



CUSTOMER SATISFACTION ON SERVICE QUALITY OF A  
CONTAINER DEPOT IN BANGKOK

By  
BHINYAPAT BOONCHUAY

A Final Report of the Six-Credit Course  
SCM 2202 Graduate Project

Submitted in Partial Fulfillment of the Requirements for the Degree of  
MASTER OF SCIENCE IN SUPPLY CHAIN MANAGEMENT

Martin de Tours School of Management  
Assumption University  
Bangkok, Thailand

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Approved for Graduation on: November 16, 2012

Martin de Tours School of Management  
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Bangkok, Thailand

November 2012

**Assumption University**  
**Martin de Tours School of Management and Economics**  
**Master of Science in Supply Chain Management**

**Declaration of Authorship Form**

I, Bhinyapat Boonchuay

declare that this thesis/project and the work presented in it are my own and has been generated by me as the result of my own original research.

Customer Satisfaction on Service Quality of a Container Depot in Bangkok

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I confirm that this thesis/project has been carried out under my supervision and it represents the original work of the candidate.

Signed \_\_\_\_\_

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Date \_\_\_\_\_

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**Bhinyapat Boonchuay**

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November 2012

## ABSTRACT

The main purpose of this study is to explore the relationship between logistics service quality, service pricing, service location, and customer satisfaction, in the context of a container depot in Bangkok. There are four objectives: (1) to examine the influence of container depot service quality on customer satisfaction, (2) to explore the influence of service pricing and service location on customer satisfaction, (3) to identify the factor that provides the highest influence on customer satisfaction, and (4) to draw conclusions and give recommendations in order to improve the container depot service quality.

The ABC container depot is selected for this case study, which focuses on the depot's distribution process of outbound empty containers. One hundred questionnaires were distributed to current ABC's customers, and multiple regression analysis was the method to test all research hypotheses. The results indicate that logistics service quality and service location are significantly related to customer satisfaction while the influence of service pricing is not related. Moreover, the most significant factors of logistics service quality that have the highest impact on customer satisfaction are timeliness followed by order discrepancy handling, order accuracy, ordering procedure and order quality.

The results from this research will contribute to the work processes of the ABC container depot, as well as other container depots, to focus on appropriate points to improve their service, which helps to enhance customer satisfaction and helps to make the company successful.

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and hereby certify that the verbiage, spelling and format is commensurate with the quality of internationally acceptable writing standards for a master degree in supply chain management.

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Date: 2012

# CHAPTER I

## GENERALITIES OF THE STUDY

Marine transport is currently recognized as the major transportation mode for international transactions, and containerization has become the main method of global transportations. Ninety percent of cargo in global shipments is transported by marine transport, while eighty percent of that cargo is shipped via containers (Yun & Choi, 1999). Containerization is widely used because it fulfills the need for protection, speed, cost-effectiveness and standardization. Containerization is playing a critical vital role in globe trade. According to information from the World Trade Organization (2012), there is an outstanding number of more than 200,000,000 containers currently shipped worldwide.

Moreover, the rate of containerization growth has dramatically increased, to exceed that of bulk cargo at present. In addition, the containerization system is an innovation of freight transportation and has become well recognized in the marine transport industry because a collection of cargo can be loaded into a container from a variety of from manufacturing locations, and dispatched to client locations via global **intermodal** transportation, with minimum damage and less cost. Therefore, container transportation plays an extremely vital role in economic prosperity and global logistics.

Concerning the container supply chain, the container depot is a most vital segment in logistics, which aids competitive advantage and improves customer satisfaction. A container depot is a storage container yard, which links ocean liners and land transportation, in that its main purpose of depot is to synchronize ocean liners and empty containers for utility of export transportation. However, containerization is characterized by extreme competition and low profit. Therefore the main factor to the accomplishment of a growing overall logistics and supply chain association, is to

provide customer satisfaction by presenting many management services or support services based on quality in all aspects of transportation and logistics functions.

Nowadays, due to globalization of business competition, many companies devote extra attention to customer demand and endeavor to enhance service quality to ensure client satisfaction. Also, they are compelled to accept innovative and cost-cutting strategies for their procedure process. Meanwhile, logistics service quality (**LSQ**) has come to be accepted by logistics service providers to provide a strong connection between enhanced **LSQ**, customer satisfaction, and customer loyalty (Mentzer, Flint & Huh, 2001; Johnson, Gustafsson, Andreassen, Lervik & Cha, 2001; Lam, Shankar, Erramilli, & Murthy, 2004). Based on previous literature, a company needs to enhance the quality performance of its services in order to engender customer satisfaction which is the most important factor to gain competitive advantage (Shemwell, Yavas & Bilgin, 1998). However, enhancing the service qualities of logistics by improving the service presentation of a container depot is one of the most feasible methods for withstanding competition and gaining extra business.

### **1.1 Background of the Research**

The ABC Container depot is one of the largest container yard operators in the Bangkok area. ABC provides a service for container storage for many well recognized ocean liners such as **Yangming**, **KMTC**, **K-Line**, **YSC**, **VASCO**, **Heung-A**, **Sinokor**, and **Transliner**. Its location is very convenient being near the Port Authority of Thailand, and its entrance is opposite the Customs building which is also near the road Expressway. ABC has an area totaling 13,000 square meter of concrete yard, in which it is possible to service a huge number of containers, up to 6,000 twenty-foot equivalent units (**teus**), with a number of vertical stacks, seven high. All this is possible because of a skillful team of more than ten years' experience in the container depot business, and abundant infrastructure for containers such as three side loaders, mobile cranes, and forklifts. Also, a computer system with self development software produces complete series of data, with updates and track reports to support all related parties. The yard also has extra support for customers, with a container repair service

arranged by technicians, plug-in service for reefer containers, and a transportation service to distribute containers by skillful truck drivers.

The major task of ABC container depot is to provide a service operation as a storage yard for ocean liner owned containers, as well as to provide a container depot service mainly for dispatching empty containers to each ocean liner's customer for the export process. ABC container depot's services begin after an export booking acknowledgement between a shipper and an ocean liner have been completed.

## **1.2 Statement of the Problems**

A failure in the delivery service of a container depot can result in many negative effects to a customer, such as higher land transportation cost, wasted time to fix a container, being late for a liner's deadline, and paying extra for document revision. In any event, these bad results affect the entire container supply chain, and ocean liner, freight forwarder, or other involved third party logistics company need to take responsibility for the problem.

In a customer's view, a failure in service performance of container depot is the mistake of their engaged logistics service provider, a consequence of error coordination and ineffective communication flow between each related containerization systems. Thus, these problems impact on customers' satisfaction and lead them to turn to a competitor's services.

Nowadays, in order to achieve success in the present logistics competition, the logistics service providers need to assist customer by providing the best service quality in every single part of their operation. Due to a container depot being categorized as a logistics service provider that plays a vital role in container supply chain management, therefore the service quality of a container depot additionally needs enhancement to enable a smooth and speedy container movement flow between ocean liners and customers.

Many researchers have examined the problem of containerization arrangement in maritime transport. **Mhonyai and Suthikarnnarunai** (2011) found that the main problems between container depots and customers in Asia, Europe and USA are imbalance of empty container allocation and yard congestion due to insufficient yard infrastructures. For the containerization system in Bangkok, most ocean liners and third party logistics companies have received customer complaints regarding low service performance of container depots, because of failure to delivery promised containers to customers or delays in service operations. Hence, the problem of customer satisfaction with container depot service quality should be studied.

Even though, there are many research reports on logistics service quality and customer satisfaction, none have considered the problem of container depot service in Bangkok. Thus, the question, ***"How does container depot service quality, service pricing and service location influence customer satisfaction?"*** must be the main problem of this paper.

### **1.3 Research Objectives**

There are four major objectives in this study:

- 1.3.1 To examine the influence of container depot service quality on customer satisfaction.
- 1.3.2 To explore the influence of service pricing and service location on customer satisfaction.
- 1.3.3 To identify the factor that provides highest influence on customer satisfaction.
- 1.3.4 To draw conclusion and give recommendation in order to improve container depot service quality.

#### **1.4 Scope of the Research**

The ABC container depot is selected for a case study in this research, emphasizing its service performance in dispatching empty containers to customer. An in-depth interview with the logistics manager of the ABC container depot will be conducted together with observation at the depot. Questionnaire survey information will focus on current customers of the ABC container depot who are involved in the process of pick up of empty container. Besides, the nine dimensions of Mentzer's logistics service quality model is applied.

#### **1.5 Significance of the Research**

This study aims to explore the service quality aspects which are important for customer satisfaction in the ABC container depot service. Also, the effect of company service pricing and service location on customer satisfaction will be studied. Hence, the advantage of this research will be to contribute the factors that help to improve service quality of the ABC container depot and might be useful information for other container yards in order to increase service performance to meet customer satisfaction and create better abilities in the containerization system. Also, the result might be useful for ocean liners as a reference for container depot selection in Bangkok, Definitely, customers will get the most benefit of better quality service in the future.

#### **1.6 Limitations of the Research**

The respondent of the study are limited to the ABC container depot customers, so its findings may not be applicable to other container depot operators. Moreover, only the outbound empty container dispatch activity is examined in this study, though there could be other service quality functions that customer evaluate which are not mentioned in this study.

## 1.7 Definition of Terms

<b>Containerization System</b>	The movement instrument in freight transport system characteristic of a movement method in which goods are packed in steel standardized containers which can be transported by road, rail or ship from origin to destination without opening the container (Waters & Soman, 1989)
<b>Container Depot</b>	The storage area for empty containers, which provide full operation service and infrastructure equipment for dispatching container to shipper (Lai, Lam & Chan, 1995)
<b>Customs Brokerage Agent</b>	An individual or a firm offering customs advice and providing importers and exporters a service in order to meet the requirements of the Customs Department. Brokers would declare cargo's details to the Custom Department on behalf of a shipper (West, 2009).
<b>Customer Satisfaction</b>	A person's feeling when comparing a product's perceived performance with expectation (Kotler & Keller, 2006)
<b>Freight Forwarder</b>	The agency that supplies all related activities for a coordinated logistics and transportation system, and also deals with path selection, price negotiation, documentation and space allocation (Morris, 2008).

<b>Liner Owned Container</b>	Refers to containers' ownership, belonging to an ocean liner. When not in use, they are stored in third party depots for which the depot will charge for daily storage (Lai, Lam & Chan, 1995).
<b>Logistics Service Provider</b>	A firm that provides services for the flow of goods and materials from points of origin to end-use destination. The related activities frequently handle shipping, warehousing, packaging, and security functions for shipments (Selviaridis & Spring, 2007).
<b>Logistics Service Quality</b>	Refers to the practical logistics service ability which consists of nine dimensions i.e. personal contact quality, order release quantity, information quality, order procedure, order accuracy, order condition, order quality, order discrepancy handling, and timeliness (Mentzer et al., 2001).
<b>Marine Transport</b>	Refers to each kind of item being transported above a body of water onboard a boat, or supplementary vessel (Sitorus, 2012).
<b>Ocean Liner</b>	Carrier type services over fixed international trade routes for transportation, by carrying the cargo from seaport to seaport between countries (Davies, 1986).
<b>Outbound Process</b>	The outward movement of cargo associated with storing, transporting, and allocating goods to its customers. It also, refers to export movement (Dickersbach, 2008).

**Pricing** Refers to the cost or local charges given in exchange for the expected service provided by service providers (Zhou, 2006).

**Service Location** The place that provides enduring facilities for movement of goods **and other** support services with supplementary data and value added to the customer (Francis, Lowe & Tamir, 2000).

**Shipper** Exporter; the company or person who ships the cargo to the consignee (Beilock & Freeman, 1984).

**Third Party Logistics Provider** A firm that offers various logistics function abilities. A variety of services can be provided such as freight transportation and consolidation, packaging, customs service, import-export document management or warehousing service (Piasecki, 2003).

## CHAPTER II

### REVIEW OF RELATED LITERATURE AND RESEARCH FRAMEWORK

This chapter presents and discusses an overview of important aspects of the container depot services. All supporting literature of the independent and dependent variables is reviewed to explain the subject matter of logistics service quality, service pricing, service location and customer satisfaction. Also, the relevant theoretical framework, conceptual ideal and hypotheses of the research will be discussed.

#### 2.1 Containerization System

Logistics have developed rapidly in the containerization period. Containerization is a new movement instrument in the freight transport system, founded on a movement method of steel **intermodal** containers. The common container feature is the transport of cargo in container box which can be transferred quickly, with security, and inexpensively, between ships, trucks and trains from its origin to its destination, along with various logistics and distribution activities, without being opened. According to **Zhi, Bin, You and Yan** (2010), "A container performs as a device that can be applied with innovative advances to the carriage of commodities. The advantage of a container is to be a medium of carriage for both commodities and technologies" (p.1236).

The advance of containerization led to its considerably supremacy as the transportation procedure of globe significance and distribution networks. The consequence of containerization dramatically cut transport prices and enhanced global trade. Before containerization, transportation across global the marketplace was **highly-priced**, with a frequent price of 25 percent of the cargo's value (Levinson, 2006). Currently, through the versatility of containerization, transportation is swifter and cheaper. It facilitates all related globalization supply chains such as

manufacturers, retailers and logistics service providers to spread their connections worldwide with less concern for the transportation expense.

**Zhi** et al. (2010) found that the significant reason for containerization emergence is the development and growing scale and scope of transportation, because containerization come to be a standard storage and transport constituent for nearly all movement activities. In addition, **Rodrigue, Comtois** and **Slack** (2009) have concluded that the growth of containerization transportation is generally due to four main factors as in the following.

**Table 2.1: Four Main Factors for the Growth of Containerization**

DERIVED	SUBSTITUTION	INCIDENTAL	INDUCED
Economic and income growth  Globalization outsourcing  Fragmentation of production & consumption	Functional & geographic diffusion  New niches commodities  Capture of Bulk markets	Trade imbalances  Repositioning of empty containers	Transshipment

Source: Adapted from **Rodrigue** et al. (2009)

### 2.1.1 Container Supply Chain Management (CSC)

There is little literature on container supply chain management (CSC). **Zhi** et al. (2010) studied a visualization model of CSC and proposed CSC as connected activities between container transport and manufacturing procedure which implement higher performance for the container activities such as loading/unloading, storage, transport, and data flow association until transported to end customers.

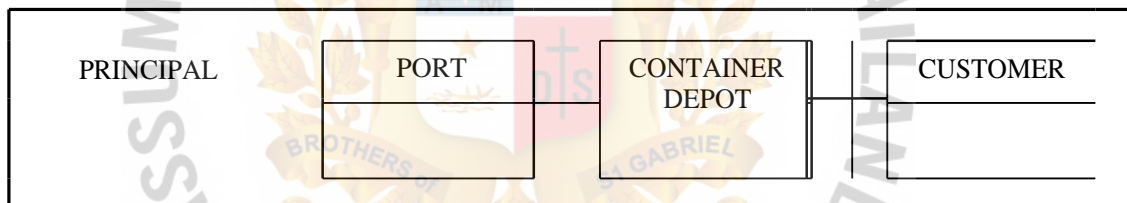
However, after review much literature, it was found that there are several problems of containerization present in different parts of the world. Many researchers proposed

that Asia and Europe face the similar setback of **imbalanced** empty container allocation and fleet management (e.g. Shen & Khoong, 1995; Moccia, 2004; Brito & Konings, 2004; Lam, Lee, & Tang, 2007; Song & Dong, 2008; Meng & Wang, 2011). Besides, Waters (2003), Gordon, Potvin and Soriano (2006) concentrated their research in USA, confronting the lack of infrastructure and seaport congestion. Also, Beamon (1998) stated that there are inefficient container allocations in Australia. Meanwhile, the usual method utilized to resolve these complicated problems is an Optimization method with the intention to minimize the procedure costs (Mhonyai & Suthikarnnarunai, 2011).

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There are four parties related in the supply chain of container: principal, port, container depot, and customer, as shown in Figure 2.1.

**Figure 2.1: Supply Chain of Container Management**



Source: Adapted from Mhonyai and Suthikarnnarunai (2011)

### 2.1.2 Container Depot

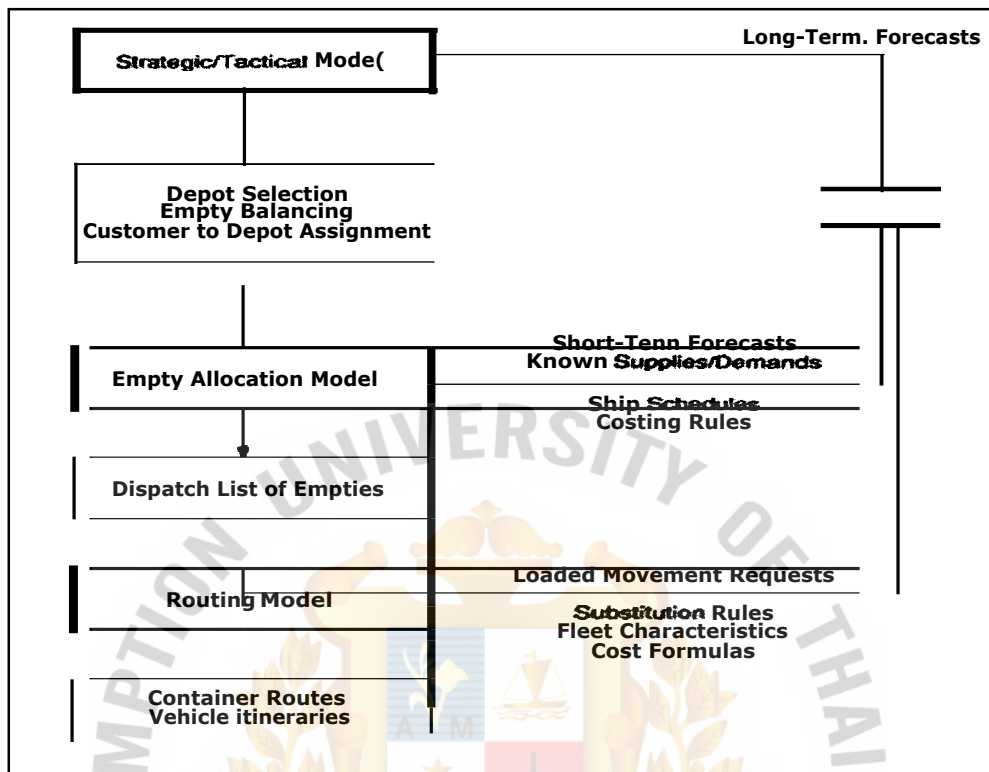
A container depot is storage area for empty container (in the Thailand logistics field it is often called a Container Yard or (CY). A container depot is the storage place for both leased containers and ocean liner owned containers, in that those empty containers have to be stored, maintained and available for subsequent dispatch to shippers for further export transportation. Song (2007) identified that empty containers can be allocated at container yards as **maintenance** stock or substitute for supplementary depots. If the shipping liner owner containers is incapable of meeting customer demand, supplementary containers are leased from dealers to satisfy customer demand by paying the leasing cost.

To facilitate an understanding of containerization's characteristics, Crainic, Gendreau and Dejax (1993) proposed a brief overview of an arriving ship carrying an inbound container load of imported goods as well as empty containers returning from the preceding export. Loaded containers have to be transported by truck or rail to an importer's final warehouse or distribution center for the unloading process. Once unloaded, the empty container can be picked up at the customer's location and moved away. A customer might return the empty container to the port of origin or to another container depot as assigned by the ocean liner. Meanwhile, the empty containers that are imported and returned from being unloaded may either be stored at the terminal for a while or instantly moved to another storage container depot ready to assist with more exports.

Similarly, once there is a demand from an exporting firm requiring empty containers delivery, a shipper would handle the booking acknowledgement by contacting a logistics service provider such as ocean liners, freight forwarders or third party logistics providers. Once the fleet booking acknowledgement is completed, the container specification type and quantities would be assigned to each shipper to be picked up those specified empty containers at a requested container yard for the purpose of loading cargo at the customer's place and then exported.

After loading is completed, containers are transported to the export seaport and are loaded onto ships together with some empty containers that are being shipped overseas in order to cope with the globe imbalance in the supply/demand of containerization. Figure 2.2 shows an outline of an overall container repositioning planning approach.

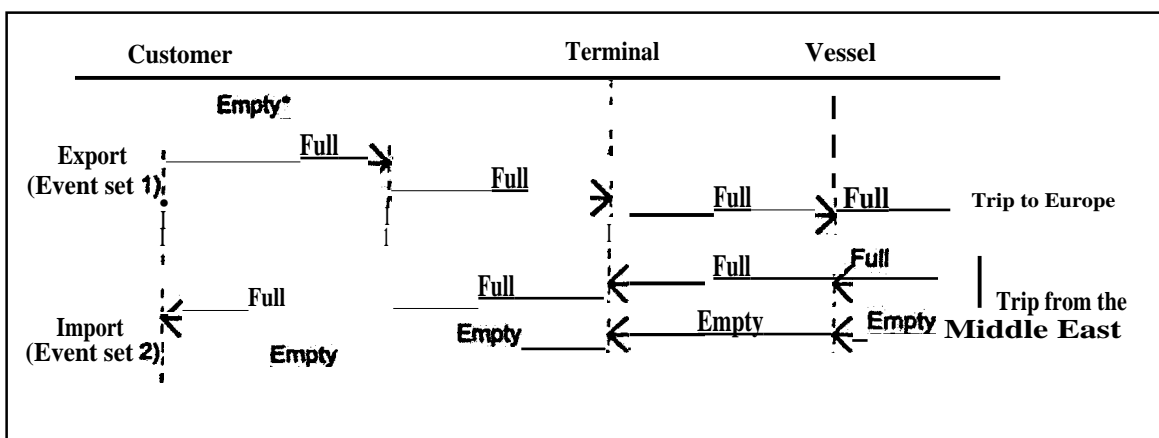
Figure 2.2: Outline of Container Reposition Planning



Source : Crainic et al. (1993) (p.104)

A further study by Lai et al. (1995) proposed that export and import circumstances established the container trip cycle. The container trip cycle starts and **finally** ends at a container depot with the container being empty. The two circumstances that set up a container trip cycle are shown in Figure 2.3 below.

Figure 2.3: Container Trip Cycle



Source: Lai et al. (1995) (p.689)

In conclusion, a container depot plays a crucial role in container shipping transportation such that its performance is able to affect the entire containerization system's operational efficiency. **Crainic et al. (1988)** found that in 1986 one major European container shipping company operated over 300,000 container movements, incurring an average total distribution cost of USD 50,000,000; 40% of these costs emerged due to ineffective management in the allocation and movement of empty containers. **Mi, Yan, He and Chang (2009)** indicated that the container yard's allocation is a complicated setup of storage areas of various blocks. Each block has to set up a specific number of lanes, in which each lane is composed of stacks with four to five tiers. Significantly, the yard allocation for outbound containers storage is capable of affecting the handling cost, transport cost and turnaround time of vessels. In addition, **Lai et al. (1995)** explored container transportation challenges, focusing on the management of empty containers. They emphasized that in order to satisfy more customers, the company has to prevent extra lost sales due to unavailability of empty containers when requested by customers. In practice, the firm is always trying to convince customer to wait for the next substitute container which becomes available.

Further study can be summarized, that all container depots' service attributes are similar, and can be classified as follows.

- Releasing container service.
- Container surveys service.
- Maintenance and repair containers service by container technicians.
- Cleaning Containers service.
- Transportation services.
- Provide Convenient locations.
- Offer skilled team together with infrastructure technology instruments.
- Offer wide yard, able to support a high volume of containers.
- Provide machinery for container arrangements such as mobile crane or forklift
- Plug service for reefer containers

Computer system and software that process flexible communication flow and update report between container depots, ocean liners, and customers.

Similarly, for all container depots, the steps that shipper must implement in requesting a pick-up of their reserved empty containers, can be classified as below.

- Shippers or their logistics service provider agents have to contact the officer at the outbound container releasing gate to pay the gate charge and submit all the required documents below:
  - Booking acknowledgement issued by ocean liner or freight forwarder. Inside are details of the ocean liner, agent, container type, container quantity, booking number, and commodity.
  - A copy of an ID card and contact telephone number of an authorized person.
    - Truck registration number
    - Address for issuing a receipt.
- Then the officer must check the correctness of the booking acknowledgement that needs to match the information that they also received from the ocean liner which owned that specific container. The officer would issue a Container Releasing Confirmation document to the shipper to present to the yard technician at the container storage area.
- The yard technician would do a container survey first in order to find the most suitable container that is able to support the customer's commodity; then the selected container would be picked up into a trailer.
- The yard technician accompanies the shipper for an inspection of container quality, searching for any container damage or holes.

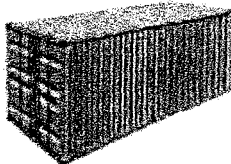
- Once the best container is selected by both parties, the yard technician would issue a Container Inspection Guarantee for the shipper to submit at the outbound empty container releasing gate, recording the specification of container number into an **updatable** tracking computer system.
- Then the officer would issue an Empty Container Releasing document to the shipper as well as release the container seal and record the seal number.
- Finally, the shipper would receive an Empty Container Releasing document. The Seal and receipt for their records, and the empty container, would be distributed to the shipper's loading place.

### 2.1.3 Container Type Specifications

There are assorted kinds of containers specification that fit into uniform dimensions worldwide so as to assist with various kind of cargo and meet all customer demands for loading and unloading activities. According to the Freight Broker International Corp (2012), the container specifications can be classified into six main groups: Dry cargo containers, Refrigerated containers, Open top containers, Flat rack containers, Garment containers, and High cube containers. Figure 2.4 illustrates the container specifications.

Figure 2.4: Container Specifications

### DRY CARGO CONTAINERS

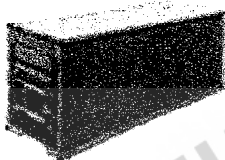


Type	Container Weight			Interior Measurement				Door Open	
	Gross Wt	Tare Wt	Net Wt	Length	Width	Height	Capacity	Width	Height
20 ft	24,000	2,370	21,630	5.898	2.352	2.391	33.20	2.343	2.290
40 ft	30,480	4,000	26,480	12.031	2.352	2.394	67.74	2.343	2.290

#### CHARACTERISTICS

Manufactured from either Aluminum or steel, they are suitable for most types of cargo / general cargo. Aluminum containers have a slightly larger payload than steel, and steel containers have a slightly larger internal cube.

### REFRIGERATED CONTAINERS



Type	Container Weight			Interior Measurement				Door Open	
	Gross	Tare	Net	Length	Width	Height	Capacity	Width	Height
2011	21,000	3,050	20,950	5.449	2.290	2.244	26.70	2.276	2.251
4011	30,490	4,520	25,970	11.690	2.250	2.247	57.10	2.280	2.205

#### CHARACTERISTICS

Recommended for delicate cargo. Bottom-air delivery system ensures refrigerated cargo reaches its destination in optimum condition.

### OPEN TOP CONTAINERS

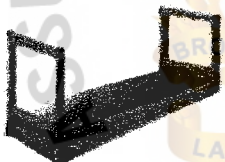


Type	Container			Interior Measurement				Door Open	
	Gross Wt	Tare Wt	Net Wt	Length	Width	Height	Capacity	Width	Height
2011	24,000	2,590	21,410	5.629	2.212	2.311	32.00	1.330	2.253
4011	30,490	4,290	26,190	11.763	2.212	2.311	65.0	2.330	2.263

#### CHARACTERISTICS

Allowing cargo to be loaded from the top, open top containers are easily suitable for bulky cargo such as machinery. They are fitted with a PVC tarpaulin cover and detachable tow with cable sealing devices. The container doors can be removed to make re-stuffing of cargo more convenient. Manufactured from steel.

### FLAT RACK CONTAINERS

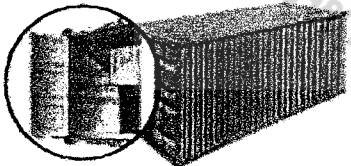


Type	Container Weight			Interior Measurement				Door Open	
	Gross Wt	Tare Wt	Net Wt	Length	Width	Height	Capacity	Width	Height
20 ft	30,490	2,900	27,590	5.624	2.236	2.134	27.90		
4011	34,000	5,870	28,130	11.796	2.236	1.969	51.90		

#### CHARACTERISTICS

Flat racks are especially suited to heavy loads or cargo that needs loading from the top or sides, such as pipes and machinery. They are collapsible and non-collapsible containers with or without walls. Manufactured from steel.

### GARMENT CONTAINERS

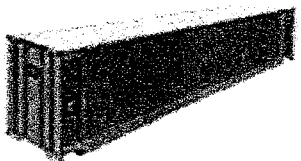


Type	Container			Measurement				Door Open	
	Gross Wt	Tare Wt	Net Wt	Length	Width	Height	Capacity	Width	Height
20 ft	24,000	UV	21,760	5.898	2.352	2.394	33.20	2.343	2.290
4071	30,480	3,895	26,585	12.031	2.352	2.394	67.74	2.343	2.290

#### CHARACTERISTICS

Use bunks or garment. The containers are specially designed for garment product and related industry. There are ease options of using a spring or tier system or a combination of both. They allow increased flexibility, greater load internal capacity and savings on transportation and weight cost.

### HIGH CUBE CONTAINERS



Type	Container Weight			Interior Measurement				Door Open	
	Gross Wt	Tare Wt	Net Wt	Length	Width	Height	Capacity	Width	Height
40a	30,490	3,980	26,510	12.031	7.47	2.698	7630	2,340	2,585
45 ft	30,480	4,900	25,580	13.544	1.352	2.698	MUD	2,340	2,385

#### CHARACTERISTICS

With high cube containers, you gain an extra foot in height compared with general-purpose containers. Ideal for light, voluminous cargo or bulky cargo. These extra volume containers come in steel and aluminum.

Source: <http://fbifreight.com/international-freight-brokers/ocean-freight-container-sizes/>

In practice, the types and sizes of each liner owned container might vary slightly. Consultation with the ocean liner will help selection of the right type and size of container that is most suitable for the customer's cargo commodities. However, the most popular selection is the **dry** cargo container which is capable of accommodating nearly every kind of general commodity, in contrast the specialized containers which should be adopted for cargo requiring special equipment size and type. Song (2007) stated that "two types of containers; twenty-foot equivalent unit (**TEU**) and forty-foot equivalent unit (FEU) are often used" (p.123).

## 2.2 Service Quality

Customer satisfaction is an important business goal. In order to survive and accomplish profitability, organizations have to respond to a customer's needs and satisfy customer preference. Although there are many factors which in fact result to customer satisfaction, most **preceeding** empirical research attempts to emphasize service quality. According to much previous literature, there are many meanings of service quality. **Lehtinen** (1982) found that service quality is found in the interaction of a customer and a service provider's performance. The quality of service mentioned as a model of attitudes which are related to but not definitely the same as satisfaction, can be derived from the contrast between expectation and performance (**Parasuraman, Zeithaml & Berry**, 1988).

**Gronroos** (1989) identified service quality as the way practical quality occurs when the interaction of purchaser and merchant relate to what the customer both perceived and received. Later, **Gronroos** (1990) also mentioned that service quality is the extra capability of the firm to meet or exceed customer preferences, as well as service quality being a firm's special feature that is performed in the service and in the customer's perception. Furthermore, **Gronroos** (1990) stated that service quality is the related activities' set between materials, service system, customer and service providers in how well they can respond to problems and provide a quick solution response to customers

Service quality also play an important role in terms of customer retention (**Reichheld & Sasser, 1990**), profit advantage (**Rust & Zahorik, 1993**), satisfaction of customer (**Boulding, Kalra, Staerin & Zeithaml, 1993**), financial performance (**Buttle, 1996**), cost (**Crosby, 1997**) and service guarantees (**Kandampuly & Bulter, 2001**).

According to **Asubonteng (1996)**, service quality is determined by the comparison between customer's expectations of their previous service performance to the service encountered and their perception of what is received. **Palmer and Bejou (1994)** mentioned service as the supplementary functions which indirectly affect the buying-selling activity of the customer and service provider.

Furthermore, several researchers tried to describe service quality dimensions. **Parasuraman et al. (1985)** created a conceptual model for a better understanding of the nature of service quality. A conference discussed this with the three groups of service providers and finally determined the service quality in ten major dimensions. Later, **Parasuraman et al. (1988)** modified and improved their service quality model into five dimensions.

**Parasuraman et al. (1988)** proposed that perception of service quality is considered as the preference level of discrepancy between a customer's need and want. Customers often estimate service quality emerging according to five stated dimensions: reliability, responsiveness, assurance, empathy, and tangibles.

In addition, **Fitzsimmons (1994)** found that the **SERVQUAL** model was applied by most marketing researchers. Moreover, customers often use these five factor dimensions of service quality to judge and evaluate the performance of service providers. The model of **PZB** is called **SERVQUAL**, as shown in Table 2.2.

**Table 2.2: Original Model and Refined Model of Parasuraman et al.**

Original Model	Refined Model	Description
Tangibility	Tangibility	Physical aspects of what is provided to users.
Reliability	Reliability	The ability to accurately accomplish what was promised.
Responsiveness	Responsiveness	Ability to help users and promptly provide the service, capturing the notion of flexibility and the ability to adjust the service to the user's needs.
Competence Courtesy Credibility Safety	Guarantee	Competence and courtesy extended to users and the safety provided through operations.
Access Communication Understanding the user	Empathy	Individual attention provided to users.

Source: Adapted from Marshall and Murdoch (2001)

### **2.3 Logistics Service Quality (LSQ)**

Logistics expertise comes to be a tremendous factor of competition for differentiation in globe trade. The logistics service quality (**LSQ**) is one of the key factor to boost customer satisfaction. Many researchers described the definition of **LSQ** as concerning the firm's expertise capability to serve the right quantity of the right product to the right place at the right time in the right condition at the right price with the right information (Coyle, **Bardi**, & Langley, 1992; Stock & Lambert, 1987).

In addition, **Srivastara**, **Shervani** and Fahey (1999) found that inbound-outbound and internal logistics activities play an important role for the firm which can impact directly in managing their entire suppliers and customers. **Ellinger**, Daugherty and Keller (2000) identified that logistics is a crucial factor which is able to impact a company's overall performance that also leads to enhancing company profitability and customer satisfaction. Logistics service quality is also mentioned by Perrault and Russ (1974) as the significant performance which affects customer satisfaction.

Furthermore, Mentzer, Flint and Hult (1999) have studied the information on customer's opinion of each logistic service provider, which emphasized logistics service provider delivery usefulness for customers. Also, Bowersox, Mentzer and Speh (1995) proposed that a lot of successful companies have relied on logistics activities which lead to the creation of a company's competitive advantage and customer satisfaction.

According to the above literature, Logistics become a crucial part of transportation supply chain activities, able to enhance customer satisfaction as well as minimize the firm's operation and inventory cost. Concerning customer satisfaction with the service quality of a container depot, the most relevant strategy is the logistics service quality model of Mentzer et al. (2001) which completely illustrates and investigates the nine dimensional model of the logistics service process.

The nine dimensions are: personal contact quality, order release quantities, information quality, ordering procedures, order accuracy, order condition, order quality, order discrepancy handling and timeliness. Mentzer et al. (1999) have described their LSQ model in two significant stages, starting when an order is begun until satisfying the customer's need, as in the following.

- First stage: Order placement component, including: personal contact quality, order release quantity, ordering information quality and ordering procedures.

Second stage: Order receipt, goods or services receipt, including order accuracy, order condition, and order quality. Meanwhile, timeliness is an important factor for order receipt that affects customer perception regarding the product and service delivered on time.

The nine dimension model of Mentzer et al. (1999) is illustrated below.

**Table 2.3: Logistics Service Quality Definition**

<b>LSQ Dimension</b>	<b>Meaning</b>
<b>Personnel contact quality</b>	Refers to the customer orientation of the supplier's logistics contact people. Specifically, customers care about whether customer service personnel are knowledgeable, empathize with their situation, and help them resolve their problems.
<b>Order release quantities</b>	Related to the concept of product availability. <i>The 3PL</i> provider can challenge customer's requests to ascertain the need behind their volume requests. Customers should be the most satisfied when they are able to obtain the quantities they desire.
<b>Information quality</b>	Refers to customer's perceptions of the information provided by the supplier regarding products from which customers may choose.
<b>Ordering procedures</b>	Refer to the efficiency and effectiveness of the procedures followed by the supplier.
<b>Order accuracy</b>	Refers to how closely shipments match customer's orders upon arrival. This includes having the right items in the order, the correct number of items and no substitutions for items ordered.
<b>Order condition</b>	Refers to the lack of damage to orders. If products are damaged, customers cannot use them and must engage in correction procedures with suppliers, depending on the source of the damage.
<b>Order quality</b>	Refers to how well products work. This includes how well they conform to product specifications and customers' needs. Whereas <b>order accuracy</b> addresses the complete set of products in the order (i.e., the accuracy of the kinds and quantities of the products in the order) and <b>order condition</b> addresses damage levels of those items due to handling, <b>order quality</b> addresses the manufacturing of products.
<b>Order discrepancy handling</b>	Refers to how well any discrepancies in orders are addressed after the orders arrive.
<b>Timeliness</b>	Refers to whether orders arrive at the customer location <b>when promised. More broadly, timeliness also refers to the length of time between order placement and receipt. This delivery time can be affected by transportation time, as well as back-order time when products are unavailable.</b>

Source: Adapted from Mentzer et al. (1999) (p.90)

In conclusion, the general problems that are encountered in container depot services include: empty container allocation delay, inaccurate container information, incomplete service, delay, and inefficient container supply chain operations. The logistics service quality model developed by Mentzer et al. (1999) is able to cover all the logistics service quality in transportation service and containerization system,

therefore Mentzer's nine-dimensional model is selected to apply in this case study to measure the degree of customer satisfaction with the logistics service quality of a container depots.

## **2.4 Relationship between Customer Satisfaction and Service Pricing**

Price satisfaction is an influential factor leading to competitive advantage and business success. Distinctive prices are able to win business competition which is capable of enhancing and sustaining business relationships between suppliers and customers, and also leading to improved company profitability and the stimulation of continued customer loyalty and retention. It is most significant for a logistics service provider to create customer relationships by applying strategy-related marketing, especially focusing on the price tool in order to cope with present globalization business challenges and to gain the highest competitive advantage by dramatically satisfying customer's demands better than the competitors. In the marketing theoreticians' view, price is the vital significant element in the marketing mix that is able to build customer satisfaction, as customers would evaluate the value of perceived service mostly based on the price.

Regarding the study of the price relationship with customer satisfaction, many researchers stated that customer satisfaction would occur once customers perceive service quality, price, and other factors. To implement business successfully in the global market, service enterprises **should** assess how much the company setup price impacts customer satisfaction.

Zhou(2006), Consuegra, Molina & Esteban (2007) and Salickaite (2008) performed empirical research, and concluded that service price is one factor which is able to enhance customer satisfaction as well as to facilitate customers loyalty, and that price comes to be an important factor in marketing research. In addition, Consuegra et al. (2007) investigated how price is able to create an impact on consumer satisfaction.

According to this, **Consuegra et al. (2007)** have constructed an integrated model of price, satisfaction and loyalty.

**Dovaliene and Virvilaite (2008)** also stated that in the marketing mix elements, price is one of the most adjustable factors that become rapidly adapted once changing a product's feature or service performance. Besides, the customer's attention to price would be extremely great when compatible with other elements of the marketing mix, including product or service, place, price and promotion. In much of the literature, price is defined as the most significant factor in customer satisfaction, because customer evaluation is always concerned with the price affect (**Zeinhaml, 1988; Fornell, 1992; Anderson et al., 1994; Virvilaite, 2008**).

Thus, research about price related satisfaction found that the degree of customer satisfaction relies on service quality, price and personal factors. Hence, this research will select service pricing as the factor by which to measure the logistics service quality of a container depot.

According to the telephone interviews with the majority of container depots in the Bangkok area, their service charges for picking up empty containers include: Gate charge and container lift-on/Lift-off charges, and these price might vary slightly depending on each container depot price tariff, as below:

- Total service cost per a trailer (20' ft): varies from **THB 400 – 550**
- Total service cost per a trailer (40'ft or 45'ft): varies from **THB 900 – 1100**

## **2.5 Relationship between Customer Satisfaction and Service Locations**

Schiller and **Voisard (2004)** proposed that "Location services can be defined as services that integrate a mobile device's location or position with other information so as to provide added value to a user" (p.10). Also, they concluded that location intelligence leads to improved service ability and competence, to the customer's satisfaction. **Berman and Evans (1992)** summarized that there are five factors which

can affect the enhancement of customer satisfaction: merchandise, price, service, advertising, and location.

Moreover, **Hakimi** (1964) found that the intelligence of service locations facilities on a transportation relationship system become of major significance to service provider companies. Mantel (2011) identified that excellent customer satisfaction included an optimal opinion of a real service location; therefore developing organization service locations can also increase excellence in customer satisfaction and enhance competitive advantage.

Similarly, as a container yard has a crucial position in container transportation, in which yard location dramatically affects the operational efficiency of the entire container supply chain. The allocation of a container yard is built up of several blocks of empty containers. Each block contains a number of lanes, and about four-five tiers stacks are in each lane.

The yard locations of outbound containers have a tremendous affect on the handling cost, transportation cost and total turnaround time between customer loading places and export seaport terminals. Therefore, a reasonable yard location for outbound containers is an unavoidable condition for customer satisfaction and becomes an important measurable factor for customer satisfaction.

At present, the Office of Transport and Traffic Policy and Planning, in the Ministry of Transport, reported that there is a total of 23 yards or container depots that are located around Bangkok and its suburban area, as can be seen in Appendix B.

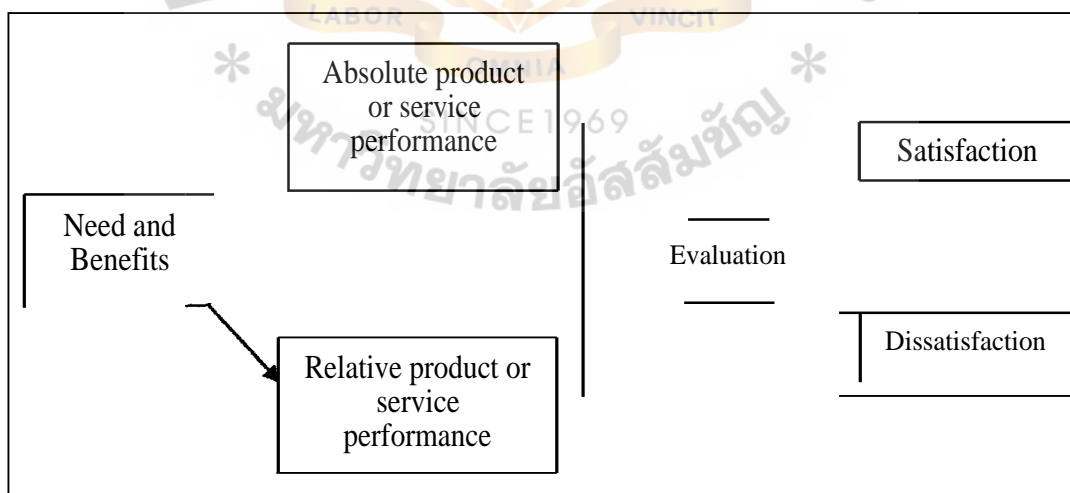
## **2.6 Customer Satisfaction**

Referring to previous studies, the concept of customer satisfaction has been debated in tremendously theoretical concepts. Wells and **Prensky** (1996) stated that customer satisfaction is a perception attitude of a customer towards the total average of experience with a received product or service that has an effect on customer

satisfaction or dissatisfaction. **Zineldin** (2000) proposed that satisfaction is an overall customer opinion viewpoint towards a service provider, or an emotional response to the comparison between anticipation and what was actually obtained. Oliver (1997) also defined that the customer's gratification reaction is an evaluation tool that a product or service offered a satisfying degree of customer related gratification reaction, as it is the overall level of satisfaction with a customer's experience. **Hausknecht** (1990) has concluded that customer satisfaction can be judged by two methods: evaluation of overall perceived satisfaction and customer's preference on those related necessity factors.

On the other hand, **Assael** (1998) defined dissatisfaction as the customer's overall opinions of the customer's actual experience when customer anticipation is not satisfied that significantly affects customer dissatisfaction and changes their behavior to other competitors. Furthermore, **Sheth, Mittal** and Newman (1990) stated that a customer satisfaction or dissatisfaction model is effectively to be applied to evaluate the overall customer satisfaction with company services.

**Figure 2.5: Customer Satisfaction and Dissatisfaction Model**



Source: Well and Prensky (1996) (p.412)

## 2.7 Relationship between Logistics Service Quality and Customer Satisfaction

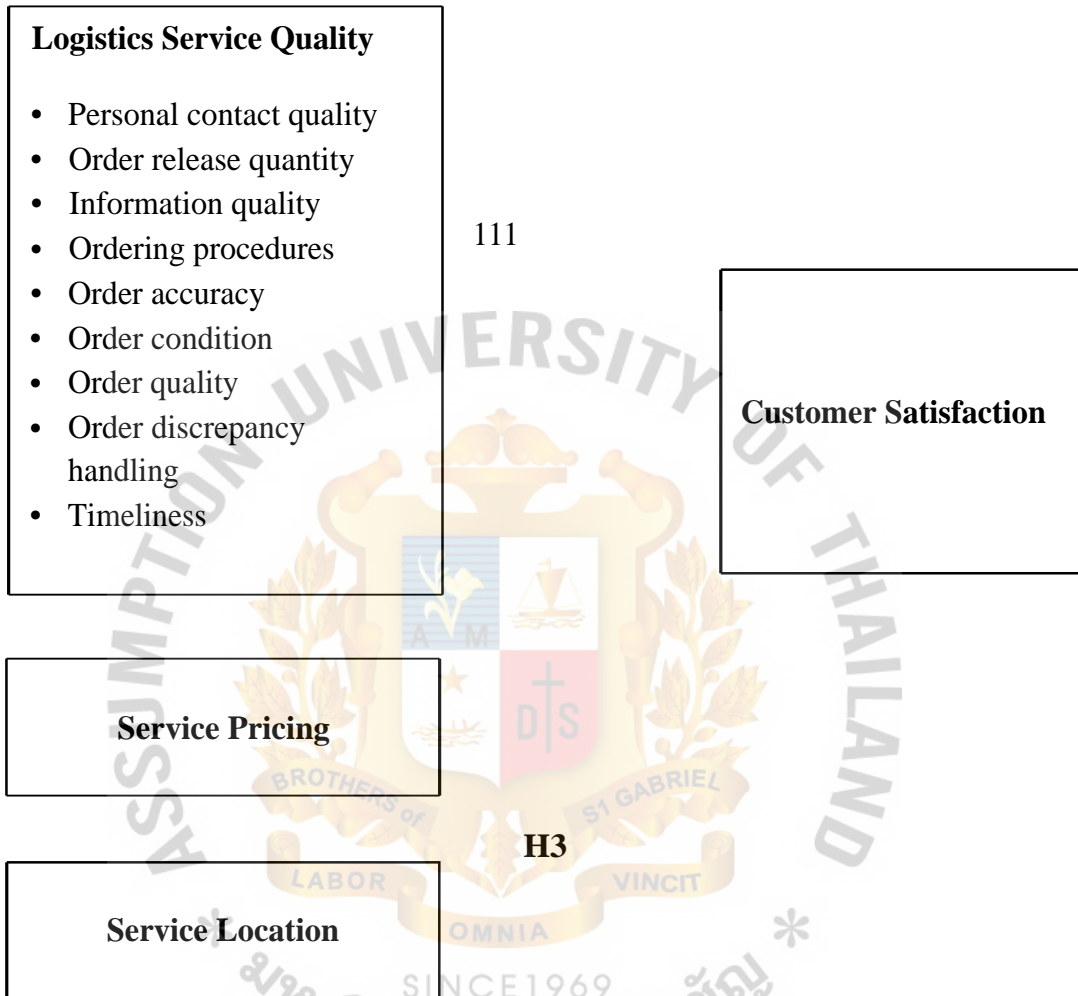
**Much of** the literature strongly supports the relationship between logistics service quality and customer satisfaction improvement (Dabholkar, 1995; Parasuraman et al., 1998; Shemwell et al., 1998). Rafiq and Jaafar (2007) also concluded that logistics service quality has a direct effect on profitability through customer satisfaction and loyalty. Also, Mentzer et al. (2001) concluded from their logistics perspective that excellence in logistics service capabilities can lead a company to increase customer and supplier value through service ability performance, growth in market share, enhance customization, build an efficient customer-reaction based technology system, obtain a positive effect on customer satisfaction and increase a firm's performance. In conclusion, the quality of logistics service performance is a key factor enhancing customer satisfaction (Millen et al., 1999).

## 2.8 Conceptual framework

According to the above literature, this research aims to apply the logistics service quality model of Mentzer et al. (1999). Their nine dimensions are: personal contact quality, order release quantities, information quality, ordering procedures, order accuracy, order condition, order quality, order discrepancy handling, and timeliness. The model will be implemented to evaluate customer satisfaction for a container depot in Bangkok. Also, the service pricing and service location are additional independent variables that will be applied to measure the effect on customer satisfaction and compare them with other variables.

The study is based on the conceptual framework that explains the relationship between logistics service quality, service pricing, service location and customer satisfaction in a container depot in Bangkok, which can be proposed as the following framework.

**Figure2.6: Conceptual Framework**



## 2.9 Research Hypothesis

There are three main hypotheses and eleven independent variables which can be drawn from the conceptual framework to identify the relationship between logistics service quality, service pricing, service location and customer satisfaction. All these hypotheses are formulated and described below.

**Hypothesis 1:** There is a positive relationship between logistics service quality and customer satisfaction.

Hypothesis 1a: There is a positive relationship between personal contact quality and customer satisfaction.

Hypothesis 1 b: There is a positive relationship between order release quantities and customer satisfaction.

Hypothesis 1c: There is a positive relationship between information quality and customer satisfaction.

Hypothesis **1d**: There is a positive relationship between ordering procedures and customer satisfaction.

Hypothesis **1e**: There is a positive relationship between order accuracy and customer satisfaction.

Hypothesis **1f**: There is a positive relationship between order condition and customer satisfaction.

Hypothesis **1g**: There is a positive relationship between order quality and customer satisfaction.

Hypothesis **1h**: There is a positive relationship between order discrepancy handling and customer satisfaction.

Hypothesis **1i**: There is a positive relationship between timeliness and customer satisfaction.

Hypothesis 2: There is a positive relationship between service pricing and customer satisfaction.

Hypothesis 3: There is a positive relationship between service location and customer satisfaction.

## 2.10 Summary

In order to present a clear picture concerning a containerization system, the researcher attempted to describe the important overall aspects of a container depot, focusing on the outbound process. Also, related literature of the logistics service quality model of Mentzer et al. (1999), service pricing, service location and customer satisfaction has been reviewed and established as the main factor to be studied in this project. Then the conceptual framework and hypotheses were proposed in this chapter.



## **CHAPTER III**

### **RESEARCH METHODOLOGY**

Derived from the literature review and conceptual framework in the previous chapter, the purpose of this chapter is to illustrate the research methods and techniques which are implemented in this study. Firstly, the research design will be examined, followed by target population and sample, data collection, questionnaire development, pre-test result and data analysis plan. The details of each section are as follows:

#### **3.1 Research Design**

Customer satisfaction is indicated as the dependent variable in the model, while the three independent variables are the factors related to logistics service quality, service pricing and service location. A descriptive research method is used in this study to explain the characteristics of the population involved. The method of collecting data is a survey technique by using self-administered questionnaires to collect data of customer characteristics, customer satisfaction, logistics service quality, service pricing, and location.

Furthermore, a questionnaire's pre-test was also conducted, and the pre-test result will be discussed later. Finally, the data from the questionnaire survey will be analyzed to test the hypotheses and determine the relationship of customer satisfaction on service quality, service pricing, and service location of a container depot in Bangkok.

## 3.2 Population and Samples

### 3.2.1 Target Population

The target population of this research consisted of customers of ABC's container depot, who are currently using the services of ABC in order to pick-up empty container for their export purpose. From ABC's database during January - July 2012, the recorded data of their total present customers is 259 users, who can be categorized as direct shippers, shipper's agents, custom brokerage agents, transport agents, freight forwarders, or other third party logistics agents. Therefore all the above customers form the researched population.

### 3.2.2 Samples and Sampling Procedures

The probability sampling technique is used in which units of the sample are selected on the basis of a simple random sampling procedure because each element in the population has a known and equal probability of selection (Malhotra, 1999). To draw a sample, the sampling frame would be established to identify a unique identification number from the latest ABC's customer database, and screening the target respondents by focusing on customer background concerning service usage for the container outbound process, then using the random method to determine which elements to include in the sample.

### 3.2.3 Sample Sizes and Sample Size Determination

To determine the sample size, a 95% confidence level with an acceptable error limit of 10% has been applied, based on Yamane's calculation formula (Yamane, 1967) as below:

$$n = N / [1 + N(e)^2]$$

$$n = 259 / [1 + 259(0.1)^2]$$

$$n = 99.61 \approx 100$$

Therefore, the final sample size of the study is 100 customers drawn from the target population based on Yamane's technique;

Where  $n$  = Sample size

$N$  = Population

$e$  = Precision or error limit set to 10%

### 3.3 Data Collection

Survey research is the primary data collection method designed to gather data for this research. The self-administered questionnaires would be distributed to the customers who are direct shippers or shipper's representatives who have performed pick-up of empty container at ABC container depot before. The self-administered questionnaires would be sent through e-mail, fax and hand to respondents depending on the situation of each respondent. Finally, once all questionnaires have been followed up, all data collected will be interpreted by the computer application of SPSS and analyzed accordingly.

### 3.4 Questionnaire Development

This research study uses questionnaires as the primary survey tool, which was developed by intensively studying the literature review and conceptual framework. The questionnaire can be classified into three parts:

#### **Part I: Measurement of LSQ, Service Pricing and Service Location.**

This first part of questionnaire is developed to explore the nine dimensions of logistics service quality, as well as service pricing and service location, in order to measure the level of agreement on each independent factor. A five-point scale will be used for measuring customer agreement, from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), 5 (strongly agree). There are thirty-six measurement items, as shown in Table 3.1 below.

**Table3.1: Measurement Items of LSQ, Service Pricing and Service Location**

FILMS	MODIFIED FROM
<b><i>Personal Contact Quality</i></b>	Mentzer et al.,1999
The contact person always provides service with good manners.	
The contact person makes <i>an</i> effort to understand your situation.	
Problems are resolved by the contact person.	
The knowledge and experience of contact person is adequate.	Mentzer et al.,1999
<b><i>Order Release Quantities</i></b>	
Unlimited quantities of requested containers are always available.	
Diversified container types are always available.	
Diversified container sizes are always available.	Mentzer et al.,1999
<b><i>Information Quality</i></b>	
Container specification information is available.	
Information concern steps in receiving service is available.	
Contact information for service inquiry is available.	Mentzer et al.,1999
<b><i>Ordering Procedures</i></b>	
Requisition container procedures are effective.	
Requisition container procedures are convenient.	
Requisition container procedures are serviced quickly.	Mentzer et al.,1999
<b><i>Order Accuracy</i></b>	
Special requests for containers condition are rarely inoperative.	
Containers rarely contain incorrect quantities.	
Containers rarely contain wrong size and type.	Mentzer et al.,1999
<b><i>Order Condition</i></b>	
Container condition provided is durable.	
Container condition provided is suitable for the commodity.	
Container damage rarely occurs.	Mentzer et al.,1999
<b><i>Order Quality</i></b>	
Container survey service work is fine.	
Container dispatch service work is fine.	
Yard infrastructures are effective.	Mentzer et al.,1999
Computer technologies for communication flow are effective.	
<b><i>Order Discrepancy Handling</i></b>	
Repair service is satisfactory when a container is damaged.	
Quick recovery process when equipment is inoperative.	Mentzer et al.,1999
Container substitute is available speedily when imbalance container allocations occurs.	
<b><i>Timeliness</i></b>	
Time between placing requisition and receiving delivery is short.	
Containers available to pick up on the promised date.	Dolvaliene and Virvilaite, 2008
Containers survey is implemented quickly.	
<b><i>Service Pricing</i></b>	
Gate charge suitable for the service.	
Lift on/Lift off charge suitable for the service.	Schiller and Voisard, 2004
Extra charge (if needed) suitable for the service.	
<b><i>Service Location</i></b>	
Short distance between depot and loading place	
Convenient location	
Convenient entrance and easy to find	
Yard layout facilities comfortable	

## Part Level of Service Satisfaction

The questionnaire in the second part is designed to explore the level of ABC's customer satisfaction. There are five item measurements which are modified from the previous literature by using a 5 point anchoring scale, from 1 (strongly disagree) to 5 (strongly agree). The items and scale measurements are shown in **Table3.2**:

**Table3.2: Measurement Items of Customer Satisfaction**

ITEMS
<i>Customer Satisfaction</i>
You are satisfied with the overall service provided.
You are satisfied with the container dispatch service provided.
You have been satisfied constantly with ABC service, from the first time.
Mostly, you have positive experiences with ABC service.
The container depot service provided by ABC usually exceeds your expectations

## Part III : Company Characteristics

Finally, the last parts of the questionnaire is concerned with the general characteristics of the respondents who are ABC customers. In addition, this part tries to study the customer's characteristics, company profile, and their behavior pattern such as frequency, volume and service type.

### 3.5 Pre-test Results

The pre-test was conducted to test reliability by distributing 30 questionnaires to the current customers of the ABC container depot. The main purpose of a pre-test is to measure the questionnaire by screening for any potential problems that might occur, before distributing the actual survey. The 30 respondents are included in the samples to ensure that the questionnaire is applicable or needs some modification.

### 3.5.1 Reliability

Reliability is a tool used in research for analysis of the pre-test and to measure scale reliability between items in the scale. Reliability verifies the consistency of independent measures of the same group objects (Burn & Bush, 2008). The questionnaire will be considered as reliable once the reliability value in Cronbach's alpha is at least 0.7 (Nunnally, 1978).

**Table 3.3: Reliability Analysis Scale (Cronbach's Alpha)**

Variables	Cronbach's alpha value
Logistics Service Quality	.963
Service Pricing	.758
Service Location	.843
Customer Satisfaction	.925

### 3.6 Data Analysis Plan

In order to interpret the data information, this research uses SPSS as a statistical tool to analyze the data collection as well as conduct descriptive data analysis and regression analysis. The purpose of descriptive data analysis is to obtain the respondent's characteristics. Also, the multiple regression analysis is applied to test all hypotheses.

#### 3.6.1 Descriptive Data Analysis

Descriptive data analysis is the transformation of raw data into an easier form to understand and interpret the several attributes of a data set (Zikmund, 2003). In this research, descriptive data analysis will be used to summarize and interpret the characteristics data of respondents.

### 3.6.2 Regression Analysis

This study will apply multiple regression analysis as a tool to test all hypotheses. Multiple regression analysis is an evaluation that is applied when one or more independent variables impact the dependent variable (Zigmund, 2003). Also, multiple regression analysis is the method of analyzing the variability of a dependent variable by applying available information to at least two independent variables (Davis, 1993). The multiple regression equation is described below:

$$Y = a + b_1x_1 + b_2x_2 + \dots + b_nx_n$$

Where:

Y = Customer satisfaction

A = the constant, where the regression line intercepts the y axis

B = the regression coefficients

X = independent variables, which are: logistics service quality, service pricing and service location.

In addition, the level of significance is set at 0.05. When the null and alternative hypotheses are defined, then the calculation can be conducted. When the calculation is  $H_0: \beta_1 = 0$ , it can be concluded that there is no linear relationship between independent variable and dependent variable, but if the result is  $H_a: \beta_1 \neq 0$ , the conclusion is that there is a linear relationship existing between independent variable and dependent variable.

### 3.7 Summary

This chapter has defined all related methodologies of the study, including research design, target population and sample, data collection; questionnaire development, pre-test result, and finally the data analysis plan together with the main statistical tools.

## CHAPTER IV

### PRESENTATION AND CRITICAL DISCUSSION OF RESULTS

This chapter presents the analysis of the data collected from the ABC Container Depot customers. The chapter is divided into three parts; 1) Sample profiles; 2) Descriptive data analysis; and 3) Hypotheses testing.

#### 4.1 Sample Profiles

The business type is analyzed descriptively by frequency and percentage. The results are presented in Table 4.1.

**Table 4.1: Business Type of ABC's Customers**

Type of Business	Percent
Freight Forwarder	30.0
Direct Shipper	25.0
Custom Shipping Brokerage	25.0
Ocean Liner	5.0
Transportation Agent	11.0
Warehousing Agent	4.0
Total	100.0

Table 4.1 shows the business type of ABC's customers served. The type of business can be separated into six groups in which is freight forwarder service (30 percent), direct shipper (25 percent), custom shipping brokerage (25 percent), transportation agent (11 percent), ocean liner (5 percent), and warehousing agent (4 percent).

## 4.2 Descriptive Analysis of the Data

To understand the characteristics of ABC container depot's customers clearly, the respondents' general profiles involve their frequency of export via ocean containerization, usage type of service, number of usage years, number of containers pick up per time, their most used container type, and the reasons to select ABC's service. The sample profiles are analyzed descriptively by frequency and percentage. The results are presented in the following Tables.

**Table 4.2: The Frequency of Export Shipment via Ocean Containerization**

Export frequency	Percent
Once per week	9.0
Many times per week	86.0
2-3 times per month	5.0
Total	100.0

According to Table 4.2, there is an outstanding number in that 86 percent of respondents have exported their shipment via container many times per week. The rest of respondents had export frequencies once per week (9 percent), and 2-3 times per month (5 percent).

**Table 4.3: Type of Service Usage**

Service Type	Frequency	Percent
Pick up empty container	100	60.61
Transportation service	8	4.85
Container repair	39	23.64
Container Cleaning	18	10.91
Total response	165	100

Table 4.3 shows that all 100 respondents mainly used ABC's service for pick up of empty containers while service for container repair, container cleaning and

transportation are used as additional services at 23.64 percent, 10.91 percent, and 4.85 percent respectively.

**Table 4.4: Characteristics of the ABC Container Depot Customers**

<b>Customer Characteristics</b>	<b>Percent</b>
<b>Number of years in dealing with ABC</b>	
Less than 1 year	6.0
1-3 years	22.0
4-6 years	53.0
More than 6 years	19.0
<b>Number of containers</b>	
1 container	57.0
2 containers	31.0
More than 4 containers	12.0
<b>Container type</b>	
20 ft dry container	55.0
40 ft dry container	6.0
Refrigerated container	11.0
45 ft dry container	28.0

Table 4.4 shows that more than half of the respondents have dealt with ABC's service for 4 to 6 years (53 percent) followed by 1 to 3 years at 22 percent. Besides, 19 percent of long time loyalty customers have dealt with ABC more than six years and the 6 percent of respondents are new customers who have used ABC services for less than 1 year. In addition, 57 percent of customers prefer to pick-up only one container per time, followed by two containers (31 percent) and more than four containers (12 percent). However, the 20 ft dry container is still reported as the most popular container type at 55 percent. Interestingly, the percentage of container type usage of the 45 ft dry container was 28 percent, while only 6 percent of customers preferred to use 40 ft dry container, because the freight rate of 40 and 45 ft containers are the same

but the inside height of a 45 ft container is higher than a 40 ft container and therefore most of customer decided to get more space by selecting 45 ft containers instead of 40 ft containers. However, only 11 percent required refrigerated containers, and no respondents preferred specialized containers (open-top, hanging garment, flat rack and weight upgrade containers).

**Table 4.5: Reasons for Using ABC Container Depot**

Reason	Frequency	Percent
Nomination by ocean liner	30	10.27
Competitive service price	23	7.88
Good service quality	34	11.64
Variety of service provided	32	10.96
Convenient location	63	21.58
IT support	41	14.04
Positive past experience	21	7.19
Quality of staff	0	0
Good relationship	11	3.77
Effective equipment	26	8.90
Other company's suggestion	11	3.77
Total response	292	100

According to Table 4.5, the highest reason why customers chose ABC was because of its convenient location, at 21.58 percent. The moderate reasons which customer chose are IT support, good service quality, variety of service provided and nominated by ocean liners, at 14.04 percent, 11.64 percent, 10.96 percent and 10.27 percent respectively. However, the percentage for officer quality is zero as all respondents were not satisfied with the quality of the officer's manner.

Before conducting regression analysis, the independent variables (logistics service quality, service pricing and service location) together with dependent variable

(customer satisfaction) would be tested for descriptive statistics for every factor. The mean and standard deviations of each variable were calculated from all items of measurement. As a five-point scale was used for measuring these variables starting from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), 5 (strongly agree), therefore the mid-point of each factor is 3.00. The details are presented in Table 4.6 below.

**Table 4.6: Level of Logistics Service Quality, Service Pricing, Service Location and Customer Satisfaction**

Key Constructs	Mean	Std. Deviation
<b>Logistics service quality</b>		
Personal contact quality	2.76	.752
Order release quantity	3.58	.663
Information quality	3.20	.615
Ordering procedure	3.30	.610
Order accuracy	3.23	.671
Order condition	2.90	.648
Order quality	3.47	.571
Order discrepancy handling	3.18	.701
Timeliness	3.07	.683
<b>Service pricing</b>	2.15	.594
<b>Service location</b>	3.66	.598
<b>Customer satisfaction</b>	3.13	.622

The mean of service location and customer satisfaction are above mid-point, at 3.66 and 3.13 respectively. Also, almost all dimensions of logistics service quality have average means above mid-point, except two dimensions which are personal contact quality 2.76 and order condition 2.90 which were lower than mid-point. Service pricing is the variable with the lowest mean, at 2.15.

### 4.3 Hypotheses Testing

Multiple regression analysis is the statistical method used to test all hypotheses. The testing of all hypotheses is classified into two groups. First, the hypotheses testing of the relationship between logistics service quality, service pricing service location and customer satisfaction, which were established as hypotheses 1 to 3. Second, the hypotheses testing of relationships between each nine sub-dimensions of logistics service quality and customer satisfaction, which were established as hypotheses H1 a to H1i. Therefore, two multiple regression models were designed to analyze the relationship between the nine dimension of logistics service quality, service pricing and service location on customer satisfaction at ABC container depot, and the results are presented below.

**Table 4.7: Relationships between Logistics Service Quality, Service Pricing, Service Location and Customer Satisfaction**

Independent Variables	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
(Constant)	-.650		-2.652	.009
Logistics service quality	.894	.711	11.025	.000
Service price	.071	.068	1.009	.316
Service location	.213	.205	3.382	.00/

Remark: Dependent Variable: Customer satisfaction

$F = 93.705$  ;  $P\text{-value} = 0.000$

$R = 0.863$  ; Adjusted R Square = 0.737

According to Table 4.7, the significant F-value of the regression coefficient is 0.000, which indicates that the relationship between customer satisfaction and the three factors: logistics service quality, service pricing and service location is significant and can be predicted due to P-value being less than 0.05.

In addition, R-correlation indicates that there is a strong linear relationship between all proposed independent variables and customer satisfaction, as the strength of relationship of R is equal to 0.863. Also, 73.7 percent of total variations in customer satisfaction is explained by logistics service quality, service pricing and service location (Adjusted R Square = 0.737). Besides, this prediction model can be summarized as logistics service quality having the highest impact on customer satisfaction, with the highest standardized beta coefficients of 0.711

To test the hypotheses, the p-value of each factor in Table 4.7 is taken into consideration. The p-value must be less than 0.05 in order to reject the null hypotheses which mean that particular factor is significantly related to customer satisfaction. The first three hypotheses are tested in this analysis as below.

***H<sub>01</sub>: There is no positive relationship between logistics service quality and customer satisfaction.***

***H<sub>a1</sub>: There is a positive relationship between logistics service quality and customer satisfaction.***

***H<sub>02</sub>: There is no positive relationship between service pricing and customer satisfaction.\****

***H<sub>a2</sub>: There is a positive relationship between service pricing and customer satisfaction***

***H<sub>03</sub>: There is no positive relationship between service location and customer satisfaction.***

***H<sub>a3</sub>: There is a positive relationship between service location and customer satisfaction.***

All betas shown in Table 4.7 are positive numbers. As such, positive relationships between logistics service **quality**, service pricing, service location and customer satisfaction were indicated. For Hypothesis 1: the null hypothesis was rejected due to

its p-value being 0.000. This determines that there is a positive relationship between logistic service quality and customer satisfaction. For *Hypothesis 2*, the p-value of 0.316 is considered. The results indicated that the null hypothesis cannot be rejected. Thus, service pricing was not significantly related to customer satisfaction. The null Hypothesis 3 was rejected due to its p-value of 0.01 which is less than 0.05. This determines that there is a positive relationship between service location and customer satisfaction.

To understand the relationship between each dimension of the logistics service quality and customer satisfaction, another regression analysis was performed. The results are shown in Table 4.8 below.

**Table 4.8: Relationships between the Logistics Service Quality Dimensions and Customer Satisfaction**

Nine dimensions of LSQ	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
(Constant)	-.262		-1.051	.296
Personal contact quality	.117	.142	1.963	.053
Order release quantity	.100	.106	1.563	.122
Information quality	-.074	-.073	-.952	.344
Ordering procedure	.193	.190	2.516	<b>.014</b>
Order accuracy	.188	.203	2.319	<b>.023</b>
Order condition	-.098	-.102	-1.207	.231
Order quality	.197	.181	2.158	<b>.034</b>
Order discrepancy handling	.200	.226	2.988	<b>.004</b>
Timeliness	.216	.237	2.665	<b>.009</b>

Remark: Dependent Variable: Customer satisfaction

F = 29.963 ; P-value = 0.000

R = 0.866 ; Adjusted R Square = 0.725

According to Table 4.8, the significant F-value of the regression coefficient is 0.000, which indicates that the relationship between customer satisfaction and each dimension of logistics service quality is significant and can be predicted due as the P-value is less than 0.05.

In addition, R-correlation indicates that there is a strong linear relationship between all proposed independent variables and customer satisfaction as the strength of relationship of R is equal to 0.866. Also, 72.5 percent of total variations in customer satisfaction is explained by the nine dimension of logistics service quality (Adjusted R Square = 0.725). Moreover, this prediction model can be summarized that timeliness has the highest impact on customer satisfaction as it had the highest standardized beta coefficient of 0.237.

To test the hypotheses, the p-value of each factor in Table 4.8 is taken into consideration. The p-value must be less than 0.05 in order to reject the null hypotheses which mean that particular factor is significantly related to customer satisfaction. The sub hypotheses H1a-H1i can be tested in this analysis.

***H0<sub>1a</sub>: There is no positive relationship between personal contact quality and customer satisfaction.***

***Ha<sub>1a</sub>: There is a positive relationship between personal contact quality and customer satisfaction.***

***H0<sub>1b</sub>: There is no positive relationship between order release quantities and customer satisfaction.***

***Ha<sub>1b</sub>: There is a positive relationship between order release quantities and customer satisfaction.***

***H0<sub>1c</sub>: There is no positive relationship between Information quality and customer satisfaction.***

***Ha<sub>1c</sub>: There is a positive relationship between Information quality and customer satisfaction.***

*Hold: There is no positive relationship between ordering procedures and customer satisfaction.*

*Ha<sub>1d</sub>: There is a positive relationship between ordering procedures and customer satisfaction.*

*Hol<sub>e</sub>: There is no positive relationship between order accuracy and customer satisfaction.*

*Ha<sub>1e</sub>: There is a positive relationship between order accuracy and customer satisfaction.*

*Ho<sub>1f</sub>: There is no positive relationship between order condition and customer satisfaction.*

*Ha<sub>1f</sub>: There is a positive relationship between order condition and customer satisfaction.*

*Ho<sub>ag</sub>: There is no positive relationship between order **quality** and customer satisfaction.*

*Ha<sub>ig</sub>: There is a positive relationship between order **quality** and customer satisfaction.*

*Hon<sub>;</sub>: There is no positive relationship between order discrepancy handling and customer satisfaction.*

*Ham: There is a positive relationship between order discrepancy handling and customer satisfaction.*

*Hon: There is no positive relationship between timeliness and customer satisfaction.*

*Haig: There is a positive relationship between timeliness and customer satisfaction.*

The betas of timeliness, order discrepancy handling, order accuracy, ordering procedure, and order quality shown in Table 4.8 are positive numbers. As such the positive relationship between timeliness, order discrepancy handling, order accuracy, ordering procedure, order quality and customer satisfaction were indicated. For *Hypothesis Ia*: the p-value 0.53 is considered. The results indicated that the null hypothesis cannot be rejected. Thus, personal contact quality was not significantly related to customer satisfaction. For *Hypothesis Ib*: the p-value is 0.122 is considered. The results indicated that the null hypothesis cannot be rejected. Thus, order release quantity was not significantly related to customer satisfaction. For *Hypothesis Ic*: the results indicated that the null hypothesis cannot be rejected as the p-value is 0.344. Thus, information quality was not significantly related to customer satisfaction. For *Hypothesis Id*: The null hypothesis was rejected due to p-value is 0.014 which is less than 0.05. This indicated that there is a positive relationship between ordering procedures and customer satisfaction. For *Hypothesis Ie*: the p-value is 0.023 is considered. The results indicated that the null hypothesis would be rejected, thus there is a positive relationship between order accuracy and customer satisfaction. For *Hypothesis If*: the results indicated that the null hypothesis cannot be rejected as the p-value is 0.231. Thus, order condition was not significantly related to customer satisfaction. For *Hypothesis Ig*: The null hypothesis was rejected due to a p-value of 0.034. This indicated that there is a positive relationship between order quality and customer satisfaction. For *Hypothesis Ih*: the p-value is 0.004 is considered. The results indicated that the null hypothesis would be rejected, thus there is a positive relationship between order discrepancy handling and customer satisfaction. Finally, *Hypothesis Ii*: the null hypothesis was rejected due to a p-value of 0.009. This indicated that there is a positive relationship between timeliness and customer satisfaction.

All hypotheses testing results are summarized in Table 4.9 below.

Table 4.9: Hypotheses Testing Results

Hypotheses	Statements	Result
H1	There is a positive relationship between logistics service quality and customer satisfaction.	Partially Supported
H1a	There is a positive relationship between personal contact <b>quality</b> and customer satisfaction.	Not supported
H1b	There is a positive relationship between order release quantities and customer satisfaction.	Not supported
H1 c	There is a positive relationship between information quality and customer satisfaction.	Not supported
H1d	There is a positive relationship between ordering procedures and customer satisfaction.	Supported
H1e	There is a positive relationship between order accuracy and customer satisfaction.	Supported
H1f	There is a positive relationship between order condition and customer satisfaction.	Not supported
H1g	There is a positive relationship between order quality and customer satisfaction.	Supported
H1h	There is a positive relationship between order discrepancy handling and customer satisfaction.	Supported
H1i	There is a positive relationship between timeliness and customer satisfaction.	Supported
H2	There is a positive relationship between service pricing and customer satisfaction.	Not supported
H3	There is a positive relationship between service location and customer satisfaction.	Supported

#### 4.4 Summary

The findings of the results from one hundred respondents of ABC customers can be summarized as the majority business type of the respondents was freight forwarder company (30 percent). Most respondents exported their shipments via containerization many time per week (86 percent) and mostly only one empty container had been picked up each time (57 percent). In addition, 60.61 percent of

respondents never used to pick up empty containers at ABC, and the 20 ft dry container is the most popular container type (55 percent). 53 percent of respondents had been ABC's customers for a long time, about 4 to 6 years, and their most important reason for using ABC service is convenient location (21.58 percent).

For the main hypotheses, the results conclude that logistics service quality and service location are significantly related to customer satisfaction. Also, timeliness, order discrepancy handling, order accuracy, ordering procedures and order quality have positive relationships with customer satisfaction.



## CHAPTER V

### SUMMARY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This last chapter illustrates a summary of the findings, conclusions, theoretical implications, managerial implications, limitations, and recommendations for future research.

#### 5.1 Summary of the Findings

This research focuses on the distribution of empty containers service at the ABC container depot, through one-hundred questionnaires which were distributed to ABC's customers who have experienced pick-up of empty containers from ABC for their export shipments. In order to explore the relationships of customer satisfaction, the nine dimensions of logistics service quality, service pricing and service location were established as independent variables, and multiple regression analysis was applied to test all research hypotheses.

In summary, the research results showed that logistics service quality and service location are positively and significantly related to customer satisfaction. The most significant factor of logistics service quality that has the highest impact on customer satisfaction is timeliness. This is followed by order discrepancy handling, order accuracy, ordering procedure and order quality. These findings are based on the main research hypotheses, as below.

*Hypothesis 1: There is a positive relationship between logistics service quality and customer satisfaction.*

This determines that there is a positive relationship between logistic service quality and customer satisfaction. With each increase in logistics service quality, customer satisfaction will also increase accordingly. In addition, the most significant dimension that has the highest impact on customer satisfaction is timeliness. In fact, timeliness is

the major important factor for all logistics activities in order to prevent any loss that might occur from delay, and therefore this result indicated that the punctuality of container delivery, on the promised date and time, and the quick service procedure, must be considered first if ABC wants to improve customer satisfaction.

*Hypothesis 2: There is a positive relationship between service pricing and customer satisfaction.*

The finding showed that service pricing did not have any influence on customer satisfaction. The reason could be that there are only small differences in amount of gate charge and lift on/lift off charge between each container depot, and these charges are the basic price that customers must pay to every container depot. Therefore service price is not the main factor for consideration.

*Hypothesis 3: There is a positive relationship between service location and customer satisfaction.*

This finding indicated that there is a positive relationship between service location and customer satisfaction. ABC's location is very convenient, being located in the city near the expressway and Bangkok port. Mostly, customers select ABC service in order to save fuel because of lower truck transportation cost. Also the convenient location is able to help customers with a better lead time between depot and cargo warehouse which facilitates better management of outbound loading plans.

## **5.2 Conclusions**

The main research question of this study is: "How do container depot service quality, service pricing and service location influence customer satisfaction?" There are five factors of logistics service quality and service location which have positive relationships with customer satisfaction. Logistic service quality was found to have a higher impact on customer satisfaction than service location, while service price has no significant relationship with customer satisfaction. It can be concluded that service location represents a place that provides value added with more convenience to customers, but in fact, most customers preferred to receive better service quality in

every steps of the container distribution process in order to get the right container of the right quantity at the right time. The level of importance of each factor of logistics service quality that influenced customer satisfaction can be shown, as below.

1. *Timeliness*: this is the highest impact on customer satisfaction as most **customers** are concerned with punctual container delivery, on the promised date and time, with quick delivery services.
2. *Order discrepancy handling*: This has the second highest impact on customer satisfaction as many customers feel satisfied with ABC's reaction to resolve the problems, such as container repair and quickly substituted container allocation.
3. *Order accuracy*: this include special requests for container condition such as grade A clean container without dust and rust. Also, the correct quantity, type and size of container are important and impact on customer satisfaction.
4. *Ordering procedure*: The more convenient and quick service in the requisition container procedure, the more impact on customer satisfaction.
5. *Order quality*: Yard infrastructure and computer technology facilitate improvement in order quality which is the last impact on customer satisfaction.

However, there are only small differences in the amount of service charges between each container depot. Thus, service price cannot be used to determine a relationship with customer satisfaction.

### 5.3 Theoretical Implications

The theoretical contribution lies in the increased understanding of several aspects: customer satisfaction with service quality, customer logistics service quality requirements in relation to service location and price, the applicability of the logistics service quality model in a real life business setting, and finally the development of container supply chain management.

In addition, these studies have increased the understanding of customer satisfaction on logistics service quality, service pricing, and service location. The results conclude that timeliness, order discrepancy handling, order accuracy, order procedure and service location do influence customer satisfaction. The logistics service quality model is therefore to be considered as the main logistics concept and needs to be studied more for both inbound and outbound container management in order to be profoundly understand all customer logistics service requirements in the containerization system.

Another important contribution is that the findings facilitate the development of container supply chain management in accordance with the applicability of a logistics service quality model in a real life logistics and transportation business setting. In other words, this research has also contributed to the logistics and distribution strategy by increasing the understanding of the characteristics and development of the modern containerization system.

#### **5.4 Managerial Implications**

This study aims to understand the impact of logistics service quality, service pricing and service location on customer satisfaction. The results are extremely useful for the ABC container depot to understand its service quality performance and feedback of satisfaction from its customers.

According to the data results, ABC should be concerned to improve timeliness, because of its highly impact on customer satisfaction. Therefore, shorter service times of each process, from the required container placement until the container receipt, with punctual allocation of containers on the promised date and time, must be receive urgent action of all involved functional departments in order to increase customer satisfaction.

Moreover, the results also find that order discrepancy handling and order accuracy also affect customer satisfaction. Even though such discrepancies in ordered

containers may have been satisfactorily resolved by the company, these discrepancy problems, such as containers damaged with holes or dents, and incorrectly provided container type or size, they still have a major impact on customer satisfaction. Therefore, apart from fast reaction performance to resolve problems by providing a free container repair service both inside and outside the depot, ABC must prevent customer disappointment with any discrepancy in their ordered container by paying more attention to providing the correct quantity, type and size of required container to customers. Also, customer requests for special container conditions, such as requests for grade-A container, and requests for no dust or no rust in containers, must have action taken as promises to achieve customer satisfaction.

In addition, the findings show that the ordering procedure is one of the supporting factors for customer satisfaction, as the more effective and efficient the procedure provided by ABC, the more increase in convenience and help to shorten lead times for customers. Finally, order quality is the lowest impact factor on customer satisfaction. It can be concluded that the good performance of service quality needs the support of infrastructure, such as mobile crane or forklift, and computer technology that facilitates the flow of communication between customer, container depot and ocean liners for updating and tracking each container's details. Also, ABC should consider the importance of additional services, such as container surveys in order to make sure of the quality of each ordered container ordered before customer receives it.

The ABC container depot gained most advantage from its convenient location which customer believed helped them lower land transportation cost and shorten lead time. Therefore ABC should keep developing its yard facilities, such as a durable concrete road and safe vertical container stacks. Also ABC should provide a more convenient waiting area inside the yard for customer when they are queuing for the container dispatch process.

However, customers' reasons for using ABC container depot indicated that none of the respondent preferred to select the quality of staff, it can be summarized that the overall staff performances at ABC are below customer requirements, which could

have resulted from staff's rude behavior and insufficient knowledge in providing what customers need and resolving their problems. Therefore ABC needs to improve service manners, and the skills and knowledge of their staff in order to support customers, create more customer loyalty, and prevent customers changing to use competitors' services in the future.

### **5.5 Limitations and Recommendations for Future Research**

This research was developed to study the service quality of ABC container depot focusing on its dispatch of outbound empty container activities. However, there could be other service quality functions that customer could evaluate which were not mentioned in this study. Also, the respondents of the study are limited to ABC container depot's customers, so its findings may not be applicable to other company operators.

Consequently, based on the supply chain of containerization, there still remain many others dimensions of logistics activities that could affect customer satisfaction and help improve the company's competitive to survive in the present global business context, and these dimensions can be determined in future research. Also, it would be interesting to study other factors that could interpret customer loyalty and customer intention to select a particular logistics service provider. The modern concept of the 6Ps marketing mix, including product, price, place, promotion, people, and performance, could be taken into consideration for future measurement of customer satisfaction in order to develop marketing strategies that are compatible with the strength and weakness of a company in achieving the company's goal.

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## APPENDICES



## APPENDIX A

### Questionnaire



## Container Depot Service Quality towards Customer Satisfaction Survey

**Dear respondents,**

This questionnaire is designed to study the relationship of customer satisfaction with logistics service quality, service pricing and service location of a container depot's service which is a part of a graduate's project of the Master of Science in Supply Chain Management Program at Assumption University. All information provided will be confidential and will be used for academic research purpose only. Please answer all questions candidly. Your valuable time and answer are much appreciated. Thank you for your kind cooperation.

### Part A: Measurement of Logistics Service Quality, Service Pricing and Service Location

Please specify your opinion toward outbound container depot service by marking (✓) in the space that best explains to your opinion. Please think of the container depot service providers that you use most often. The numbers in the rating scale are: 5 (Strongly agree), 4 (Agree), 3 (Neutral), 2 (Disagree) and 1 (Strongly disagree).

<b>Your opinion towards container depot services</b>	<b>Level of Agreement</b>				
	<b>5</b> Strongly Agree	<b>4</b> Agree	<b>3</b> Neutral	<b>2</b> Disagree	<b>1</b> Strongly Disagree
<b><i>Personal Contact Quality</i></b>					
The contact person always provides service with good manners.					
The contact person makes an effort to understand your situation.					
Problems are resolved by the contact person.					
The knowledge/experience of contact person is adequate.					
<b><i>Order Release Quantities</i></b>					
Unlimited quantities of requested containers are always available.					
Diversified container types are always available.					
Diversified container sizes are always available.					

Your opinion towards container depot services	Level of Agreement				
	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree
<b>Information Quality</b>					
Container specification information is available.					
Information concern steps in receiving service is available.					
Contact information for service inquiry is available.					
<b>Ordering Procedures</b>					
Requisition container procedures are effective.					
Requisition container procedures are convenient.					
Requisition container procedures are served quickly.					
<b>Order Accuracy</b>					
Special requests for containers condition are rarely inoperative.					
Containers rarely contain incorrect quantity.					
Containers rarely contain wrong size and type.					
<b>Order Condition</b>					
Container condition provided is durable.					
Container condition provided is suitable for the commodity.					
Container damage rarely occurs.					
<b>Order Quality</b>					
Container survey service work <b>fine</b> .					
Container dispatch service works <b>fine</b> .					
Yard infrastructures are effective.					
Computer technologies for communication flow are effective.					

Your opinion towards container depot services	Level of Agreement				
	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree
<b>Order Discrepancy Handling</b>					
Repair service is satisfactory once a container is damaged.					
Quick recovery process once equipment is out of order.					
Container substitute is available speedily once imbalance container allocations occur.					
<b>Timeliness</b>					
Time between placing requisition and receiving delivery is short.					
Containers available to pick up on the promised date.					
Container survey is implemented quickly.					
<b>Service Pricing</b>					
Gate charge suitable for the service					
Lift on/Lift off charge suitable for the service					
Extra charge (if need) suitable for the service					
<b>Service Location</b>					
Shorten distance between depot and loading place					
Convenient location					
Convenient entrance and <i>easy</i> to find					
Yard layout facilities comfortable					

## Part B: Level of Services Satisfaction

Please specify your opinion toward satisfaction on receiving container depot service, marking (✓) in the space that is closest to your opinion. The numbers in the rating scale are: 5 (Strongly agree), 4 (Agree), 3 (Neutral), 2 (Disagree) and 1 (Strongly disagree).

Opinion	Level of Agreement				
	Strongly Agree ←→ Strongly Disagree				
<i>Customer Satisfaction</i>	5	4	3	2	1
You are satisfied with the overall service provided.					
You are satisfied with the container dispatch service provided.					
You have been satisfied constantly with ABC service from the very first time.					
You have very good impressions of ABC service					
The container depot service provided by ABC usually exceeds your expectations					

### Part C: Company Characteristics

Please specify your company profile and personal data by marking (✓) in the bracket.

1. What is the business type of your company?

- ☐ Freight Forwarder                      ☐ Direct Shipper  
☐ Custom Shipping Brokerage           ☐ Ocean liner company  
☐ Transportation company                ☐ Warehousing company

2. How often does your company export via ocean containerization?

- ☐ Once a week                                ☐ Many times per week  
☐ Once a month                               ☐ About 2-3 times per month  
☐ Once over many months                ☐ Others (please specify.....)

3. Which type of service do you use? (You can select more than one answer)

- ☐ Pick up empty container service       ☐ Transportation service  
☐ Container repair service                ☐ Container Cleaning service  
☐ Others (please specify.....)

4. How long you have dealt with ABC container depot?

- ☐ Less than 1 year                           ☐ 1-3 years  
☐ 4-6 years                                     ☐ More than 6 years

5. How many containers do you pick up each time?

- ☐ 1 container
- ☐ 2 containers
- ☐ 3 containers
- ☐ 4 containers
- ☐ More than 4 containers

6. What type of container do you usually pick up?

- ☐ 20 ft dry container
- ☐ 40 ft dry container
- ☐ Refrigerated container
- ☐ 45 ft dry container
- ☐ Open top container
- ☐ Garment container
- ☐ 40 ft/45 ft upgrade container
- ☐ Flat rack container

7. What are the reasons you use to select the container depot service?

(You can select more than one answer)

- ☐ Nomination by shipping liner
- ☐ Competitive service price
- ☐ Good service quality
- ☐ Variety of service provided
- ☐ Convenient location
- ☐ IT support
- ☐ Positive past experience
- ☐ Quality of officer
- ☐ Good relationship
- ☐ Effective equipment
- ☐ Other company's suggestion
- ☐ Other please specify .....

Thank you for your kind cooperation



### ผู้ตอบแบบสอบถาม,

แบบสอบถามฉบับนี้ได้จัดทำขึ้นเพื่อศึกษาเกี่ยวกับปัจจัยต่างๆที่ส่งผลต่อความพอใจของลูกค้าในการใช้บริการลานรับตู้สินค้า บีซี 1 ซึ่งการวิจัยนี้เป็นส่วนหนึ่งของการศึกษาในระดับปริญญาโท สาขาการจัดการห่วงโซ่อุปทาน คณะบริหารธุรกิจ มหาวิทยาลัยอีสต์สมิธ ในฐานที่ท่านเป็นผู้ใช้บริการขนส่งสินค้าทางเรือ บริการรับตู้สินค้าเปล่าจากทางบริษัท คณะ

ประมวลผลและวิเคราะห์เพื่อประโยชน์ทางการศึกษาในภาพรวมเท่านั้น โดยจะไม่ทำการเปิดเผยรายละเอียดและแหล่งข้อมูลเป็นรายบุคคลแต่อย่างใด ทั้งนี้ ผู้วิจัยขอขอบพระคุณในความร่วมมือของท่านมา ณ โอกาสนี้

### ส่วนที่ 1: คุณภาพการให้บริการลานรับตู้สินค้าของลานบีซี

คุณคิดว่าคุณภาพการให้บริการลานรับตู้สินค้าของบริษัท ในด้านต่างๆเป็นอย่างไร กรุณาทำเครื่องหมาย (✓) ในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุด ทั ระดับคว เหมคิดเห็น จะถูกแบ่งออกเป็น 5 ระดับ ลดลงไปตามลำดับ Thu 5 หมายถึง "เห็นด้วยอย่างยิ่ง" 4 หมายถึง "เห็นด้วย" 3 หมายถึง "เห็นด้วยและไม่เห็นด้วยเป็นกลาง" 2 หมายถึง "ไม่เห็นด้วย" และ 1 หมายถึง "ไม่เห็นด้วยอย่างยิ่ง"

ความคิดเห็นของท่านที่มีต่อบริการของลานรับตู้สินค้า บีซี 1	ระดับความคิดเห็น				
	5 เห็นด้วย อย่างยิ่ง	4 &aw1	3 เป็นกลาง	2 ไม่เห็นด้วย	1 ไม่เห็นด้วย อย่างยิ่ง
<b>คุณภาพของพนักงาน</b>					
พนักงานให้บริการด้วยความสุภาพ					
พนักงานเข้าใจและใส่ใจลูกค้าเป็นอย่างดี					
พนักงานช่วยแก้ปัญหาที่เกิดขึ้นได้เสมอ					
พนักงานมีความรู้และประสบการณ์เพียงพอในการทำงาน					
<b>ปริมาณตู้สินค้าที่กำหนด</b>					
บริษัทสามารถจัดหาตู้สินค้าได้ตามจำนวนที่ต้องการเสมอ					
บริษัทสามารถจัดหาตู้สินค้าได้หลากหลายชนิดตามความต้องการ เช่น ตู้ทำความเย็น, ตู้เปิดเพดานด้านบน					
บริษัทสามารถจัดหาตู้สินค้าได้หลากหลายขนาด					

ความคิดเห็นของท่านที่มีต่อบริการของลานรับตู้สินค้า ปีที่ 1	ระดับความคิดเห็น				
	5 เห็นด้วย อย่างยิ่ง	4 เห็นด้วย	3 เป็นกลาง	2 ไม่เห็นด้วย	1 ไม่เห็นด้วย อย่างยิ่ง
<b>คุณภาพในการให้ข้อมูลเกี่ยวกับตู้สินค้าและบริการของลาน</b>					
บริษัทมีการให้ข้อมูลเกี่ยวกับประเภทและลักษณะการใช้ของตู้สินค้าแต่ละชนิดอย่างครบถ้วน					
บริษัทมีการให้ข้อมูลเกี่ยวกับขั้นตอนและวิธีขอรับบริการลากตู้สินค้าโดยละเอียด					
บริษัทมีการให้ข้อมูลติดต่อเพื่อสอบถามการให้บริการอย่างครบถ้วน					
<b>ขั้นตอนการเข้ารับบริการลากตู้สินค้า</b>					
ขั้นตอนการรับตู้สินค้าเป็นไปอย่างมีประสิทธิภาพ					
ขั้นตอนการรับตู้สินค้า มีความสะดวก ไม่ยุ่งยาก					
ขั้นตอนการรับตู้สินค้าเป็นไปอย่างรวดเร็ว					
<b>ความถูกต้องแม่นยำในการจัดหาตู้สินค้า</b>					
บริษัทสามารถจัดหาตู้สินค้าได้ตามเงื่อนไขพิเศษต่างๆ ที่ลูกค้ากำหนด เช่น ขอบเขตลากตู้เกรดเอ, lit ตู้ที่พื้นไม่มีเส้น					
บริษัทสามารถจัดหาตู้สินค้าได้ถูกต้องและครบถ้วนตามที่ลูกค้าต้องการเสมอ					
บริษัทสามารถจัดหาตู้สินค้าได้ถูกประเภทและถูกขนาด ตามที่ระบุไว้					
<b>สภาพความสมบูรณ์ของตู้สินค้า</b>					
สภาพตู้สินค้ามีความแข็งแรงเพียงพอต่อการขนส่ง					
สภาพตู้สินค้าที่บริษัทจัดหาให้ มีความเหมาะสมกับลักษณะสินค้าที่เตรียมบรรจุ					
ตู้สินค้าที่ได้รับ อยู่ในสภาพที่ดี ไม่บุบ ไม่มีรูรั่ว					
<b>คุณภาพของประเภทการให้บริการ</b>					
บริษัทได้มีการสำรวจสภาพตู้สินค้าอย่างดี ก่อนการปล่อยตู้ทุกครั้ง (Container survey)					

ความคิดเห็นของท่านที่มีต่อการบริการของลานรับตู้สินค้า ปีที่ 1	ระดับความคิดเห็น				
	5 เห็นด้วย อย่างยิ่ง	4 เห็นด้วย	3 เป็นกลาง	2 ไม่เห็นด้วย	1 ไม่เห็นด้วย สิ่ง
การให้บริการปล่อยตู้สินค้า เป็นไปอย่างมีประสิทธิภาพ					
อุปกรณ์ในท่า ยก เช่น รถเครน และ :nun เป็นไปอย่างมีประสิทธิภาพ					
ระบบคอมพิวเตอร์และระบบการสื่อสารเป็นไปอย่างมีประสิทธิภาพ					
<b>ความรับผิดชอบของบริษัทในกรณีที่เกิดข้อผิดพลาด</b>					
เมื่อตู้สินค้าเกิดความเสียหายเช่น มีรูรั่ว , บริการซ่อมตู้เป็นไปอย่างมีประสิทธิภาพ					
เมื่อเกิดเหตุขัดข้องกับอุปกรณ์การให้บริการยกตู้ในลาน, การแก้ไขและกลับมาเริ่มงานใหม่เป็นไปอย่างรวดเร็ว					
เมื่อตู้สินค้าขาดแคลน บริษัทสามารถจัดหาตู้สินค้า มาทดแทนได้อย่างรวดเร็ว					
<b>เวลาที่ใช้ในการดำเนินการรับตู้สินค้า</b>					
ระยะเวลาทั้งหมดในการเข้ารับบริการรับตู้สินค้าเป็นไปอย่างรวดเร็ว					
บริษัทสามารถจัดหาตู้สินค้าให้ได้ทันตามวันเวลาที่กำหนดเสมอ					
การสำรวจสภาพของตู้สินค้าเป็นไปอย่างรวดเร็ว					
<b>ราคาค่าใช้จ่ายในการรับตู้สินค้า</b>					
ค่าผ่านทางในการรับตู้สินค้ามีราคาที่เหมาะสม					
ค่ายกตู้ขึ้นลงในทางรับตู้สินค้ามีราคาที่เหมาะสม					
ค่าใช้จ่ายเพิ่มเติม AU ถ้ำ เอกสาร หรือ ค่าล้างตู้ เป็นไปอย่างเหมาะสม					
<b>สถานที่ในการให้บริการลานรับตู้สินค้า</b>					
ระยะทางจากลานรับตู้สินค้าไปยังสถานที่บรรจุสินค้าเข้าตู้เป็นไปอย่างเหมาะสม					
ลานรับตู้ตั้งอยู่ในพื้นที่ที่สะดวกในการเดินทาง					

ความคิดเห็นของท่านที่มีต่อบริการของลานรับตู้สินค้า ปีที่ 1	ระดับความคิดเห็น				
	5 เห็นด้วย อย่างยิ่ง	4 เห็นด้วย	3 เป็นกลาง	2 ไม่เห็นด้วย	1 ไม่เห็นด้วย อย่างยิ่ง
ทางเข้าลานรับตู้สะดวกสบาย และสังเกตเห็นได้โดยง่าย					
พื้นที่อำนวยความสะดวกในลานเป็นไปอย่างเหมาะสม					

## หน้าที่ 2: ความพึงพอใจของลูกค้า

กรุณาทำเครื่องหมาย ในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุด  
ทั้ง 5 ระดับความคิดเห็น จะถูกแบ่งออกเป็น 5 ระดับ ลดลงไปตามลำดับ โดย 5 หมายถึง "เห็นด้วยอย่างยิ่ง" 4 หมายถึง "เห็นด้วย" 3 หมายถึง "เห็นด้วยและไม่เห็นด้วยเป็นกลาง" 2 หมายถึง "ไม่เห็นด้วย" และ 1 หมายถึง "ไม่เห็นด้วยอย่างยิ่ง"

ความคิดเห็น	ระดับความเห็น				
	เห็นด้วยอย่างยิ่ง ← → ไม่เห็นด้วยอย่างยิ่ง				
<b>ความพึงพอใจของลูกค้า</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
คุณพึงพอใจต่อการให้บริการโดยรวม					
คุณพึงพอใจต่อการให้บริการ การรับตู้สินค้า					
คุณพึงพอใจกับการให้บริการของบริ แต่ครั้งแรก ไม่เคยลดลง					
คุณประทับใจกับการบริการของบริษัท					
การให้บริการรับตู้สินค้าของบริษัท ดีมากเกินความคาดหมาย					

## 3: ข้อมูลบริษัทของท่าน

(V) ในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุด

### 1. บริษัทของท่านจัดอยู่ในประเภทใด

- |  |   |
|--|---|
| <input type="checkbox"/> ตัวแทนรับส่งสินค้าระหว่างประเทศ (Freight Forwarder) | <input type="checkbox"/> ejlsilfin                |
| <input type="checkbox"/> (Shipping Broker)                                   | <input type="checkbox"/> )                        |
| <input type="checkbox"/> ให้บริการรถหัวลาก                                   | <input type="checkbox"/> '4141hriniTinA'AfitiatAl |

2. บริษัทของท่านมีการรับตู้สินค้า

- |   |  |
|---|--|
| <input type="checkbox"/> ประมาณ                 | <input type="checkbox"/> หลายครั้ง ต่อสัปดาห์      |
| <input type="checkbox"/> ประมาณ เดือนละ         | <input type="checkbox"/> ประมาณ 2-3 ครั้ง ต่อเดือน |
| <input type="checkbox"/> หลายเดือนต่อหนึ่งครั้ง | <input type="checkbox"/> อื่นๆ (โปรดระบุ.....)     |

3. คุณใช้บริการประเภทใดของลานรับตู้สินค้าบ้าง (สามารถตอบได้มากกว่าหนึ่งข้อ)

- |   |  |
|---|--|
| <input type="checkbox"/> บริการรับตู้สินค้า [ลากตู้เปล่า] | <input type="checkbox"/> บริการ เรรกดหัวลาก  |
| <input type="checkbox"/> บริการซ่อมตู้สินค้า              | <input type="checkbox"/> บริการล้างตู้สินค้า |
| <input type="checkbox"/>                                  |  |

4. คุณใช้บริการรับตู้สินค้าของบริษัทมานานเท่าไร

- |  |                                  |
|--|----------------------------------|
| <input type="checkbox"/> น้อยกว่า 1 ปี | <input type="checkbox"/> 2-11 ปี |
| <input type="checkbox"/> ระหว่าง 4-6   | <input type="checkbox"/> 6 ปี    |

5. ปริมาณตู้สินค้า

- |  |                                |
|--|--------------------------------|
| <input type="checkbox"/> 1 ตู้         | <input type="checkbox"/> 2 ตู้ |
| <input type="checkbox"/> 3 ตู้         | <input type="checkbox"/> 4 ตู้ |
| <input type="checkbox"/> มากกว่า 4 ตู้ |                                |

6.

- |  |  |
|--|--|
| <input type="checkbox"/> ตู้แห้งสั้น 20 ฟุต              | <input type="checkbox"/> ตู้แห้งยาว 40 ฟุต     |
| <input type="checkbox"/> ตู้ทำความเย็น                   | <input type="checkbox"/> ตู้แห้งยาว 45 ฟุต     |
| <input type="checkbox"/> ตู้เปิดฝาเพดานด้านบน [Open Top] | <input type="checkbox"/> ตู้สำหรับแขวนเสื้อผ้า |
| <input type="checkbox"/> ออฟเกรด 40/45 ฟุต               | <input type="checkbox"/> ตู้แบนราบ [Flat rack] |

7. อะไรเป็นเหตุผลที่คุณเลือกใช้บริการลานรับตู้ของบริษัท (สามารถตอบได้มากกว่า 1 ข้อ)

- |  |  |
|--|--|
| <input type="checkbox"/>                           | <input type="checkbox"/> ค่าบริการถูก                            |
| <input type="checkbox"/> คุณภาพการให้บริการ        | <input type="checkbox"/> มีบริการหลากหลาย                        |
| <input type="checkbox"/> สถานที่จัดตั้งลาน         | <input type="checkbox"/> นำเทคโนโลยีสมัยใหม่เข้ามาใช้ในการบริการ |
| <input type="checkbox"/> ได้รับบริการที่ดีในอดีต   | <input type="checkbox"/> มารยาทของพนักงาน                        |
| <input type="checkbox"/> มีความสัมพันธ์ที่ดีต่อกัน | <input type="checkbox"/> ประสิทธิภาพของเครื่องมือในการให้บริการ  |
| <input type="checkbox"/>                           | <input type="checkbox"/> อื่นๆ                                   |

ขอขอบพระคุณอย่างสูงที่ท่านกรุณาให้ความร่วมมือตอบ แบบสอบถามฉบับนี้



## APPENDIX B

The List of 23 Container Depots in Bangkok and Suburbs

## Appendix B: The List of 23 Container Depots in Bangkok and Suburbs

LIST OF CONTAINER DEPOT IN BKK	
1	APL Container Depot Co., Ltd.
2	Ban <b>Thung Pho</b> Station
3	Bangkok Modern Terminal limited.
4	<b>Bangna</b> C.D. Co., Ltd.
5	Best Resource Transport Co., Ltd.
6	<b>Calocean</b> Service Ltd.
7	<b>Concenter</b> Co., Ltd.
8	Contain Depot Service Co., Ltd.
9	Customer Global Container Line Co., Ltd. (Depot)
10	Evergreen Container Terminal (Thailand) Ltd.
11	<b>Kut</b> Chick Station
12	<b>R.S.</b> Container Depot Co., Ltd
13	SEM-P.C. Maritime Co., Ltd.
14	Si la Art Station
15	<b>Srithai</b> Freight Forwarder.
16	<b>Tha Phra</b> Station
17	Thai <b>Aeng</b> Gong Container Services Co., Ltd.
18	Thai Depot and Transport Co., Ltd.
19	Thai <b>Prosperlity Terminal</b> .(TPT No. 10)
20	<b>Unicon</b> Services
21	<b>UniQue Depot&amp;Transport</b> Co., Ltd. ( <b>Bangna</b> )
22	<b>UniQue Depot&amp;Transport</b> Co., Ltd. ( <b>Kingkaew</b> )
23	<b>Vanich</b> Container Yard Co., Ltd.

Source : <http://logistics-mis.otp.go.th/logistic/>



## APPENDIX C

### SPSS OUTPUT

## Regression

Variables Entered/Removed\*

Model	Variables Entered	Variables Removed	Method
1	Service location, Logistics service quality, Service pricing		Enter

a. Dependent Variable: Customer satisfaction

b. All requested variables entered.

Model Summa

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.863 <sup>a</sup>	.745	.737	.31889

a. Predictors: (Constant), Service location, Logistics service quality, Service pricing

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.587	3	9.529	93.705	.000 <sup>b</sup>
	Residual	9.763	96	.102		
	Total	38.350	99			

a. Dependent Variable: Customer satisfaction

b. Predictors: (Constant), Service location, Logistics service quality, Service pricing

Coefficients\*

Independent Variables	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
(Constant)	-.650		-2.652	.009
Logistics service quality	.894	.711	11.025	.000
Service pricing	.071	.068	1.009	.316
Service location	.213	.205	3.382	.001

Remark: Dependent Variable: Customer satisfaction

## Regression

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.866 <sup>a</sup>	.750	.725	.32654

a. Predictors: (Constant), Timeliness, Order release quantity, Ordering procedure, Personal contact quality, Order discrepancy handling, Information quality, Order quality, Order condition, Order accuracy

**ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	28.754	9	3.195	29.963	.000 <sup>b</sup>
Residual	9.596	90	.107		
Total	38.350	99			

a. Dependent Variable: Customer satisfaction

b. Predictors: (Constant), Timeliness, Order release quantity, Ordering procedure, Personal contact quality, Order discrepancy handling, Information quality, Order quality, Order condition, Order accuracy

**Coefficients<sup>a</sup>**

Independent Variables	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Beta		
(Constant)	-.262		-1.051	.296
Personal contact quality	.117	.142	1.963	.053
Order release quantity	.100	.106	1.563	.122
Information quality	-.074	-.073	-.952	.344
Ordering procedure	.193	.190	2.516	.014
Order accuracy	.188	.203	2.319	.023
Order condition	-.098	-.102	-1.207	.231
Order quality	.197	.181	2.158	.034
Order discrepancy handling	.200	.226	2.988	.004
Timeliness	.216	.237	2.665	.009

Remark: Dependent Variable: Customer satisfaction