



DELIVERY PERFORMANCE IMPROVEMENT:  
A CASE OF SECURE LOGISTICS PROVIDERS

By  
RYOPHATCH BHUSITHIPATKOOL

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

June 2016

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A Final Report of the Six-Credit Course  
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Science in Supply Chain Management  
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June, 2016



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

**Declaration of Authorship Form**

I, **Mr. Ryophatch Bhusithipatkool** declare that this project and the work presented in it are my own and has been generated by me as the result of my own original research.

Project Title **DELIVERY PERFORMANCE IMPROVEMENT: A CASE OF SECURE LOGISTICS PROVIDERS**

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3. Where I have consulted the published work of others, this is always clearly attributed;
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**ADVISOR'S STATEMENT**

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

Signed   
(Dr. Piyawan Puttibarncharoensri)

Date 16 June 2016

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Ryophatch Bhusithipatkool

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June 2016

## ABSTRACT

Third Party Logistics provider is becoming a famous outsource for supply chain solution. Secure logistics provider is considered as outsourcing logistics service that mainly focusses on valuable products.

Delivery in Full on Time (DIFOT) is the most concern of the customers as gems and jewelry are highly valuable products. Customers expect the goods to be delivered on time especially before noon (by the same date of flight arrival). While the company has set up KPI at 95% effectiveness for morning flight arrival (flight arrival before 7.00 AM), but the company has never succeeded the goal. The purpose of this project is to improve delivery performance of shipment arrival before 7.00 AM.

This research starts from data collection using the data of import shipment from January – December 2014 and January – April 2015 which are the most up to date. Second is analyzing the current import working process. Third is defining the factors that affect the low delivery performance. After analyzing the current process of the company, controllable and uncontrollable factors are found. The company has focused on controllable factors only which are working process and sorting skill. The last is conclusion.

To eliminate these factors, shipment consolidate is the first chosen alternative. Shipment consolidation is the process of combining various shipments with various Master Air Way bill (MAWB) from the origin to one Master Air Way bill which helps reduce the time of process. Review and revise training procedure is the second chosen alternative to improve the sorting skill. The chosen alternatives were used from May until December 2015. The effectiveness of delivery performance has increased to 95% compared to the same period in 2014 with 72% only. Overall performance in 2015 is read as 90% while KPI is set as 95%. This shows the chosen alternatives are worked well for the company as the result has changed to positive way.



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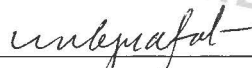
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DELIVERY PERFORMANCE IMPROVEMENT: A CASE OF SECURE  
LOGISTICS PROVIDERS

Mr. Ryophatch Bhusithipatkool

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.\*

Signed   
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Date: June, 16, 2016

# CHAPTER I

## GENERALITIES OF THE STUDY

Currently, there is high competition among many industries. The role of logistics is included as a key competitive plus in the market. Nowadays, many companies are trying to improve their supply chain management in order to support unpredictable demand more effectively. Outsourcing logistics has become a solution for the company.

Secure logistics provider is considered as outsourcing logistics service that focuses on valuable products. The variety of special logistics-related services include transportation, freight management, public/contract warehouse, distribution management and freight consolidation. The benefits of secure logistics provider are better flexibility of improved operational efficiency, variable cost, improved customer service competency and decrease of capital expenditures (distribution centers, equipment) which give the reason why secure logistics provider has become an important part of the company.

### 1.1 Background of the Research

Secure logistics provider is considered as a third party logistics. It is a special service that concentrates on valuable products: diamonds and jewelry, precious metals, fine arts, special event operations and many more. ABC Company is a service provider of secure logistics solutions founded in United States of America in 1859. Throughout its 154 years of familiarity, ABC company offers extreme superiority of service and market standard. ABC has expanded secure transport and related services to more than 110 countries. Transportation services of ABC include armored vehicles, trailers and trucks, secure sea and air freight, air chargers and armed messengers.

ABC Company in Thailand was established in 1986. It mainly serves the gems and jewelry community and provides security services to cash centers. The head office is located in the center of the gems and jewelry community in Bangkok. In addition, its Suvarnabhumi airport branch office is located inside the Free zone to support customs brokerage and airfreight activities.

ABC's service has three major categories. The first is global services, including worldwide delivery of jewelry and diamond, precious metal, gold, banknote, traveler's cheque, credit cards, financial paper, import/export and customs brokerage. The second is domestic services, including vaulting, cash service center, armored transportation, ATM services. The third is domestic exhibition services.

The scope of secure logistics management services includes pick and pack, inventory management, secure storage, customs clearance, airline handling, secure transportation, cash processing, replenishment and delivery.

The scope of secure transportation services includes armored truck transportation, secure air and sea freight, couriers, air charters and armored messengers.

The scope of trade show services includes a wide variety of services for the diamond and jewelry industry, such as processing customs clearance, handling, secure transportation and walk-in service center, free zone and bonded warehouse. Free zone and bonded warehouse are special services that make ABC become an outstanding provider in the market.

In over 154 years of service, none has ever lost a penny entrusting their valuables to ABC. For Thailand operations, ABC has brought, implemented, and strictly maintained the same quality standards for service and security as its parent company. ABC continuously improves procedures, provides creative solutions and utilizes latest information technology system to enable its customers to benefit from its efficiency.



1.2 Statement of the Problems

ABC Thailand has been the leader in the security transportation business. ABC’s first armored truck was introduced in Thailand in 1999. With improved security features in addition to its security standard, it becomes the country's most secured armored car. Each vehicle is recognized by a new look with ABC’s bands on the side. It is a promise to continuously maintain the superior service and security standard to the customers.

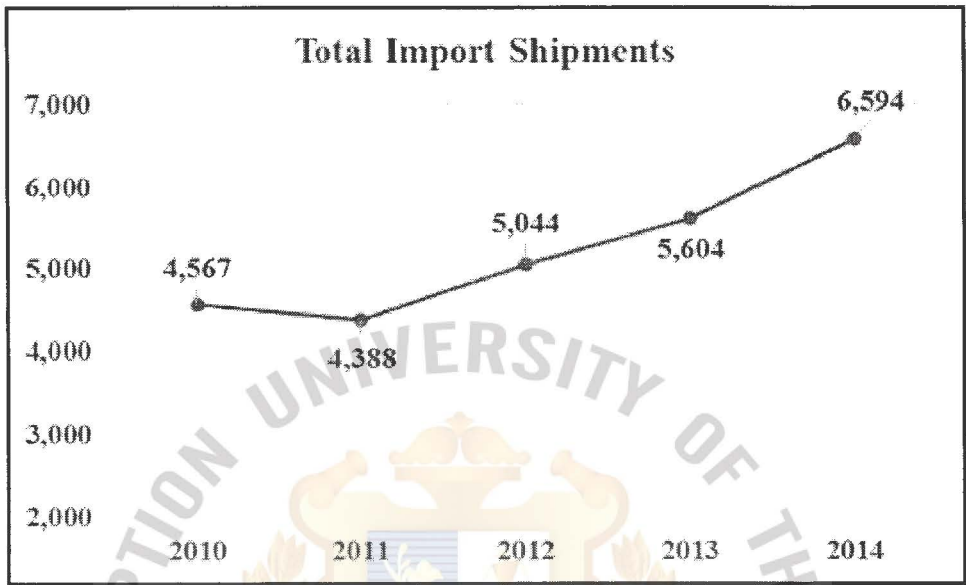
ABC delivers the most complete protection against any losses found in the security transport industry. The armored transportation service can be made to customer’s requirements. The main area of ABC’s customers is Silom District. Delivery in Full on Time (DIFOT) is the most concern of the customers. As gems and jewelry are highly valuable products, high expectation is the result. Customers expect the goods to be delivered on time especially before noon (by the same date of flight arrival before 7.00 AM); and also reliability of tracking and tracing system is required. Table 1.1 presents the total import shipments of ABC during 2010 to 2014. Most shipments are delivered before noon.

Table 1.1: Total Import Shipments of ABC Company during 2010 to 2014

Year	Total Shipments	Flight arrival Before 7.30 AM	Percentage of Shipments	Flight arrival After 7.30 AM	Percentage of Shipments
2010	4,567	2,329	51%	2,238	49%
2011	4,388	2,326	53%	2,062	47%
2012	5,044	2,774	55%	2,270	45%
2013	5,604	3,194	57%	2,410	43%
2014	6,594	4,186	63%	2,408	37%

Source: ABC Thailand

**Figure 1.1: Trend of Total Import Shipments of ABC Company during 2010 -2014**



Source: ABC Thailand

Figure 1.1 shows the trend of the total import shipment where the highest volume is in the year 2014.

Even though customers expect the goods to be delivered before noon on the same date of flight arrival, but the flight schedule and other factors might not meet customer’s requests. ABC Thailand has set delivery schedule based on daily flight schedule. Table 1.2 shows how ABC Thailand sets delivery schedule.

**Table 1.2: ABC Thailand Delivery Schedule**

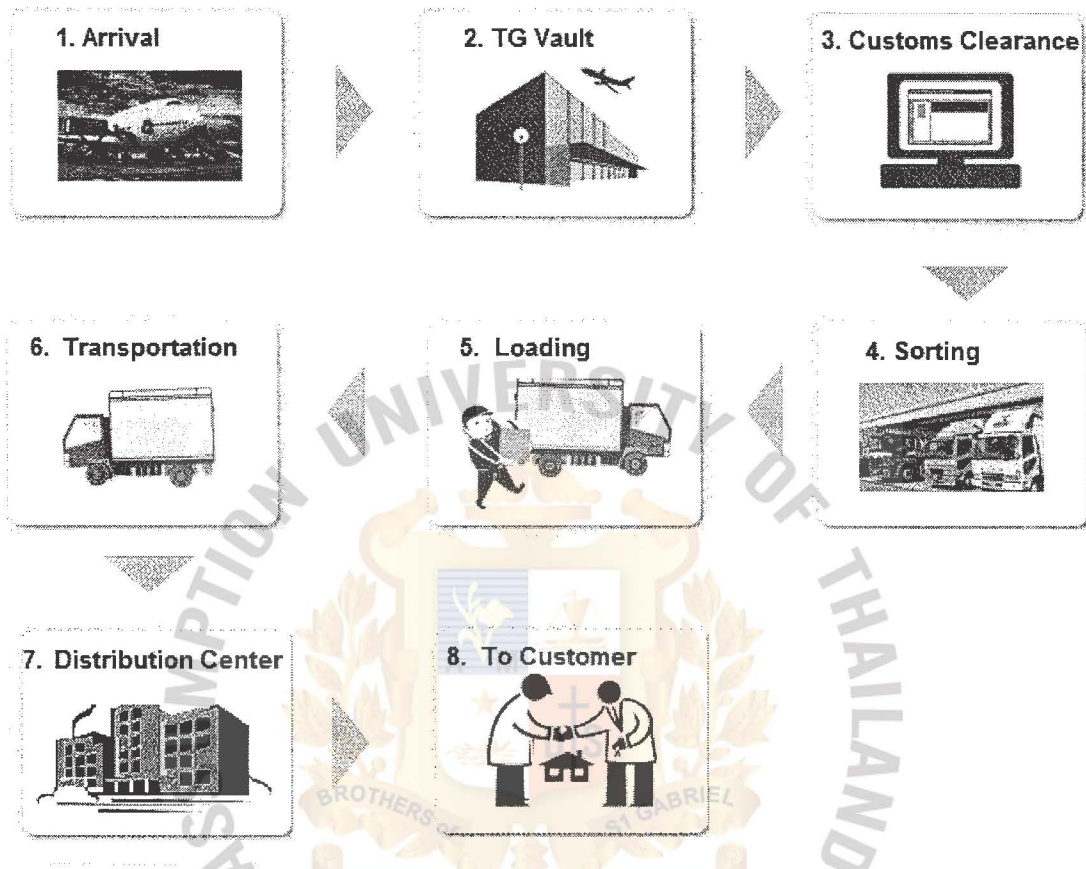
Round	Flight arrival	Dispatch	No. of Trucks	Delivery Time
1	Before 07.30 AM	10.00 AM	2	Before 12 AM
2	Before 09.00 AM	12.00 AM	2	Same day arrival
3	Before 11.00 AM	02.00 PM	1	
4	Before 03.00 PM	04.00 PM	1	

Source: ABC Thailand

Table 1.2 shows ABC Thailand delivery schedule shipments that arrive before 7.30 AM are delivered before 12.00 AM; whereas, those that arrive after 7.30 AM until 3.00 PM are delivered within the same date of flight arrival. There are six trucks available in each day. Two trucks are for delivering the shipments before 12.00 AM while another four trucks are for delivering the shipments after 12.00PM.

Starting from the year 2014, ABC Thailand has reviewed its policy on import working process with an aim to improve its service performance. The new process has been implemented to achieve a target of 95% for Delivery In Full On time. Key Performance Indicator (KPI) is measured separately based on flight arrival. The first group is shipments with flight arrival before 7.30 AM, parcels must be delivered before 12.00 AM. The second group is those with flight arrival after 7.30 AM which are delivered after 12 AM (by the same date of flight arrival). Figure 1.2 shows an import working process of ABC Thailand.

**Figure 1.2: ABC Thailand Import Working Process**



Source: ABC Thailand

Figure 1.2 shows the import working process of ABC Thailand Company. Step 1, from flight arrival, the cargo is checked on quantity and condition. Step 2, after the cargo is checked and being confirmed, it will be moved to the vault of Thai Airways International (TG). Step 3, while the cargo is in TG vault, clearing process is taking place at customs. Step 4, after the clearance process is completed, the cargo is moved to ABC Vault. Step 5, the cargo is sorted by customer's areas. Step 6, the cargo is loaded into the truck. Step 7, the cargo is transported. Step 8, the cargo is delivered to customers. Although the process is effective, it still could not meet the company's target yet.



Table 1.3 shows the record of total import shipments in the year 2014 and the quantities that met the target as well as those missed it.

**Table 1.3: Total Import Shipments during 2014**

Total Import Shipments during 2014 (Before 12:00 AM)					
Flight Arrival	Total Shipments	Delivery Before 12 AM	Percentage of Shipments	Delivery After 12 AM	Percentage of Shipments
Before 7.30 AM	4,186	3,027	72%	1,159	28%
Total Shipments during 2014 (After 12:00 AM)					
Flight Arrival	Total Shipments	Delivery Same day	Percentage of Shipments	Delivery Next day	Percentage of Shipments
Before 9 AM	1,565	1,548	99%	17	1%
Before 11 AM	433	421	97%	12	3%
Before 3 PM	410	395	96%	14	3%
<b>Total</b>	<b>2,408</b>	<b>2,364</b>	<b>98%</b>	<b>44</b>	<b>2%</b>
Total Shipments during 2014 (Before and After 12:00AM)					
Flight Arrival	Total Shipments	Delivery Achievement	Percentage of Shipments	Delivery Failure	Percentage of Shipments
<b>Grand Total</b>	<b>6,594</b>	<b>5,391</b>	<b>82%</b>	<b>1,202</b>	<b>18%</b>

Source: ABC Thailand

Table 1.3 shows the total import shipments during January – December 2014. There are 6,594 shipments in which 5,391 (82%) are successfully delivered while 1,202 (18%) are failed to deliver on the same day of arrival.

ABC Thailand has tried to improve its delivery performance to satisfy customer and maintain its existing customers as well as to seek for new customers. In order to improve the delivery performance, those problems have to be resolved. Since 2014, ABC Thailand has set up its KPI on delivery performance at over 95% which ABC

Thailand has not reached its target yet. Specifically, the shipments that arrive before 7.30 AM which have to deliver to customers before noon (Effective only 72%) dropped overall percentage to 82%. As a consequence, this research attempts to focus on this issue and seek to answer the question, **“How to improve the delivery performance of ABC Thailand?”**

### **1.3 Research Objectives**

The objectives of this study were twofold:

- 1.3.1 To identify and analyze the root causes of low delivery performance; and
- 1.3.2 To develop and implement alternative to eliminate the cause of low delivery performance.

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

The study emphasized only on the working process in the part of ABC Thailand import shipment because the revenue from import is higher than the other services of the company.

Shipments being emphasized were with flight arrival before 7.30 AM which had to be delivered before noon because their percentage of effectiveness was the lowest and the quantity of shipments was the highest. The period that was analyzed started from January 2014 to April 2015 as the most up-to-date information.

The data reviewed were import shipment record; working process which starts from flight arrival until the cargo is delivered to customers; and causes that affect low delivery performance.

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

This study will benefit ABC Thailand as it intends to improve the delivery performance. This study will investigate problems causing low delivery performance

(less than 95%) as well as recommend the solutions. By improving delivery performance, this shall maintain existing customers through better service together with getting more new customers. This shall bring ABC Thailand to become a sustainable leader in the secure logistic provider market.

## 1.6 Limitations of the Research

Even though ABC Thailand has several types of services, this study has focused on import shipments only as the problems investigated were parts of import service.

This study was limited to working process of import shipments and causes that affect low delivery performance such as flight delay, non-completed document, customs check, system down, staff sorting skill, traffic, walker management and ad hoc.

## 1.7 Definition of Terms

**Air Waybill (AWB or MAWB)** The document made out by or on behalf of the shipper which, when used, evidences the contract between the shipper and carrier(s) for carriage of goods over routes of the carriers(s)(IATA, 2000).

**Consolidation** The process of combining different items, produced and used at different locations and different times, into single vehicle loads. The aim of consolidation is to take advantage of lower transportation charges, common in the rail, motor carrier and airline industries that come from larger load sizes.

Consolidation occurs whenever different items travel in the same load (Hall, 1987).

**Distribution Center** The physical location where the physical

distribution system exists is referred to as a Distribution Center (DC) (Tompkins, White, Bozer&Tanchoco, 2003).

#### Free Trade Zone

Public or private duty-free areas where goods may be warehoused, processed, sold, serviced, distributed, showcased, packaged, labeled, sorted, assembled and/or manufactured as finished goods prior to re-exporting them as duty-exempt finished products (Tiefenbrun, 2012).

#### House Air Waybill (HAWB)

Document issued by an international air freight forwarder under the terms of their own tariff (IATA, 2000).

#### Key Performance Indicators (KPIs)

KPIs are quantifiable measurements to examine the improvement in performing an innovation implementing activity that is critical to the success of a business (Cox, Issa, & Ahrens, 2003).

#### Process Mapping

As a simple but powerful tool to unpick the many layers to both service processes and patient pathways, which involve a number of staff in different roles and departments. It is a valuable method of identifying issues, developing solutions and enabling interdisciplinary teamwork (Taylor & Randall, 2007).

#### Third Party Logistics

The organizational practice of contracting-out part of or all logistics activities that were previously performed in-house (Aertsen, 1993).



## CHAPTER II

### REVIEW OF RELATED LITERATURE

This chapter reviews the literatures that are related to ABC's case study. Each case is varied in situations, ideas and solutions which are useful in adapting the process for the improvement of ABC Company. The first section is nature of security service provider, the second section is customs clearance, the third section is distribution center and the last section is business process improvement.

#### 2.1 Nature of Secure Logistic Provider

Third Party Logistics or 3PL is a company that provides outsources logistics service to organization, practice the whole or some parts of logistics activities such as transportation, warehousing, customs clearance, distribution center, consulting and freight auditing, tracing and shipment tracking, etc. Some companies favor to use outsource instead of their own logistics function as they are not intense on it or not competent of their key business function, so 3PL has turned into a choice for them.

The terms such as logistics alliances, logistics outsourcing, third party logistics, contract distribution and contract logistics refer to describe the outsource company that processes some parts of or all logistics activities that were internal performed previously (Sink, Langley, & Gibson 1996).

Third Party Logistics is typically related to the contribution of numerous services bundled, rather than warehousing or transport function only (Leahy, Murphy, & Poist, 1995).

Activities are completed by 3PL on behalf of the shipper and involve at least management and completion of warehousing and transportation (if part of the process is warehousing). Other activities which are payment services, invoicing, including value-added activities, information services and call center (Berglund, Laarhoven,

Sharman, & Wendel, 1999). There are numerous benefits of using 3PL which are cost reduction, improved efficiency service and flexibility, risk allocation, having a good cash flow, multiplicity of choices and time saving

The contract out of logistic functions has established to be operative in assisting the organization to improve its customer service level, complete competitive advantage, and decrease its whole logistic cost (Boyson, Corsi, Dresner, & Rabinovich, 1999).

There are benefits that supply chains can achieve from 3PL services. They can concentrate on core competencies and capabilities, concentrate on logistics management, improve overall performance, find global solutions, enable entry to new markets, control costs, improve customer satisfaction, improve flexibility, and find more cost efficient service solutions. In general, outsourcing of logistics services adds value when it enhances the performance of a company.

Secure Logistic Provider is considered as a 3PLs that specializes in handling valuable goods and secure transportation throughout the value chain logistics. Secure Logistics Provider offers door to door service in high value products, such as ATM service, bank note, armored cash transportation and management, precious jewelry, metals, Art, etc. Some providers do have secure services such as guarding and protection.

## **2.2 Customs Clearance**

Customs Clearance is well-defined as the set of operation processed by customs authority, which are included but not limited to; import processing; export and transit declarations; appraisal of origin; worth and classification of merchandises; gathering and processing of duties and fees; examination; inspection and cargo releasing; managing audits of shipment post-clearance; process of crucial shipment and management of waivers; and exemption schemes and re-exportation schemes (McLinden, 2005).

Customs clearance is an action to confirm the release of the export or import

declaration. The goods are under control by the custom until taxes are duly paid. Moreover, if the import or export is not restricted or banned, then the goods will be handed to the consignee

### **2.2.1 Electronic Customs (E-Customs)**

Thai Customs has developed Electronic Customs (E-Customs) project which aims to support and process wholly commercial merchandise imported into Thailand. The system is broadly familiar as one of the greatest sophisticated and integrated business-oriented systems. The system is helpful in cost cutting, less paperwork for both Customs and related trading community.

Computer systems are progressively used by Thai Customs to support a varied range of Customs operations. E-Customs is using digital systems to collect and protect Customs duties; to control the flow of goods, personal effects, animals, and hazardous items in and out and provide security from crime. The creativity aims in replacing paper-based customs procedures with electronic operations, thus creating a more efficient and up-to-date customs environment. The aims of the E-Customs initiative are to facilitate trade and enhance security. (IBM Corporation, 2008).

### **2.2.2 Customs clearing Agent**

Customs clearing agent is a person who manages the business related to the Customs clearance of merchandise and who contacts directly with the Customs for and on behalf of another person (Word Customs Organization, 2013)

Customs clearing agents are also called Customs Agents, Customs Brokers and Freight Forwarders who act as agents for an importer or exporter in preparing and submitting all documents for goods clearing through Customs.



### **2.2.3 Free Trade Zone**

Free Trade Zone is a public or private duty-free area where goods may be warehoused, processed, sold, serviced, distributed, showcased, packaged, labeled, sorted, assembled and/or manufactured as finished goods prior to re-exporting them as duty-exempt finished products (Tiefenbrun, 2012).

Free Trade Zone (FTZ) is an area, usually a port of entry, designated by the country for duty-free entry of goods. As long as the goods do not go into the country from the FTZ, no duty is assessed. While in the FTZ, goods may be processed, packaged, serviced or displayed.

### **2.2.4 FreeZone (Value Added Area)**

The Free Zone in Thailand is an area designated by Directors General of Customs under section 97 of the Customs Act B.E. 2469 amended by Section 8 of the Customs Act (No.18) B.E. 2543 for industrial, commercial operation or other activities that have benefits to the economic growth of Thailand. The Free Zone design is created to help Thai operators to compete with foreign competitors as duty on product produced abroad and imported to Thailand is measured on the finished product rather than on its individual material, parts or components. Thailand based manufacturers are having a disadvantage compared to foreign competitors as they have to pay duty with a higher rate on imported material, parts or component to be used in their production process. The Free Zone is designed to support Thailand based manufacturer by treating products produced in the zone as if it were manufactured abroad. The goods that are in free zone area have privileges on duties as provided by law.

In addition, the “ZERO” tax rate is used to calculate VAT for domestic goods removed from a Free Zone, on condition that such goods are subject to export duty or exempted from export duty under the Customs Act (Thai Customs Department, 2009).



ABC Company has a benefit of Free Zone in Suvarnabhumi Airport as all the imported shipments arrive and cleared at this airport.

Suvarnabhumi Airport's Free Zone is a designated area for certain commercial activities within Suvarnabhumi Airport which can be divided into two main areas. The first one is Cargo Terminal Area for airlines operators (Thai Cargo and WFSPG Cargo) and the second is Value Added Area for any commercial activities adding values to merchandise. In the Value Added Area, operators with a license are allowed to perform certain commercial activities of value added. The activities can be described as trading, packing or repacking, bulking, grouping, sorting, and labeling, as well as other related activities (<http://www.customs-ccs.com> - Suvarnabhumi Airport Cargo Clearance Customs Bureau)

### **2.3 Distribution Center**

The physical location where the physical distribution system exists is referred to as a Distribution Center (DC) (Tompkins, White, Bozer, &Tanchoco, 2003) or a distribution warehouse (Van den Berg &Zijm, 1999).

A distribution center is a place that is usually smaller than a company's main warehouse and is used for short-term storage, receiving and redistribution of goods along with customer orders as they are received. DC can be called as 'division warehouse' or 'distribution warehouse'. It should be well noted that here the important is on processing and moving goods to wholesalers, retailers, or final customers rather than storage.

The role of DC is to focus on the reduction of supply chain waste which may show itself in terms of, for example, surplus resource and high level of inventory or unnecessary long lead times. In other words, the aim is to take advantage of unstable market places, and the ability to respond quickly to market opportunities is the serious factor (Christopher &Towill, 2002).

ABC Company has distribution center at Silom Area with two main objectives. Firstly, to reduce a lead time of delivery, the truck is stopped at this area and parcels are distributed by Walkers. Secondly parcels are temporarily kept in this area when the receiver is not available.

## **2.4 Customer Satisfaction**

Customer satisfaction is a significant indicator of the company's success. It is the degree of overall pleasure of a service experienced by customers. In the service provider business, it is based on how well the service matches a customer's expectations (Hellier et al., 2003). Customer satisfaction is based on all previous experience to evaluate service performance (Anderson & Fornell, 1994). Customer satisfaction usually has two basic points: one is the quality of the product and the other is the exchange experience between the customer and the provider (Crosby, Evans, & Cowles, 1990). Kotler (1994) summarizes that customer satisfaction is the key to keep customers. Customer satisfaction is an outcome from a reliable service where actual performance meets the customer's expectation. In order to earn more customer satisfaction, the company is committed to improve its performance to meet or exceed customers' expectations and match their requirements. Therefore, customer satisfaction is considered to be the customer's overall attitude toward service (Lin, Huang, & Zeelenberg, 2006).

## **2.5 Delivery performance**

The link in a supply chain that directly deals with customers is the delivery of goods or services and therefore is called "the driver of customer satisfaction". Another term for delivery performance is perfect order delivery. Perfect order delivery adds to OTIF other essential components as perfect invoicing (right quantity, right price and right item number) and perfect receipt (correct bill of lading and packing slip) (Gunasekaran, 2004). In this study, customers expect the goods to be delivered before noon (by the same date of flight arrival). Customers require dependable on-time delivery from their suppliers. Both early and late deliveries are disruptive for the

supply chain and need to be analyzed (Guiffrida, & Nagi, 2004). The previous data record of ABC Company has shown that the result of delivery performance is under the company's objective.

## **2.6 Business Process Improvement**

Process improvement is defined as a transformation of inputs into outputs. The inputs can be inquiry or resources, and the outputs can be service, result or products. The outputs may or may not have value added and could be an input to another process (Harrington, 1991). Basically, a structured, measured set of activities aims to produce an indicated output for an individual customer or marketplace (Davenport, 1993).

Process improvement is defined as a methodology that is aimed to create step-function improvements in organizational and support processes by using methods, for example, process redesign, process re-engineering and process benchmarking (Harrington, 1991)

Business Process Improvement (BPI) is a simply method of improving the way to discrete set of business activities is organized and managed. It is a structured approach to analyze and continually improve fundamental activities of a company's operation by simplifying and streamlining business processes (Lee & Chuah, 2001). BPI is fundamental to business development, quality improvement and the management of change (Bendell, 2005). Process management philosophy includes being organized to manage the system with processes, improving the processes intended for systematic approach to satisfy internal- and external-customer expectations (Lee & Dale, 1998).

### **2.6.1 Process Mapping**

Process mapping is simple but powerful tool to untie various layers to both service and processes, which involve an amount of employee in different parts and departments. It is a luxury method of verifying issues, developing solutions and enabling interdisciplinary teamwork (Taylor & Randall, 2007). Process mapping



presents a visual tool to improve the process and provides a means for analyzing the process. It is an outline that demonstrates relationships among the people, activities, objectives and data (Siha& Saad, 2008).

A lot of process mapping events focus either too closely on definite problem of business or else try to map the overall corporation. Moreover, it is recommended to focus on the goals or certain events (Fulscher& Powell, 1999).

The map also acts as boundary object which participators from different sections and groups could join together towards an ordinary target. Boundary objects have been defined as objects that connect different community world's together (Garrety&Badham 1999).

Process mapping contains a model that shows the connections among the activities, people, data and objects involved in the production of a specified output.

### **2.6.2 Swim Lane Process Maps**

The business process is viewed as a gathering of continuous internal activities which may be executed by an organization to complete its productivity or output. The Swim Lane diagram is a visible illustration of the activities resulting from business process models so that business processes can be analyzed and defined (Aldin& De Cesare, 2011).

The Swim Lane diagram may be designed in horizontal or vertical as required. The performers positioned within each Swim Lane may depend on the specific business process and the level at which it needs to be defined. For example, an order implement process may be defined at the level of the departments within the organization and later the actors on the diagram may be mentioned in the departments, such as Marketing, Inventory, Production and Purchasing. On the other side, a production process may be described at the level of the position on the production floor and then the performer on the diagram may be mentioned in the station for



example, Machining, Cutting and Painting. The continuity of activities is shown using the arrows which connect each activity together. Hence, the complete business process may be traced from the beginning activity to the last activity (Bera, 2012).

Swim Lane diagrams also work as the support tools by which the completeness and precision of the business processes may be determined. Meanwhile, business processes are normally cross-functional (Ould, 1995).

### **2.6.3 Shipment Consolidation**

Shipment consolidation is primarily focusing on terminal consolidation where stuff from various origins are separated at a single terminal to be dispatched to different destinations on the same carriage. Consolidating idea to reduce costs is not an up to date development (Hall, 1987).

The idea of freight consolidation was presented to deal with the regular and small shipments which are well-known as Less than Truckload (LTL) or Less Container Load (LCL). Successful operation of consolidation strategies can help decrease total logistics costs by achieving economies of scale (Min & Cooper, 1990).

In order to handle small lot of consignment efficiently and competitively, freight forwarders usually put many consignments into one lot then tender to carrier for forwarding. In this case, each consignment will be shipped with one House Airway Waybill respectively, and all of them will be under one master Air Waybill.

Shipment Consolidation (SCL) is a logistics strategy that combines two or more orders or shipments so that a larger quantity can be dispatched on the same vehicle to the same market region. This may enable considerable economies of scale, greatly reducing the transportation cost per item, per order, or per unit weight. The challenge, however is to determine a policy for shipping consolidation that still gives good service to the customers whose orders are among the first to be placed.

ABC's Company of origin combines numerous individual consignments to make up a full container load. This arrangement allows the goods to be shipped as containerized-cargo that offers greater security at lower shipping rates. At the port of destination, the consolidated shipment is separated back into the original individual consignments for delivery to ABC company respective consignees.

## 2.7 Summary

In this chapter, the researcher explained in detail the literature review together with definition of the key words used in this study. The literature review helps in understanding the research base on the concepts which are nature of Secure Logistic Provider, customs clearance, distribution center, customer satisfaction, delivery performance and Business Process improvement.

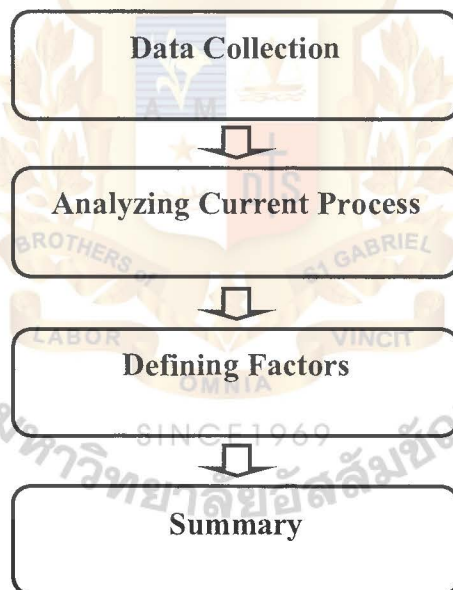


# CHAPTER III

## RESEARCH METHODOLOGY

This chapter starts with the presentation of the data collected from the records of ABC Company. It is followed by the analysis of the current import working process of the company. Then, the definition of the factors that affect the low delivery performance. The last part is the summary. Figure 3.1 shows the Research Methodology Framework Diagram of ABC Company.

**Figure 3.1: Research Methodology Framework**



### 3.1 Research Design and Methodology

This paper is a case study of ABC Thailand Company. The company has benefited by meeting its objective which is KPI (95%), reducing cost and cycle time. The current working process of the company was analyzed, then, the new process for improvement is proposed in the next chapter.

### 3.2 Data Collection

The researcher reviewed the documents related to the data of total import shipment collected during January – December 2014 and January – April 2015 which were the most up-to-date records.

Table 3.1 shows data of total import shipment during January – December 2014 of flight arrival before 7.30 AM which shipments have to be delivered before noon.

**Table 3.1: Total Monthly Import Shipments during January – December 2014  
(Flight arrival before 7.30 AM)**

Flight Arrival Before 7.30 AM							
Month	Total Shipments	Delivery Before 12 AM	Percentage of Shipments	Delivery After 12 AM	Percentage of Shipments	Next Days	Percentage of Shipments
Jan.	256	184	72%	65	25%	7	3%
Feb.	263	187	71%	74	28%	2	1%
Mar.	312	231	74%	71	23%	10	3%
Apr.	312	228	73%	79	25%	5	2%
May	373	269	72%	104	28%	0	0%
Jun.	343	254	74%	89	26%	0	0%
Jul.	357	253	71%	101	28%	3	1%
Aug.	347	250	72%	92	27%	5	1%
Sep.	372	272	73%	85	23%	15	4%
Oct.	451	325	72%	120	27%	6	1%
Nov.	411	292	71%	118	29%	1	0%
Dec.	389	282	72%	99	25%	8	2%
<b>Total</b>	<b>4,186</b>	<b>3,027</b>	<b>72%</b>	<b>1,097</b>	<b>26%</b>	<b>62</b>	<b>2%</b>

Source: ABC Thailand

From Table 3.1, the total shipments of flight arrival before 7.30 AM during January – December 2014 is 4,186(72%) in which 3,027 shipments are successfully delivered before 12 AM while 1,159 shipments (27%) are failed to be delivered. Out of 1,159 shipments, 1,097 shipments (26%) are delivered after 12 AM while 62 (1%) are delivered the next days.



Table 3.2 illustrates data of total import shipments during January-December 2014 of flight arrival after 7.30 AM which shipments have to be delivered on the same day.

**Table 3.2: Total Monthly Import Shipments during January – December 2014  
(Flight arrival after 7.30 AM)**

Flight Arrival After 7.30 AM/Before 11 AM / 4.30 PM					
Month	Total Shipments	Delivery After 12 AM	Percentage of Shipments	Delivery Next Day	Percentage of Shipments
Jan.	105	102	97%	3	3%
Feb.	142	138	97%	4	3%
Mar.	117	115	98%	2	2%
Apr.	85	82	96%	3	4%
May	189	185	98%	4	2%
Jun.	252	248	98%	4	2%
Jul.	259	256	99%	3	1%
Aug.	297	290	98%	7	2%
Sep.	337	334	99%	3	1%
Oct.	325	320	98%	5	2%
Nov.	176	172	98%	4	2%
Dec.	124	121	98%	3	2%
<b>Total</b>	<b>2,408</b>	<b>2,364</b>	<b>98%</b>	<b>44</b>	<b>2%</b>

Source: ABC Thailand

From Table 3.2, the total shipments of flight arrival after 7.30 AM during January – December 2014 is 2,408 shipments (37%) in which 2,364 shipments (98%) are successfully shipped on the same day while 55 shipments (2%) are failed to be delivered.

Table 3.3 shows data of total import shipment during January – April 2015 of flight arrival before 7.30 AM which shipments have to be delivered before noon.

**Table 3.3: Total Monthly Import Shipments during January – April 2015**  
(Flight arrival before 7.30 AM)

Flight Arrival Before 7.30AM							
Month	Total Shipments	Delivery Before 12 AM	Percentage of Shipments	Delivery After 12 AM	Percentage of Shipments	Next Days	Percentage of Shipments
Jan	262	194	74%	60	23%	8	3%
Feb.	272	204	75%	65	24%	3	1%
Mar	319	233	73%	77	24%	10	3%
Apr	318	238	75%	68	21%	11	4%
Total	1,171	869	74%	270	23%	32	3%

Source: ABC Thailand

From Table 3.3, the total shipments of flight arrival before 7.30 AM during January – April 2015 is 1,171 in which 869 shipments (74%) successfully delivered before 12 AM while 302 shipments (26%) are failed to be delivered. Out of 302 shipments, 270 shipments (23%) are delivered after 12 AM while 32 shipments (3%) are delivered the next day.

Table 3.4 illustrates total data of import shipments during January-April 2015 of flight arrival after 7.30 AM which shipments have to be delivered on the same day.

**Table 3.4: Total Monthly Import Shipments during January – April 2015**  
(Flight arrival after 7.30 AM)

Flight Arrival After 7.30 AM/Before 11 AM / 4.30 PM					
Month	Total Shipments	Delivery After 12 AM	Percentage of Shipments	Delivery Next Day	Percentage of Shipments
Jan.	101	100	99%	1	1%
Feb.	121	119	98%	2	2%
Mar.	130	127	98%	3	2%
Apr.	87	86	99%	1	1%
Total	439	432	98%	7	2%

Source: ABC Thailand

From Table 3.4, the total shipments of flight arrival after 7.30 AM during January – April 2015 is 439 shipments (37%) in which 432 shipments (98%) are successfully shipped on the same day while 7 shipments (2%) are failed to be delivered.

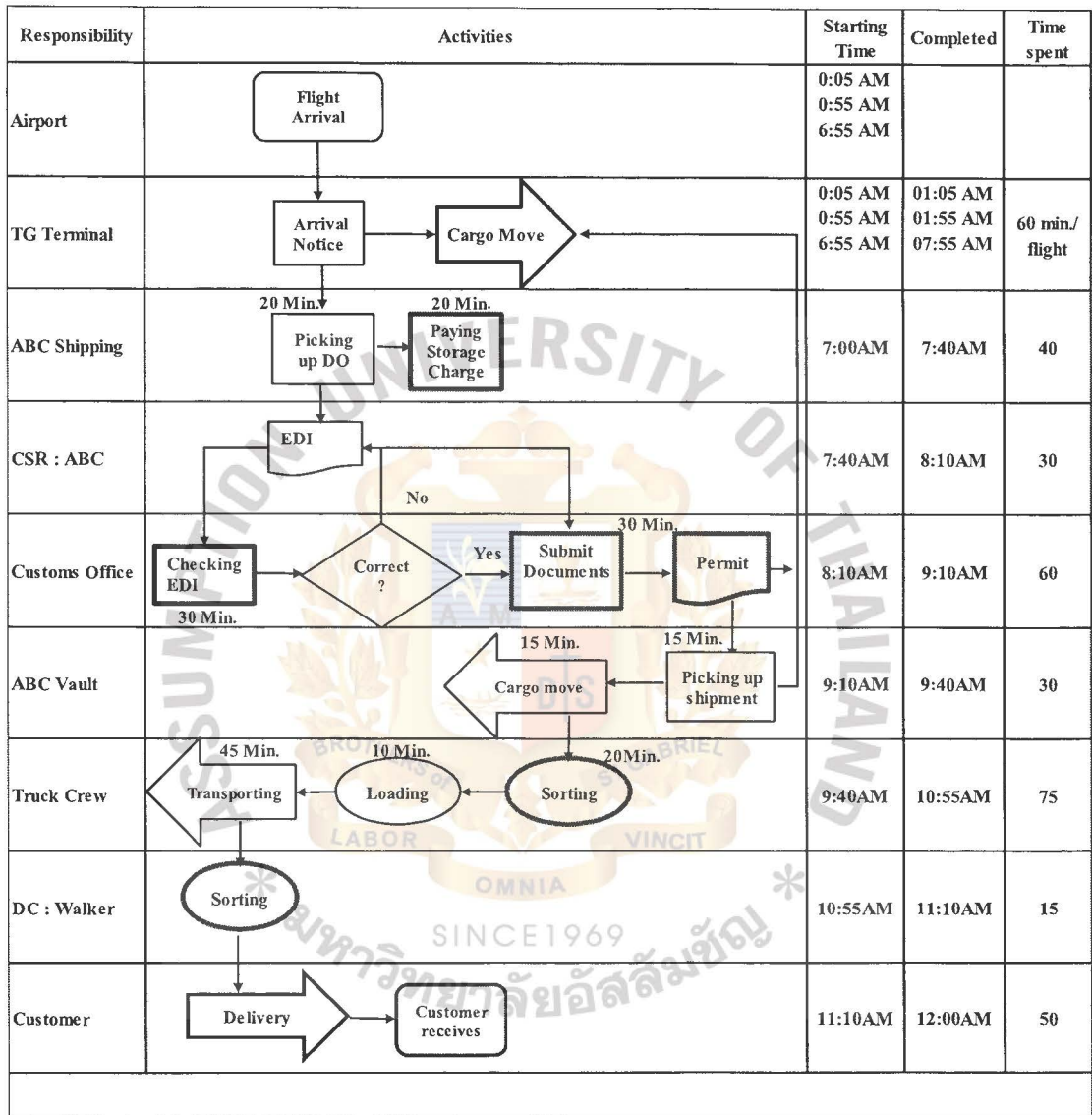
From the above data records, the schedule to be given focus is flight arrival before 7.30 AM which the parcels have to be delivered before noon. The reason to focus on this period is that the target delivery performance of ABC is set at 95% while the actual result in 2014 is 72% and 2015 is 75% only.

### 3.3 Analyzing Current Process

The current import working process of ABC Thailand Company has several steps. Step 1, from flight arrival, the cargo is checked on quantity and condition and then, after the cargo is checked and being confirmed, it will be moved to the vault of Thai Airways International (TG). Step 2, Customer Service Representative (CSR) keys the data of each shipment into Excellency and Electronic Data Interchange (EDI) system. Step 3, Airline officer checks the data in Excellency system. The data in Excellency system are confirmed and the Delivery Order (DO) is released. Step 4, ABC's shipping agent picks up DO and pays storage charge to Airline. Step 5, Customs clearance process is done by customs officer. Data in EDI system are checked, confirmed and come out with permission. Step 6, Cargo is moving from TG's vault to ABC's vault. Step 7, Cargo is being sorted at ABC's vault. Step 8, Cargo is being loaded into the Truck. Step 9, Cargo is being transported. Step 10, ABC's truck arrives at Distribution Center (DC) and being sorted. Step 11, Cargo is delivered to the customer's hands.

Figure 3.2 shows the Flow of ABC Thailand Import Working Process with time spent in each step under Swim Lane diagram.

**Figure 3.2: Flow of ABC Thailand Import Working Process with lead time of morning shipment (arrival before noon)**



Source: ABC Thailand

Figure 3.2 shows an estimated time used in each process which spends for thirty shipments per day (Averaging on ABC's data collection). It starts from flight arrival. Currently, there are three flights arriving daily before 7:30 AM, which are 0:05 AM, 0:55 AM and 6:55 AM. Flights arrival in these periods are mostly from India. Arrival Notice is given when flight has arrived, cargo is being checked and transferred to TG's Vault. Total time spent in this process is 60 minutes approximately. Next,



ABC's shipping agent picks up DO and pays storage charge to Airline. Time spent in this process is 40 minutes. Next CSR of ABC Company inputs data into EDI system which the system is linked between Thai Customs Authority and ABC Company. Information of the shipments has to be keyed in and wait for confirmation by the Customs Authority. EDI process takes about 30 minutes. Next, clearing process, customs officer checks data in EDI system which CSR has keyed previously. The system has an auto respondent; the data can be keyed in before the office hour of Thai Customs at (8.00AM). Once the data are confirmed, full sets of shipping documents are submitted to Customs and Cargo for issuance of permit. This process takes about 60 minutes. Set of shipping documents includes Customs Entry, Invoice, Packing list, MAWB and HAWB.

Cargo permit is used as permission to receive cargo from TG's vault; time spent in this process is 15 minutes. Next, cargo is moved from TG's vault to ABC's vault; time spent in this process is 15 minutes. Next, cargo is being sorted at ABC's vault; time spent in this process is 20 minutes. Next, cargo is being loaded into the truck; time spent in this process is 10 minutes. Next, cargo is being transported; time spent in this process is 45 minutes.

Next, cargo arrives at DC and being sorted by customer's address and ready to be delivered by walker, time spent in this process is 15 minutes. There are four walkers who hands the shipment to customer at 11.10 AM – before 12.00AM, lead time spent in each shipment is set not to be over 6 minutes.

Hence, total lead time spent for import working process of ABC Thailand is 300 minutes starting from ABC's shipping agent to pick up DO and pay storage charge to the Airline. Lead time in each process is set in order to complete the company's objective. (KPI 95%). Based on the pervious data during the year 2014 to April 2015, it show that the company was not able to achieve its objective.

**Table 3.5: Comparing Average Time spent and Target Lead time used in the morning shipment (arrival before noon)**

Part 1: Flight arrival: 0.05AM, 0.55AM, 6.55AM, 7.10AM							
Step	Process	Starting Time	Finished time	Average time per MAWB	Time Spent (Min.)	Average Time Spent (Min)	
						2014	2015
1 2	Cargo Checking & Moving to TG Terminal Airline informs shipment arrival	0:05AM	1:05AM	60	60	60	60
		0:55AM	1:55AM	60	60	60	60
		6:55AM	7:55AM	60	60	60	60
Part 2: Process by ABC's Company							
3	Picking DO, Shipping Doc at TG Terminal	7:00AM	7:20AM	3	20	39	37
4	Paying Storage Charge at Terminal	7:20AM	7:40AM	3	20	45	40
5	CSR key in EDI	7:40AM	8:10AM	3	30	32	31
6	Customs check and accepts EDI	8:10AM	8:40AM	3	30	34	32
7	ABC submit Customs Entry and Shipping Doc to Customs, Customs release Permit.	8:40AM	9:10AM	5	30	33	31
8	Picking up shipment at TG Vault	9:10AM	9:25AM	5	15	18	16
9	TG Vault to ABC's Vault	9:25AM	9:40AM	15	15	14	16
10	Shipments are checked and Sorted at ABC's Vault	9:40AM	10:00AM	2	20	27	26
11	Loading to Truck	10:00AM	10:10AM	2	10	15	12
12	Transportation	10:10AM	10:55AM	45	45	46	47
13	Arrive Distribution Center (DC) & Sorting	10:55AM	11:10AM	2	15	25	23
11	Delivery to customer	11:10AM	12:00AM	6	50	56	53
Total time used				94	300	384	364

Source: ABC Thailand

Table 3.5 shows average time spent for processing one master AWB is read as 94 minutes, target time for import working process of ABC Thailand is 300 minutes while actual time spent during the year 2014 is 384 minutes and period during January to April 2015 is 364 minutes.

### 3.4 Defining Factors

Factors that cause low delivery performance could be classified into two types: controllable and uncontrollable. Controllable factors are factors that ABC could adjust and change which are working process and sorting skill. Uncontrollable factors are factors that ABC could not make any changes which are flight delay, system down, late customs clearance, late document from customer, ad-hoc job and traffic jam. The data of failure shipment of flight arrival before 7.30 AM during 2014 until April 2015 are shown in Table 3.6.

**Table 3.6: Failure Shipment (Flight Arrival Before 7.30 AM)**

Failure Shipment - Flight Arrival Before 7.30 AM			
Year	Delivery After 12 AM	Next Days	Delivery Failure
2014	1,097	62	1,159
January – April 2015	270	32	302
Total	1,360	91	1,461

Table 3.6 shows failure shipment of flight arrival before 7.30 AM during 2014 until April 2015. In 2014, the delivery after 12 AM is 1,097 shipments while the delivery on the next day is 62 shipments, totally 1,159 shipments. During January to April 2015, the delivery after 12 AM is 270 shipments while the delivery on the next day is 32 shipments, totally 302 shipments.



**Table 3.7: Factors Causing Failure Shipment during 2014 –End of April 2015 (Flight Arrival Before 7.30 AM)**

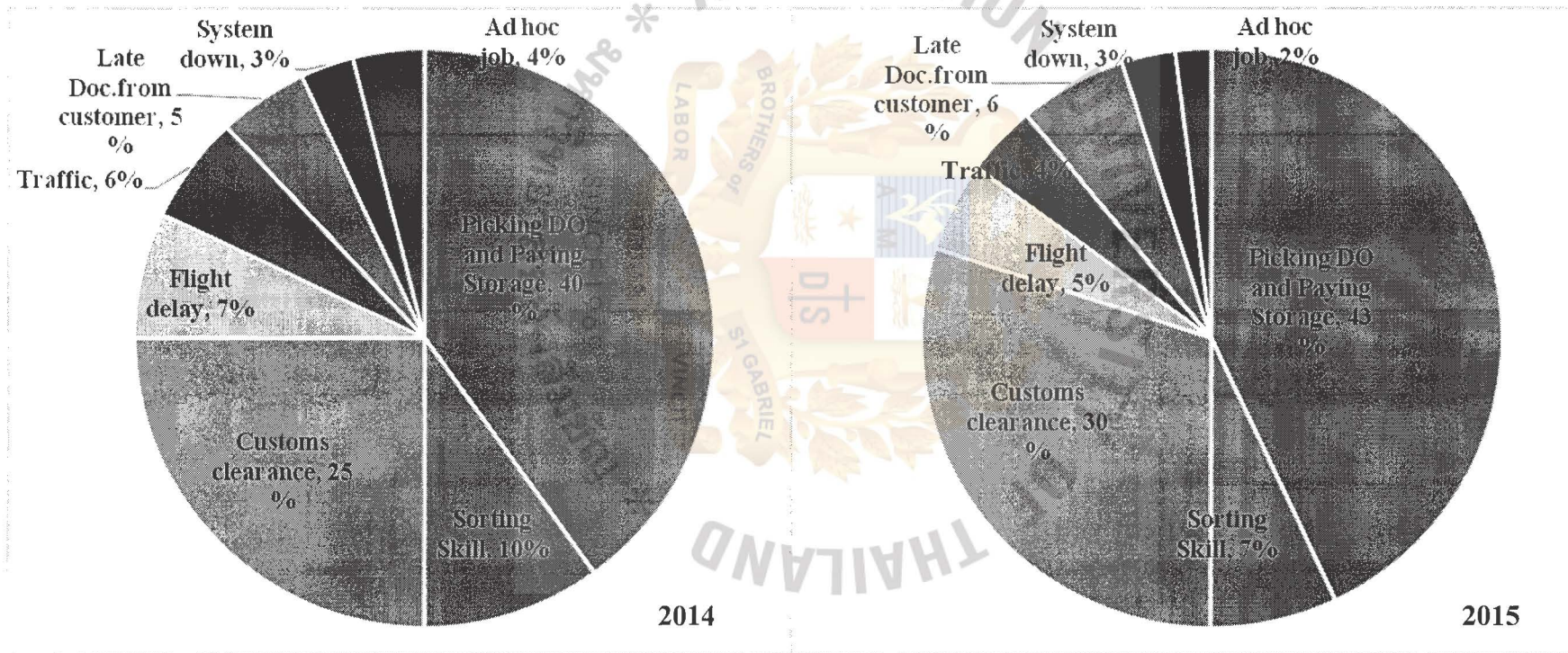
Factor		2014		2015	
		No. of Shipment	Percentage	No. of Shipment	Percentage
Controllable	Uncontrollable				
Picking DO and Paying Storage Sorting Skill		464	40%	130	43%
		116	10%	21	7%
	Customs clearance	290	25%	91	30%
	Flight delay	81	7%	15	5%
	Traffic	70	6%	12	4%
	Late Document from customer	58	5%	18	6%
	System down	35	3%	9	3%
	Ad hoc job	46	4%	6	2%
<b>Total Failure Shipment during 2014-2015</b>		<b>1159</b>	<b>100%</b>	<b>302</b>	<b>100%</b>

Table 3.7 shows factors that affected to failure shipment during 2014 –End of April 2015 (Flight Arrival before 7.30 AM). There are controllable and uncontrollable factors that the company has been faced with. Controllable factors are Picking DO and Paying Storage which number of failure shipment in 2014 is 464 while in 2015 is 130 shipments. Another factor is Sorting skill which number of failure shipment in 2014 is 116 while 2015 is 21 shipments. Uncontrollable factors are Customs clearance 290 shipments in 2014 and 91 in 2015, Flight Delay 81 shipments in 2014 and 15 in 2015, Traffic 70 shipments in 2014 and 12 in 2015; Late Document from customer 58 shipments in 2014 and 18 in 2015; System down 35 shipments in 2014 and 9 in 2015; and Ad Hoc Job 46 shipments in 2014 and 6 in 2015



Proportion of factors affecting delivery performance during the year 2014 and 2015 (Act as end of April) is presented in percentage in Figure 3.3.

**Figure 3.3: Proportion of Factors Affecting Delivery Performance in Percentage Between 2014 and 2015 (Act as End of April)**



Source: ABC Thailand

As shown in Figure 3.3, the major factors affecting delivery performance during January 2014 – April 2015 are problem caused by Picking DO and Paying Storage Charge (40% in 2014 and 43% in 2015); late customs clearance (25% in 2014 and 30% in 2015); sorting skill (10% in 2014 and 7% in 2015), flight delay (7% in 2014 and 5% in 2015); ad hoc job (4% in 2014 and 2% in 2015); traffic (6% in 2014 and 4% in 2015); late document from customer (5% in 2014 6% in 2015); and system down (3% in 2014 and remains the same in 2015). From the data, it shows that working process, late customs clearance and sorting skill are the major causes of delivery failure that the company has to focus.

### 3.5 Summary

This chapter helps in understanding the working process of import shipment in the current situation of ABC Company. The research was conducted by analyzing the problem and collecting the data from the company's historical data record. In order to improve delivery performance, the company has to focus on factors that are highly affected to the performance and possibility to be solved. There are three alternative solutions that the company has considered and evaluated which are Shipment Consolidation, Review and Revise training procedure and Increasing number of trucks. Shipment Consolidation helps in decreasing the time of picking DO and paying storage charge. Reviewing and Revising training procedure helps in increasing performance of company's staffs which will decrease the time of sorting process. Increasing number of trucks helps in increasing efficiency of delivery performance for those shipments that are under uncontrollable factors such as flight delays, systems down and ad hoc job. Trucks will be used for utilizing those shipments that have been missed the scheduled trucks and have possibility to be delivered before noon.



## CHAPTER IV

### PRESENTATION AND CRITICAL DISCUSSION OF RESULTS

From the case study on ABC's import shipment process; the researcher found the problems that have affected the delivery performance. After going through the investigation and analysis of the historical data, solutions of Shipment Consolidation and Review and Revise Training Procedure have been selected in order to improve the delivery performance of the company.

This chapter describes the chosen solutions to help the company increase its efficiency of logistics function, reducing cost of customs clearance and earning more profit. Shipment Consolidation is the answer that will help the company meet the target. How does Shipment Consolidation work? It is the process of combining various shipments with various Master Air Waybill (MAWB) from origin into one Master Air Way Bill.

#### 4.1 Alternative Solutions

Initially, based on company operating procedure, Reviewing and Revising training procedure, and Increasing number of trucks are created while Shipment Consolidation is chosen from related public study. Increasing number of trucks helps in supporting those shipments that have missed schedule before noon, these shipments are affected from uncontrollable factors; flight delay, system down and ad hoc jobs. Review and Revise Training helps to increase skill of truck crews while time in sorting process would be reduced as a result. Shipment Consolidation helps to decrease the time of picking up DO and paying storage charge process.

#### **4.1.1 Increase Number of Trucks**

Recently, ABC Company utilizes two trucks to deliver the shipments before 12.00 AM. There are two main locations for delivery which are Silom and Gempolis industrial estate. One truck is for Silom area where 95% of the customers are located and the other truck is for Gempolis industrial estate. The three main buildings in Silom area are Jewelry Trade Centre (JTC), SurawongWatanakarn building and Gems tower. Additional truck will be used for supporting those shipments that are under uncontrollable factors (Flight delay, System down and Ad hoc job) and do have possibility to be delivered before noon. Hence, increasing the number of trucks is one of the alternatives to help improve the delivery performance. However, to increase the number of trucks ABC Company has to consider additional costs. The cost of a new truck is around THB 5,000,000 and variable cost per month is THB 40,000 for one crew commander THB 12,000; one crew guard THB 9,000; one crew of driver THB 9,000; and the estimated gasoline consumption is THB 10,000.

#### **4.1.2 Review and Revise Sorting Procedure**

Sorting skill is the second major factor that ABC Company has to focus. As some truck crew lack of sorting skill, it has affected the delivery performance. Hence, the company training procedure has to be reviewed and revised and retrained them. Lead time of sorting is set not to be over 30 second per one shipment.

Procedure of sorting is to do the correct shipment base on the document (HAWB), each crew has to check details of HAWB number, Shipper name, Consignee name and address, number of piece and ABC seal number. Hence, the training helps to improve the delivery performance in the process of sorting which is currently taking 35 minutes.



4.1.3 Shipment Consolidation

Shipment Consolidation is created to support the clearance process to be run faster and save more cost. Shipment consolidation is shortly described as two or more shipments are being combined into one Master Air Waybill (MAWB) while clearance process is done under one MAWB as well.

Table 4.1 illustrates the advantages and disadvantages of alternative solutions that are suitable for ABC Company.

Table 4.1: Advantages and Disadvantages of Alternative Solutions

Alternative Solutions	Advantages	Disadvantages
Increase number of truck	Increasing number of shipments that affect from uncontrollable factors.	High cost on both fixed and variable cost.
Review and revise training procedure	1) Shorten sorting process 2) Deliver to the right place 3) Deliver to the right consignee 4) Deliver to the right quantity	Waste of time and human resources in reviewing and costly in training.
Shipment Consolidation	1) Shorten clearance process 2) Storage charge profitability 3) Cost reduction 4) Improve service efficiency and flexibility	Complexity on documents

From table 4.1, the solution of Shipment Consolidation is the best choice for ABC Company as there is no additional expenses while the company is also earning more profit. Compared to increasing number of trucks and reviewing and revising sorting process which the company has to spend more time, expenses and human resources in order to improve performance, shipment consolidation has more advantages. Anyhow,

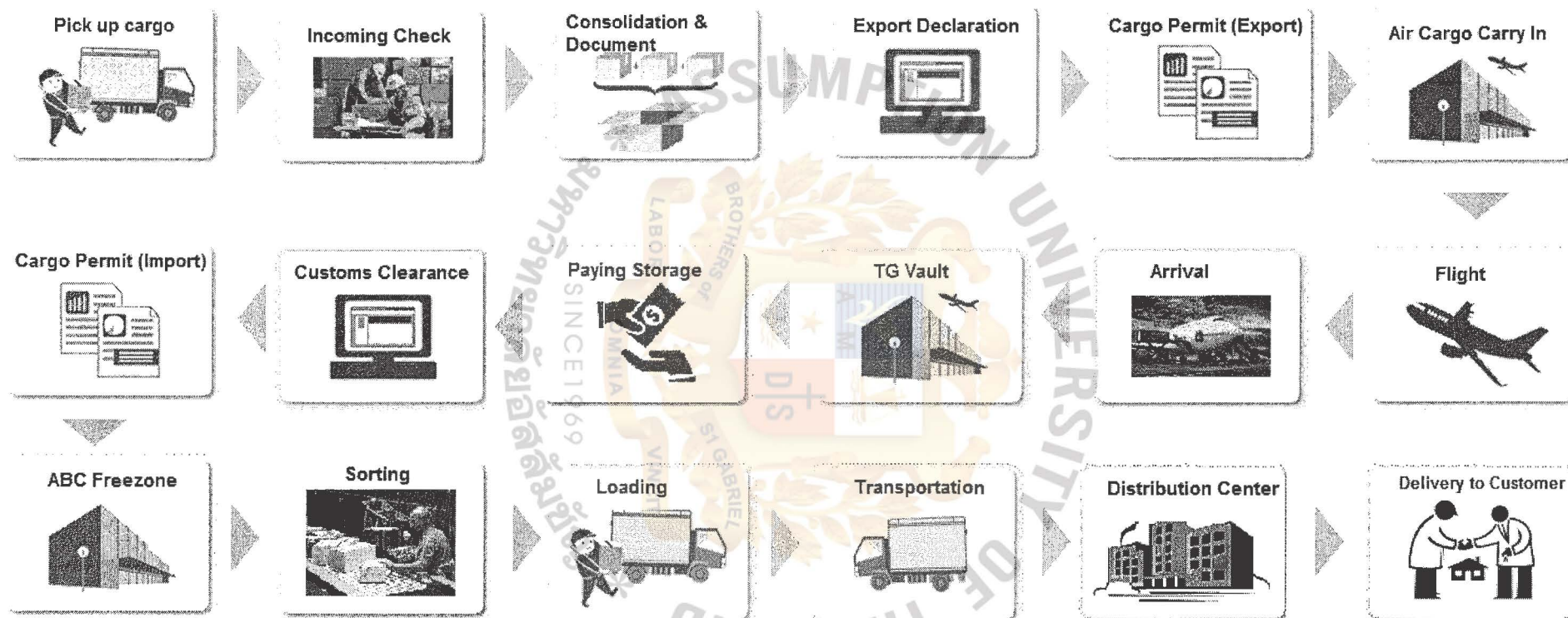
reviewing and revising training procedure is also important as concerning to the company's service and accuracy.

**4.2 Shipment Consolidation Supply Chain**

The chain of Shipment Consolidation starts from the place of origin where the customers instruct the ABC Company to collect their goods and end at destination where the consignees receive the goods. Figure 4.1 shows Supply Chain of Shipment Consolidation.



Figure 4.1: Shipment Consolidation Supply Chain



Source: ABC Thailand

Figure 4.1 shows shipment consolidation supply chain that ABC Thailand Company has reviewed based on the current process in order to improve delivery performance. The process starts from ABC Company receives transport order from customer (Shipper). The goods are picked-up and Letter of Instructions (SLI) is given to the customer as a reference. Next, Incoming Check; the goods are checked together against the documents. Then, the goods are consolidated efficiently and according to regulations. The House Air Waybill (HAWB) and Master Air Waybill (MAWB) are arranged. Next, export customs clearance process, documents required by the customs are MAWB, invoice, packing list and export declaration. Once the documents are checked and confirmed, cargo permit (Export) is given. Cargo permit is used as permission for exporting. Then, cargo is delivered to the Airline, together with the transport documents. Pre-Alert is sent to ABC Company upon receiving the cargo.

Once the flight arrives at the destination, ABC Company receives arrival notice from the Airline. The cargo is checked on quantity and condition. Next, the cargo is moved to the cargo terminal vault. ABC's shipping agent picks up DO (Delivery Order) and pays storage charge at the terminal, fees are paid under one MAWB. For Customs Clearance process, the CSR keys the data in EDI system. The customs then checks and confirms, customs entry and shipping document are submitted and cargo permit (import) is given. Then, the cargo is moved to ABC Free zone for sorting by customers' areas and loading into the truck. After that the cargo is transported to the distribution center. Last step, the cargo is delivered to the consignee by ABC's walker.

### **4.3 Instructions and How to Consign Shipment Consolidation.**

#### **4.3.1 Instructions**

All shipments have to be pre-advised 24 hours prior to importation (where possible). Any variance in consignee's name and address, commodity type, value, carat weight, gross weight between invoice and manifest is subject to penalty and delays. Labels on parcels must have accurate and complete details. If some shipment have KP



(Kimberley Process Certification), the original copy of KP certificate must be sent along with the parcels to avoid clearance delays. Number of parcels shown on the manifest must match with MAWB.

MAWB number and HAWB number on internal program called BITS must match with the actual documents to avoid clearance delays. MAWB, HAWB, Invoice, Packing list and Cargoes manifest must be sent via email to CRS before 7.00 AM. of landing date.

#### **4.3.2 How to Consign Shipment Consolidation**

Consign on MAWB must show that the shipper is ABC Company at origin with full address, telephone number and contact person while the consignee is ABC Company at destination with full address, telephone number and contact person. The word “Consolidation” should NOT be mentioned in the MAWB. Consign on HAWB for normal shipment must show the shipper in real shipper’s name at origin with full address, telephone number and contact person while, the consignee is the real Consignee at destination with full address, telephone number and contact person. Figure 4.2 show Master Air Waybill Format, Table 4.2 presents the instructions and Figure 4.3 is a sample of Master Air Waybill.

Figure 4.2: Master Air Waybill Format

406 -		- 0000 0000		406 - 0000 0000	
SHIPPER'S NAME AND ADDRESS <b>1</b>		SHIPPER'S ACCOUNT NUMBER		NOT NEGOTIABLE <b>AIR WAYBILL</b> (NR CONSIGNMENT NOTES)	
CONSIGNEE'S NAME AND ADDRESS <b>2</b>		CONSIGNEE'S ACCOUNT NUMBER		Copies 1, 2, and 3 of this Air Waybill are originals and have the same validity. It is agreed the goods described herein are accepted in apparent good order and condition (except as noted) for carriage SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF (this includes at www.aircargoclear.com) ALL GOODS MAY BE CARRIED BY ANY OTHER MEANS INCLUDING ROAD OR ANY OTHER DANGEROUS UNLESS SPECIFIC CONTRARY INSTRUCTIONS ARE GIVEN HEREON BY THE SHIPPER AND SHIPPER AGREES THAT THE SHIPMENT MAY BE CARRIED VIA INTERMEDIATE STOPPING PLACES WHICH THE CARRIER DEEMS APPROPRIATE. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for cargo and paying a supplemental charge. Received in good order and condition at <b>20</b> Place on <b>21</b> Date/Time <b>22</b> Signature of Consignee or its agent <b>23</b>	
ISSUING CARRIER'S AGENT NAME AND CITY		AGENT'S IATA CODE		ALSO NOTIFY NAME AND ADDRESS (OPTIONAL ACCOUNTING INFORMATION) <b>24</b>	
AIRPORT OF DEPARTURE (ADDRESS OF FIRST CARRIER) AND REQUESTED ROUTING <b>3</b>		ACCOUNT NO.			
ROUTING AND DESTINATION TO BY FIRST CARRIER		TO BY TO BY		CURRENCY <b>5</b> WT/MAL <b>6</b> OTHER <b>6</b> DECLARED VALUE FOR CARRIAGE <b>5</b> DECLARED VALUE FOR CUSTOMS <b>6</b>	
AIRPORT OF DESTINATION <b>4</b>		FLIGHT/DATE FOR CARRIER USE ONLY FLIGHT/DATE		AMOUNT OF INSURANCE INSURANCE - If shipper requests insurance in accordance with conditions on reverse hereof, indicate amount to be insured in figures in box marked amount of insurance.	
HANDLING INFORMATION <b>7</b>					
The shipper certifies that these commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Otherwise contrary to U.S. law is prohibited.					
NO. OF PIECES RCP <b>8</b>		GROSS WEIGHT kg <b>9</b>		RATE CLASS COMMODITY ITEM NO. <b>10</b>	
CHARGEABLE WEIGHT <b>11</b>		RATE CHARGE <b>12</b>		TOTAL <b>13</b>	
NATURE AND QUANTITY OF GOODS (INCL. DIMENSIONS OR VOLUME) <b>14</b>					
PREPAID		WEIGHT CHARGE		COLLECT	
A. VALUATION CHARGE		B. PICKUP CHARGES		OTHER CHARGES	
D. TAX		C. DELIVERY CHARGES			
TOTAL OTHER CHARGES DUE AGENT		SHIPPER'S R.F.C. (ADVISED TO BE ENTERED BY SHIPPER)			
TOTAL OTHER CHARGES DUE CARRIER		Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to applicable Dangerous Goods Regulations. <b>15</b>			
TOTAL PREPAID		SIGNATURE OF SHIPPER OR HIS AGENT			
TOTAL COLLECT		EXECUTED ON			
CURRENCY CONVERSION RATES		<b>16</b> (Date) <b>17</b> (Time) <b>18</b> at <b>19</b> (Place)			
FOR CARRIER'S USE ONLY AT DESTINATION		SIGNATURE OF ISSUING CARRIER OR ITS AGENT <b>406 - 0000 0000</b>			
CHARGES AT DESTINATION		TOTAL COLLECT CHARGES			
ALL LIQUID CHARGES IN DESTINATION CURRENCY		NO. 3 ORIGINAL FOR SHIPPER			

Source ABC Company



**Table 4.2: Air Way Bill Instructions**

Section	Completed By	Description
1	Customer	Shipper's name and address.
2	Customer	Consignee's name and address.
3	Customer	The three letter code of the origin airport. This is the origin airport code whether the freight trucks or flies.
4	Customer	The three letter code of the destination airport.
5	Customer	Declared Value for Carriage Option
6	Customer	Shipment Value for Customs purposes. If no value is shown in block 5, the appropriate SED exception wording is required.
7	ABC or Customer	Handling Information - to contain any special instructions or notes regarding freight, dims, ULD numbers, and individual position weight.
8	Customer	Number of Pieces.
9	Customer	Gross weight. <b>NOTE: This does not include tare weight of aircraft pallets and/or containers, however it does include the weight of wooden skids.</b>
10	Customer	Kilograms (kg) or Pounds (lbs).
11	Customer	Chargeable weight. The actual weight or the dimensional weight, whichever is greater.
12	Customer	Rate/Charge - International MAWB only.
13	Customer	Total - International MAWB only.
14	Customer	Nature and quantity of goods, the description of cargo. This may include dimensions or volume.  <b>NOTE: Using the term "Consolidation" or like terms is not an acceptable description of goods. Description must be specific.</b>
15	Customer	Signature of shipper or agent.
16	ABC	Date of signing
17	ABC	Time of signing.
18	ABC	Place of signing - three letter code of the gateway.  <b>NOTE: Refer to MAWB example in Air Cargo Forms Section.</b>
19	ABC	Signature of issuing carrier or its agent refers to:  • FWD/ABC company  <b>NOTE: Clarify all signatures.</b>
20-23	Customer	Consignee Signatures <b>NOTE: 20, 21, 22 and 23 are to be completed at the destination gateway or CFS by the consignee or their agent. If the destination gateway has a CFS, the destination gateway maintains an unsigned copy of the MAWB (#5 or #6) along with a signed, Register of Air Freight Shipments/AC-12, or work order on file.</b>
24	Customer	Indicate Service Type if Perishable, Priority, or RFS.


Source : ABC Company

**Figure 4.3: Sample of MAWB for Shipment Consolidation**

Shipper's Name and Address		Shipper's Account Number		Non negotiable <b>Air Waybill</b>	
ABC at origin (Depend on location)				Issued by	
Consignee's Name and Address ABC COMPANY 919/586-591 JTC BLDG.47th FL. NORTH TOWER, SILOM ROAD BANGKOK, 10500 THAILAND				Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity. It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and paying a supplemental charge if required.	
Issuing Carrier's Agent Name and City				Accounting information	
ABC at destination (depend on location)					
Agent's IATA Code		Account No.			
Airport of Departure (Addr. of first Carrier) and requested Routing					
To	By first Carrier	Routing and Classification	To	by	To
Airport of Destination		Flight/Date	For Carrier Use Only	Flight/Date	Amount of Insurance
					XXX
Handling Information		INSURANCE - If carrier offers insurance and such insurance is requested in accordance with conditions or reverse hereof indicate amount to be insured in figures in box marked Amount of Insurance			
No. of Pieces G/P	Gross Weight	kg/lb	Rate Class Commodity Item No.	Chargeable Weight	Rate Charge
Total					Nature and Quantity of Goods (incl. Dimensions or Volume)
					Said contain: Diamond
					This must not say "Consolidated"
Prepaid			Weight Charge	Collect	
Valuation Charge					
Tax					
Total Other Charges Due Agent					
Total Other Charges Due Carrier					
Total prepaid			Total collect		
Currency Conversion Rates			as charges in Dest. Currency		
For Carriers Use only			Charges at destination		
Executed on (Date)			at Place		
Signature of Issuing Carrier or its Agent			Signature of Shipper or its Agent		
Total collected Charges					



Figure 4.4: Sample of HAWB for Shipment Consolidation

<b>ABC Company</b> Not Negotiable - House Air Waybill issued by: <b>ABC COMPANY</b> 919/586-591 JTC Bldg., 47th Fl North Tower, Silom Rd., BANGKOK, THAILAND Phone: 02 630 0661 Fax: 02 630 0660			HAWB NO.	
			MAWB NO.	
			SHIPMENT NO:	
			Gross Wt:	
			BARCODE 	
SEAL NO:				
SHIPPER NAME AND ADDRESS  B. MUKESH & CO. 104, AKSHAY RAJ, JADAKHDI, MAHIDHARPURA SURAT – 395003 SUPRAT, 395003 INDIA  Phone: 02-727-0390-92			CONSIGNEE'S NAME AND ADDRESS D.S DIAM CO., LTD 322/17, SURAWONGSEWATTANAKAN TOWER, 11 <sup>TH</sup> FLOOR, ROOM NO.8, SURAWONGSE ROAD, SIPHRAYA, BANGKOK, 10500 THAILAND, TEL 02- 2339837	
ON BEHALF OF (NAME AND ADDRESS)			ALSO NOTIFY (NAME AND ADDRESS)	
PIECES	NATURE OF GOODS	NET WT.(Kg)	VALUE FOR CUSTOMS	VALUE FOR CARRIAGE
CHARGES <input type="checkbox"/> PREPAID <input type="checkbox"/> COLLECT If no box is ticked, charges are prepaid			USER/ CLEARANCE FEES PREPAID <input type="checkbox"/> COLLECT If no box is ticked, User/ Clearance Fees are prepaid	
HANDLING INFORMATION Service: Brink's FedEx 023-6993-0324 FX5349/13			CONSIGNEE'S CONFIRMATION OF RECEIPT OF SHIPMENT IN GOOD ORDER NAME: _____ DATE: _____  SIGNATURE _____	

ALL SERVICE IS CARRIED OUT UNDER THE TERMS AND CONDITIONS OF THE BRINK'S GLOBAL SERVICES VALUABLE TRANSPORT CONTRACT, A COPY OF WHICH IS AVAILABLE UPON REQUEST.


Executed on 12/10/2012 at BANGKOK Signature of Issuing Carrier or its Agent Signature of Shipper or his Agent  
HAWB NO. Barcode  HAWB No

Figure 4.4 shows a sample of HAWB for Shipment Consolidation. However, there are some differences between normal shipment and shipment consolidation that are shown in the document. Table 4.3 shows the differences between normal shipment and shipment consolidation to be filled in AWB.

**Table 4.3: The Difference between Normal Shipment and Shipment Consolidation**

Master Air Waybill (MAWB)	
Normal Shipment	Shipment Consolidation (ABC acts as the agent)
Shipper: Real shipper at origin	Shipper: ABC at origin
Consignee: Real shipper at destination	Consignee: ABC at destination
Description: - Product description - Mention total pieces	Description: - Product description - Do not mention “Consolidate” on MAWB - Do not mention “HAWB number” - Mentioning total pieces that are shown in every HAWB.
House Air Way Bill (HAWB)	
No HAWB	Shipment Consolidation
	Shipper: Real shipper at origin
	Consignee: Real shipper at Destination
	Description: - Product description - Mention total pieces / one HAWB

Source: ABC Thailand

Table 4.3 shows how the details differ between normal shipment and shipment consolidations in AWB. In the shipment consolidation, ABC acts for the customer, so the shipper’s and the consignee’s name appear as ABC Company. Moreover, the

normal shipment has only one Master Air Waybill which could be used for one shipment only while shipment consolidation could combine more than one shipment under one MAWB by having HAWB. After both types of AWB are completed, the succeeding steps are the transactions with the Airline. First, submitting shipment details through Excellency system. Second, picking up deliver order (D/O) from the airline by each MAWB. Third, paying storage fee to the Airline by each MAWB. Fourth, submitting shipment details through EDI system to Customs Authority by each HAWB. Last, each HAWB is approved by customs authority.

MAWB and HAWB have the same format. Figure 4.2 shows the standard AWB format which is created by the International Air Transport Association (IATA) which has issued a Standard revising the air waybill Conditions of Contract written on the Air Waybill form, effective March 17, 2008.

There are several benefits that ABC gets from Shipment Consolidation. First is cost saving in D/O and storage fee. Generally, D/O and storage fee are paid by single shipment (HAWB). For example, MAWB is combined with 10 HAWB, in normal shipment, ABC has to pay the fee for every HAWB while in shipment consolidation, ABC has to pay for one MAWB only. Therefore, the storage fee and D/O are a part of service charge under customer's expenses, so every HAWB will be charged accordingly, which means that ABC can earn the profit from extra revenue. Second is time saving during clearance process. In order to clear the normal shipment, one D/O is for one HAWB while consolidation can be cleared by using one D/O for all the shipments under one MAWB. Hence, shipment consolidation helps to improve the delivery performance in the process of customs clearance which is currently spending 70 minutes.

#### **4.4 Review and Revise Training Procedure**

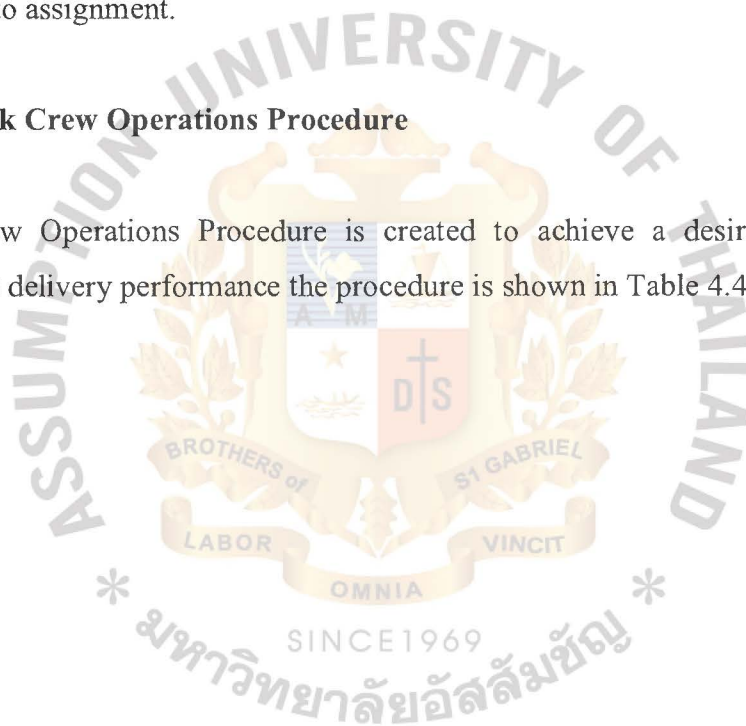
Referring to the factors that affect to the delivery performance of ABC Company, sorting skill is one factor that the company has to focus on. Sorting skill is a

controllable factor that the company can improve, so in order to solve this problem, the company has to revise and review the current procedure of sorting skill.

ABC Company conducts training on shipment delivery procedure which is participated by the truck crew before working on site. Details of the training course are according to the company's policy which the truck crew have to understand their responsibility in detail. The training includes shortened sorting process, on-time delivery to the right place and correct quantity, delivering to the right consignee according to assignment.

#### **4.4.1 Truck Crew Operations Procedure**

Truck Crew Operations Procedure is created to achieve a desired result of the company's delivery performance the procedure is shown in Table 4.4.





**Table 4.4: Truck Crew Operations Procedure**

Step	Process	Times
1	Crew is assigned by Dispatcher.	8.00 AM
2	Receiving Delivery Note at Dispatch Room	8.30 AM
3	Crews and truck are at the terminal and ready to meet the shipping staff.	9.00 AM
4	Shipping staff passes parcel to the crew	9.00 AM
5	Parcel is sorted by crew which everything has to be in order. If some damages were found or differed from shipping document, crew has to report to shipping agent and inform dispatcher immediately.	9.40 AM
6	Complete sorting process has to be cross checked between shipping document and parcel.	
	6.1 Checking HAWB Number 6.2 Checking Quantity of goods 6.3 Checking Seal Number 6.4 Checking delivery place. 6.5 Checking authorized receiver.	3 Min.
7	Checking Customs Permit that has to be handed to checking post gate.	10.00 AM
8	When truck arrives at the distribution center, truck crew has to do the following	10.55 AM
	10.1 Checking HAWB Number 10.2 Checking Quantity of goods 10.3 Checking Seal Number 10.4 Checking delivery place. 10.5 Checking authorized receiver.	3 Min.
9	Delivery	11.10 AM
10	After parcel is received and checked by customer, parcel is handed to customer	5 Min.
11	Scanning Bar code at Delivery Note by Air Click, to confirm that delivery is complete.	1 Min.

From Table 4.4, sorting is done in step 6 and 8 which the average time spent for one shipment is altogether 6 minutes. To reduce time in these steps, the company has to focus on the training skill.

#### 4.4.2 Training procedure

In order to improve, the sorting skill, the company has reviewed the training program and has increased the number of frequencies. Table 4.5 shows details of Truck Crew Training Course.

**Table 4.5: Truck Crew Training Course**

Training Program	Detail of Training	Attendance	Schedule
New Staff Orientation	<ul style="list-style-type: none"> <li>- Company Policy</li> <li>- Staff Responsibility</li> </ul>	All positions	First day of work
Truck Crew Operations	<ul style="list-style-type: none"> <li>- Sorting</li> <li>- Delivery procedure</li> <li>- Documentation</li> <li>- Security</li> </ul>	Truck Crew	By Quarter;

#### 4.5 Implement Result

The company has chosen two alternatives to help in improving the delivery performance which are Consolidation Shipment and Review and Revise training procedure.

##### 4.5.1 Result of the Implementation of the Consolidation Shipment

Consolidation shipment was implemented in May 2015. The result has achieved the company's target with 95% effectiveness. Table 4.6 compares the total monthly import shipments (Flight arrival before 7.30 AM) between May - December 2014 and May - December 2015 while Table 4.7 compares the total monthly import shipment between year 2014 and 2015.

**Table 4.6: Comparison between Total Monthly Import Shipments between May-December 2014 and May-December 2015  
(Flight arrival before 7.30 AM)**

Flight Arrival Before 7.30 AM / 2015														
Month	Total Shipments			Delivery Before 12 AM			Effectiveness		Delivery After 12 AM			Next Days		
	2014	2015	Change	2014	2015	Change	2014	2015	2014	2015	Change	2014	2015	Change
May	373	385	3%	269	365	36%	72%	95%	104	20	-81%	0	0	-
Jun.	343	354	3%	254	340	34%	74%	96%	89	14	-84%	0	0	-
Jul.	357	368	3%	253	350	38%	71%	95%	101	18	-82%	3	0	-100%
Aug.	347	358	3%	250	344	37%	72%	96%	92	10	-89%	5	4	-14%
Sep.	372	385	3%	272	366	34%	73%	95%	85	11	-87%	15	8	-45%
Oct	451	456	1%	325	438	35%	72%	96%	120	18	-85%	6	0	-100%
Nov	411	416	1%	292	395	35%	71%	95%	118	21	-82%	1	0	-100%
Dec	389	398	2%	282	382	35%	72%	96%	99	16	-84%	8	0	-100%
<b>Total</b>	3,043	3,120	3%	2,197	2,979	36%	72%	95%	808	128	-84.16%	38	13	-67%

Source: ABC Company

From Table 4.6, the total shipments of flight arrival before 7.30 AM in 2014 is 3,043 in which 2,197 shipments have been successfully delivered before 12 AM while in 2015 is 3,120 (3% change). Total shipments delivered before 12 AM in 2014 is 2,197 while in 2015 is 2,979. Percentage of effectiveness in 2014 is 72% while in 2015 is 95%. Total shipments delivered after 12 AM in 2014 is 808 while in 2015 is 128 (-84% change). Total shipments delivered the next days in 2014 is 38 while in 2015 is 13 (-67% change).



**Table 4.7: Comparison of Total Monthly Import Shipments between 2014 and 2015 (Flight arrival before 7.30 AM)**

Flight Arrival Before 7.30 AM														
Month	Total Shipments			Delivery Before 12 AM			Effectiveness		Delivery After 12 AM			Next Days		
	2014	2015	Change	2014	2015	Change	2014	2015	2014	2015	Change	2014	2015	Change
Jan	256	262	2%	184	194	5%	72%	74%	65	60	-8%	7	8	16%
Feb.	263	272	3%	187	204	9%	71%	75%	74	65	-12%	2	3	53%
Mar	312	319	2%	231	233	1%	74%	73%	71	77	8%	10	10	-4%
Apr	312	318	2%	228	238	4%	73%	75%	79	68	-14%	5	11	128%
May	373	385	3%	269	365	36%	72%	95%	104	20	-81%	0	0	-
Jun.	343	354	3%	254	340	34%	74%	96%	89	14	-84%	0	0	-
Jul.	357	368	3%	253	350	38%	71%	95%	101	18	-82%	3	0	-100%
Aug.	347	358	3%	250	344	37%	72%	96%	92	10	-89%	5	4	-14%
Sep.	372	385	3%	272	366	34%	73%	95%	85	11	-87%	15	8	-45%
Oct	451	456	1%	325	438	35%	72%	96%	120	18	-85%	6	0	-100%
Nov	411	416	1%	292	395	35%	71%	95%	118	21	-82%	1	0	-100%
Dec	389	398	2%	282	382	35%	72%	96%	99	16	-84%	8	0	-100%
<b>Total</b>	4,186	4,291	2.50%	3,027	3,849	27.14%	72%	90%	1,097	398	-63.76%	62	45	-27.92%

Source: ABC Company

From Table 4.7, the total shipment of flight arrival before 7.30 AM in 2014 is 4,186 in which 3,027 has been successfully delivered before 12 AM while in 2015 is 4,291 (2.5% change). Total shipments delivered before 12 AM in 2014 is 3,027 while in 2015 is 3,849. Percentage of effectiveness in 2014 is 72% while in 2015 is 90%. Total shipments delivered after 12 AM in 2014 is 1,097 while in 2015 is 398 (-64% change). Total shipments delivered the next days in 2014 is 62 while in 2015 is 45 (-27.92% change).



**Table 4.8: Comparison of Average Time and Target Lead Time Spent in the Morning Shipment After Implementation**

Part 1: Flight arrival: 0.05AM, 0.55AM, 6.55AM, 7.10AM								
Step	Process	Starting Time	Finished Time	Average time per MAWB	Time Spent (Min.)	Average Time Spent (Min)		
						Jan.-Dec.	Jan.-Apr.	May-Dec
						2014	2015	2015
1	Cargo Checking & Moving to TG Terminal	0:05AM	1:05AM	60	60	60	60	60
		0:55AM	1:55AM	60	60	60	60	60
		6:55AM	7:55AM	60	60	60	60	60
2	Airline informs shipment arrival							
Part 2: Process by ABC's Company								
3	Picking DO, Shipping Documentat TG Terminal	7:00AM	7:20AM	3	20	39	37	10
4	Paying Storage Charge at Terminal	7:20AM	7:40AM	3	20	45	40	10
5	CSR key in EDI	7:40AM	8:10AM	3	30	32	31	30
6	Customs check and accepts EDI	8:10AM	8:40AM	3	30	34	32	30
7	ABC submit Customs Entry and Shipping Doc to Customs. Customs release Permit.	8:40AM	9:10AM	5	30	33	31	30
8	Picking up shipment at TG Vault	9:10AM	9:25AM	5	15	18	16	15
9	TG Vault to ABC's Vault	9:25AM	9:40AM	15	15	14	16	15
10	Shipments are checked and Sorted at ABC's Vault	9:40AM	10:00AM	2	20	27	26	15
11	Loading to Truck	10:00AM	10:10AM	2	10	15	12	10
12	Transportation	10:10AM	10:55AM	45	45	46	47	45
13	Arrive Distribution Center (DC) & Sorting	10:55AM	11:10AM	2	15	25	23	15
11	Delivery to customer	11:10AM	12:00AM	6	50	56	53	50
Total time spend				94	300	384	364	275

Table 4.8 shows the comparison of the average time and target lead time spent in the morning shipment after the implementation of the shipment consolidation. ABC Company has been using the shipment consolidation since May 2015. After the shipment consolidation has been implemented, the total time spent during May – December 2015 was less than the target time of 25 minutes. Improved processes are process of picking DO and shipping document at TG terminal, paying storage charge at terminal, shipments are checked and sorted at ABC’s vault.

#### 4.5.2 Result of the Implementation of the Review and Revised Training Procedure.

After the implementation of the Review and Revise Training Procedure, result of time spent in sorting was decreased from 6 minutes to 4 minutes of each shipment, which is shown in Table 4.9

**Table 4.9: Revised Truck Crew Operations Procedure**

Step	Process	Times
6	Complete sorting process has to be cross checked between shipping document and parcel.	
	6.1 Checking HAWB Number	2 Min.
	6.2 Checking Quantity of goods	
	6.3 Checking Seal Number	
	6.4 Checking delivery place.	
	6.5 Checking authorized receiver.	
8	When the truck arrives at the distribution center, the truck crew has to do the as following	
	10.1 Checking HAWB Number	2 Min.
	10.2 Checking Quantity of goods	
	10.3 Checking Seal Number	
	10.4 Checking delivery place.	
	10.5 Checking authorized receiver.	

#### 4.6 Summary

To improve the delivery performance of ABC Company and to achieve the company's KPI, shipment consolidation is an answer. Even though other alternatives are useful but the company has to spend more. Compared to normal shipment, shipment consolidation, has no extra cost but has reduced its cost instead. The effectiveness of total shipment arrival before noon after using the shipment consolidation is 90% (KPI is 95%). Even though the overall effectiveness in the year 2015 did not meet the company's objective because the implementation time was only May – December 2015, anyhow, the company believes that in 2016 it will achieve the objective referring to data of implementation. Total time spent was 275 minutes, 25 minutes less than the target time (target time is 300 minutes).





## CHAPTER V

### SUMMARY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Previous chapters have presented different types of information. Background and situation are included in chapter 1. Literature review is shown in chapter 2. Methodology is explained in chapter 3. Presentation and critical discussion of results are discussed in chapter 4. In this chapter, discussions that are mentioned in the previous chapters are gathered to come up with the summary and conclusion of the research. Summary of the findings begins this chapter followed by the conclusions regarding the research objectives. Next is the discussions of Theoretical and Managerial Implications. Finally, the limitations and recommendations of the research are discussed.

#### 5.1 Summary of the Findings

As a consequence, this research attempts to focus on the delivery performance and seeks to answer the question, **“How to improve the delivery performance of ABC Thailand?”** The objectives of this study are to identify and analyze the root causes of low delivery performance and to develop and implement alternative to eliminate the cause of low delivery performance. Factors that are found to be the root causes are Customs clearance, Flight delay, Picking DO and Paying Storage charge, Traffic, Late Document from customer, System down, Ad hoc job and Sorting Skill. Factors that could be controlled are Picking DO and Paying Storage (40% of shipment failure in 2014 and 43% in 2015) and Sorting Skill (10% shipment failure in 2014 and 7% in 2015) while the rest are uncontrollable factors. Referring to data collection, time spent in picking DO and paying storage charge are longer (39 minutes in 2014 and 37 minutes in January – April, 2015) than target time (20 minutes). To eliminate this factor, shipment consolidation is chosen as an alternative. Shipment consolidation is the process of combining various shipments with various Master Air Way bill (MAWB) from origin into one Master Air Way bill. After the implementation of the



shipment consolidation, time spent in this process is changed to 10 minutes (May – December 2015). However, the disadvantage of this alternative is the complexity of documents.

Review and Revise training procedure is chosen to improve the factor of sorting skill. Referring to data collection, time spent in sorting at ABC's vault is longer than the target time (20 minutes). Time spent in 2014 is 27 minutes while in January – April 2015 is 26 minutes. After the implementation, time spent has changed to 15 minutes (May-December 2015). Sorting at the distribution center is 25 minutes in 2014 and 23 minutes in January – April 2015. After the implementation, time spent has changed to 15 minutes. The disadvantage of this alternative are waste of time and human resources in reviewing and the high of cost of training.

## **5.2 Conclusions**

High valuable products are merchandise that need security, fast delivery and trustable. There are many kinds of international transportations, but airline transportation is most preferable choice when comparing with other transportation modes. This study was a case study of secure logistics provider 'ABC Company' which has a full service of secure logistics provider, including armored truck, security guard and others that customers are assured that the goods are safely delivered.

This research was focused on the delivery performance of the company by setting up two objectives in order to achieve the company's KPI with 95 effectiveness. The first objective was identified and analyzed the root causes of low delivery performance. The second was to develop and implement the shipment consolidation and Review and Revise training procedure to improve the factor of sorting skill so as to eliminate the cause of low delivery performance.

To identify and analyze the root causes of low delivery performance, the shipment records during the year 2014 to April 2015 were collected and evaluated. By comparing the quantity of shipments in each year, there is a difference in terms of

meeting the target and failure shipment. The literatures that were reviewed are the process mapping and Swim Lane mapping process. Process mapping presents a visual tool to improve the process and provides a means for analyzing process. It is an outline that demonstrates relationships among the people, activities, objectives and data (Siha& Saad, 2008) while swim lane mapping process shows visible illustration of the activities resulting from business process models so that business processes can be analyzed and defined (Aldin & de Cesare, 2011). These two methods were used to illustrate the whole picture of the company's current process in detail, starting from the flight arrival until the shipment is received by the consignee. Time spent in each process and person in charge were also shown. By using these methods, the root causes of the problem were found and analyzed. After analyzing, the process that needed to be improved was 'Customs Clearance' as the time spent in this process was the longest.

To evaluate and analyze the factors that have been caused low delivery performance, data collection was the method used by the company. ABC Company collected the data of total import shipment during January – December 2014 and January –April 2015 as the most up-to-date record. Another data that have been gathered was time spent in each process.

Time spent in customs clearance process was the longest among the other processes, so to achieve the company's objectives, time spent in this process had to be reduced. Shipment consolidation and Review and Training procedure were selected to eliminate the causes of low delivery performance. Shipment Consolidation (SCL) is a logistics strategy which primarily focuses on terminal consolidation where stuff from various origins are separated at a single terminal to be dispatched to different destinations on the same carriage. Consolidating idea to reduce costs is not an up-to-date development (Hall, 1987). The idea of freight consolidation was presented to deal with the regular and small shipments which are well known as less than truckload (LTL) or less container load (LCL). Successful operation of consolidation strategies can help to decrease total logistics costs by achieving economies of scale (Min & Cooper, 1990). To implement shipment consolidation, several shipments were

processed under one AWB. The company did not process the clearing shipment one by one as done previously.

Another selected alternative was Review and Training procedure which helped increase staff capability. Every step of working had to be run very fast as the time was limited. Every new staff was trained on his/her responsibility and also being reviewed frequently. The company had revised the training schedule from annual training to quarterly training instead. The training course is focused on sorting process, cross checking between shipping documents and label on parcel.

Shipment consolidation and Review and Revise training are the tools that helped improve the delivery performance of the company. In 2015, the performance of the company was changed positively. The actual performance came out as 90% whereas KPI was set at 95%. This shows a good sign for the company that in the coming years, the company's target will surely be met.

The company has gained advantages from this study such as increasing capacity in transportation, increasing opportunity in expanding the market, becoming trustable by customers and profitability.

### **5.3 Theoretical Implications**

This research studied the factors that affect the company's delivery performance. ABC Company as a secure service provider, is looking for shorter lead time, ways to provide efficient delivery and improve its efficiency. One of theoretical implications related to delivery performance is customer satisfaction. Customer satisfaction is an outcome from a reliable service where actual performance meets the customer's expectation. In order to earn more customer satisfaction, the company is committed to improve its performance to meet or exceed customers' expectations and match their requirements. Therefore, customer satisfaction is considered to be the customer's overall attitude toward service (Lin, Huang, & Zeelenberg, 2006).



The link in a supply chain that directly deals with customers is the delivery of goods or services and therefore it is called “the driver of customer satisfaction”. Another definition of delivery performance is perfect order delivery. Perfect order delivery adds to OTIF other essential components as perfect invoicing (right quantity, right price and right item number) and perfect receipt (correct bill of lading and packing slip) (Gunasekaran et al., 2001). In this study, customers expect the goods to be delivered before noon (by the same date of flight arrival). Customers require dependable on-time delivery from their suppliers. Both early and late deliveries are disruptive for the supply chain and need to be analyzed (Guiffrida & Nagi, 2004). Second theoretical implication is delivery performance which is one of the Key Performance Indicators (KPIs). KPIs are quantifiable measurements to examine the improvement in performing an innovation implementing activity that is critical to the success of a business (Cox et al., 2003). In this study, the company had set up KPIs on delivery performance at over 95% which ABC Thailand has not reached its target until shipment consolidation was used.

#### **5.4 Managerial Implications**

This research focused on analyzing the root causes of low delivery performance, developing and implementing shipment consolidation to eliminate the cause of low delivery performance as a means to meet the company’s objectives in improving delivery performance. The management should use the results of shipment consolidation to improve its performance for the future. Shipment consolidation is a useful method to improve the company’s service levels and beneficial to customers. Even though shipment consolidation was helpful but there were some factors beyond control in the delay of the shipments which were system down, increasing number of shipments, and flight delay. Customer service was an answer to uncontrollable factors. Customer service solved this problem by updating the customers when the shipment was going to be delayed.



## 5.5 Limitations and Recommendations for Future Research

This study was limited to the process of import shipments and the causes that affect low delivery performance such as flight delay, non-completed document, customs check, system down and ad hoc. The research examined the data during the period of 2014 –April2015.

The first recommendation is to examine customer satisfaction of current customers by asking customers to fill out the questionnaire. The result will be recorded, evaluated and used for improving the company's performance.

The second recommendation is to consider other potential customers from other origin countries, different in flight schedule by using a similar methodology.

The third recommendation is to consider the increase in the number of trucks to increase delivery performance. In this study, increasing the number of trucks is one of the alternative choices that the company has been considering but due to limitation of cost as compared to the return revenue, was not reasonable. From data record, the number of shipments is continuously increasing then by increasing the number of trucks in the future could be reconsidered.

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