept of single sourcing plays an important role in supplier selection. Some firms would prefer to deal with one lead provider to either perform or contract for all the functions being outsourced. The lead firm can be asset or non-asset based. Usually it will fulfill those requirements that it is equipped to handle and sub-

contract to other organizations those services it does not provide. The term strategic alliance often is used to define these arrangements.

2.6.3 Entry into the Forth Party Logistics (4PLs)

The study, which is sponsored by Cap Gemini Ernst & Young, Georgia Tech Institute of Technology and Ryder Logistics & Transportation and includes Canadian companies in 2002, discovers that the growing user trend towards pulling 3PL service providers deeper into their supply chains and the accompanying push to have them increase the breadth and complexity of their capabilities is also leading to the next generation of 3PLs: fourth-party logistics providers or 4PLs as they have come to be called (Lou, 2002).

Bauknight and Miller (1999) presents that Fourth Party Logistics or 4PL is the evolution of supply chain outsourcing. The convergence of technology and the rapid acceleration of e-capabilities have heightened the need for an over-arching integrator for supply chain-spanning activities. Fourth Party Logistics is the shared sourcing of supply chain spanning activity with a client and select teaming partner, under the direction of a 4PL integrator. In essence, the Fourth Party Logistics provider is a supply chain integrator that assembles and manages the resources, capabilities, and technology of its own organization with those of complementary service providers to deliver a comprehensive supply chain solution.

Based on a survey of the CEOs of the largest 3PL companies in the U.S. by Lieb and Kendrick (2003) identifies the factors leading a 3PL customer to consider

using a 4PL are the growing complexity of 3PL contracts, the need for systems integration, the desire on the part of the client to focus on the company's core competency, the need for a single point of contact in managing such complex relationships, the desire for ease of administration, the pressure for cost efficiencies, and the need for consistency of processes and operations across providers. The survey also identifies the major benefits that a customer might expect from a 4PL provider are better coordination of the participants; consistency of operations, information, and processes; better accountability, lower costs, reduce administrative costs, a central point of contact, greater customer focus on the strategic side of the business, and improved supply chain visibility.

2.6.4 Environmental Concern

According to Rogers and Tibben-Lembke (1998), many companies first focus on reverse logistics issues because of environmental concern. Today, some are concerned only with reverse logistics as it relates to returning product to their suppliers. However, in the future, environmental considerations will have a greater impact on many logistics decisions.

Rogers and Tibben-Lembke (1998) describe reverse logistics as all efforts to move goods from their typical place of disposal in order to recapture value. Green logistics, or ecological logistics, refer to understanding and minimizing the ecological impact of logistics. Green logistics activities include measuring the environmental impact of particular modes of transport, ISO 14000 certification, reducing energy usage of logistics activities, and reducing usage of materials. Reverse logistics also refer to the need for activities such as handling return loads, disposal of packaging

materials, obsolete products and materials, as well as the return (or recycling) of appliances, components and equipment. This concept interfaces with waste management because the distribution of solid waste from origin to the destination at the disposal site is indeed the reverse of distributing goods and products to the same origins.

Schwartz (2000) states that reverse logistics is not a new concept, but it was an increasingly important one. Reverse logistics processes manage two general areas: product returns and product packaging. Product returns are heavily driven by customer returns and vary in volume by industry. Product packaging involves recycling of cardboard, plastic, and other packaging material to reduce disposal costs.

Rodrigue, Slack and Comtois (2001) conclude that further Government intervention promoting greater environmental regulations appears inevitable. Global, continental, national and local environmental legislation is already taking hold. For the most part this legislation is popular, and while there is considerable industry resistance to increased regulations, the scientific and popular evidence of environmental problems is mounting. Concerns over congestion, land take, environmental degradation are forcing legislators to be seen to be doing something, even if the full impact remain unclear. At the same time, individual logistics firms are finding a match between environmental considerations and predictability. It is becoming acceptable within the industry to adopt green measures. Sometimes they reduce costs, but more often than not they lead to more intangible benefits such as image and reputation enhancement. It is here that environmental management systems, such as ISO 14000, might offer opportunities to green the logistics industry.

2.7 Logistics industry in Thailand

The point of importance of Logistics is to be able to bring the goods to the customers in the way they want, the time and the cost that they required is the key of the business. However, this understanding is not acknowledged in Thailand even though we are part of the chain of integrated product network chain. The plan to support the growth in technologies, production, purchasing, distribution channels, distributions under Logistics and Supply Chain result in Thailand business progress and is core of the business in the future (Broad of Investment report, 2003).

The Logistics business in Thailand is at the early stage and not much attention is focused on the system but when faced with strong competition, Logistics is becoming very logic in most business. In Thailand, the logistics operators consists of Courier – documents and parcels delivery i.e. Federal Express, DHL, United Parcel Services, Yamoto and TNT, and in the automotive industries i.e. Honda, ANI Logistics, MMC Sithipol, Logistics Alliance, KPN-ST Logistics, CP-7/11, etc. (Broad of Investment report, 2003)

Elliott and Niruntasukkarut (2002) report that with an average 20% annual growth, outsourcing of supply chain operations to professional third-party logistics (3PL) companies in Thailand has been one of the success stories in recent times, as manufacturers and retailers look to cut costs and lift service from within their supply chain activities.

The followings are some highlight of the logistics outsourcing companies establishing in Thailand:

- More growth for Eternity Group: Eternity Group has been awarded two new logistics services contracts: from Tesco Lotus for delivery of goods to its southern Thailand stores, and from Nestle {AAC} for international and domestic inbound logistics using Eternity's licensed customs brokerage service and side-curtain truck, modeled on the popular taut liner trucks used in Europe and the US (Elliott and Niruntasukkarut, 2002).
- Linfox bought Mayne Logistics: Australasian logistics and transport company Linfox would buy Mayne Group's Contract Logistics (Australia and Asia) businesses for more than \$250 million. The acquisition seem Linfox's turnover grow to in excess of \$1.2 billion with a workforce of nearly 9,000 and more than 5,000 vehicles. Linfox's long-term strategy was to grow its services throughout Australia and Asia-Pacific, and the acquisition will add China and Indonesia, where Mayne had major contracts with Unilever and British American Tobacco, to its growing portfolio (Elliott and Niruntasukkarut, 2002; Linfox report, 2003).
- Maersk won Lloyd's FTB 'Total Logistics Operator of the Year': Maersk Logistics this week won the Asian region's "Total Logistics Operator of the Year" award from FTB Magazine. Votes are received from senior executives throughout the region. Maersk Logistics provides services to Nike, Reebok, Target, Wal-Mart and Michelin (Elliott and Niruntasukkarut, 2002).

- Exel renewed pact with Nestle {AAC}: Exel has won a three-year contract extension with Nestle {AAC} Products (Thailand) Inc to manage warehousing and distribution operations. Since the contract began in October 1999, Exel has introduced a new system that provides stock rotation by date, batch-coding tracking interfaces with the Nestle {AAC} in-house system, and a stockholding point of 25,000 sq m. The extension represents a significant step in Exel's continued growth in Thailand, where it employed 300 staff (Elliott and Niruntasukkarut, 2002).
- New center for IDS Logistics: IDS Logistics Thailand has begun construction of its new 16,000-sq m distribution center at Bang Pa-in. The groundbreaking was conducted by Dr Victor Fung, chairman of Li & Fung Distribution Group, and Simon Oxley, managing director of IDS Logistics Thailand (Elliott and Niruntasukkarut, 2002).
- The UK-Based, Australia-Based Logistics Services Joined Forces as in the joint venture announced on 24 May 2002, the Dutch subsidiary of Tibbett & Britten Group PLC acquired a 38% stake in Davids Distribution (Thailand) Ltd, the local arm of Davids Logistics. The combined stake of Davids Asia, Central Department Store and Robinson department Store was reduced from 94% to 59.2%, with the other 2.8% hold by small shareholders. Davids' clients in Thailand include Central, Robinson, Homework and Big C Supercentre (Jitpleecheep, 2002).
- IBM Thailand has teamed up with CP Group subsidiary Dynamic Logistics to offer a logistics outsourcing service for medium to large enterprises here. The

better efficiency in warehouse and transportation management would result in supply chain enhancement that would help reduce operation costs. Customers would gain benefits in reducing time to market, maximizing labor performance, optimizing operating costs and most importantly increasing real-time inventory accuracy up to 99.9%, according to the company. “Customers that use our logistics solution outsourcing service could reduce their operating costs by 10-15% and also save over 40% on the cost of system deployment,” Dynamic Logistics vice president Phiraboon Phaiboontham noted (Bangkok Post report, 2003).

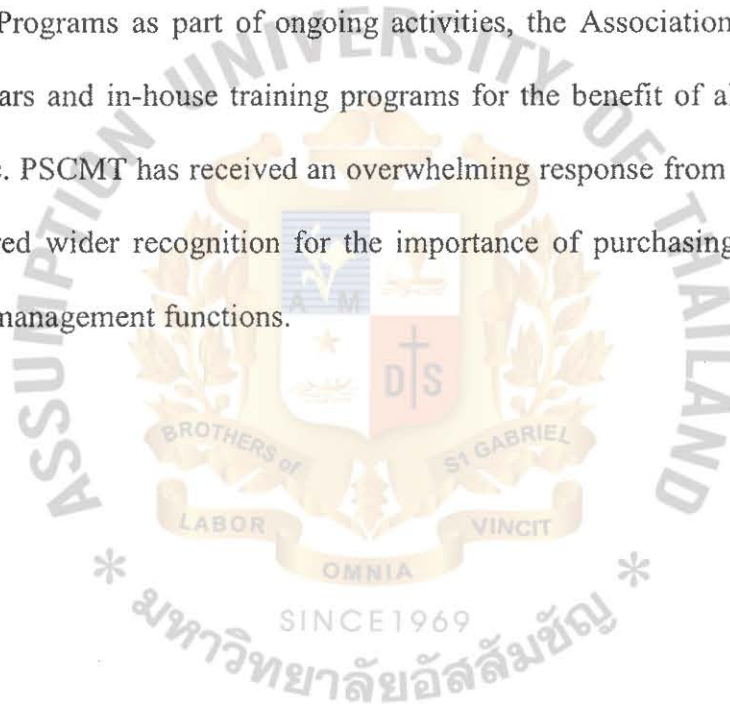
Logistics Associations in Thailand

There are two main associations in the logistics society, Thai Logistics Production Society and Purchasing and Supply Chain Management Association of Thailand.

TLAPS or the “Thai Logistics Production Society” is an organization of professionals and academics, which was established to educate and support the group of individuals in Thailand who work in fields related to logistics and production. TLAPS is focused on building knowledge and experience for all of its members to help make them and whatever businesses or industry they work in, more competitive. To this end, TLAPS organizes various conferences, training sessions, field trips, and promotes educational research, which cover the wide spectrum of issues and areas related to logistics and production. In doing so, it is the goal of TLAPS to help Thailand itself achieve and maintain world-class levels of logistics and production. By making use of information technology and advanced methodologies such as “Supply

Chain Management”, Thailand will be prepared to meet the various challenges of global competition, and open itself to an even larger volume of opportunities.

The “Purchasing and Supply Chain Management Association of Thailand”, formerly the “Thai Purchaser Club”, was set up in Bangkok in November 1988 with just a handful of members. Today this body has many professionals as life members and many more active members dedicated to enhance the professionalism in purchasing, logistics, and supply chain management functions. Training and Certification Programs as part of ongoing activities, the Association has conducted several seminars and in-house training programs for the benefit of all members and general public. PSCMT has received an overwhelming response from local industries and has secured wider recognition for the importance of purchasing, logistics, and supply chain management functions.



CHAPTER III

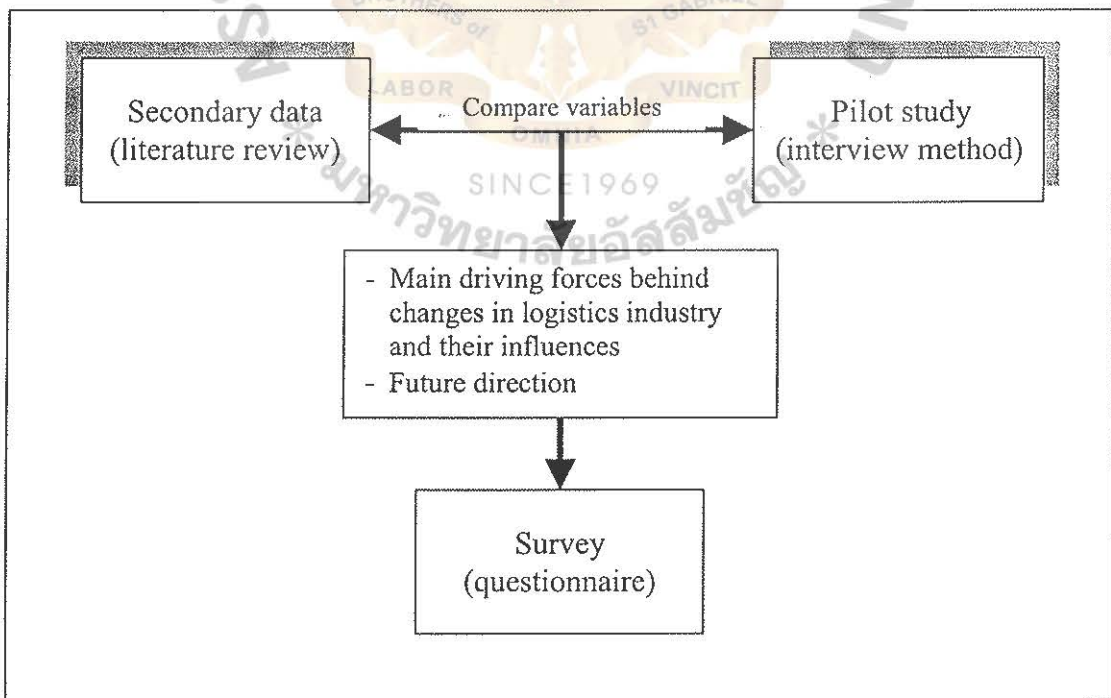
RESEARCH FRAMEWORK

The aim of this chapter is to present a theoretical framework, research framework of interview and survey, research hypothesis, and operationalization of the independent and dependent variables.

3.1 Research Design

According to Yin (2003), the research design is a logical plan for getting from here to there, where “here” and “there” may be found a number of major steps, including the collection and analysis of relevant data.

Figure 3.1 Research Process of the Study



Source: Original created by author

3.2 Theoretical Framework

According to Wheelen and Hunger (2000), Strategic Management is the set of managerial decisions and actions that determines the long-run performance of a corporation. It consists of four basic elements: *environmental scanning* (both external and internal), *strategy formulation* (strategic or long-range planning), *strategy implementation*, and *evaluation and control*. For the realization of the thesis purpose, environmental scanning is referred to. Environmental scanning is the monitoring, evaluating, and disseminating of information from the external and internal environments to key people within the corporation. Its purpose is to identify strategic factors – those external and internal elements that will determine the future of corporation.

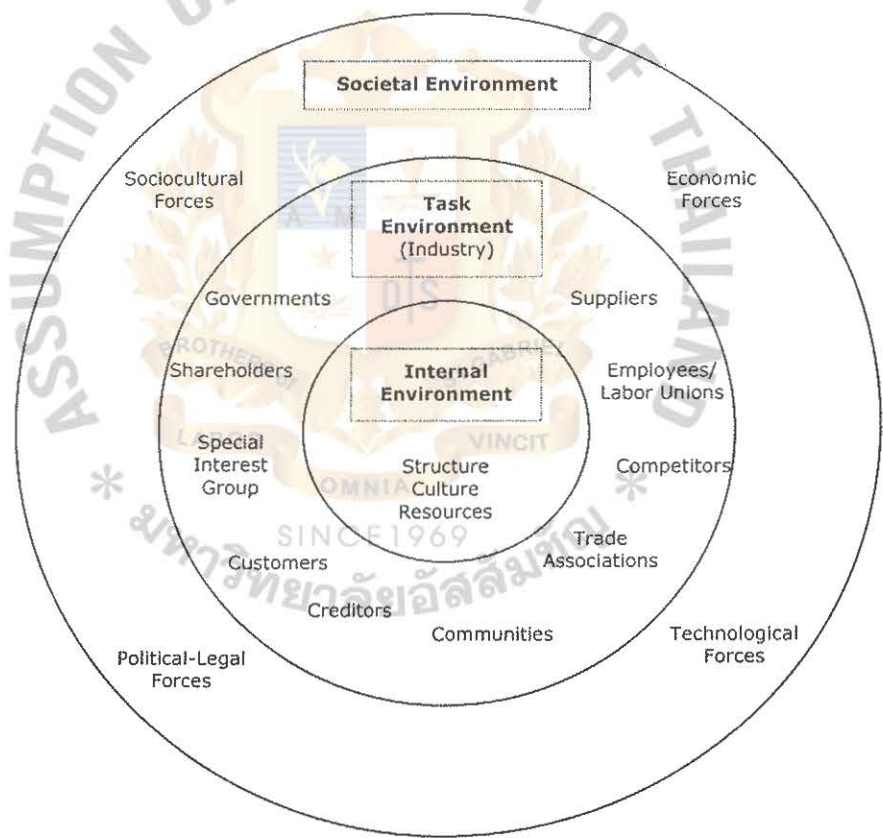
The external environment consisted of variables (Opportunities and Threats) that are outside the organization and not typically within the short-run control of top management. They may be general forces and trends within the overall *societal environment* or specific factors that operate within an origination's specific *task environment* – often called its industry.

The *societal environment* included general forces that do not directly touch on the short-run activities of the organization but that can, and often do, influence its long-run decisions. These are economic forces, technological forces, political forces, and sociocultural forces. The *task environment* includes those elements or groups that directly affect the corporation and, in turn, are affected by it. These are governments, local communities, suppliers, competitors, customers, creditors, employees/labor unions, special-interest groups, and trade associations. Both the societal and task

environments must be monitored to detect the strategic factors that are likely to have a strong impact on corporate success or failure.

The internal environment of a corporation consists of variables (Strengths and Weaknesses) that are within the organization itself and are not usually within the short-run control of top management. They include the corporation's structure, culture, and resources.

Figure 3.2 Environmental Variables

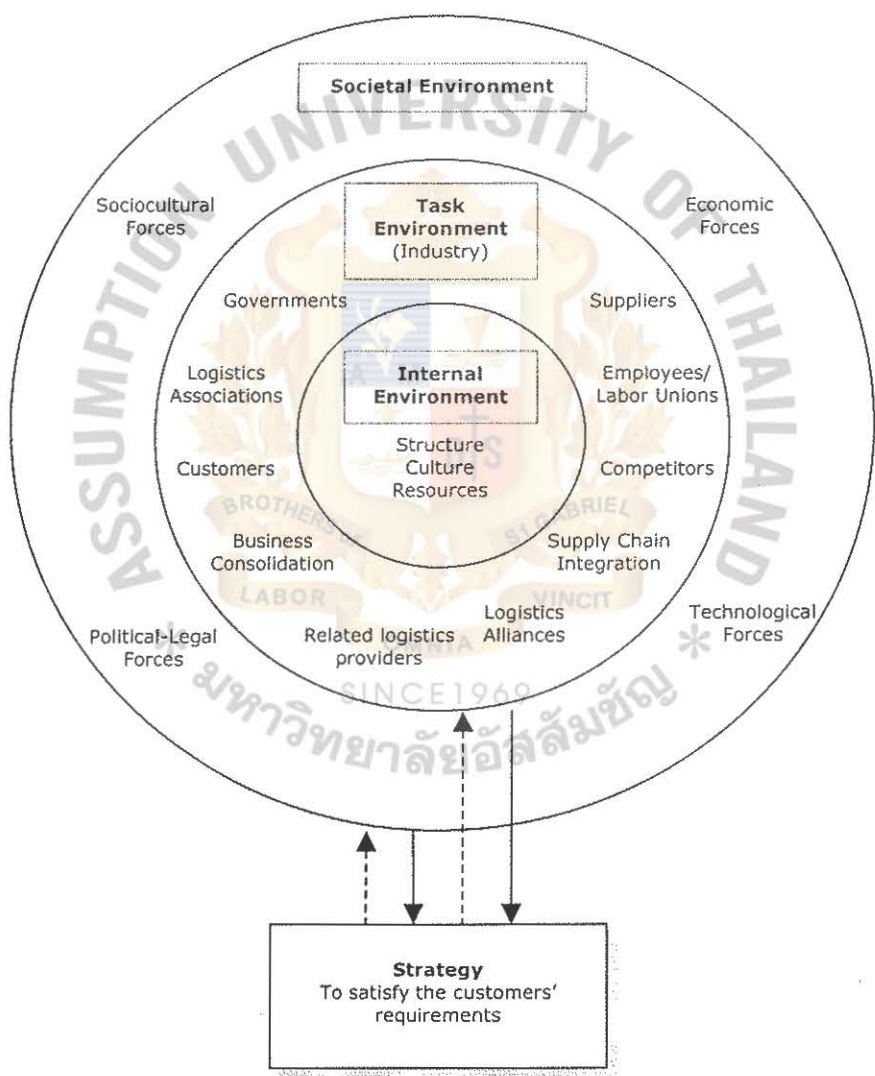


Source: Wheelen, T.L. and Hunger, J.D. (2000), *Strategic Management and Business Policy: Enter 21st Century Global Society*.

3.3 Research Framework

To present a framework, which highlights the ways to collect information, by the part of logistics outsourcing industry; the original environmental variable framework presented by Wheelen and Hunger (2000) above has been modified to achieve the study objectives.

Figure 3.3 Research Framework



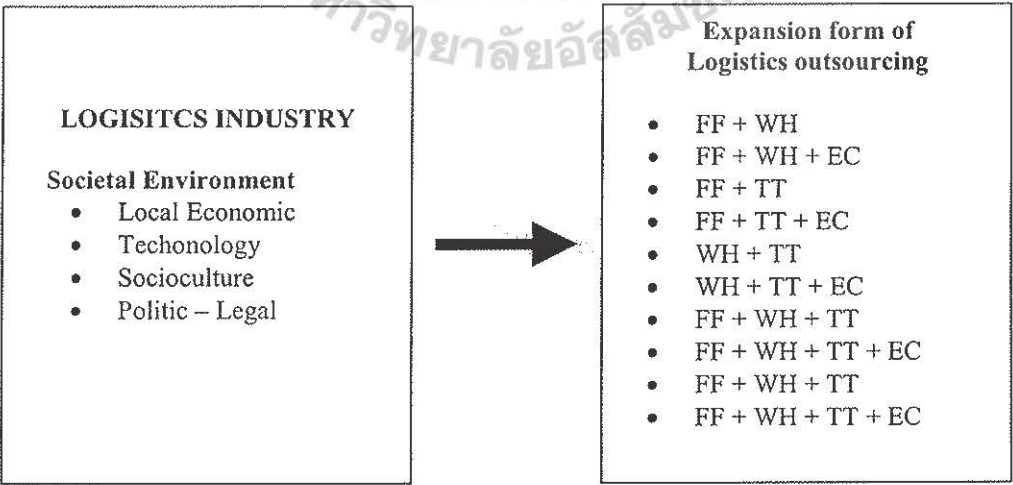
Source: Original modified by Author

The model integrates key elements of strategic management thought by combining an external analysis of the competitive environment with an internal analysis of a firm's processes and organizational skills. The external forces motivating a competitive response is the competitive marketplace - which has created opportunities while at the same time bringing to bare severe challenges. The importance of internal resources is also recognized as a set of core competencies, which the firm can use to gain competitive advantage. Finally, these variables impact on the strategy. However, for this study the internal environment and strategy are omitted.

3.4 Diagram of Framework for survey

From research framework with various literature described in Chapter 2 and interview with the three Business Development Managers of logistics outsourcing, variables involves sub-variables that have been defined to extend the benefits of the study covering elements that are necessary for logistics outsourcing industry are as follows:

Figure 3.4 Conceptual Framework of Hypothesis Testing Model



Source: Original created by Author

3.5 Definition of Variables

The following table shows the major variables of the study, their sub-variables and their definitions.

Table 3.1 Definition of variables

Variables	Definition of variables
Service	
Service	Major service classification of logistics service provider in Thailand: International freight forwarder, Customs clearance broker, Warehousing provider, Inland transport provider, Third-Party Logistics, and others
Independent Variables	
Societal environment	
Local economy	The forces that regulate the exchange of materials, money, energy, and information (Wheelen and Hunger, 2000)
Technology	The forces that generate problem-solving inventions (Wheelen and Hunger, 2000)
Socioculture	The forces that regulate the values, mores, and customs of society (Wheelen and Hunger, 2000)
Politic – Legal	The forces that allocate power and provide constraining and protecting laws and regulations (Wheelen and Hunger, 2000)

Source: Original created by Author

Table 3.2 Definition of variables (Continued)

Dependent Variable	
Expansion of Logistics Outsourcings	
Expansion form of logistics outsourcing	<p>The possibility for growth of logistics outsourcing in Thailand.</p> <p>It represents the trend of traditional logistics providers in expanding their services in section of freight forwarding service or warehousing management service or transport and distribution service including the awareness of environmental concern, which provides to the customers. Those providers may provide the services as domestic one stop service or international one stop service.</p> <p>(Rogers and Tibben-Lembke, 1998; Parker, 1999)</p>

Source: Original created by Author

3.6 **Research Hypothesis**

Hypothesis statement is a statement about the relationship between two or more factors; uses to explain observable phenomenon (Collage of Liberty Art, 2003). Based on the above research framework of hypothesis testing model the alternate and null hypothesis statement is as follows:

- H1_o: There is no relationship between local economy and expansion form of logistics outsourcing
- H1_a: There is relationship between local economy and expansion form of logistics outsourcing

a perfect linear association between the two variables. If the value of r is 1.0, there is a perfect positive linear (straight-line) relationship. If the value of r is -1.0 , there is a perfect negative linear relationship or a perfect inverse relationship. A correlation coefficient indicates both magnitude of linear relationship and the direction of relationship (Zikmund, 2000).



H2_o: There is no relationship between technology and expansion form of logistics outsourcing

H2_a: There is relationship between technology and expansion form of logistics outsourcing

H3_o: There is no relationship between socioculture and expansion form of logistics outsourcing

H3_a: There is relationship between socioculture and expansion form of logistics outsourcing

H4_o: There is no relationship between politic-legal and expansion form of logistics outsourcing

H4_a: There is relationship between politic-legal and expansion form of logistics outsourcing

Degree of confidence 95%

Above hypotheses is described as follows:

- The societal environmental variables would be related to the expansion form of logistics outsourcing
 - The local economy would be related to the expansion form of logistics outsourcing
 - The technology would be related to the expansion form of logistics outsourcing
 - The socioculture would be related to the expansion form of logistics outsourcing
 - The politic-legal would be related to the expansion form of logistics outsourcing

3.7 Operationalization of the Independent and Dependent Variables

The following table shows the operational component variables, their definition and operational components, and measurement.

Tables 3.2 Operationalization of the Independent and Dependent Variables

Variables	Sub-Variables	Operational components	Measurement
Service	Logistics service providers	Freight forwarder, Customs clearance broker, Warehousing provider, Inland transport provider, Third-Party Logistics, and Others	Nominal
Societal Environment	Local Economic Forces	Industry growth, expansion of production based	Ordinal
	Technological Forces	Computer Technology, IT, E-Commerce	Ordinal
	Sociocultural Forces	Culture, Attitude	Ordinal
	Political-Legal Forces	Laws, Rules, Regulations	Ordinal

Source: Original created by Author

Tables 3.2 Operationalization of the Independent and Dependent Variables
(Continued)

Variables	Sub-Variables	Operational components	Measurement
Future Direction	Expansion of logistics outsourcing (3PL)	• FF ^a + WH ^b	Nominal
		• FF + WH + EC ^d	Nominal
		• FF + TT ^c	Nominal
		• FF + TT + EC	Nominal
		• WH + TT	Nominal
		• WH + TT + EC	Nominal
		• FF + WH + TT	Nominal
		(Domestic)	
		• FF + WH + TT + EC	Nominal
		(Domestic)	
		• FF + WH + TT	Nominal
		(International)	
		• FF + WH + TT + EC	Nominal
		(International)	

^a International Freight forwarder service

^b Warehousing Management service

^c Transportation and Distribution service

^d Environmental Concern i.e. reverses logistics or green logistics

Source: Original created by Author

CHAPTER IV

QUALITATIVE METHODOLOGY: DESCRIPTIVE RESEARCH

A research methodology defines what the activity of research is, how to proceed, how to measure progress, and what constitutes success. The chapter provides the guidelines for understanding the approaches used to conduct the research, which is divided into four parts, the research method, the research respondents, the research instrument, and the collection of data

4.1 Descriptive Research

According to Zikmund (2000), the major purpose of descriptive research is to describe characteristics of a population or phenomenon. Descriptive research seeks to determine the answers to *who*, *what*, *when*, and *how* questions. Mere description of a situation may provide important information and that in many situations descriptive information is all that was needed to solve business problems, even though the answer to *why* was not given. The descriptive studies are based on some previous understanding of the nature of the research problem and would attempt to determine the extent of differences in the needs, perceptions, attitudes, and characteristics of subgroups.

The pilot case study is the basic technique to collect data from the ultimate subject of the research project to serve as a guide for the larger study. Yin (2003) supports that the pilot case study would help the researcher to refine the data collection plans with respect to both the content of the data and the procedures to be

followed. In general, convenience, access, and geographic proximate can be the main criteria for selecting the pilot case study.

For this study, interview method is applied for the pilot case studies. Valenzuela and Shrivastava (2002) presents that interview is a particular useful for getting the story behind the participants' experiences. An individual semi-structured interview with the target person can tell us a lot about his behavior, feelings and attitudes to a certain brand or product. For some people, the individual interview seems less threatening, because there are no other people present. The main difference in comparison to a focus group is that the individual interview has no group dynamics. The participant also cannot comment the statements of the others (Gral-Itto, 2003).

4.2 Respondents and Sampling Procedures

To examine whether there are many driving forces behind the logistics outsourcing in Thailand and their influences, three particular logistics companies have been selected as the respondents of the pilot case study. In these companies, the researcher conducts an investigation of their respective logistics industry, with special emphasis on the environmental variables.

The reason for selecting only three companies is due to the limitation of third party logistic companies available in Thailand and there will be a larger qualitative outcome if more logistics companies are taken in the study. Nevertheless the concrete and decisive qualitative results will be obtained in the selection of the specific company. The chosen logistics companies are Schenker (Thai) Limited, Linfox

(Thailand) Limited, and KPN-ST Logistics Company Limited. These companies were chosen according to their long and successful historical background in logistics outsourcing industry in Thailand and worldwide. In specific, due to their positioning in the market and business backgrounds, these logistics companies are highly acceptable by the enterprises in Thailand.

Western Europe has the longest history of managing logistics across country boundaries, as well as an infrastructure for interregional movement and management. Schenker is one of leading international providers of integrated logistics and freight forwarding service, and become very successful in Europe. Schenkers (Thai) Limited first registered as a company in Thailand in 1974, replacing a delegation office which had existed since 1966. Schenker Logistics, a division of Schenker, has been established for 4 years with providing complete solution tailor-made for the requirements of industry to the customers. Over the past 30 years the company has expanded in line with the Thai economy. In 2001, Schenker Thai's logistics center near Leam Chabang has been operating to support the business expansion in Thailand.

Linfox is Australia's largest privately owned supply chain management and leader of logistics provider. Linfox Logistics has existed in Asia since 1986. Linfox Logistics (Thailand) Ltd was established in December 1993 between Linfox Transport (Aust) Pty Ltd and individual investors from Thailand. It Provides contract logistics services tailored to customer requirements and supported by quality driven systems; specialized in servicing the manufacturing, retailing, and petrochemical sectors. The company turnover (in Thailand) is approximately 700 million Bath per year with 30% growth ratio per year. In 2003, Linfox buys Mayne Logistics and Armaguard.

In Asia, KPN-ST Logistics Company Ltd., was established in the year 1997 and is a joint venture between ST- Logistics Singapore and KPN Group of Thailand. The Singapore Technologies Logistics Pte Ltd. is a subsidiary company of Sambawand Corporation Industries whereas The Thai Warehouse and Narong Transport Company are one of KPN assets and both companies have long history in the logistics business, 38 and 12 years respectively. The company was formed to provide Supply Chain Management service such as Warehouse Management, Inventory Management and Thailand Country Wide Distribution. The company had the growth of 30% in income last year.

On the other hand, the interview of these logistics companies with their respective logistics industry will constitute interesting results for the research as they present success in logistics services for keeping their competitive status.

4.3 Research Instrument

According to Ratcliff (2002), the researcher is considered as an instrument in interview method because the researcher gathers the data. The researcher needs to describe relevant aspects of self, biases and assumptions, expectations, and relevant history. However, normal practice of individual semi-structured interview, the interview is conducted by face-to-face discussion with opened questions. A set of question is developed to define the environmental variables in logistics outsourcing industry and their influences, which is divided into three parts – overview, societal environments and task environments. (See the sample of the questions for interview in Appendix B)

4.4 Collection of Data

As for the beginning of this study, the researcher started with stage of qualitative data, information and knowledge selection as well as collection. The stage involves the collection of material from a variety of sources. For instance, searched and gathered multiple books, article journals, and Internet web pages. In addition, the researcher conducted the pilot case study. Moreover, from the first stage of data collection, the researcher made a clear distinction and between what Primary and Secondary Data are. Primary data are data gathered and assembled specially for the study. For this study, this type of information is the most important set of information, as it specifically addresses specifies issue from the study. This type of information has been obtained through pilot case studies and survey with logistics companies.

For the pilot case study, the technique of semi-structured interviews was used through taking note and tape from all the personal and telephone interviews. In all cases, the sets of particular questions were created. Those questions were conducted according to the research framework, which directly addressed specific aspects of interviewees. So, the board questions were sent to the interviewees prior to the interviews. The more specific questions were only used during the interviews and with the purpose to address some personal questions.

Before the interviews with the different and interesting Logistics Company were arranged, the information about a large range of logistics companies were collected; in order to identify only the complete logistics ones and that were of interest of this study. So, the interviews were set up with Schenker (Thai) Limited, Linfox (Thailand) Limited, and KPN-ST Logistics Company Limited. However, the

researcher realizes to carefully scan the information, which obtains from the different logistics companies, because even if they did not have the intention to not disclose all the information, they could have been biased, due to the company sensitivity and confidentiality.

Secondary data, on the other hand, was classified data or information, which has been collected by individuals or agencies for purposes other than those of our particular research study. The collected multiple books, articles, journals, public records and special reports fit into this description. A search of secondary data sources should precede any primary research activity. However, a proper selection of secondary data, has allowed the researcher to extract the most relevant and useful parts. The secondary data may at least help the reader better understand the problem under study. Therefore, the information selected and gathered for the study gains of objective and grounds the investigation in the context of the problem as it furnishes descriptive information.

CHAPTER V
DESCRIPTIVE RESEARCH
FINDING, CONCLUSIONS AND RECOMMENTATIONS

This chapter involves the analysis of the collected data from the interviews of three Business Development Managers of logistics outsourcing. The result and analysis are concerned about the main driving forces behind changes in the industry, the influence of external environment on logistics outsourcing industry, and the expansion forms of logistics outsourcing in the future.

5.1 Case Study Presentation

The preparation for data collection is the conduct of a pilot case study. It is to develop relevant lines of questions as providing some conceptual clarification for the research design. Three of the cases are formed from different business base; however, they are developed to be the same position. The results are described case-by-case with the same questions.

5.1.1 Schenker (Thai) Limited

Schenker is one of the leading international providers of integrated logistics. The company was first registered as a company in Thailand in 1974, replacing a delegation office, which had existed since 1966. The company offers the full service range of the Schenker group; door-to-door international air and sea consolidation services, customs clearance; warehousing and distribution; turnkey project logistics;

household removals and international exhibition transport. Their own dedicated staffs handle each service; all operations are in-house.

“Although Schenker starts as freight forwarding business, the company can fulfill in part of warehousing management. At first, the company leases the warehouse and now the company has own warehouse to support the customers. If the customers want the service in form of one-stop service, they can contact Schenker. Schenker has been in this kind of business for 30 years and have set up the logistics department for 4 years. Schenker Logistics, a division of Schenker, is committed to developing long-term partnerships with the customers by providing solutions to their supply-chain re-engineering. This entails complete physical and international flow management from factory – through Schenker’s value-added storage and distribution facilities – including final delivery to the customers. The company is successful. In the period of economy recession, Schenker turnover did not decrease, but it increased. It cannot show in figure because the company provides many activities. But the company estimates from the number of customers such as if the customer clear cargo and want the warehouse to keep for a while, the company can provide the warehouse and give them the solution. They are satisfied that they will not contact many suppliers.”

The above statements imply to the attitude of Thai people, which is changing and impacting on logistics outsourcing. Thai companies prefer to contact only one logistics suppliers in order to avoid any problems or conflicts. It causes logistics outsourcing to develop their activities to cover all of customers’ requirements.

“It is hard to estimate the size of industry. Some institutions or associations give the reward to freight forwarder with high performance and Schenker has got one. It does not calculate particular logistics business. If you are in the field of logistics industry, we will know who provide the logistics services. It does not compare by the company turnover because the turnover may include freight forwarding activities, warehousing activities and transportation activities, while some company have a turnover based on transportation or warehouse only. Similarly, it is hard to measure the industry size because it cannot calculate from the area of warehouse or number of trucks. This kind of business also includes logistics consultants.”

Concept of Logistics and Supply Chain Management

“In the past 6 – 7 years, the concept of Reengineering has influenced on Thai organizations by changing the organizational traditions. Then, the concept of logistics has occurred in Thai companies. Many companies have combined their sub-departments to one department, logistics. Then, the concept of supply chain management expands widely. Under the concept of supply chain, the logistics providers will support the customers in sourcing because the companies want to gain more profit. They will be involved in finding the best suppliers, who offer low price with quality. Sometimes the logistics providers will suggest the quantity to order or where to order. In case of warehousing management, the logistics providers will check the area to use or equipment requested such as the capacity of forklift. So, the logistics providers must understand the nature of manufacturers and suppliers. Sometimes we treat them as one of our family or our organization. If the suppliers can reduce their cost, they will increase sales volume with lower price and their inventory cost will be lower, thus the cost is lower respectively. The logistics providers may

give the supplier training program for this point. They can shorten lead-time, reduce stock, reduce inventory and reduce cost. There should have the cooperation among the suppliers and the logistics providers. It is like the beginning process under supply chain management.”

“The end process is to delivery of goods to the end-customer. At this present, we will focus on the customers’ satisfaction (such as lead time of the repeat order, or stock available) as well as the future response / action. Thus, if they will order, we will have a plan in advance in order to prepare the materials. It is like a forecasting. If we have no figure or statistic, it is very hard to calculate. The result of our forecasting will not be correct comparing to the customers. That is the reason that the logistics providers become involve with manufactures and suppliers in order to forecast accuracy. They may have a yearly meeting and set the agreement between the logistics providers and customers. The customer must understand that we have a production lead-time; meanwhile we have to understand the customers’ situation. If we can produce as equal as the forecast, the material flow would be smoothly. This will be in the process of supply chain management.”

The above statements imply to logistics concept as the concept of sharing resources among logistics providers and partners to minimize costs. It is a part of supply chain management and the chain begins at the origin of supply to the end customers. Both concepts benefit to the customers due to shorten production lead-time and cost minimization.

Main driving forces behind changes in logistics industry

“Policies and requirement of customer are the important factor in the logistics business. The logistician must know what they want and where.”

The influence of societal environment on logistics industry

Local Economic Forces

“The business growth depends on the market demand and the demand of products. In the period of economy recession, Schenker turnover did not decrease, but it increased.”

The above statements imply to the influence of economic, which is insignificant. It sounds like a little effect on the company, as result of more business activities.

Political – Legal Forces

“The transportation fee increases. The laws and regulation support the cost of manufacturers. The manufactures should be aware of safety i.e. they should not carry the cargo overweight. For the dangerous cargo, they and/or logistics outsourcing should maintain the machines and/or carry cargoes carefully. The logistics outsourcing should be aware of social and people as the manufactures do.”

The above statements imply that the influence of politic-legal on logistics outsourcing concerning the government in issuing any laws and regulations. Most laws and regulation support the enterprises or manufacturers only.

Sociocultural Forces

“Most companies in Thailand over-claim that they are logistics companies, even though their services are only some parts of logistics i.e. transportation, warehousing management, trucking, but it does not mean they provide the complete logistics service because we are following the steps from the more developed countries such as Singapore.”

The above statements imply that the influence of socioculture on logistics outsourcing concerning the misunderstanding of Thai people, which is assumed about logistics management by the logistics providers.

Technological Forces

“If the customer sometimes wants logistic software, Schenker can provide both of SAP and our software, which Schenker has developed to support the customer in order to smooth their jobs. If the customer wants SAP, Schenker can provide SAP to the customers. Yet, if the Schenker has only SAP, there will not differentiate from the customers. So, we will provide the efficient software for the customers. Our software is good software, which is developing to support logistics management.”

The above statements imply that the influence of technology on logistics outsourcing. The logistics outsourcing try to develop their software or other equipment to support the customers' needs. The advanced technology supports them to gain the benefit over the competitors as well as add their potentiality.

The influence of task environment on logistics industry

Government

“Although, the government gives more supports on investment; it does not mean that they support investment. The government should support the group of service providers. Privileges or rights that the provider should receive from Board of Investment, are still less. The government will aim to the manufactures. If the service providers build the warehouse, they will not have any privileges except the personal tax refund.”

The above statements imply that the influence of government on logistics outsourcing is privileges or promotion. These benefits will support the logistics outsourcing about their investment in assets.

Employees

“Schenker will train the employees to serve the customers, but it is late if everybody needs to train. The person, who can do best in this field, should have some experience in the manufacture or factory and have a service mind. This kind of business is a service business. Manufacture is an internal service, but we have to meet the external customers. Thus, the employees should have service minds. Most universities have logistics courses as a major in the faculty. At the Chulalongkorn University, there is a logistics major in engineering faculty. However, it is a small course in many faculties such as a qualitative management. At past, the logistics did not appear. The logistics have a basic in manufacture. It is not a purchasing only. It combines many activities such as planning, warehouse, and customer service. The employees do not know only one product, they should also know many products as

well as understand those products' natures. Moreover, the employees should have the analytic thinking with service mind.”

The above statements imply that basic knowledge and skills concerning logistics management are important. However, the company prepares the training courses as a guideline for new employees. The interviewee also recommended about logistics course in the university as to build the personnel to the market.

Competition

“Sharing the resource is one method to develop this business to be successful. Schenker does not think that other logistics outsourcing is the competitors. We think that they are the companies do the same business. Sometimes we have to contact them to share the resources such as warehouses or trucks. The market now is not full. The business depends on the customers and their businesses. They may continue the contract or end the contract. Although they will end the contract, the new customers are prompt to sign the contracts. It is like a business cycle. The business depends on the investment of the customers.”

The above statements imply to the cooperation among the logistics outsourcing to minimize costs. Competitors are like a business partnership.

Customers

“The customer base is from importers and exporter because the company provides the service of freight forwarder as basic. Some companies do not import, they may produce and distribute in Thailand i.e. Carrefour. They may not want the big

warehouse to keep stock, so they will outsource the logistics companies. So the logistics outsourcing will supply to them upon the requirement of customers. The logistics strategy will be adjusted to the customers' requirements. Moreover, in case they are not ready to perform their own logistics, they may contact the logistics outsourcing for a short period (1 – 2 years) to perform the logistics function, and they are developing their own logistics department.”

The above statements imply to the influence of customers on logistics business. Most of customers are importers and exporters, as well as the modern trade. Different requirements or wide varieties of industry have impact on the strategy or tactics in logistics management. Thus, the logistics outsourcing must understand the nature of business and their requirements in order to design them the best logistics solutions.

Business Consolidation

“Today, Schenker operates a worldwide logistics network in close proximity to its customers. Last year, Schenker and Seino merged their international and logistics activities in Japan. Thus, the customer base will be increased accordingly.”

The above statements imply to the influence of merge, which is one type of business consolidation. The company will enjoy with higher market share as well as network expansion.

Logistics Association

“Schenker has joined with TLAPS. In the past, there is clubs or associations established by the logistics service providers. There are no public sections involved or supported. In the association, there are meeting and seminars to exchange the information among the logistics service providers.”

The above statements imply to the importance of logistics association in providing the updated and interesting information for its members.

Trend of logistics outsourcing industry in Thailand

“From the view of outsiders, they think that this business grows rapidly. In fact, it does not grow rapidly. Its growth depends on the market demand and the demand of products. Sometimes the customers want to have accuracy in inventory, they will outsource the professions to look after directly and have a good warehousing management. Some customers want to enhance the speed in delivery. In next 5 – 7 years, the business will grow gradually following by market mechanism. Government should directly support logistics providers by playing an important role in this kind of business. There should be a logistics management course available in the universities in order to prepare the right personnel for the industry.”

The above statements imply to the growth of logistics industry in Thailand, which will grow gradually following by the market mechanism. They also represent the importance of government and university to support such growth.

5.1.2 Linfox Logistics (Thailand) Limited

“Linfox has been established in Thailand since 1986. At first, the company has aimed at transportation and distribution for TESCO LOTUS and modern trade business. The Head Office is in Australia with a service of total supply chain management, and has expanded to New Zealand and other countries in Asia. For Thailand, the company can provide service of total supply chain management because our industries are growing. It starts at transportation management and expands to warehousing management respectively. In the near future, there are several services, which those services are available in abroad and will be adjusted to match with the industries in Thailand. The main concept is distribution center and one stop service, which will provide the service by the requirement of customers. Last year, the company gained 20 – 30% profit comparing from logistical growth ratio of the company providing logistics services.”

“Currently, the company provides only transport and distribution for TESCO LOTUS because the purchasing systems of TESCO LOTUS, which have provided by the Head Office in abroad, are high efficiency. The service, which they want from the Partnership Company, is transportation and distribution management – the end of logistics management. In part of warehousing and inventory management, the foreign company such as TESCO LOTUS managing by European, they have the effective management system. Other customers that do not have the warehousing management system, Linfox will manage transportation, distribution management, and warehousing management and inventory management. Logistics will link all processes to be the same direction in order to minimize the highest cost.”

“Linfox always gives the best service to the customers’ especially total supply chain management. The strength point of the company is to provide the complete logistics services. At that point, the company can adjust our processes to have a highest efficiency and to reduce the working process. Finally, the company can minimize the management process to give the most benefits to the customers. Nowadays, no customer under Linfox account change to other logistics service providers and there are many companies contact to use the service by Linfox because the company has a firm management, that is, the company want to keep the customer base by providing the customer with most satisfaction. That is the important factor to have a reputation. The company does not emphasize on advertising. The customers will know the name of logistics service providers. The group of customer is not wide, so the advertising is unnecessary. But the company has to show the performance to the customers as proving that we can do as promised. If the customer would like to contact the logistics service providers, they will ask the business partner who have an experience with the logistics service providers as word – to – word. Thus, if they have the confidence in the logistics service provider, they will advise to their business partners.”

The above statements imply to the advantage of logistics process such as reducing working process and management process, as well as cost minimization.

“There is no statistics about the logistics. No one analyzes the market size, but there are some analyses by industry. It may be estimated that the logistics job is approximately 20% of all jobs in overview. Market size is estimated by the turnover in term of logistics management expenditures; it is about 5 – 10% of total turnover,

which is calculated from the turnover. Therefore, if we will analyze that the market size for consumer product is one thousand million, the market size for logistics will be hundred millions. It will vary by the type of industry, which has a different cost of logistics management. Meantime, the type of industry will classify market share as well because the logistics job is not big and the growth ration for each industry is not equal, that is each industry does not grow equally.”

Concept of Logistics and Supply Chain Management

“Logistics is a part of supply chain management. At the stage that we can manage all process under logistics responsibilities and connect to the production process. That is the way to manage the supply chain in overview. There are many groups of customers involved. That is one reason that the logistics business grows up and has high efficiency because the concept of logistics management is to share the resources. Due to high expenditures, the company should not do the business alone; it might waste their resources. If many companies cooperate together, the sharing resources will save the cost and enhance the industry standard efficiently as well as enhance the production standard of the country to be equal to the international standard. Sometimes, they may cooperate with their competitors such as using the same warehouse. It is possible because it has been occurred in foreign countries. The major purpose is to minimize cost in logistics management. To get highest efficiency, they should have the alliances, even though they are competitors but they compete in term of transaction only. In term of management to minimize cost, they have the same purpose or idea.”

The above statements imply to the concept of logistics as to share the resources with the purpose of cost minimization and industry standard. They also imply to the cooperation among logistics providers in form of alliance.

Main driving forces behind changes in logistics industry

“The customer is the major driving force behind changes in the logistics industry because of differentiation of requirements. The strategy will be adjusted upon those requirements. Although the customers are in the same industry, the strategies will be changed highly because of different organizational culture, personal, or organizational concept. Therefore, the way to serve each customer in same industry will be different depending of the experience or expertness of each logistician about the perspective against the problems of customer and the solution to solve those problems. The logisticians have to always learn and update themselves. Each industry has different requirements, and the method or management styles will be different. But logisticians must concentrate at the most efficiently management to the customers because each company has a different requirement and different standard. The strengths and weakness points of each company are different. Thus, the logisticians must understand first which point they will serve them. They have a different method to approach the customers. It does not like the way to sell the goods. The logistics job is the service job, which depends upon the personal experience. The logistician will do the proposal to offer to customers. Then, the customer will consider and make a decision that which logistics company offers the service matching with their requirements. It is a one alternative for customer’s consideration.”

The above statements imply to the influence of customer as the main driving force behind changes in the logistics industry. Differentiation of requirements, variety of industry, differentiation of organization has impact on logistics business. The logistician should be aware of the actual requirement of the customers. Obviously, the personal experience is important for this kind of job.

The influence of societal environment on logistics industry

Local Economic Forces

“The main variable depends on the cooperation among the customers or the industries, which have high competition. Example of the remarkable industries in the stock market, which have high competition, they will change their business practice before others because they get the pressure from abroad, thus the business change will occur in agricultural industry and food / beverage industry, which have a high turnover. The logistics jobs concern the turnover. Group of product with high turnover need management system, which is managed by the supply chain management because there are more mistakes, occurred by the human in management in the past. When we compare the job performance between the human and machine in doing the repeated jobs, we will find that the machine gets the better performance. So we need the computer to reduce the number of repeated job and to enhance speed, which the computer can do well in transferring the information. It is a consumption to reduce the mistake by the human. Meantime, it also reduces the number of employees. The employees will be developed to have high quality and the scope of responsibilities will be wider respectively. They will be trained in advanced management in order to manage the new systems.”

The above statements imply to the influence of growth of main industries such as consumer products or agricultural products. Those industries need logistics processes to enhance their productivities. Importance of computer technology is considered as well as to minimize the mistake occurring by human.

Political – Legal Forces

“The government should soften any regulations in checking the cargoes and tariffs. Furthermore, they should support the rights or benefits about the investment in service section to logistics services providers. When we talk about the government, we will think about the products or industries especially production. In fact, the service business is growing and there are more investors. Since the production base is moving from developed countries to developing countries, the growth ratio of the service business will be increasing in the future. In the developing countries, the service business is expanding because the investment of the service business is high, requires modern technology to support, and is rapidly growth ratio. So, in the near future, the government should add more support in this business by promoting logistics business i.e. benefits in investment, or developing logistics management including offering new form of SME.”

The above statements imply to the influence of government concerning the laws, rules, and regulations in import and export, as well as the privilege in investment, which will effect on the expansion of production based.

Technological Forces

“Logistics programs provide a variety of choices. Example of cost reduction enhances the logistics management to be popular. Even small companies realize this benefit; they arrange some fund to invest in software because they need the systematic management. Sometimes the need of logistics software does not exist, even though their suppliers or customers require it. If the company has not had a good management or information technology to support, it might be out of large organization network in the future.”

The above statements imply to the influence of information technology and computer technology to enhance the logistics management efficiently.

Sociocultural Forces

“There is a trend that the number of Thai companies using service of logistics outsourcing is higher in order to achieve the highest proficiency in management. In the past, there were not more logistics service providers available in Thailand. The firms have to make the investment i.e. trucking. Now there are more logistics service providers available, the firms have choices and do not need to make the investment. The logistics service providers have high rivalry to gain higher efficiency. Those firms cannot perform better than logistics service providers because they have the expertness in this field directly and logistics are also their core business. That is a reason that many companies choose outsourcing to perform logistics.”

The above statements imply to attitude of Thai people toward using the logistics outsourcing. Due to the higher number of logistics service providers and the

advanced logistics management, most of Thai companies decide to use outsourcing to perform their logistics activities.

The influence of task environment on logistics industry

Government

“Government involves in infrastructure because the logistics concern the transportation, both of domestic and international networks. Example of the business agreement with Malaysia, the logistics will expand to Malaysia in the future. Example of main road from Bangkok to 12 Panna via Chaingrai, this enhances the connection of logistics network from Bangkok to the North of country and continue to China. It is a future trend in expanding the business to frontiers. Example of agreement with India in cooperation about the route from Mae-Sai via Myanmar to India, or in case of Vietnam and Cambodia, there is transportation across countries.”

The above statements imply to the importance of government concerning the infrastructure network. It is a part of government policies and action plans. The infrastructure also will enhance logistics network covering the countrywide.

Other logistics providers

“Now freight forwarding business is growing slowly because it is the old business. Since all kinds of logistics are the service business and are expanding to cover all scope of logistics, and the customer can use the service from one company. If the freight forwarding agent will expand their service to cover others or transportation companies will cover scope of freight forwarding service, the trend of

service business will cover total supply chain management. That is the best concept – cover all processes as total supply chain management.”

The above statements imply to the growth of logistics providers. They are expanding their logistics activities in order to cover total supply chain management.

Employees

“Most employees have some experience in modern logistics management. That means, they have the basic of warehousing management and they will be provided new advanced management. They can learn and develop their ideas and ability to get more responsibilities. That is a requirement of management from the customers. Example of TESCO LOTUS, they will have many terms and conditions, which force the suppliers to keep the quality and standard as equal to international standard.”

The above statements imply to the importance of employees’ experiences or skills especially warehousing management.

Competition

“At the present, there are few competitions because this kind of business requires the profession in the field. For the Thai companies, there are few companies providing the complete logistics services. Most are freight forwarding companies or transportation companies, but they use the name of logistics, which they are not complete logistics services companies. It is a step in the near future to become the complete logistics business. That means a complete service, the customer contact at

one point as one stop service, which they can offer all kind of logistics services. The company needs to invest i.e. hiring more employees because each company has an expert in each kind of logistics management. So, the way to building the network of sharing resources is the person who has an expert in one field, he should respond that job; but, if he cannot perform the job well, he can outsource with the alliances. The efficiency will emphasize at the personal expertness, which is different but cooperate together.”

The above statements imply to the development of freight forwarding agents, transportation provider or warehousing provider to provide complete logistics services. The competition is not significant. Due to the concept of sharing resources, the logistics outsourcing will cooperate each other as alliances.

“In term of logistics, Linfox does not compete with others. If we considers at competition form, it is the competition in term of supply chain management. That means, the company (such as Unilever) using the service of Linfox, they try to build alliance in form of total supply chain to compete with their competitors. It seems like a competition via the supply chain management, which is the networks of Unilever, with P&G, which build their networks to seek the different strength. They compete in form of transaction. So, the logistics is the service provider. They do not use the logistics to compete with others. They use the logistics to strengthen their position to compete with others. So, the logistics is like a supporting division.”

The above statements imply to the competition among giant companies with logistics and supply chain management. They also imply to logistics alliances, which is the networks or partners to strengthen over the others.

Customers

“At the beginning period, Linfox will look at the customer’s requirement as the major. Most have the requirement or know the actual requirement. They are the customers who have seen the model of management from the aboard. For the group of consumer products, food and beverage, which have a high competition, they will get the request by the customers in foreign countries. In case of manufacturer in Thailand, there are many requirements such as production standard, quality control, and transportation standard/mode of transportation. When the customers in foreign countries have the actual terms and conditions in exporting to their countries, the Thai manufacturers will be forced automatically to develop the process of logistics management to be more advanced, thus the Thai manufacturers will find the logistics outsourcing providers, who provide the complete logistics services to support them. In point of the customers, they must know their actual requirements. The leader is the food industry, and the followers are agricultural industry and manufacturers. They need the advanced management involved to get the highest efficiency.”

The above statements imply to the business practice, which the customers have got the concept of logistics management from aboard, as well as the commitment with business partnerships concerning the standard of production and transportation. They aim at their core competency and leave logistics activities with the logistics professionals.

“Nowadays, Linfox will select the group of customers, who need the expertness in logistics management, as well as plan the tactic to approach those customers to be the united companies in logistics management. The company emphasizes on total supply chain management to achieve highest proficiency. Currently, the company is providing the customers with complete logistics management. This business needs to disclose the information among customers and service providers to earn their strengths and weaknesses, and then the customers will compare with industry standard to know their position in the industry. They can develop their abilities to achieve the industry standard. Absolutely, the customer will gain more growth rate and can complete with others.”

Business Consolidation

“Linfox's acquisition of Mayne Logistics and Armaguard is effective on February 1st 2003. The synergies for Linfox are significant with both companies operating in similar markets. Also, Mayne's work is primarily focused on the transport and warehousing of fast moving consumer goods. Linfox focuses on distribution services to companies in four main areas – retailers, beverage, building and petroleum. The acquisition of the Mayne businesses will allow consolidation of this process. Linfox has a heavy presence in the Asia Pacific region with operations in Hong Kong, Thailand, Malaysia and New Zealand. The Mayne acquisition will increase Linfox's presence in these locations, with the addition of China and Indonesia.”

The above statements imply to the acquisition, which is one kind of business consolidation. This practice benefits to the company in expansion of customer based, the experienced employees, and the efficient technology.

“There are a lot of companies set up by Thai investors and they can do well in this business. If foreign investors set up the companies, they will grow brightly because they have got the successful models from the parent companies in abroad. Due to the worldwide reputation, they can approach the customers easily. So, if they have a joint venture with the foreign companies, it will be easier in doing the logistics business. Thai companies have a problem about the reputation because their credits are still in the lower level.”

The above statements imply to joint venture with foreign companies. With their reputations or advanced technology, the new logistics outsourcing can easily to approach the customers.

Logistics Association

“The Logistics concept is still new for Thai people. There are no more professionals in associations. We have invited the experts from abroad to train or give the advice about the logistics management. Linfox have provided the technician as the company representative to other association i.e. Thai commerce association in order to be a guest speaker about logistics seminars.”

The above statements imply to the importance of logistics association. The advantage is to update the interesting logistics information from the experts.

Trend of logistics outsourcing industry

“The number of Thai companies using service of logistics outsourcing is higher in order to achieve the highest proficiency in management. Logistics outsourcings can survive in this industry, but they need to have the expertise or learn from the experts. This will be linked to the universities in Thailand. Currently, there is the introduction of modern logistics course by leading universities in Thailand. It is very important because there will be many personnel with logistics knowledge to the industry in order to form and strengthen their team.”

“Obviously, all of freight forwarding agents, warehousing providers, and trucking, which are the part of logistics, are going to become the complete logistics and the supply chain management. All segments should be supported each others because the management need personal from all divisions to have a brainstorming in order to find the best solutions with highest benefits. This business does not require high investment fund. Yet, the most important point is the investment in human development because this business sells the idea to the customers.”

The above statements imply to trend of using logistics outsourcing in Thailand, which will be increasing in the future. However, they need the people with basic understanding of logistics and skills to the market as most freight forwarding agents, warehousing provider, and transportation providers are developing to provide complete logistics services.

5.1.3 KPN-ST Logistics Co., Ltd.

KPN-ST Logistics is a joint-venture company between Singapore Technologies Logistics Pte Ltd (STL) and KPN. The company was established in April 1997 to meet the growing demand for integrated and responsive logistics services in Thailand. The Singapore Technologies Logistics Pte Ltd. is a subsidiary company of Sambawand Corporation Industries whereas The Thai Warehouse and Narong Transport Company are one of KPN assets and both companies have long history in the logistics business, 38 and 12 years respectively. They have positioned themselves as an integrated logistics center, providing our customers with warehouse management, inventory management, value-added services, transportation and distribution services, and Integrated Logistics Information System support and freight management.

“The company had the growth of 30% in income last year (2002). In the year 2003, the company will keep the momentum and will have new and exiting projects to enhance the company income, portfolio and their expertise. Even though the future is bright, the company will keep working hard to provide the best services to their customers and aims to be Good solution provider. In the early year of the company existence, the company had only one customer, Yamaha. The company expanded to 20 customers in the later year and 90% of their customers seeks warehouse management and distribution. Only a hand full customer only seeks either warehouse management or distribution alone.”

Concept of Logistics and Supply Chain Management

"Logistics management includes the design and administration of systems to control the flow of material, work in process, and finished inventory to support business unit strategy".

"Supply chain management is the systematic, strategic co-ordination of the traditional business functions within a particular company and across companies within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole. The key of modern supply chain management is to have up to date information for decision-making and prompt (real time) and this is what the company provide to their customers. The company system can handle large data in put effectively and promptly, flexible for immediate need of reports for the customers as well as the system can link directly to the customer system so exchange of information can be possible at all time."

The above statements imply to the concept of logistics management and supply chain management. Logistics is significantly a part of supply chain management and support business unit strategy.

Main driving forces behind changes in logistics industry

"The main driving forces are human resources, thought process, government support, technology, and integration among and between the supply chains."

The influence of societal environment on logistics industry

Local Economic Forces

“It is on the stage of growth. The market is just booming in Thailand. Since 1997, many companies have talked about logistics, yet, nobody discuss about supply chain management. The logistics practices in Thailand have been in the period of depression of Thai bath, which many companies try to save cost. The contributions of logistics to the economy are operating cost optimization and workforces specification.”

The above statements imply to the contribution of logistics to economy; operating cost optimization and workforces specification.

Sociocultural Forces

“Most of Thai people think logistics is the same as transport and distribution. They understand that logistics is just only the in-land transport; they do not know the whole process of logistics clearly.”

The above statements imply to the understanding of Thai people toward to logistics concepts. Most of Thai people misunderstand the actual process.

Technological forces

“Information technology has the effect on logistics management. It will be the competitive advantage if the infrastructure is properly laid down: shorter order cycle time, leaner manpower, leaner or zero stock of raw material, work in process, finished goods. The company aims to develop itself to be the center of the complete logistics

service, providing the warehouse management, distribution, inventory management and others by using the up to date software. The company is developing its expertise to a more value added services such as tracking system, shipping, packing, purchasing and material controls. The online computer network will enable the company to link the Group Head Office to the Corporate Head Office to ensure that they have complete control of their service and the customers can have up to date information through the computer network. The customers will have a complete trust in the services once they have a clear vision of the logistics process carried out by the company.”

The above statements imply to the influence of information technology. It is a supporting tool for working systems with the advantage of shortens order cycle and manpower.

The influence of task environment on logistics industry

Government

“Actually, the effect of present government on the logistics business is their policies and practices. The policies are ideal, and practice is lousy and money talks. There is no policies integration to eliminate redundant documentation process. There is no reliable and up-to-dated monitoring tool to get the result for better and continuous improvement as well. Government vision and action plan to fulfill that vision with measurement to track back for the outcome evaluation to continuously improve the completeness of logistics in Thailand.”

The above statements imply to the influence of government policies and action plans. The policies are unreliable. The government should find better solutions.

Other logistics providers

“Other related logistics service providers (Freight forwarder, Warehousing, trucking, etc) will have the substantial impact if all of them (stakeholders) interchange the data from end-to-end, then the result will be better planning, better cost, time and resources optimization.”

The above statements imply to the related logistics providers as a substantial supplier. They can develop themselves to more professionalism to capture more market share.

Employees

“Development of human resource is important for this industry because sometimes the market wants the personnel in a particular field, but they are not available for that position. It is similar to having the demand more than supply. The universities should provide graduates in each field to support the industries.”

The above statements imply to the influence of employees. The company wants the staffs with basic understanding of logistic. The universities are major source of supply for the right persons to the market.

Competition

“The competition among logistics services providers is strategic network and the customized logistics solution suitable for each customer organization to pay less total logistics cost for more service, value and better operation efficiency. The company competes with others by our business strategy with focus on the core competencies that KPN-ST is doing well.”

The above statements imply to the influence of competitors. The logistics outsourcing must find out the best solutions to the customers with the purpose of cost minimization.

Customers

“The customers require total cost optimization with maximal value contribution from logistics service providers. The company had the growth of 30% in income last year (2002) due to the support from their customers. These customers have foreseen the needs in the logistics service and build the trust in the company expertise in the supply chain services.”

The above statements imply to the influence of customers. The growth ratio of company depends upon the support from the customers. Reliability and experience are essential in negotiation with the customers.

Business Consolidation

“In the early period of the company existence, the company had only one customer, Yamaha. After the joint venture, the company expanded to 20 customers in

the later years and 90% of their customers seeks warehouse management and distribution. Only a hand full customer only seeks either warehouse management or distribution alone.”

The above statements imply to joint venture, which is one of business consolidation. It enhances the company’s strengths with the customers based.

Logistics Alliances

“There are both of positives and negative sides. Positive side is productivity and efficiency improvement. Negative side is lower bargaining power for the customers if there are only big logistics alliances in the market. Then, smaller logistics providers must also try to find the specific niche to be able to survive in the market (similar to retail business in Thailand).”

The above statements imply to the importance of logistic alliances. It is a source of productivity and efficiency for the customers in case of lack of networks by the logistics suppliers.

Logistics Association

“The related associations can support logistics industry in Thailand because there is no smooth inter coordination at ground level between various government sectors to facilitate the work process for private sector.”

The above statements imply to the importance of logistics association. Due to lack of coordination among public sectors, the association will be the center of information for the logisticians.

Trend of logistics outsourcing industry

“The goal of the company is to improve ourselves being at the center position of complete logistics management including warehouse management, inventory management through information technology (computer system), Thailand country-wide distribution, and so on. Besides, we are in phase of developing the value-added transportation such as parcel tracking system, big bulk, labeling and repackaging, purchasing and material planning. In the future, it will become complete logistics and supply chain management. Many companies will cooperate with their alliances in procurement and transportation. Moreover, another future direction on logistics is green logistics – environmentally friendly concept with continuous cost reduction and value addition to the end-customers.”

The above statements imply to trend of logistics outsourcing industry in Thailand. The potential logistics companies are improving themselves to cover all scopes of logistics activities and supply chain management. Due to ISO 14000, many companies realize on environmental concern such as reverse logistics or green logistics. They will be the interesting topic for logistics industry in Thailand in the near future.

5.2 The comparison of interview results by variables

Due to differentiation of company background and business practices, the comparison of interview results by variables are shown as below:



Table 5.1 The comparison of interview results by Meaning of Logistics Concept

Logistics Outsourcing	Meaning of Logistics Concept		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	It is the resources sharing among logistics providers to reduce cost. Example of location, a firm may have service in one area, yet the customer requires in another area. Thus, the logistics providers may contract others as sub-contract.	The logistics concept is the concept of sharing resources to minimize costs. It is also the cooperation among the logistics providers, so they should exchange or share their information among logistics providers because if one has inquiry and cannot provide effectively, they may contact others as subcontract.	Logistics management concerns the design and administration of systems to control the flow of material, work in process, and finished inventory to support business unit strategy as well as enhance the industry standard.
Linfox Logistics (Thailand) Ltd.	Logistics must link all process (steps) in same direction in order to minimize costs and enhance the industry standard. It is the concept of sharing resources. The concept is supported not only manufacturer, but also logistics providers. Due to different proficiency if they have the network of sharing resources, it will support them in case of unavailability of professionals because they may outsource other logistics providers to manage to lead highest efficiency. It is like cooperation among the logistics providers.	It can help the company to save their costs and can fulfill their customers' requirements.	
KPN-ST Logistics Co., Ltd.	Logistics management includes the design and administration of systems to control the flow of material, work in process, and finished inventory to support business unit strategy.		

Source: Original implied from interview results

Table 5.2 The comparison of interview results by Meaning of Supply Chain Management

Logistics Outsourcing	Meaning of Supply Chain Management		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	It starts from planning, purchasing, warehousing, and transportation and customer service. It seems some firms are in one department, meantime, some firms separate into sections.	Supply chain management covers all processes starting the point of origin to the point of consumption.	Supply chain management emphasizes for the purpose of improving the long-term performance
Linfox Logistics (Thailand) Ltd.	In overview, logistics is a part of supply chain management. At the stage, which we can manage and link all processes of logistics including production, it is called as the supply chain management.		
KPN-ST Logistics Co., Ltd.	Supply chain management is the systematic, strategic co-ordination of the tradition business functions within a particular company and across companies within the supply chain, for the purpose of improving the long-term performance of the individual companies and the supply chain as a whole.		

Source: Original implied from interview results

Table 5.3 The comparison of interview results by Local Economic Forces

Logistics Outsourcing	Local Economic Forces		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	The economy has an effect on logistics business. Even though in the period of depression, the company had been passed that situation and gained some profit.	The industry growth and Expansion of production based effect on the growth of logistics business.	
Linfox Logistics (Thailand) Ltd.	In SET, there are 15 – 20 groups of industry and there will be 3 – 4 groups will be rivalry. Actually, those will often change because of competition in abroad. Consumer products, agricultural product, industrial products, food and beverage products, those industries have high turnover. Logistics is more concerned about the turnover. If any group of industry have high turnover, absolutely they will perform their jobs by supply chain management.		
KPN-ST Logistics Co., Ltd.	It is on the stage of growth. The market is just booming in Thailand. Since 1997, many companies have talked about logistics, yet, nobody discuss about supply chain management. The logistics practices in Thailand have been in the period of depression of Thai bath, which many companies try to save cost. The contributions of logistics to the economy are operating cost optimization and workforces specification		

Source: Original implied from interview results

Table 5.9 The comparison of interview results by Employees

Logistics Outsourcing	Employees		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Logistics people should have the basic of purchasing, planning, warehouse, customer service and product. It is hard for the firm to train their staffs to serve the customer in a short period. If they have the experience in manufacturing management and service mind, it will be benefit to the company because logistics is the service business. In addition, they should have the ability in case analysis.	In general, the logistics companies prefer to hire the employees, who understand the basic of logistics management and some experience in this field. For the management team, the people should have analytic thinking because logistics is a job, which sells the idea or creativity to support the organization management effectively to compete with other competitors. However, the companies will provide the training program to their employees to	Besides the experience in logistics field, some logistics companies prefer the employees to have service mind because they realize that the logistics is one kind of service business.
Linfox Logistics (Thailand) Ltd.	Most employees have experience in modern logistics management. That means, they have basic knowledge of warehousing management and have been trained in new technologies. They are able to learn new technologies and develop their abilities to response in next level.	update their knowledge about the modern technology as well as improve their abilities in working to grow up in the further positions as career path.	
KPN-ST Logistics Co., Ltd.	Most employees should have the basic understand of logistics management as well as some experience in this field. For the executive level, the employees should have analytic thinking and common sense. Meanwhile, the employee for non-executive level should have good coordination. Other qualifications such as high self-motivated or hard working are required in all levels.		

Source: Original implied from interview results

Table 5.4 The comparison of interview results by Technological Forces

Logistics Outsourcing	Technological Forces		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Schenker offer customer SAP and also has developed their own system to serve the customers, whether they use SAP or otherwise. The information service cover order processing from the sender to the recipient via a uniform information and communication system in order to smooth handling and information flows.	Information technology is a tool supporting working systems in organizations especially logistics management. It enhances the company standard to equal to the business partners or competitors. It also enhances accuracy and speed in management to more smooth as well as reduce the costs.	The software programs among logistics service providers are different. No one can specify which one is better because of the using purposes. The logistic service providers try to develop their program to serve the customers best and achieve their goals.
Linfox (Thailand) Ltd.	IT enhances speed and reduces costs in management. Logistics programs provide a variety of choices. Example of cost reduction enhances the logistics management to be popular. Even small companies realize this benefit; they arrange some fund to invest in software because they need the systematic management. Sometimes the need of logistics software does not exist, but their suppliers or customers require it. If the company has not had a good management or information technology to support, it might be out of large organization network in the future.		
KPN-ST Logistics Co., Ltd.	Information technology will be competitive advantage if the IT infrastructure is properly laid down: shorter order cycle time, leaner manpower, learner or zero stock of raw material / work in process / finished goods.		

Source: Original implied from interview results

Table 5.5 The comparison of interview results by Sociocultural Forces

Logistics Outsourcing	Sociocultural Forces		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Thais assume only freight forwarding, transportation, or warehouse is a logistics provider, even though their businesses are a part of logistics.	The outstanding process of logistic management is movement of goods. Most of Thai people assume that freight forwarders are the representatives of international logistics providers, meanwhile transportation provider, or warehousing provider are the representatives of domestic logistics providers.	The number of logistics service providers has been increasing, and furthermore there are many freight forwarders updating themselves to be the logistics service providers. The companies have more choices in using logistics service providers in order to save their investment funds in assets i.e. warehouse or trucks.
Linfox Logistics (Thailand) Ltd.	More Thai companies use TPLs to get the highest proficiency in management. Since there was no TPLs, Thai people must invest by their own fund i.e. trucking. At present, there are more TPLs and the companies have more choices; therefore, they do not invest with their funds as supply-demand. Each logistics supplier has competitive management to enhance the level of service effectively. When the companies cannot perform their logistics management equal to TPLs. The companies should leave logistics with TPLs and aim at their core activities.		
KPN-ST Logistics Co., Ltd.	Most of Thai people think logistics is the same as transportation and distribution. They also understand the logistics is just only the in-land transport; they do not know the whole process of logistics clearly.		

Source: Original implied from interview results

Table 5.6 The comparison of interview results by Political – Legal Forces

Logistics Outsourcing	Political - Legal Forces		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Laws to support the manufactures: The manufactures should be aware of safety i.e. they should not carry the cargo overweight. For the DG cargo, they (or TPL) should maintain the machine or carry cargo carefully.	The government should lighten some regulations or laws concerning the logistics business. - Transportation: the regulations about time allowed for heavy vehicles or the weight carry - Warehouse management: the safety regulation - Import/Export: Tariff rate	Many companies think that laws and regulations have no more effect on this business because there are many public officers taking the bribes, which they can avoid some regulations in some occasions.
Linfox Logistics (Thailand) Ltd.	The government should lighten the regulations in checking cargoes including tariff rate.		
KPN-ST Logistics Co., Ltd.	Policies are ideal but in practice, it is not realistic and corruption involved. No policies integration to eliminate redundant documentation process. There are no reliable and up-to-date monitoring tools to get the result for better and continuous improvement. There are many corruption in Thailand, so Laws and/or regulations have no more effects on logistics business		

Source: Original implied from interview results

Table 5.7 The comparison of interview results by Government

Logistics Outsourcing	Government		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Besides investors, Government should support group of service providers i.e. benefits or rights. Now, service providers hardly get any rights or benefits from BOI comparing to investors (manufacturers). Sometimes TPL build warehouse, they do not have refund from the government except personal income tax. Ministry of Energy should subsidize the price of oil for transportation	The government visions sound too bright in the view of investors. Most of their policies and actions support investment in industrial sectors. When the industrial sectors have expended their production based from urban to rural, logistics business will support the expansion effectively. Thus, the government should promote this type of business because logistics management is an essential process to support the business growth. The government can support by giving	The outstanding idea of the logistics concerns the infrastructure network. If we have more transportation routing, we can expand market base covering whole nation. Furthermore, if the government offers new investment forms to the investor as well as gives them more rights and benefits. Investment ration in country will be increasing, economy will grow and investment from aboard will be increasing respectively. These impact on the growth of logistics business.
Linfox Logistics (Thailand) Ltd.	Most of logistics services involve infrastructures including domestic and international network. Government should support 3PLs by giving a benefit as to promote logistics management i.e. investment. Due to the production bases, which move from developed countries to developing countries, the growth ratio of the service business will be increasing in the future. In the developing countries, the service business is expanding because the investment of the service business is high, requires modern technology to support, and is rapidly growth ratio. So, in the near future, the government should add more support in this business by promoting logistics business i.e. benefits in investment, or developing logistics management including offering new forms of SME.	the rights or benefits as one type of investment i.e. investment refund.	
KPN-ST Logistics Co., Ltd.	Government vision and action plan to fulfill that vision with measurement to track back for the outcome evaluation to continuously improve the completeness of logistics in Thailand.		

Source: Original implied from interview results

Table 5.8 The comparison of interview results by Other Logistics Providers

Logistics Outsourcing	Other logistics providers (Freight forwarders, Warehousing providers, or transportation providers)		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Other related logistics providers such as Freight forwarder, warehousing providers, transportation providers, or others, are parts of logistics industry. Sometimes, the company has to make a connection with them in order to join the assets i.e. warehouse or trucks. It is like the business cooperation.	Freight forwarding agents, warehousing providers, transportation providers, or other related logistics providers are segments under logistics systems. Due to the customers' preference in one-stop service, they may contact one logistics service provider to supply their best logistics solutions. If the logistics service providers have not sufficient asset or equipment, they may contact other logistics providers the share resources. So, it seems the business cooperation.	
Linfox Logistics (Thailand) Ltd.	Since the freight forwarding business has been in Thailand for long time, the growth of the business will not grow as fast. Most of them are expanding their service to cover scope of total supply chain management because the customer can contact only one company as one-stop service. However, the freight forwarders, warehousing agents, or trucking agent, they are part of logistics management. The logistics company will search people from all sections to have a brainstorming to find the solution with highest benefit.		
KPN-ST Logistics Co., Ltd.	They will have the substantial impact if all stakeholders interchange the data from end-to-end, then the result will be better planning, better cost, time and resource optimization.		

Source: Original implied from interview results

Table 5.10 The comparison of interview results by Competitors

Logistics outsourcing	Competitors		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Due to the concept of sharing resources, Schenker does not think that other logistics service providers are competitors. They think those are the service providers who do the same business. Sometimes, Schenker have to contact and cooperate with them, so they do.	The competition among logistics service providers has not appeared obviously. If we consider in case of sub-segments of logistics (FF, TT, or WH), there are some competitions occurred. Since each customer has different requirement and inquire to the logistics service provide to have a bid as well as presenting the strategy and techniques. The strategic network and logistics solution will be varies upon those requirements.	The concept of logistics and SCM, they emphasize on sharing resources to maximize efficiency. Sometimes, the logistics service providers might contact others to share the asset or equipment. It is a way to save their costs if they have more demand for a short period. The outstanding competitions occur in main industries, which use logistics service. They want to be the leader in that industry, thus they want terms, which can support them to compete with others in the market.
Linfox Logistics (Thailand) Ltd.	The rivalry is not remarkable in this business in Thailand because it depends on the experience of logisticians. It is not competition in logistics business. It is like the competition in SCM; that is, the firm using service of Linfox competes with other using service of logistics providers. Those firms will find the united front in form of total supply chain management to strengthen. It is the competition in term of business. Therefore, the logistics providers are the tools to support those firms in competing with others.		
KPN-ST Logistics Co., Ltd.	The company does not mean to complete with local company, but the customer trust in our services because we have firm structure and standard of working system. The competitions among logistics service provider are strategic network and the customized logistics solution suitable for each customer organization to pay less total logistics cost for more service / value / better operation efficiency. So, the competition among logistics service providers is not remarkable in overview.		

Source: Original implied from interview results

Table 5.11 The comparison of interview results by Customers

Logistics Outsourcing	Customers		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	The logistics service providers should build the confidence of the customers because this kind of business depends on experience and working style, they must provide service as per customers' request. In addition, most customers prefer one-stop shopping. Sometimes, we have offered them and lost the bid because the customer selected other provider because of lower price. However, they returned to us after that contract was over as they do not satisfied that services. The company is keenly aware of the debt of gratitude to the customers for their encouragement and confidence.	The impact of customers on logistics business is the different requirements in each company. The logistics service providers have to find the best logistics solutions to offer them. Thus, the experience will support logisticians in finding the suitable techniques or strategy. The reputation and confidence in logistics service providers are another factor that the customers use in choosing the services.	The logistics service providers will find sometimes that the customer select the logistics service providers by considering at price. The customers would like to save cost only by ignoring some factors, which affect to them later.
Linfox Logistics (Thailand) Ltd.	Linfox will acknowledge the customers' requirement. The customers can be divided into 2 categories; the customers who have the requirement and the customers who know the actual requirement. In case of the customers knowing the actual requirements, they have found from the model in abroad. The foreign importers will set the production standard, quality control and transportation standard to Thai exporters. Thai exporters will find logistics providers to serve them. They will know the actual requirements. Especially consumer products (both of agricultural and industrial goods), they should have modern technology involved with high efficiency.		
KPN-ST Logistics Co., Ltd.	The customers require total cost optimization with maximal value contribution from logistics providers. We have provided the warehouse management and distribution to over 90% of total customers. There are a few customers using only warehouse management or transportation.		

Source: Original implied from interview results

Table 5.12 The comparison of interview results by Business Consolidation

Logistics Outsourcing	Business Consolidation		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Part of the Stinnes Group of Logistics companies, Schenker Thai was founded in 1974 by seven shareholders. The company was established in Austria for more than 130 years ago. Today, Schenker operates a worldwide logistics network. The company expands services covering all continents as a worldwide network. Since last year, Schenker and Seino have merged their international business and logistics activities in Japan. It effects on the business in Thailand as a tool in approach Japanese customers.	Most logistics companies in Thailand are held between foreign and Thai investors in form of subsidiary and joint venture. The foreign investors would like to provide their customers with global links to every country worldwide through their representatives. They will share and train their advance technology and modern management to their subsidiaries or partners in order to serve the customers. Moreover, they will seek the business alliances to support their network and to increase the customer based over the world.	Each logistics companies have the different business background, as this case, Schenker is based on freight forwarders business, Linfox is based on Transportation, and KPN-ST is based on warehouse management, thus their decision in asset investment will be different depending upon their focuses. Besides, the shareholder is the key factor in making decision to merge the business with others in order to increase their turnover.
Linfox Logistics (Thailand) Ltd.	Linfox Thailand was established in 1993 between Linfox Transport Australia and individual investors from Thailand. Linfox today took over the Mayne Logisites and Armuguard business since February 2003. Linfox has a heavy presence in the Asia Pacific region with operations in Hong Kong, Thailand, Malaysia and New Zealand. The Mayne acquisition will increase Linfox's presence in these locations, with the addition of China and Indonesia. Such case of foreign investment, they will provide high technology and modern management to serve customers here.		
KPN-ST Logistics Co., Ltd.	The company is a joint venture between Singapore and Thai investors. It is a joint venture between ST- Logistics Singapore and KPN group in Thailand. Before 1997, the company has only one customer. After the joint venture, there are more than 20 customers. Based on current situation, the company is planning to invest into a modern warehouse incorporating the latest technology and state-of-art in order to meet the customer's requirements.		

Source: Original implied from interview results

Table 5.13 The comparison of interview results by Logistics Associations

Logistics Outsourcing	Logistics Associations		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	In past, there are associations established by logistics service providers and there is no public sector supported or involved in management of association. Most members will discuss and exchange the information to each other in association. * TLAPS	There are many logistic associations, which have been established by private sectors, to discuss or distribute the new logistic information to the logistics providers in Thailand. Sometimes, there are seminars or training programs offered to the member or outsiders i.e. manufacturers or interested people. However, there are no public sectors involved in these associations. It will facilitate the work process.	Each association has invited the professional from abroad to advise latest logistics information and technology to the members. Nowadays, we become motivated in logistics management both of industrial and service sectors, the leading universities have provided logistics course as an alternative to the undergraduates. It is very interesting programs because the requirements of people with basic knowledge of logistics is increasing.
Linfox Logistics (Thailand) Ltd.	The Logistics concept is still new for Thai people. There are no more professionals in associations. We have invited the experts from abroad to train or give the advice about the logistics management. Currently, there is the introduction of modern logistics course by leading universities in Thailand. It is very important because there will be many personnel with logistics knowledge to the industry. * PSCMT		
KPN-ST Logistics Co., Ltd.	No smooth inter-coordination at ground level between various public sectors to facilitate the work process for private sector. Sometimes, there are seminars to obtain latest information * TLAPS		

Source: Original implied from interview results

Table 5.14 The comparison of interview results by Future Direction of Logistics Outsourcing

Logistics Outsourcing	Future Direction of Logistics Outsourcing		
	Interview Result	Similarity	Differentiation
Schenker Thai Ltd.	Outsiders assume that this type of business is growing rapidly. In fact, it is not like that as depending on demand of market and products. Most Schenker customers do not change to other logistics providers, but they develop their own logistics needs. In next 5 – 7 years, the business will grow gradually following market mechanism. Government should directly support logistics providers by playing an important role in this kind of business. There should be a logistics management course available in the universities in order to prepare the right personnel for the industry.	<ul style="list-style-type: none"> The number of Thai companies using logistics outsourcing will be increased. The expansion of logistics industry 	<ul style="list-style-type: none"> Environmental Concern i.e. Green Logistics
Linfox Logistics (Thailand) Ltd.	There is a trend that the number of Thai companies using service of logistics providers is higher in order to achieve the highest proficiency in management. Now there are more logistics providers available, the firms have choices and do not need to make the investment. They have high rivalry to gain higher efficiency. This business needs to disclose the information between customer and service provider to earn their strength and weakness, and then the customer will compare with industry standard to know their position in the industry. They can develop their abilities to achieve the industry standard. Absolutely, the customer will gain more growth rate and can complete with others.		
KPN-ST Logistics Co., Ltd.	In the future, it will become complete logistics and supply chain management. Many companies will cooperate with their alliances in procurement and transportation. Moreover, Green Logistics (environmentally friendly concept with continuous cost reduction and value addition to end-customers)		

Source: Original implied from interview results

5.3 Conclusion of Case Study

The interviews are conducted to examine whether there are many driving forces behind the logistics outsourcing in Thailand and their influences. The researcher uses the interview method and the researcher considers as an instrument to gather the data. The respondents are three particular logistics outsourcings that provide the complete logistics services. The comparisons between literature review and result of interview are shown as follows:

Concept of Logistics and Supply Chain Management

Based on literature review and interview with the experts regarding the concept of logistics and supply chain management, logistics is a concept of sharing resource to minimize costs. It is a critical part of supply chain management. Supply chain management is involved with integrating logistics process for the purpose of improving the long-term performance. The coordination and integration of the logistics systems of all the organizations in a supply chain are necessary requirements for successful management for the supply chain.

Societal Environment

Societal environment includes general forces that do not directly touch on the short-run activities of the organization but that can influence its long-run decisions. They are economic forces, technological forces, political forces, and sociocultural forces.

Table 5.15 The comparison of societal environment based on literature review and result of interview

Variables	Literature reviews	Results of Interview
Economy	<ul style="list-style-type: none"> • Expansion of economy • Growth in international trade 	<ul style="list-style-type: none"> • The industry growth • Expansion of production based
Technology	<ul style="list-style-type: none"> • Communication and computer technology • E-commerce 	<ul style="list-style-type: none"> • Competitive advantage • Software development • Smooth handling and information flows
Socioculture	<ul style="list-style-type: none"> • Value, learning, perception and attitudes • Educational level, professional and affiliation 	<ul style="list-style-type: none"> • Misunderstanding in concept of logistics and process • Increasing in the numbers of logistic providers
Politic – Legal	<ul style="list-style-type: none"> • Employment law • Transportation regulation 	<ul style="list-style-type: none"> • Laws, rules and regulations to support the manufactures as well as the logistics services providers

Source: Original implied from literature reviews and interview results

Table 5.15 shows the variables in societal environment, which have influence on the changes in logistics industry. Firstly, trends in the economic part of the societal environment can have an obvious impact on business activities. Expansion of economy and growth in international trade are important forces behind the changes in the logistics industry worldwide. Multinational companies need logistics outsourcing

to support their logistics activities, while they concentrate on their core business. Thailand is similar to other countries. The industrial growth and expansion in production based from urban to rural have influences on logistics industry as increasing in the using of logistics outsourcing to support and enhance their activities to equal to international standards.

Changes in the technological part of the societal environment can also have a great impact on multiple industries. Advance information and computer technology including E-commerce plays important roles in all industries. The business of logistics is being transformed radically by the rapid advancement in communication technology. Logistics outsourcing can reduce their operation cost and improve their efficiency. With the advance technology, the logistics outsourcing can be expected to partner with suppliers and manufacturers and share information to effectively and efficiently manage their operation. It seems as a competitive advantage as to enhance the company standard to equal to others.

Demographic trends are part of the sociocultural aspect of the societal environment. The personal and psychological characteristics of the individuals involved in will influence on logistics movement. As a result of interview, there are many Thai people who had misunderstanding about the concept of logistics as inland transport or freight forwarding business. However, due to the influence of foreign transaction or advance education, Thai enterprises think about using of logistics outsourcing in order to save their investment funds in assets such as warehouse space or trucks.

Trends in the political-legal part of the societal environment have a significant impact on business firms. Laws, rules and regulations in Thailand aim to support the producers, manufactures and enterprises. They are not designed to support the service sector as logistics industry. Thus, the expansion of the logistics industry is difficult to grow up. The government should support the logistics companies by providing more privileges or lightening some regulation such as transportation regulation or tariff rates. However, many logistics outsourcing do not think this forces as importance because the corruption still appear in this country.

Task Environment

The *task environment* includes those elements or groups that directly affect the corporation and, in turn, are affected by it.

Table 5.16 The comparison of task environment based on literature review and result of interview

Variables	Literature reviews	Results of Interview
Government	<ul style="list-style-type: none"> • Policies • Action plans 	<ul style="list-style-type: none"> • Policies, visions and action plans • To promote logistics business • Infrastructure network
Other logistics providers	<ul style="list-style-type: none"> • Specialist in logistics activities • The role of designing and managing a logistics system 	<ul style="list-style-type: none"> • Sub-segment in logistics • Resource optimization • Business cooperation

Source: Original implied from literature reviews and interview results

Table 5.17 The comparison of task environment based on literature review and result of interview (Continued)

Variables	Literature reviews	Results of Interview
Employees	<ul style="list-style-type: none"> • Shortage of skilled workers 	<ul style="list-style-type: none"> • Basic understanding of logistics concept and process • Training program • Analytic thinking and service mind
Competitors	<ul style="list-style-type: none"> • Competition among chain 	<ul style="list-style-type: none"> • Non-competition • Cooperation among logistics service providers • Competition among the companies using 3PL
Customers	<ul style="list-style-type: none"> • Changes in customer needs 	<ul style="list-style-type: none"> • Different requirements • Reputation and Confidence of logistics service providers • One stop service • Price conscious
Business Consolidation	<ul style="list-style-type: none"> • To facilitate the industry's movement toward globalization • To boarder service offering 	<ul style="list-style-type: none"> • To share modern technology and management • To expand networks • To increase Customer based • Decision making in business expansion
Logistics Alliances	<ul style="list-style-type: none"> • Interfirm relationship • To improve the overall competitive position 	<ul style="list-style-type: none"> • Sharing resources

Source: Original implied from literature reviews and interview results

Table 5.18 The comparison of task environment based on literature review and result of interview (Continued)

Variables	Literature reviews	Results of Interview
Logistics Associations	<ul style="list-style-type: none"> • CLM, ELA, etc. • TLAPS and PSCMT in Thailand • To provide members with education and relevant information 	<ul style="list-style-type: none"> • Seminar and training program • Information exchange among group of logistics providers • Logistics courses provided by leading universities in Thailand
Supply chain integration	<ul style="list-style-type: none"> • Awareness of supply chain integration 	<ul style="list-style-type: none"> • Operation optimization

Source: Original implied from literature reviews and interview results

Table 5.16 – 5.18 show the variables in task environment, which have influence on changes in logistics industry. Firstly, government is considered as one of major forces in task environment because government is the one who design and determine the country's policies and plans, which will have the impact on the direction of each industry. Similarity to logistics industry, the government should support or promote logistics services as to promote the expansion of production based from urban to rural or industrial grow, which the logistics will support the expansion effectively.

Other logistics service providers have the substantial impact if all stakeholders interchange the information in order to achieve resource optimization and cost reduction. Moreover, they are considered as competitor. Most logisticians point out that the competition among logistics outsourcing is insignificant because the logistics

is the activities to support the organization. The competition will occur among the organization that uses logistics outsourcing.

Employee or human resource is considered as one of major forces. Logistics employees are key asset in logistics industry's ability to adapt to changing and seize new market opportunity. However, there is shortage of individual who have basic understanding about logistics and supply chain in Thailand. The education and skill of the workforce is critical to building such capacity.

Significantly, customer is considers as the most important forces influence on changes in logistics industry. The major role of logistics outsourcing is to provide the best logistics solution to the customers. Most logistics outsourcings try to serve the customer in same industry to minimize the cost and share the resources if necessary. However, the requirement of each customer is different up to the policy or the target. The logistics outsourcings need the qualified people with experience to serve the customer in all needs.

One of popular trend for logistics outsourcings, which have influence on changes in logistics industry, is business consolidation such as merger, acquisition or joint venture. It is an interesting trend as the way to expand the customer based and logistics network. The logistics outsourcings will be shared with the standard resources and updated with modern and advance technology. They can serve the customers with the international standard.

Logistics alliance is one force behind changing in logistics outsourcing. It is interfirm relationship, which the logistics outsourcing can cooperate with other in same or different line with the purpose of neutral benefit.

Logistics association is considered as one of major forces. There are two logistics association in Thailand, TLAPS and PSCMT. These association plays as the sources of updated information for the members. From the result of interview, the research found that there is no public sector supported to these associations. Logistics companies with the purpose of information exchange established them.

Supply chain integration has an influence on changes in logistics industry. Its importance is considered as a strategic weapon for competitive advantages. Successful integration or coordination has produced improved efficiency and effectiveness for companies.

Table 5.19 The comparison of future direction based on literature review and result of interview

Variables	Literature reviews	Results of Interview
Future Direction of logistics outsourcing (Trend)	<ul style="list-style-type: none"> • Growth in logistics outsourcing • One stop service • Entry into forth party logistics (4PL) • Environmental concern 	<ul style="list-style-type: none"> • The expansion of logistics outsourcing • Increasing in number companies using logistics outsourcing • Environmental Concern i.e. Green Logistics

Source: Original implied from literature reviews and interview results

Table 5.19 shows the comparison of future direction for logistics outsourcing. Most literature reviews are determined by western, which have developed the logistics and supply chain management for a long time. For Thailand, logistics is now emerging as a key tool in creating value. Many companies are interested in using logistics outsourcing, which might be the impact of economic growth. Number of logistics outsourcing is increasing in response to customer demand. However, the growth ratio is not high because of high investment and skilled workforces required.

5.4 Recommendation on Case Study

This section aims at presenting a set of recommendations applicable to logistics outsourcing industry. The recommendations are focused on the external environment as to answer the main problem's question, which are benefit for the logistics outsourcings and the companies, which have potential to become the logistics outsourcings in the future.

5.4.1 Main Driving Forces Behind Changes in Logistics Industry

There are many main driving forces behind changes in logistics industry. They are varied from time to time depending upon environments. They have influence as the opportunities or threats to the cooperation in doing the business. The cooperation must consider the external environment as the important factors.

Based on the result of interview, the main driving forces behind changes in logistics industry are economy, customer, technology, government, and employee (human resource development). Besides those variables, socioculture, politic-legal,

logistics service providers, business consolidation, logistics alliance, logistics association and supply chain integration have also influence on logistics industry.

5.4.2 Influence of External Environment

Local Economy

Local economy is referred to industrial growth and expansion of industrial based. Thai corporations or enterprises compete for worldwide market, no longer satisfied with local markets only. They are concentrating on core competencies and looking for the experts to support them achieve their goals and to minimize the costs. Economy growth is not significantly effect on logistics business; yet, if the more economy grow up, there will be possibility for logistics business to grow.

Technology

The logistics industry is going through a massive transformation due to Internet and advance in technology and communication technology, will be a competitive advantage if it is properly laid down as to shorter order cycle time, to reduce manpower and mistake, and to smooth handling and information flow. In response to the different requirement from the customers, logistics outsourcing must focus on the customers' needs for speed and flexibility in order fulfillment.

Socioculture

Socioculture is referred to culture and attitude of Thai people. Most of Thai people have misunderstood about the name of "logistics". They think about the transportation or freight forwarding, which is a part of logistics process. Sometimes, they contact the logistics outsourcing to provide them the best logistics solutions; they

deny disclosing the information to the outsiders. It is a threat for logistics outsourcing. The logistics outsourcings should make the customer understand the nature and the requirement of business.

Politic-Legal

Politic-Legal is referred to laws, rules and regulations in Thailand. It is a threat for logistics outsourcing since our laws, rules and regulations are not designed to support service sector such as logistics industry. Most of them are given the privileges or benefit to the enterprises or manufactures. The government should pass the laws, rules, or regulations to support the logistics outsourcing such as investment. Moreover, the logistics should have knowledge of regulations affecting transportation, warehousing and the international movement of goods.

Government

Government is considered as one of main driving forces for logistics industry because the government vision, policy, or action plan have the effect on the direction of national growth. The outstanding concept of logistics concerns the infrastructure networks, both of domestic and international routes. Besides promoting the service business, the government should expand the transportation routes to rural as the manufactures expand the production based to rural. If there are more transportation routes, the logistics outsourcing can expand their market covering the whole nation.

Other logistics service providers

They are considered as substitutes since they are part of logistics management.

Sometimes the logistics outsourcings have not enough facilities to support the clients, they may contact those logistics companies or others. Those logistics companies have opportunities to become the logistics outsourcing as most of them are expanding their service to cover scope of logistics and supply chain management.

Competitor

Most of logistics outsourcings do not think that they are competing with each other. They are assumed as the supporting department for the corporation or manufactures. The competition occurred among the corporations, which use logistics outsourcing. However, they make a connection with other in order to join the resources such warehouse space or trucks. It seems like the business cooperation to minimize costs.

Customers

The logistics outsourcing consider “customer” as a main driving forces changes behind the logistics industry. The customer is key decision maker in the business. The customer must know the actual needs and transfer those requirements to the logistics outsourcing in order to find them the best logistics solution. The customer can be both of opportunity and threats for this kind of industry. They create the job to the logistics outsourcing, while their different requirement is difficult to the logistics outsourcing. The logistics outsourcing should learn and find the actual requirement of each client. Moreover, the logistics outsourcing should expand their services covering all major logistics activities because most customers now prefer one stop service.

Employees

Development of human resource is important as it creates opportunities to the logistics outsourcings. They need the individuals who have the basic understanding of logistics and supply chain management and the experience in the field. The logistics outsourcing should also prepare the training program to the employees as to update them the advance technology and management. Moreover, the leading university should provide the logistics courses as an alternative program for the students.

Business consolidation

Merger, acquisition or joint venture is the new alternative for logistics outsourcings that are not well successful in the business or are on financial problems. It is the opportunity for the small logistics companies to survive in the industry. They will be improved with the modern technology and management. However, it will be threat for others. When the business is consolidated together, the customers based will increase. The technology or management system will be improved as well. Although, the competitors will decrease but it will be violent rivalry.

Logistics alliance

There are many service providers entering the logistics market by entering into a partnership or an alliance with logistics service providers. An alliance allows them to offer service owning the required assets, thus they can avoid the substantial capital costs. It is an opportunity for the logistics outsourcing in expanding their customer based and logistics network globally.

Logistics association

As mentioned in the study, there are two logistics associations, TLAPS and PSCMT. They are the source of information for the logistics members. The logistics outsourcings can update new information and exchange the information with others. They do not impact directly to the logistics industry; yet, the participation of logistics outsourcings will give them benefits.

Supply Chain Integration

It is the challenge for logistics outsourcing to add value via improvement collaboration and visibility within the whole supply chain. An efficient supply chain enables buyers, manufacturers and service provider to collaborate on product forecast and product flow. The increasing in supply chain management will be the way to cost saving resulting from integration and productivity improvement.

5.4.3 Future Direction of Logistics Outsourcing

There is a trend that the number of companies using logistics outsourcing will increase because more companies realize that if those companies want to compete worldwide market, they must focus on their core competencies and leave the logistics activities with the logistics outsourcing. The growth ratio is growing up, but it does not go rapidly due to instability of economy, shortage of skilled and experienced workers and others. However, the business is expanding to supply the market demand. Many logistics service providers are developing themselves to cover all activities of logistics and supply chain management.

Furthermore, the logistics outsourcings have to develop in further steps such as providing the supply chain management or concerning on environment. The concepts of reverse logistics and green logistics sound interesting as environmentally concept with continuous cost minimization and value addition to the end-customers.

5.5 Further study

The study represents the concept of logistics and identifies the main deriving forces behind changes in logistics industry through external environmental scanning. The study also identifies the influence of the external environment and the future direction of logistics industry. However, the conclusion and recommendation do not explore the relationship of societal or task environment and expansion of logistics outsourcing, and the expansion form of logistics industry. The research will conduct the survey to explore the impact of societal or task environment on the expansion form of logistics providers. The survey should also represent the expansion form of logistics outsourcing in the future.

CHAPTER VI

QUANTITATIVE METHODOLOGY: SURVEY METHOD

A research methodology defines what the activity of research is, how to proceed, how to measure progress, and what constitutes success. The chapter provides the guidelines for understanding the survey method, which is divided in five parts, the research method, the research respondents, the research instrument, the collection of data, and treatment of statistics.

6.1 Survey Method

Having done the pilot case study to identify the external environmental variables and their influences, the last preparation of data collection is the conduct of a survey. The survey will represent the quantitative data, which was often used for describing trends and explaining the relationship among variables found in the literature (Creswell, 2002) with the purpose of determining the relationship between one thing (an independent variable) and another (a dependent or outcome variable) in a population (Hopkins, 2000).

Marshall and Rossman (1995) presents that sample surveys consists of the collection of data in a standardized format, usually from a probability sample of the population. The survey is the preferred method if the researcher wishes to obtain a small amount of the information from a large number of subjects. Similarity, Zikmund (2000) explains that the survey is a research technique in which information is gathered from a sample of people by use of a questionnaire. Its advantage is to

provide quick, inexpensive, efficient, and accurate means of assessing information about the population. Thus, self-administered questionnaire is used in this research. A questionnaire will be distributed via electronic mail (e-mail) and requested the respondents rather than an interviewer to fill in. The e-mail is a relatively new method of communication; so many individuals cannot be accessed by it yet, which might be one of limitation of the research.

6.2 Respondents and Sampling Procedures

Target population

Target population of this study consists of the companies providing the logistics services such as international freight forwarding companies, warehousing providers, transportation providers, third-party logistics providers, etc. who have been listed in “A Guide to Export-Import Transportation Year 2002 – 2003”.

Sampling unit and Population Element

The sample is a subgroup or subset of the population. By studying the sample, the researcher would be able to draw conclusions that would generalize some relationships of the population. Sampling is the process of selecting a sufficient number of elements from the population and this sample size represents the entire population. For the sampling procedure, sampling frame of this study is first to list the entire name of companies that represent their e-mail addresses in A Guide to Export-Import Transportation Year 2002 – 2003. There are approximately 214 companies that informed their e-mail addresses, and the e-mail survey was sent to them accordingly. However, 76 questionnaires were returned as undeliverable, reducing the effective sample size to 148.

Sampling Mode

In this study, the members of the sample are selected on a probability sampling. In probability sampling, every element in the population has a known nonzero probability of selection (Zikmund, 2000).

6.3 Research Instrument

In part of survey, the questionnaire is used as a quantitative information collection technique. The set of questionnaire is developed to identify the influence of societal environmental variables on logistics industry and the expansion of logistics outsourcing in Thailand. The questions have been developed from the interviewing results. The questions are usually structured and standardized. The questionnaire is divided three main questions – service classification, influence of each societal environmental variable and expansion form of logistics outsourcing.

To design question for service classification, multiple-choice type is used. Otherwise, the questions for determining the influence of societal environmental variable and the expansion of logistics outsourcing, the response scales are applied by marking on a five-point scale, ranging from “strongly disagree” (=1) to “strongly disagree” (=5). (See the sample of the questionnaire in Appendix C)

6.4 Collection of Data

As the beginning of this study, the pilot case studies were conduct to identify the main driving forces behind changes in logistics outsourcing and their influence, as well as the future direction. At the final stage of data collection, due to unavailable of

logistics outsourcing directory, A Guide to Export-Import Transportation Year 2002 – 2003 would be referred as a source of logistics service providers in Thailand. In this directory, there are lists of shipping/freight forwarding companies, warehousing providers, truck transportation providers and other companies supporting the import-export activities. The researcher considers that those logistics companies as a sample in this survey. The survey was developed after an extensive review of the pertinent literature and the qualitative findings in the areas of the external environmental scanning and the expansion of logistics industry.

The e-mail surveys were distributed successfully to 148 companies via e-mail addresses, as identified by A Guide to Export-Import Transportation Year 2002 – 2003, during September – November 2003. Each company received an initial e-mailing, along with a follow-up e-mailing three weeks later that was identical in content to the initial e-mailing. A total of 57 usable responses were received, for a 39 percent response rate. The respondents were asked to address three questions. These questions were designed to provide data about the service classification and the external environmental variables on the logistics industry. The future direction including the trend in their expansion was the focus of last question. A set of pre-test was performed determine whether the data collection plan for the main study is an appropriate procedure.

6.5 Pre-Test

The pre-test of this survey was conducted for the purpose of detecting problems in the questionnaire instructions or design. During the first two week of September 2003, the researcher distributed the questionnaires by e-mails to the

selected respondents. The researcher conducted a pre-test with 25 respondents considered as the target population and took two weeks to do this pre-test. Here evidence of ambiguous questions and respondent misunderstanding were looked for. This was necessary to cut out any bias arising from the questionnaire. Furthermore, the researcher interviewed three business development managers of logistics outsourcings, which is a part of qualitative method, in order to identify the major driving forces behind logistics industry in Thailand as a guideline for this research.

6.6 Statistical Treatment of Data

The research use software of the Statistical Package for the Social Sciences (SPSS), which is widely used data analysis program to analyze the data collected by questionnaires. The form of data interpretation from these procedures will be presented in easily interpretable formats and the statistical procedures are performed by computer software package to ensure accuracy.

There are two statistical procedures used in this study, which are *descriptive statistics* and *inferential statistical*. Descriptive statistics is the statistics used to describe or summarize information about a population or sample (Zikmund, 2000). It will be used to describe major service provided by logistics companies and trend for expansion form of logistics outsourcings. As the analysis progresses beyond the descriptive statements, the researcher applies the tools of inferential statistic. Hypothesis testing explains the relationship between the studied variables, that is, the societal environmental variables will significantly influence on the expansion of logistics outsourcing industry. The statistical technique for this testing is *Spearman*

rank-order correlation coefficient, which is a nonparametric correlation technique. It is utilized if the data are metric.

6.6.1 Spearman Rank-Order Correlation Coefficient

The Spearman rank-order correlation coefficient, r_s , is a statistical technique, which allows us to determine the correlation between the two groups. Similar to this study, it is an expansion bivariate analysis for measure of association between societal environmental variables and expansion form of logistics outsourcing.

The Spearman rank-order correlation coefficient equation (Zikmund, 2000) is:

$$r_s = 1 - \frac{6 \sum_{i=1}^n d_i^2}{n^3 - n}$$

where

r_s = Correlation coefficient

d_i = The difference between the ranks given by each group

n = Sample size or total number of observations

In order to test the association between two variables, the study needs the correlation coefficient; it is the most popular technique that indicates the relationship of one variable to another. When two variables are correlate the result a correlation coefficient (r). The correlation coefficient (r) always varies somewhere between -1 and $+1$. The closer the correlation is to either $+1$ or -1 , the stronger the relationship between the two variables. A correlation of 0 indicates that there is absolutely no association between the two variables. Correlation of -1 and $+1$ indicates that there is

a perfect linear association between the two variables. If the value of r is 1.0, there is a perfect positive linear (straight-line) relationship. If the value of r is -1.0 , there is a perfect negative linear relationship or a perfect inverse relationship. A correlation coefficient indicates both magnitude of linear relationship and the direction of relationship (Zikmund, 2000).



CHAPTER VII

SURVEY METHOD

FINDING, CONCLUSIONS AND RECOMMENDATIONS

After the collection data through interviewing the experts in this industry, there are many factors influence on the future of logistics outsourcing. This part is the continuous part that analyzes the data through survey. The result and analysis are divided into three sections for the convenience of the readers, that is, reliability testing of the questionnaires, descriptive analysis of service classification and the expansion forms, and hypothesis testing of the relationship between the societal environment and the expansion in logistics outsourcing industry in Thailand.

7.1 Reliability Testing

Reliability refers to the accuracy and precision of measurement procedure. It is concerned with estimates of the degree to which a measurement is free of random or unstable error. The research applied the internal consistency method to test the reliability of the data because there are many factors that the research uses. This approach is used for assessing the internal consistency of the set of items by summing the individual consistencies for the items in the set to form a total score for the scale. The coefficient alpha varies from 0 to 1, and a value of less than 0.6 generally indicates that it is unsatisfactory (Malhotra & Brirks, 2000). The variables needed for testing reliability are as follows: -

Table 7.1 Reliability Testing for Societal Environment

No.	Variables	Alpha
1.	Local Economic Forces	0.9679
1.1	Industrial Growth	
1.2	Expansion of production based	
2.	Technological Forces	0.9824
2.1	Information Technology	
2.2	Computer Technology	
2.3	E-Commerce	
3.	Sociocultural Forces	0.9844
3.1	Culture	
3.2	Attitude	
4.	Political – Legal Forces	0.9815
4.1	Laws	
4.2	Rules	
4.3	Regulations	

Source: Original implied from survey results

According to the questionnaires and hypothesis, there are four variables of societal environment that need to be tested for reliability. The test of each variable shows that the coefficient alphas of all fourteen variables are well above 0.6. The result indicates a strong reliability of data. Therefore, the research is able to trust the sources and finds them suitable for using in hypothesis testing.

7.2 Descriptive Analysis

The purpose of descriptive analysis refers to the transformation of the raw data into a form that will make them easy to understand and interpret. Frequency table is applied to measure the major service of logistics service providers and the opinion of logistics companies toward future direction of logistics outsourcing industry in Thailand.

Service Classification

The first question of questionnaire is designed to learn what major service provided by the respondents is in order to discuss further about the trend of expansion forms in the future and the result is shown in Table 5.16.

Table 7.2 The Descriptive Statistics of Service Classification

Service Classification	Frequency	Percent
Freight Forwarder	41	71.9 %
Customs Clearance Brokerage	20	32.1 %
Warehousing management	7	12.3 %
Inland Transport	11	19.3 %
Third-Party Logistics	11	19.3 %
Others i.e. Trade, Terminal	3	5.3 %
Total	57	100.0 %

Source: Original implied from survey results

Most of logistics companies provide freight forwarding service as a major service. It is almost one third of the total respondents. The rest are customer clearance

brokerage, inland transport, third party logistics, warehouse management and other such as trader or terminal respectively.

Future direction of logistics outsourcing industry

The last question of questionnaire is designed to learn about the respondents' opinion toward the trend of expansion forms in the future and the result is shown in table 7.3, which is summarized as follows:

- Expansion in form of combination of freight forwarding service and warehousing management service, most respondents agree in this form. On the other hand, they felt neutral if this form is added with environmental concern.
- Expansion in form of combination of freight forwarding service and transportation and distribution services, most respondents strongly agree in this form. On the other hand, they felt neutral if this form is added with environmental concern.
- Expansion in form of combination of warehousing management service and transportation and distribution services, most respondents disagree in this form. Similarity, they disagreed if this form is added with environmental concern.
- Expansion in form of domestic one stop service, which consists of freight forwarding service, warehousing management service, and transportation and distribution services, most respondents agree in this form. On the other hand, they felt neutral if this form is added with environmental concern.
- Expansion in form of international one stop service, which consists of freight forwarding service, warehousing management service, and transportation and distribution services, most respondents agree in this form. Similarity, they strongly agree if this form is added with environmental concern.

Table 7.3 The Descriptive Statistics of Expansion in Logistics Outsourcing in Thailand

Expansion in logistics outsourcing industry	FF ^a + WH ^b	FF + WH + EC ^d	FF + TT ^c	FF + TT + EC	WH + TT	WH + TT + EC	Domestic one stop service FF + WH + TT	Domestic one stop service FF + WH + TT + EC	International one stop service FF + WH + TT	International one stop service FF + WH + TT + EC
Strongly Disagree	-	17.5 %	-	15.8 %	5.3 %	31.6 %	-	21.1 %	1.8 %	15.8 %
Disagree	17.5 %	26.3 %	10.5 %	19.3 %	42.1 %	24.5 %	3.5 %	14.0 %	5.2 %	12.3 %
Neutral	28.1 %	48.1 %	22.9 %	43.8 %	40.3 %	22.8 %	15.8 %	31.6 %	19.3 %	24.5 %
Agree	43.9 %	5.3 %	29.8 %	19.3 %	12.3 %	19.3 %	47.4 %	21.0 %	45.6 %	22.8 %
Strongly Agree	10.5 %	1.8 %	36.8 %	1.3 %	-	1.8 %	33.3 %	12.3 %	28.1 %	24.6 %
Total (%)	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

^a Freight Forwarding service

^b Warehousing Management service

^c Transportation and Distribution service

^d Environmental Concern such as reverse logistics or green logistics

Source: Original implied from survey results

7.3 Hypothesis Testing

The purpose of hypothesis testing is to determine which of the two hypotheses is correct. Spearman rank-order correlation coefficient is applied to the process of hypothesis testing in order to test the relationship between societal environment and expansion form of logistics industry in Thailand. The data are portrayed in Appendix D, E, F and G and the summary of testing are shown as follows:

Local Economic Forces

There is relationship between local economy and expansion form of logistics outsourcing, which local economy is assumed as industrial growth and expansion of production based.

Table 7.4 The relationship of industrial growth and expansion form of logistics outsourcing

Independent variable	Dependent variable	r ^a
Industrial Growth	FF + TT	0.291
	FF + WH + TT (Domestic one stops service)	0.381

^a The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

The above table shows the relationship of industrial growth and expansion form of logistics outsourcing. The industrial growth has greater potential impact on the expansion of logistics outsourcing in form of domestic one stop service, and combination of freight forwarding service and transportation and distributions service respectively.

Table 7.5 The relationship of expansion of production based and expansion form of logistics outsourcing

Independent variable	Dependent variable	r ^a
Expansion of production based	FF + WH + TT (International one stop service)	0.346

^a The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original created by author

The above table shows the relationship of expansion of production based and expansion form of logistics outsourcing. Expansion of production based has greater potential impact on the expansion of logistics outsourcing in form of international one stop service.

Technological Forces

There is relationship between technology and expansion form of logistics outsourcing, which technology is assumed as information technology, computer technology and E-commerce.

Table 7.6 The relationship of information technology and expansion form of logistics outsourcing

Independent variable	Dependent variable	r ^a
Information Technology	FF + WH + TT + EC (International one stop service)	0.276

^a The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

Table 7.8 The relationship of E-Commerce and expansion form of logistics outsourcing

Independent variable	Dependent variable	r^a
E-Commerce	FF + WH	-0.328
	FF + WH + EC	0.453
	FF + TT	-0.376
	FF + TT + EC	0.543
	WH + TT	0.314
	WH + TT + EC	0.457
	FF + WH + TT + EC (Domestic one stop service)	0.522
	FF + WH + TT (International one stop service)	0.341
	FF + WH + TT + EC (International one stop service)	0.598

^a The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

The above table shows the relationship of E-Commerce and expansion form of logistics outsourcing. E-Commerce has greater potential impact on the expansion of logistics outsourcing in many forms especially international one stop service with environmental concern, domestic one stop service with environmental concern, combination of freight forwarding service and transportation and distribution service together with environmental concern, combination of warehousing management and transportation and distribution services together with environmental concern,

Table 7.8 The relationship of E-Commerce and expansion form of logistics outsourcing

Independent variable	Dependent variable	r ^a
E-Commerce	FF + WH	-0.328
	FF + WH + EC	0.453
	FF + TT	-0.376
	FF + TT + EC	0.543
	WH + TT	0.314
	WH + TT + EC	0.457
	FF + WH + TT + EC (Domestic one stop service)	0.522
	FF + WH + TT (International one stop service)	0.341
	FF + WH + TT + EC (International one stop service)	0.598

^a The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

The above table shows the relationship of E-Commerce and expansion form of logistics outsourcing. E-Commerce has greater potential impact on the expansion of logistics outsourcing in many forms especially international one stop service with environmental concern, domestic one stop service with environmental concern, combination of freight forwarding service and transportation and distribution service together with environmental concern, combination of warehousing management and transportation and distribution services together with environmental concern,

combination of freight forwarding service and warehousing management together with environmental concern, and combination of warehousing management and transportation and distribution services respectively.

On the other hand, E-commerce has less potential impact on the expansion of logistics outsourcing in form of combination of freight forwarding service and warehousing management service, and combination of freight forwarding service and transportation and distribution services.

Sociocultural Forces

There is relationship between socioculture and expansion form of logistics outsourcing, which socioculture is assumed as culture and attitude of Thai people.

Table 7.9 The relationship of culture and expansion form of logistics outsourcing

Independent variable	Dependent variable	r ^a
Culture	FF + TT	0.327
	FF + WH + TT (Domestic one stop service)	0.273

^a The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

Above table shows the relationship of culture and expansion form of logistics outsourcing. Culture of Thai people has greater potential impact on the expansion of logistics industry in form of combination of freight forwarding service and transportation and distributions services, and in form of domestic one stop service.

Table 7.10 The relationship of attitude and expansion form of logistics outsourcing

Independent variable	Dependent variable	r^a
Attitude of Thai people	FF + WH	0.331
	FF + TT	0.358
	WH + TT + EC	-0.301
	FF + WH + TT (Domestic one stop service)	0.311
	FF + WH + TT + EC (Domestic one stop service)	-0.331
	FF + WH + TT + EC (International one stop service)	-0.298

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

Above table shows the relationship of attitude and expansion form of logistics outsourcing. Attitude of Thai people has greater potential impact on the expansion of logistics outsourcing in form of combination of freight forwarding service and warehousing management service, combination of freight forwarding service and transportation and distribution services, and domestic one stop service respectively.

On the other hand, attitude of Thai people has less potential impact on the expansion of logistics outsourcing in form of domestic one stop service together with environmental concern, combination of warehousing management and transportation and distribution services together with environmental concern, and international one stop service together with environmental concern.

Political – Legal Forces

There is relationship between politic-legal and expansion form of logistics outsourcing, which politic-legal is assumed as laws, rules and regulations.

Table 7.11 The relationship of law and expansion form of logistics outsourcing

Independent variable	Dependent variable	r ^a
Laws	FF + WH	0.275
	FF + TT	0.330
	FF + WH + TT (Domestic one stop service)	0.267

^a The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

The above table shows the relationship of laws and expansion form of logistics outsourcing. Laws have greater potential impact on the expansion of logistics outsourcing in form of combination of freight forwarding service and transportation and distribution service, combination of freight forwarding service and warehousing management, and domestic one stop service.

Table 7.12 The relationship of rules and expansion form of logistics outsourcing

Independent variable	Dependent variable	r ^a
Rules	FF + TT	0.301

^a The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

The above table shows the relationship of rules and expansion form of logistics outsourcing. Rules have greater potential impact on the expansion of logistics industry in form of combination of freight forwarding service and transportation and distribution service.

Table 7.13 The relationship of regulations and expansion form of logistics outsourcing

Independent variable	Dependent variable	r^a
Regulations	FF + TT	0.305

^a The listed relationship is selected only if there is significant relationship between Independent variable and Dependent Variable.

Source: Original implied from survey results

The above table shows the relationship of regulations and expansion form of logistics outsourcing. Regulations have greater potential impact on the expansion of logistics industry in form of combination of freight forwarding service and transportation and distribution services.

7.4 Conclusion of the Survey result

The survey is conducted to define the influence of societal environmental variables, which is described by the results of interview with the experts, on the expansion form of logistics outsourcing. The researcher uses the survey method and self-administered questionnaires as instruments to collect the primary data. The sample includes the logistics companies that represent their e-mail addresses in A Guide to Export-Import Transportation Year 2002 – 2003. Fifty-seven respondents are included in the sample size. Spearman rank-order correlation coefficient is

practically used to study the relationship between societal environment and expansion form of logistics outsourcing in Thailand. The result is carefully selected from the highest correlation coefficient of each relationship. The conclusion is shown as follows:

Local Economic Forces

- The industrial growth has greater potential impact on the expansion of logistics outsourcing in form of domestic one stop service.
- Expansion of production based has a greater potential impact on the expansion of logistics outsourcing in form of international one stop service.

Technological Forces

- Information technology has a greater potential impact on the expansion of logistics outsourcing especially in form of international one stop service together with environmental concern.
- Computer technology has a greater potential impact on the expansion of logistics outsourcing in form of international one stop service together with environmental concern.
- E-Commerce has a greater potential impact on almost all forms of the expansion of logistics outsourcing especially in form of international one stop service together with environmental concern.

Sociocultural Forces

- Culture of Thai people has greater potential impact on the expansion of logistics outsourcing in form of combination of freight forwarding service and transportation and distribution services.
- Attitude of Thai people has greater potential impact on the expansion of logistics outsourcing in form of combination of freight forwarding service and transportation and distribution services.

Political – Legal Forces

- Laws have greater potential impact on the expansion of logistics outsourcing in form of combination of freight forwarding service and transportation and distribution service.
- Rules have greater potential impact on the expansion of logistics outsourcing in form of combination of freight forwarding service and transportation and distribution service.
- Regulations have greater potential impact on the expansion of logistics outsourcing in form of combination of freight forwarding service and transportation and distribution service.

Besides, the influence of societal environment on the expansion form of logistics industry, the result of the survey also identifies the future direction of logistics outsourcing. The summary of expansion form is as follows:

Future direction of logistics outsourcing industry

- Expansion in form of combination of freight forwarding service and warehousing management service, most participants agree upon this form. On the other hand, they felt neutral if this form is added with environmental concern.
- Expansion in form of combination of freight forwarding service and transportation and distribution services, most participants strongly agree upon this form. On the other hand, they felt neutral if this form is added with environmental concern.
- Expansion in form of combination of warehousing management service and transportation and distribution services, most participants disagree in this form. Similarity, they disagreed if this form is added with environmental concern.
- Expansion in form of domestic one stop service, which consists of freight forwarding service, warehousing management service, and transportation and distribution services, most participants agree in this form. On the other hand, they felt neutral if this form is added with environmental concern.
- Expansion in form of international one stop service, which consists of freight forwarding service, warehousing management service, and transportation and distribution services, most participants agree in this form. Similarity, they strongly agree if this pattern is added with environmental concern.

7.5 Recommendation on Survey result

This section aims at presentation a set of recommendations application to logistics outsourcing industry. The recommendations are focused on the relationship of societal environment and expansion forms of logistics companies in

Thailand, s to answer the subproblems' questions, which are benefit for the logistics outsourcings and the companies, which have potential to become the logistics outsourcings in the future.

7.5.1 Recommendation about the influence of societal environment

The external environment consists of variables that are outside the organization and not typically within the short-run control of top management. They may be general forces and trends within the societal environment or specific factors that operate within an organization's specific task environment. They can be opportunities and threats for the company. The company should realize the external environmental variables as important variables. For this study concerning societal environment, the following variables are considered: -

Local Economic Forces

The influence of local economy is considered by industrial growth and expansion of production based. Companies are seeking out new markets and cheaper sources of raw materials and components throughout the country. Most enterprises require good transportation and distribution system to reducing their costs in supply the goods to the customers. It is the opportunity for the logistics outsourcing or logistics providers to expand market share. Both variables have influence on logistics providers in making decision to expand their logistics activities. Significantly, Industrial growth will support the logistics companies to cover the major logistics service domestically; while expansion of production based will support the logistics companies to cover the major logistics service internationally. The new entrant might consider the market mechanism via economic growth before investment. They might

starts at freight forwarding business, which requires less money, and develop gradually to transportation and/or warehouse as one stop service in the future.

Technological Forces

Technology is significant on the expansion form of logistics outsourcing especially the form of international one stop service. Information technology is a key factor today, new innovative day-by-day with new possibilities provided. The customers depend on the logistics outsourcing for the information and computer technology that they themselves cannot provide as efficient as the logistics outsourcing. The greatest opportunities for the logistics industry today are a result of the growth of E-Commerce activities worldwide. E-Commerce is for both B2B (business to business) and B2C (business to consumer). It redefines the traditional business model. The logistics outsourcing and logistics service providers must decide on how they will participate in the E-Commerce. E-Commerce logistics will be a driver in outsourcing because effectiveness lies outside the core competency of customers. The logistics outsourcing and logistics service providers must also be able to integrate into their customer's system with management information in order to manage their business effectively.

Socioculture

Culture and attitude of Thai people are changing, most companies have come to believe that in order to improve their competitiveness they should concentrate their energies on the things they do best and undertake only those activities to which they can add unique value. They are realizing that the logistics activity is not core to their business. They are increasingly turning to logistics outsourcing to gain efficiencies

and superior capabilities. So, the logistics providers should take this opportunity to expand the service to cover the request of customer. From the survey, these factors have influence on the expansion of logistics outsourcing especially in form of combination of freight forwarding service and transportation and distribution services.

Politic – Legal

For this study, the influence of political – legal forces concerns the laws, rules and regulations. Absolutely, those factors concern with the government. The government is responsible for the planning and decision of passing any laws and regulations, which supports the provision of logistics services. The development of logistics affects environment and safety, which are important concerns of government. Logistics services providers must have knowledge of and comply with an extended set of regulations affecting transportation, warehousing and the international movement of goods.

7.5.2 Recommendations on Expansion Form of logistics outsourcing

Logistics outsourcings tend to be the expert in logistics. Outsourcing the function permit an organization to focus on its core competencies. With reference to the study, the number of companies using logistics outsourcing are increasing as well as the traditional logistics companies is trying to provide the complete logistics services and supply chain management. For the logistics service providers who are interested to expand their scope of service, expansion in form of combination of freight forwarding service and transportation and distribution services sounds interesting. Most logistics service providers provide freight forwarding service and customs brokerage service. If those providers will expand their service by adding the

service of transportation and distribution in their lines because of it require less investments and the job looks similar. Moreover, expansion in form of international one stop service together with environmental concern is quite interesting one since it is considered as the environmental concern will impact on logistics decision in the future. It likes to improve corporate image by adopting green policies as to satisfy customer requirements.

7.6 Further Study

With the purpose of the study, which focuses on the main driving forces behind changes in the logistics outsourcing industry and their influences, as well as its future directions. The study is conducted by interviewing the experts and surveyed the relationship between societal environment and expansion in logistics outsourcing. Results of the study represent the influential variables toward the changes in the industry and the trend of expansion of logistics outsourcing with the societal environment. The researcher would like to recommend other researcher to conduct the survey concerning the task environment and/or internal environment. The data obtained will be narrowed down and clearly identify the future trend of expansion of logistics outsourcing.

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Appendix A. List of Interviewee

Logistics Outsourcing

1. Mr. Kongsak Lawlertratnana
Schenker (Thai) Ltd.
Logistics Development Manager
2. Mr. Anan Pattanathanes
Linfox Logistics (Thailand) Limited.
Senior Business Development Manager
3. Ms. Chotika Boonyanukhroh
KPN-ST Logistics Co., Ltd.
Business Development Manager



Appendix B. Questions for Interview

Overview:

1. Please brief describe your firm and its business core competencies.
2. In your opinion, what is the difference between SCM and logistics management?

Societal Environment:

1. What are the main driving forces behind changes in the logistics industry?
2. What are the attitude and understanding of the Thai people toward the logistics?
3. What is the contribution of economy to the logistics?
4. How does information technology have the effect on logistics management?

Task Environment:

1. What is the effect of present government's policies on the logistics business?
2. How do related associations support logistics industries in Thailand?
3. Do other related logistics providers (Freight Forwarders, warehousing providers, trucking providers, etc.) have any influences on logistics business?
4. What are the factors influencing the completeness of logistics in Thailand VS other developed countries?
5. What is your opinion of view on the logistics alliances as well as the position and negative sides?
6. What do the customers require with logistics services?
7. What is the competition among the logistics service providers?
8. How do you compete with others?
9. What will be the future direction on logistics business?

Appendix C. Questionnaire

This questionnaire is designed as the partial fulfillment of thesis of MBA student, Assumption University of Thailand. The following questions are related to external environmental variables of logistics outsourcing industry. The questionnaire helps to explore the influence of those variables on logistics outsourcing industry in Thailand as well as the future direction. Your full cooperation in the responding to all items in the questionnaire that will be the information for academic purpose only.

Question no. 1

What is your major service?

- ☐ Freight Forwarding company ☐ Customs Clearance Broker
☐ Warehousing Management ☐ Inland Transportation
☐ Third-Party Logistics ☐ Others, pls specify _____

For Question no. 2 & 3

Using the following scale, please mark "X" to indicate your opinion for each variable. Scales range: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Disagree.

Question no. 2

What are the main driving factors behind the change in logistics outsourcing industry?

Variables	Strongly disagree → Strongly agree 1 ----- 2 ----- 3 ----- 4 ----- 5				
2.1 Local Economic Forces					
2.1.1 Industrial Growth					
2.1.2 Expansion of production based					
2.2 Technology Forces					
2.2.1 Information Technology					
2.2.2 Computer Technology					
2.2.3 E-Commerce					

Variables	Strongly disagree → Strongly agree 1 ----- 2 ----- 3 ----- 4 ----- 5				
2.3 Sociocultural Forces					
2.3.1 Culture					
2.3.2 Attitude					
2.4 Politic-Legal Forces					
2.4.1 Laws					
2.4.2 Rules					
2.4.3 Regulations					

Question no. 3

What are the future directions of logistics industry in Thailand?

- FF = Freight Forwarding service
- TT = Transportation and Distribution service
- WH = Warehousing Management service
- EC = Environmental Concern i.e. reverse logistics / green logistics

Variables	Strongly disagree → Strongly agree 1 ----- 2 ----- 3 ----- 4 ----- 5				
Expansion (growth) in logistics outsourcing market					
3.1 FF + WH					
3.2 FF + WH + EC					
3.3 FF + TT					
3.4 FF + TT + EC					
3.5 WH + TT					
3.6 WH + TT + EC					
3.7 FF + WH + TT (Domestic one stop service)					
3.8 FF + WH + TT + EC (Domestic one stop service)					
3.9 FF + WH + TT (International one stop service)					
3.10 FF + WH + TT + EC (International one stop service)					

Appendix D. The Relationship of Local Economy and Expansion Form of Logistics Outsourcing

Independent variable	Dependent variable	r^a	Explanation	Investigation
Industrial Growth	Expansion by combination of FF service and TT service	0.291	There is positive relationship between industrial growth and expansion by combination of freight forwarding service and transportation and distribution services.	Industrial growth has greater potential impact on the expansion form of logistics industry in form of combination among freight forwarding service and transportation and distribution services.
Industrial Growth	Expansion as domestic one stop service	0.381	There is positive relationship between industrial growth and expansion as domestic one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution services.	Industrial growth has greater potential impact on the expansion form of logistics industry in form of combination of major logistics services as domestic one stop service.

^a: The listed relationship is selected only if there is significant relationship between Independent variable and Dependent Variable.

Appendix D. The Relationship of Local Economy and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
Expansion of production based	Expansion as international one stop service	0.346	There is positive relationship between expansion of production based and expansion as international one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution services.	Expansion of production based has greater potential impact on the expansion form of logistics industry in form of combination of major logistics services as international one stop service.

^a: The listed relationship is selected only if there is significant relationship between Independent variable and Dependent Variable.

Appendix E. The Relationship of Technology and Expansion Form of Logistics Outsourcing

Independent variable	Dependent variable	r^a	Explanation	Investigation
Information Technology	Expansion as international one stop service with environmental concern	0.276	There is positive relationship between information technology and expansion as international one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution service together with environmental concern.	Information technology has greater potential impact on the expansion form of logistics industry in form of combination of major logistics services as international one stop service together with environmental concern.

^a: The listed relationship is selected only if there is significant relationship between Independent variable and Dependent Variable.

Appendix E. The Relationship of Technology and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
Computer Technology	Expansion by combination of FF service and TT service together with environmental concern	0.338	There is positive relationship between computer technology and expansion by combination of freight forwarding service and transportation and distribution service together with environmental concern.	Computer technology has greater potential impact on the expansion form of logistics industry in form of combination of freight forwarding service, and transportation and distribution service with environmental concern.
Computer Technology	Expansion as international one stop service with environmental concern	0.345	There is positive relationship between computer technology and expansion as international one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution service together with environmental concern.	Computer technology has greater potential impact on the expansion of logistics industry in form of combination of major logistics services as international one stop service together with environmental concern.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix E. The Relationship of Technology and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
E-Commerce	Expansion by combination of FF service and WH service	-0.328	There is negative relationship between E-commerce and expansion by combination of freight forwarding service and warehousing management service.	E-Commerce has less potential impact on the expansion of logistics industry in form of combination among freight forwarding service and warehousing management service.
E-Commerce	Expansion by combination of FF service and WH service together with environmental concern	0.453	There is positive relationship between E-Commerce and expansion by combination of freight forwarding service and warehousing management service together with environmental concern.	E-Commerce has greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and warehousing management service together with environmental concern.

^a: The listed relationship is selected only if there is a significant relationship between Independent variable and Dependent Variable.

Appendix E. The Relationship of Technology and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
E-Commerce	Expansion by combination of FF service and TT service	-0.376	There is negative relationship between E-Commerce and expansion by combination of freight forwarding service and transportation and distribution services.	E-Commerce has less potential impact on the expansion of logistics industry in form of combination among freight forwarding service and transportation and distribution services.
E-Commerce	Expansion by combination of FF service and TT service together with environmental concern	0.543	There is positive relationship between E-Commerce and expansion by combination of freight forwarding service and transportation and distribution services together with environmental concern.	E-Commerce has greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and transportation and distribution services together with environmental concern.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix E. The Relationship of Technology and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
E-Commerce	Expansion by combination of WH service and TT service	0.314	There is positive relationship between E-Commerce and expansion by combination of warehousing management service and transportation and distribution service.	E-Commerce has greater potential impact on the expansion of logistics industry in form of combination among warehousing management service and transportation and distribution service.
E-Commerce	Expansion by combination of WH service and TT service together with environmental concern	0.457	There is positive relationship between E-Commerce and expansion by combination of warehousing management service and transportation and distribution service together with environmental concern.	E-Commerce has greater potential impact on the expansion of logistics industry in form of combination among warehousing management service, and transportation and distribution service together with environmental concern.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix E. The Relationship of Technology and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
E-Commerce	Expansion as domestic one stop service with environmental concern	0.522	There is positive relationship between E-Commerce and expansion as domestic one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution service together with environmental concern.	E-Commerce has greater potential impact on the expansion of logistics industry in form of combination of major logistics services as domestic one stop service together with environmental concern.

^a: The listed relationship is selected only if there is significant relationship between Independent variable and Dependent Variable.

Appendix E. The Relationship of Technology and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
E-Commerce	Expansion as international one stop service	0.341	There is positive relationship between E-Commerce and expansion as international one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution.	E-Commerce has greater potential impact on the expansion of logistics industry in form of combination of major logistics services as international one stop service.
E-Commerce	Expansion as international one stop service with environmental concern	0.598	There is positive relationship between E-Commerce and expansion as international one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution service together with environmental concern.	E-Commerce has greater potential impact on the expansion of logistics industry in form of combination of major logistics services as international one stop service together with environmental concern.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix F. The Relationship of Socioculture and Expansion Form of Logistics Outsourcing

Independent variable	Dependent variable	r^a	Explanation	Investigation
Culture of Thai people	Expansion by combination of FF service and TT service	0.327	There is positive relationship between culture of Thai people and expansion by combination of freight forwarding service and transportation and distribution services.	Culture of Thai people has greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and transportation and distribution service.
Culture of Thai people	Expansion as domestic one stop service	0.273	There is positive relationship between culture of Thai people and expansion as domestic one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution services.	Culture of Thai people based has greater potential impact on the expansion of logistics industry in form of combination of major logistics services as domestic one stop service.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix F. The Relationship of Socioculture and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
Attitude of Thai people	Expansion by combination of FF service and WH service	0.331	There is positive relationship between attitude of Thai people and expansion by combination of freight forwarding service and warehousing management service.	Attitude of Thai people has greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and warehousing management service.
Attitude of Thai people	Expansion by combination of FF service and TT service	0.358	There is positive relationship between attitude of Thai people and expansion by combination of freight forwarding service and transportation and distribution services.	Attitude of Thai people has greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and transportation and distribution services.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix F. The Relationship of Socioculture and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
Attitude of Thai people	Expansion by combination of WH service and TT service together with environmental concern	-0.301	There is negative relationship between attitude of Thai people and expansion by combination of warehousing management service, and transportation and distribution services together with environmental concern.	Attitude of Thai people has less potential impact on the expansion of logistics industry in form of combination among warehousing management service and transportation and distribution services together with environmental concern.
Attitude of Thai people	Expansion as domestic one stop service	0.311	There is positive relationship between attitude of Thai people and expansion as domestic one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution services.	Attitude of Thai people has greater potential impact on the expansion of logistics industry in form of combination of major logistics services as domestic one stop service.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix F. The Relationship of Socioculture and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
Attitude of Thai people	Expansion as domestic one stop service with environmental concern	-0.331	There is negative relationship between attitude of Thai people and expansion as domestic one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution services together with environmental concern.	Attitude of Thai people has less potential impact on the expansion of logistics industry in form of combination of major logistics services as domestic one stop service together with environmental concern.
Attitude of Thai people	Expansion as international one stop service with environmental concern	-0.298	There is negative relationship between attitude of Thai people and expansion as international one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution services together with environmental concern.	Attitude of Thai people has less potential impact on the expansion of logistics industry in form of combination of major logistics services as international one stop service together with environmental concern.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix G. The Relationship of Politic-Legal and Expansion Form of Logistics Outsourcing

Independent variable	Dependent variable	r^a	Explanation	Investigation
Laws	Expansion by combination of FF service and WH service	0.275	There is positive relationship between laws and expansion by combination of freight forwarding service and warehousing management services.	Laws have greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and warehousing management service.
Laws	Expansion by combination of FF service and TT service	0.330	There is positive relationship between laws and expansion by combination of freight forwarding service and transportation and distribution services.	Laws have greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and transportation and distribution service.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

Appendix G. The Relationship of Politic-Legal and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
Laws	Expansion as domestic one stop service	0.267	There is positive relationship between laws and expansion as domestic one stop service by combination of freight forwarding service, warehousing management service, and transportation and distribution services.	Laws have greater potential impact on the expansion of logistics industry in form of combination of major logistics services as domestic one stop service.

^a: The listed relationship is selected only if there is significant relationship between Independent variable and Dependent Variable.

Appendix G. The Relationship of Politic-Legal and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
Rules	Expansion by combination of FF service and TT service	0.301	There is positive relationship between rules and expansion by combination of freight forwarding service and transportation and distribution services.	Rules have greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and transportation and distribution service.

^a: The listed relationship is selected only if there is significant relationship between Independent variable and Dependent Variable.

Appendix G. The Relationship of Politic-Legal and Expansion Form of Logistics Outsourcing (Continued)

Independent variable	Dependent variable	r^a	Explanation	Investigation
Regulations	Expansion by combination of FF service and TT service	0.305	There is positive relationship between regulations and expansion by combination of freight forwarding service and transportation and distribution services.	Regulations have greater potential impact on the expansion of logistics industry in form of combination among freight forwarding service and transportation and distribution service.

^a: The listed relationship is selected only of there is significant relationship between Independent variable and Dependent Variable.

