CRITICAL FACTORS FOR AN EFFECTIVE ORDER ENTRY
PERFORMANCE IN BUSINESS VALUE CHAIN

By
DARANEE SIRISAJJAKOON

Submitted in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE IN SUPPLY CHAIN MANAGEMENT

Martin de Tours School of Management and Economics
Assumption University
Bangkok, Thailand

August 2018

CRITICAL FACTORS FOR AN EFFECTIVE ORDER ENTRY PERFORMANCE IN BUSINESS VALUE CHAIN

By

DARANEE SIRISAJJAKOON

A Final Report of the Six-Credit Course
SCM 7203 Graduate Project

Submitted in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE IN SUPPLY CHAIN MANAGEMENT

Martin de Tours School of Management and Economics
Assumption University
Bangkok, Thailand

August 2018

CRITICAL FACTORS FOR AN EFFECTIVE ORDER ENTRY PERFORMANCE IN BUSINESS VALUE CHAIN

By

DARANEE SIRISAJJAKOON

Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Supply Chain Management
Assumption University

Examination Committee:

1. Dr. Piyawan Puttribarncharoensri   (Chair)   ....

2. Dr. Srobol Smutkupt   (Member)   ....

3. Dr. Chanita Jirachot   (Advisor)   ....

Approved for Graduation on: August 24, 2018

Martin de Tours School of Management
Assumption University
Bangkok, Thailand

August, 2018

i

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

Declaration of Authorship Form

I, Daranee Sirisajjakoon 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.

Critical factors for an effective order entry performance in business value chain

I confirm that:

1. This work was done wholly or mainly while in candidature for the M.Sc. degree at this University;

2. Where any part of this project has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this project is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the project is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

7. None of this work has been published before submission.

Signed _____Daranee S._____

Date _____21|09|2018_____

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

Student Name: Daranee Sirisajjakoon
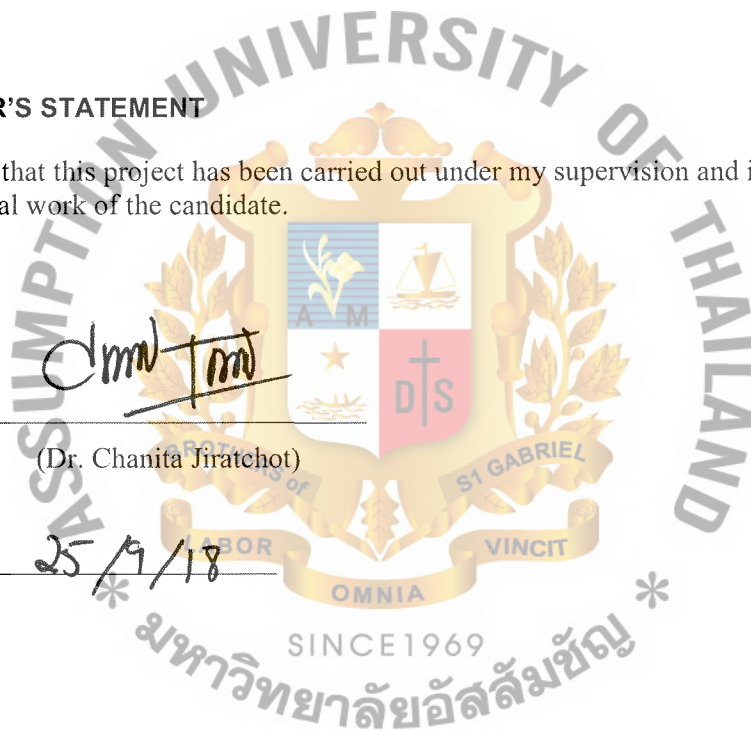**ID:** 5929411

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. Chanita Jiratchot)

Date ___25/9/18___

iii

ACKNOWLEDGEMENT

iv

ABSTRACT

Order entry performance is a significant parameter for a successful of supply chain management. There is a must to correct an accuracy for order entry because it is the initial step in supply chain motion. The information of order detail goes through other functions, such as warehousing, manufacturing, financing, freight forwarder, shipping line, and transportation service provider. Once the order requests have been properly handled and achieved customers' fulfillment, the company can enhance customers' satisfaction, create core competency, and maintain competitive advantage. This research examined the relationship between technology system, information processing, human perception, effective communication and order entry performance.

The research methodology consisted of using a quantitative analysis where SAS program was applied for analyzing the data received from the questionnaire survey. Multiple Regression Analysis, Independent Sample T-Test and One-way Anova were used to find the relationship results. The survey data was gathered from 250 customer service employees in ABC Company, which included respondents who take care different zones of customers which are Greater China, South Asia, Southeast Asia, East Asia, Europe, and USA at 150, 30, 25, 25, 10 and 10 respondents accordingly. Thus, the findings showed that technology system, information processing, human perception and effective communication having positive relationship and significant effect on order entry performance.

The research finding showed that the most influential factor is information processing. Further result showed that demographic profile; age, marital status, and years of work experience, samples of the profile details handled in different countries and at different lead time of order entry also affect order entry performance. The findings of this research recommend that ABC Company should develop the order entry performance by mainly focusing on information processing that is the interpretation of customers' order requirement to meet their expectation and ensure that the correct order detail is entered into the system and sent to other functions in the supply chain.

TABLE OF CONTENTS

CHAPTER III: RESEARCH METHODOLOGY

CHAPTER IV: PRESENTATION AND CRITICAL DISCUSSION OF RESULTS

CHAPTER V: SUMMARY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

LIST OF TABLES

LIST OF FIGURES

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

Form signed by Proofreader of the Project

I, Mrs. Mary Bien Catalan   , have proofread this project entitled

CRITICAL FACTORS FOR AN EFFECTIVE ORDER ENTRY PERFORMANCE

IN BUSINESS VALUE CHAIN

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 _____

(Mrs. Mary Bien Catalan)

Email address __yeyen_67@yahoo.com__

Date _____30/09/2018_____

CHAPTER I

GENERALITIES OF THE STUDY

Currently, the world is changing so fast and the power of buyers is high which many companies have to adapt and improve to reach the complexity of customers' demand over competitors. Many companies are challenged with the increasing market demands in terms of delivery reliability, flexibility, and force to focus on high priority of customer oriented. In order to maximize customer value, the cost efficiency and the effectiveness of producing and delivering goods that meet customers' requirement need to be achieved. As a consequence, the initial step in supply chain management which is the ordering process plays a significant role to have a suitable balance between the internal and external purposes and links the total systems in supply chain to work together efficiently to achieve customers' order fulfillment and improve their experience.

1.1 Background of the Research

ABC Company is the largest publicly - traded international oil and gas company. The facilities or market products have been operating around the world and exploring for oil and natural gas in six continents: North America, South America, Europe, Middle East, Sub-Saharan Africa, and Asia Pacific. Once the world's energy needs are rising, ABC Company uses technology and innovation by holding an industry-leading inventory of resources, the integrated refiners, the marketers of petroleum products, and chemical manufacturers to meet the global demand. There are many divisions, products and services of ABC Company, such as fuel service station, liquefied petroleum gas, lubricants, chemicals, and wholesale fuels. The headquarters is in the United States of America whereas the manufacture, plant, warehouse and distribution center are around the world. Once the global demand is growing, the whole supply chain management, both upstream and downstream process are the key players directly related towards the market position in terms of efficiency and effectiveness.

1

Figure 1.1: ABC Company's Operation Country
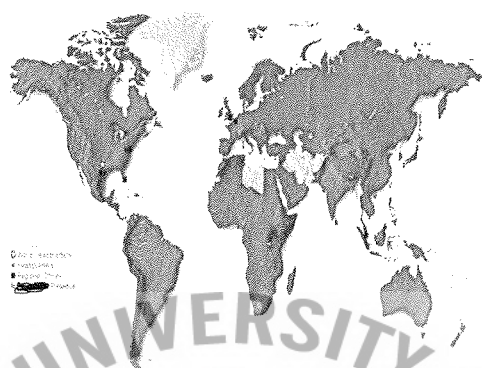
Source: ABC Company, 2018

Refer to Figure 1.1, ABC Company has manufacturer and warehouse in United States, Belgium, China and Singapore whereas customers are in many countries around the world. Hence, the most challenging for ABC Company is to efficiently well-manage the supply chain flow and effectively deliver the products from point of origin to point of destination in order to meet customers' demand.

Figure 1.2: Order to delivery process

From Figure 1.2, the order to delivery process has the initial step which is order entry processing and involving warehouse, manufacturer, freight forwarder, logistic service provider, and customers to achieve customers' order fulfillment. It can be defined as four4 sub-processes:

- Customers' order processing - it starts with order's recognition, the need and requirement from customer, the material availability, inventory level, shipment schedule and ends with the orders reaching the warehouse and freight forwarder

- Supplier's delivery - starts when the order is received, then, arrange pick-pack material, stuff the cargo and ends when the goods are available to be shipped

- Freight forwarder and logistics service provider's transportation (LSP's) - starts when the goods are available to pick up and ends when the goods are loaded at the loading point. Also, booking ship schedule starts with a complete order entry and ends when the shipment schedule is booked

- Customer receive goods - starts when the ordered goods are received and ends when the material is used

ABC Company has many functions to support and add value throughout the supply chain systems, such as sales, customer service, manufacturer, warehousing, accounting, etc. It also collaborates with outsourcing parties: the logistic service provider, freight forwarder, and shipping line in order to achieve customers' order requirement. The foundation of order fulfillment process is the customer relationship management which occurs by discussion and communication between customer, sales and customer service team by trying to understand the customers' specific requirement, customer nature, and create relationship. Then, the customer service converts the customers' order into information and enters the order into the system which links the order detail to other functions in supply chain in order to deliver the products further. For ABC Company, a customer service goal is to seek to understand the requirement from customers' orders, realize the role that customer service plays in supply chain flow, and the impact of order entry accuracy towards other functions and company. Hence, the order entry is the foundation of customer order fulfillment process.

Generally, the ordering process has to contribute to the awareness and responsiveness of the customer service team and must perform rapidly, adaptably, accurately, and flexibly toward customer request. Furthermore, the ordering process should ensure an

3

efficient manufacturing process, the demand forecasting, inventory management, and logistical control in order to keep abreast of the competition. The companies are increasingly confronted with the structure of ordering process to become more responsive while maintaining competitive advantage at the same time. The purpose of order processing is to concentrate on the activities that improve order entry performance so that the organizations can understand the need and expectation of customer and enhance process to achieve them. Therefore, the order entered by the customer service team is very crucial because errors in receiving and entering the order can be very costly.

1.2 Statement of Problems

The ordering process is always deliberated as a fundamental business process in which customer orders are interpreted into production orders to accomplish practical order agreements. It is one of the main business processes because it concentrates on satisfying external customers and directly enhances value in an obvious method. In other words, the ordering process is when the company and customers create the commitment toward product specifications, order quantities, delivery route, and timing of delivery.

To describe the ordering process more precisely, this process can be demonstrated as an order processing flow (Figure 1.3). In order to achieve customers' requirement, good information exchange between customer service, sales and customer involved in the processing orders is needed. Then, an order specific requirements need to be translated into production orders by means of the ordering process. In achieving reasonable order agreements, decisions must be taken concerning orders acceptance and order entry accuracy which are directly related to material availability, allocating capacity, promising delivery times, and prioritizing of orders. Therefore, the accuracy of order entry in order processing is required and the co-operation, the associations and degree of interdependence among the parties contributing, as well as simplicity in jobs and responsibilities seem to be significant importance.

4

Figure 1.3: The Path of Order Processing
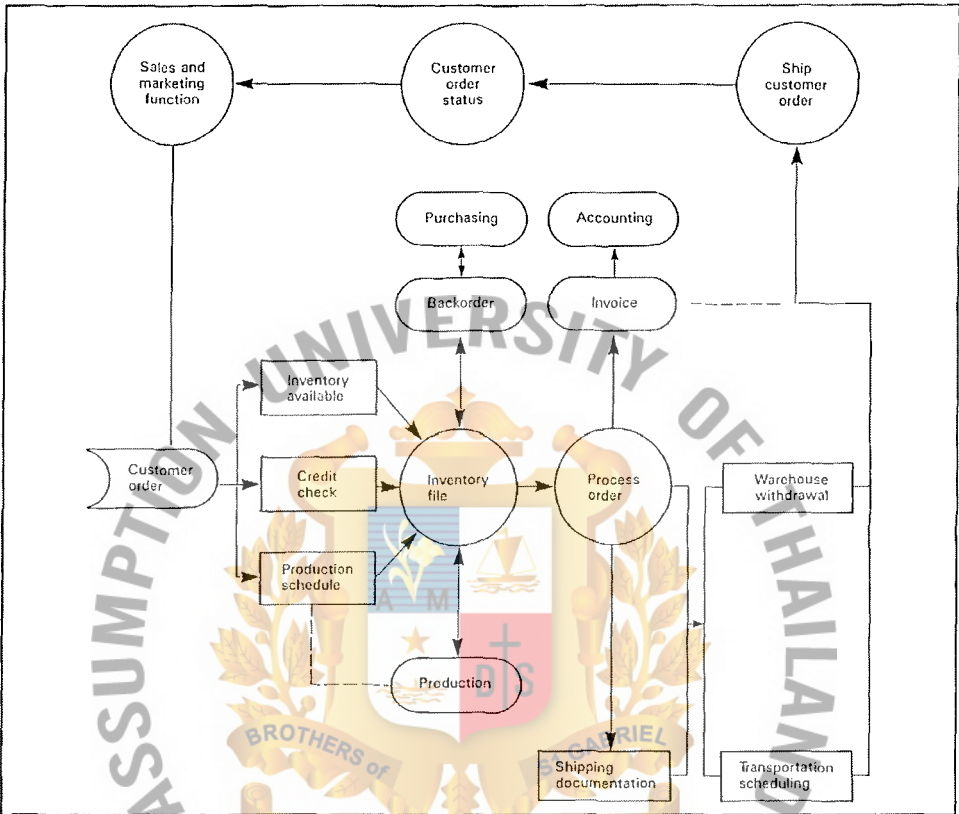
Source: Mentzer, J.T. (1981). Technological Developments in Order Processing Systems. *International Journal of Physical Distribution & Materials Management, 11*(8), 15-21

ABC Company has been delivering global business support which higher market demands will consequence in more diverse customers' specific requirement. The order entry processing has been linking the process between each function throughout the supply chain flow as following:

1. Customer and Sales negotiate the price and request for the new order by providing full information, such as material name, quantity, place of origin, place of destination, delivery date, unloading point, delivery address, contact person, etc. to Customer Service team.

5

2. Customer Service team enters the complete order data into the system with correctness and accuracy.

3. Order detail is linked to Warehouse team and freight forwarder via technology system flow

   - Warehouse team prepares the material and packs the finished product as order requested shown in system and coordinates with logistic provider for trucking schedule and pick-pack lead time for stuffing the finished product into the container.

   - Freight forwarder checks the sea transportation shipment schedule by aligning with the delivery date, place of origin and destination, route, unloading point, etc. shown as order requested and coordinates with the shipping line for booking confirmation. Also, they coordinate with the logistic provider for the date of pick-up and return the container to the terminal.

4. Shipping line confirms the booking schedule with the freight forwarder and transports the container from the origin port to the destination port.

5. Customer processes custom clearance at destination port and picks up the container to unstuff the product at their warehouse. Then, they use the product, at this stage considering as material, into manufacturing process and produce their own product to be sold further.

To summarize, at the downstream process such as the forecasting of sales volume, the production level at manufacturing, the management of inventory level at warehouse, the lead-time of inbound and outbound (pick-pack time) from logistic provider, the arrangement of shipment schedule from carriers also depends on the order detail that Customer Service enters in the system. Once the order error is entered in the system, a company has to spend time, money and effort to correct the problems and minimize the damage cost. It can result in material shortage, fluctuation in production line, shipment schedule unavailability, wrong product shipped and worst scenario is wrong material damages customer's machine in production line. If the order entry is correct, these interdependent components in the supply chain flow can function efficiently and effectively. Simply says that the improvement of order entry performance is capable

to improve delivery performance, order lead times, inventory requirement and reduce cost. The benefits to companies that are actually believed and understood in the significant of order processing are almost above challenging. Therefore, the order data entry by Customer Service team in step 2 is significantly important because it is the initial process in supply chain flow and core component to achieve customers' order requirement and maximize customer experience. However, there is no study and unclear of the actual factors that impact the order entry performance even it is a key player in supply chain process. Therefore, the research question aimed to find out the factors influencing the order entry performance in ABC Company.

1.3 Research Objectives

Theoretically, this research aimed to support the empirical evidences of the effect on the technology system, information processing, effective communication, human perception and order entry performance. This would help ABC Company to find out the actual factors that impact the order entry performance. Hence, the objectives of this study are as follows:

i.   To investigate the factors that influence order entry performance of ABC Company

ii. To investigate employees who have different demographic profile toward order entry performance

iii. To investigate employees who have different demographic profile toward information processing

iv. To investigate employees who handle a different country toward order entry performance

v.   To investigate employees who spend different order entry lead time toward order entry performance

vi. To investigate employees who amend order or cancel order toward order entry performance

7

1.4 Scope of the Research

To support the research questions in this study, the respondents were the employees working in ABC Company. The analysis was focused only on Customer Service Function for all six regions that are directly involved in ordering process. The study included Greater China, South Asia, Southeast Asia, East Asia, Europe, and United States of America. The questionnaires were distributed to the respondents in their region during working hours to ensure that the result has included the customer service employees in all regions. Generally, Greater China team, Southeast Asia, and East Asia teams work from 7:30 am. to 16:30 pm., South Asia team works from 10:30 am. to 19:30 pm and Europe and United States of America teams work from 16:00 pm. to 01:00 am. based on Thailand time. The researcher collected the data during 1st May – 30th June, 2018. The probability of sampling technique has been used for collecting the data by sending the questionnaires to all customer service employees in ABC Company and also, the factors of order entry performance have been carried out from the target respondents.

1.5 Significance of the Research

The findings of this research will redound to the benefit of ABC Company towards order entry performance which is a key player in the whole supply chain management. It can help ABC Company understand the actual factors that significantly affect the order entry performance. This leads to improve the efficiency management in supply chain and create the improvement results of order entry performance in ABC Company. All organizations aim to reach customers' expectation while maintaining efficiency and competitive advantage, so they need to find out how to maintain the performance of order processing and create value into customer's point of view. Therefore, this study has provided the information and effect on order entry performance as follows: Firstly, ABC Company can apply the findings or results in this study to help enhance experience of Customer Service employees and improve order entry performance. Secondly, ABC Company can apply the result of each

8

factors to improve their internal process, such as technology system, information processing, effective communication and human perception. Lastly, this study will benefit other companies in the area of making decision in order processing process. To serve as the center of Customer Service team for all six regions, the findings from this study will help the director, manager, supervisor, team leader, and business owner (stakeholder) to understand the factors and improve more flexible and suitable strategies to conveniently achieve the maximum order entry performance. In addition, this research will be advantageous to people who want to study or to continue their study in order processing field. The result can make some outstanding difference towards improving customer service function, enhance customer satisfaction, developing sales volume, and extend company reputation.

1.6 Limitations of the Research

This research studied the order entry performance of ABC Company. There are many functions in a company, but the researcher focused only on employees who work in Customer Service function. The research was limited to those areas for several reasons. Firstly, it needs much discussion and negotiation with the supervisor and the manager to get their permission for doing the survey, distributing questionnaire and collecting data. Secondly, there is different working time among customer service employees who handle different countries. Thirdly, the respondents handle various products, different countries, such as China, India, Singapore, Indonesia, Bangladesh, America, Spain, Germany, etc.; therefore, the order processing policy and country regulation may be different. Fourthly, the respondents have different gender, age, and year of work experience, as a result, the interpretation of terms definition may be different. Lastly, this research considered the current order processing, circumstance, environment and factors applied in ABC Company only.

1.7 Definition of Terms

Embodied cognition

The cognitive systems and their bodies can be dependently understood of each other as they are adapted to each other in very profound ways (Clark, 2008).

Invisible gorilla

The "invisible gorilla" experiments is a particularly well-known example of what is called in-attentional blindness. In the invisible gorilla experiments, about 50 percent of people will not "see" the additional information that is presented to them (Mack & Rock, 1998).

Inland Container Depot

known as ICDs, are dry ports equipped for handling and temporary storage of containerized cargo as well as empties. This means that hinterland customers can receive port services more conveniently closer to their premises (Simon, 1999).

Order processing

It is the process or work-flow associated with the material inventory, production, picking, packing and delivery of the packed items to a shipping carrier. System captures the order data from the customer service employees directly, stores the data in a central database and sends order information to other departments (Mattson, 2004)

Order entry performance

An order accurately processed and within the promised time frame means a satisfied customer

10

	who has long life loyalty (Emmanuel, 2014).
Scaffolding minds	The human intelligent behavior depends on a large extent on structuring and exploiting the physical as well as the social environment (Clark, 1997).
Technical barrier	The unclear definition of technical terms, the conditions of case, the different interpretation between parties, would lead to misunderstanding of the information transmitted (Bowen & Edwards, 1996).
Information Processing	The process of translation of the order specification into production orders and order agreements (Waller, 1995).

1.8 Chapter Summary

Someone once said, "Nothing happens until you get an order". A paraphrase of this statement might be, "Once you get an order a lot of bad things can happen".

When a company does not have an accurate order data, lack of the sufficient inventory of orders, no appropriate production schedule, and the unavailability of carrier shipment schedule cause various problems to many companies today. They cost a company money and lose customer expectation. When the order entry error happens with costly errors and oversights, many functions across the entire company and third parties (outsourcing) are adversely impacted. Therefore, chapter 1 shows the foundation of this research that many organizations have changed and more focused in order entry performance. The research background and research problem are structured based on the real situation that customer service in ABC Company is facing. Investigation for the research objective and research limitation is also shown in this chapter.

CHAPTER II

REVIEW OF RELATED LITERATURE AND CONCEPTUAL FRAMEWORK

The process of buying, ordering or contracting is most important area in service requirement. Some organizations have the chance of gaining their customers' lifelong loyalty through the order accuracy and excellent service provided. The literature explores the factors that are related to the order entry process by Customer Service team in ABC Company. The research attempts to understand the dimension of technology system, information processing, effective communication, and human perception toward order entry performance. This chapter shows the framework theory's outline based on literature review and research explanation.

2.1 Technology System

Supply chain links all logistic activities of all parties involved into a single entity in order to shorten the period of production cycle until the delivery of the client's order in a short lifespan. Laudon (2004) found that an effective way to link all logistic activities together is to implement an integrated supply chain information system. Wing (2006) studied that the integrated technology systems help the fast e-business exchange among trading partners within or across region. One of the earliest computer technology applications in supply chain was probably the order processing area where considering as easily routinized. In 1974, the study of US firm discovered that 90 percent of respondents had more professional and comparable computerized order processing system. Fundamental advance has been created in computer technology since 1950 and many of this technology had been consolidated into up to date order processing system (John, 2006).

The technology has had fundamental impacts on the users, the working environment, and the workers' work. In its much interpretation, the technology processes the data,

collects information, accumulates the collected materials, gathers knowledge, and expedites communication. In reality, technology plays many roles in the day-to-day operations of the business world today. Burgelman (2009) mentioned that technology has been the important component of business definition and competitive advantage. Powerful computer technologies help the companies to gather and keep big amounts of various data sets to suit with customers and processes. Abell (1980) trusted that technology has added many dynamic characters toward the task of business definition. Porter (1983) mentioned "technology" determines the competition rule as among the most outstanding factors. Technology strategy has the task of building, maintaining and exploiting a company's technological assets. Technology strategy has the main operations which recognize the companies' technological resources, both internal and external, and specify those which are basic and characteristic. Also, technology strategy is related to the building of technological capacity through the acquisition of appropriate technologies, which maintain the company's continuous success (Richard & Lucy, 2013).

Normally, technology wording usually comes with many interpretations and describes the "high-tech" or high technology industries (Gaynor, 1996). Since the concerns in availability of real time information: inventory level, raw material availability, production schedule, logistic and shipping line schedule and customer credit data were restricted, the orders analysis or detailed interchanging with other logistic operation was radically limited. Thus, the development of more functional database and more useful information system is one factor that improves the sophisticated order processing (John, 2006). Generally, technology contains more than inventions, processes, and machines. It is also related to the theoretical and practical knowledge, skills, and artifacts that could be applied to improve the products, services, order processing system, production system, inventory system, and delivery system as well. Right now, technology is an outstanding player in business processes by creating new needs, supporting the new product development, improving the new procedures or process innovations which help company find the most efficient and effective in all business perspectives. Stephen (2006) studied the impact and benefit of technology on specific business processes as shown in Table 2.1.

13

Table 2.1: How technology influences process innovation

Capability	Impact and benefit
Automational	IT can replace or reduce human labor in a process
Analytical	IT can improve analysis of information and decision making
Disintermediation	IT can be used to connect two parties within a process and eliminate intermediaries from a process
Geographical	IT can transfer and coordinate information with rapidity and ease across large distances, making processes independent of geography
Informational	IT can capture vast amounts of detailed process information for purpose of understanding
Integrative	IT can coordinate tasks and processes
Intellectual	IT can capture and distribute intellectual assets
Knowledge management	IT allows the capture and dissemination of knowledge and expertise to improve the process
Sequential	IT can enable changes in the sequence of tasks in a process, often allowing parallelism
Tracking	IT allows the detailed monitoring of process status, inputs, and outputs
Transactional	IT can transform unstructured processes into routinized transaction

Source: Chan, S. L. (2006). Information technology in business processes. *Business Process Management, 6*(3), 224-237.

The growth of technology in supply chain environment has a powerful impact towards order fulfillment process. Previously, orders had to be manually input and coded before any processing could follow. Therefore, the order processing system needs to improve to be more efficient and complete to support the business. It has been automated by the advent and adoption of technology, such as electronic data interchange (EDI), advance planning and scheduling system (APS), transactional processing system (TPS), transportation management system (TMS), management information system (MIS), and decision support system (DSS) which can support the information that can be useful throughout the supply chain and streamline the order fulfillment process. In addition, the development of order processing system became increasingly simple and user oriented. There are many success stories in the acceptance of advance technology in order processing system which one of the largest US companies could improve customer service, reduce inventory level by 20 to 25 percent, and saving working capital over two million dollars by switching to use a computerized order processing system (George, 1985). Thus, development of order processing system does not only provide speed, accurate, efficient methods but also the feature in the future available for cross border organization.

14

In the area of order processing, the most concerned technological developments possibly have been the complexity of order input devices that help to monitor order input and detect the possible errors to ensure that the data of order entry was correct, consistent before transmitting the order to other parties in supply chain. This could decrease the operation time and manpower, improve customer service, reduce billing errors, improve efficiency, and decrease long distance telephone expenses (Farrell, 1976). The enhancement of order processing system offers the best future potential in terms of order entry performance. When the supply chain management in business is growing, the information flow within organization and among traders (both internal and external) needs to become more efficient to support the business growth and real time communication needs. The system becomes the important element for company to seek the optimized flow of order entry through the entire, extended, and multi-enterprise supply chain. In addition, computerized order entry processing is connected to the network among functions in supply chain by utilizing customers' order entry, check material availability, create sales reporting, forecasting, other corporate level reports, and gradually lower cost (McKee, 1978).

Figure 2.1: Remote Field Sales Order Entry

National/International Teleprocessing Network

| Salespeople with portable terminals, micros, pc's . . . | Remote Computing Services (RCS) Vendor Order Entry Management System | Manufacturer's Order Processing at national headquarters (mainframe: IBM 43XX, etc.) |
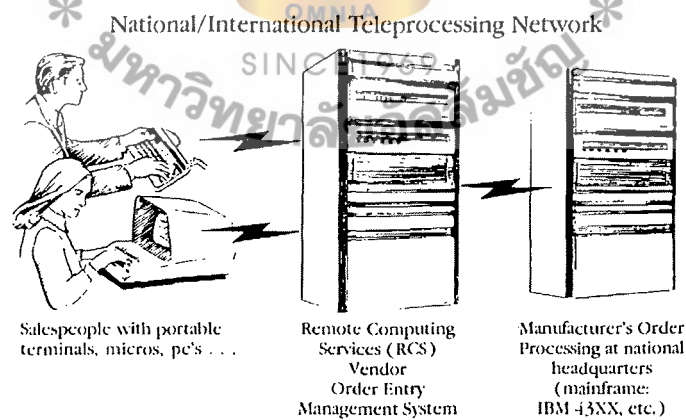
Source: Locke, J. L. (2006). Automatic Order Entry—with a Field Sales Order Entry Management System. *Industrial management & Data Systems, 84*(7/8), 19-22

15

Another technology improvement is proliferation of inter-organizational links for electronic data interchange. The technology allows companies to connect over geographical disparate market, share the information among internal and external parties, and enhance the collaboration in business which are important to business development. The study of Cecilia and Emilia (2017) found that when technology is mediated by the parties in collaborative business development activities such as the development of processes together, it increases the strong relationship performance. Moreover, the result supports the knowledge based on arguments that cooperation in integrated IT platforms is necessary to enhance the process performance especially inter-firm collaboration activities. Therefore, the company could take and apply the technology benefit into order processing system and collaboration both internal and external parties in order to complete the order fulfillment.

2.2 Information Processing

Driven by an increasing expectation for timely and accurate information before, all organizations that provide services or products to customers must understand their order requirements and needs. Malcolm (2006) stated that the order to delivery problem may arise from lack of information. Fisher and Kingma (2001) explained that the order of poor quality leads to major company's disaster. Redman (1998) suggested that the inaccuracy of order data quality could result in negative consequences on the operational level and strategic organizational level due to poor order data quality leading to customer dissatisfaction, increase operational cost to find root cause and corrective action, make the rework for correcting the errors, and make forecasting of demand and production more difficult. Practically, the order from customer includes much information about the order and demand requirement. These requirements are translated into production orders specifications and the order agreements. The order receiving process needs in depth understanding of customer's requirement which is an important factor of the quality deployment functions. Any misunderstanding, mistake or omitted point could lead into customer dissatisfaction through the order fulfillment process. From the opinion of Waller (1995), the sequence of information processing

16

activities is an ordering process that contains the documentation, preparation, receipt, entry, confirmation, volume, timing of the order, and scheduling of orders. The information processing also includes the same meaning of information between customer demand and production system stage. To maximize customer's expectation, not only customer's specification needs to be handled but also information about production constraints, inventory level, and carrier shipment schedule. In order to use efficiently all production capacity available, delivery times sales and production frequently need to exchange a great deal of information in a rather early phase of the ordering process (Kingsman, 1996).

Figure 2.2: Input-Output Model of the Ordering Process
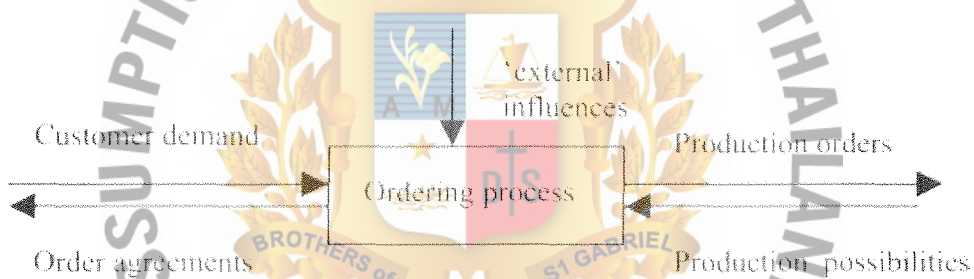
Source: Welker, G. A. (2006). Formalising the ordering process to achieve responsiveness. *Journal of Manufacturing Technology Management, 16*(4), 396-410

All organizations claim that their primary objective is to understand customer's needs and further transform their requirement into engineering specifications and process parameters. Murat (2010) believed that the performance of data gathering and understanding customer's requirement and deploying them into the appropriate process can be improved. Many failures can happen during order transforming process which arises from three categories:

- Customer unawareness: customers don't have enough or adequate technical knowledge to explain demand in clarity and/or in common way
- Communication disability: During the process of order receiving and order fulfillment, mistake happens due to non-standardized or disciplined manner, carelessness and any type of unsuccessful communication

17

- Real-life variability: Owing to the natural factors of the customer in production process, such as labor, equipment, machinery or other environmental factors, demanded material and their process showing infeasibility or incompatibility of manufacturing

Yamisi (2006) stated that the effective order transforming process needs to work with sales, marketing, manufacturing, customers and suppliers as well. All of them are enhancing the accuracy to provide online/ real time product, pricing and order status, the information that supports customer's order and inquiry. The potential components of order requirement and level of product and service agreement should be considered during order transformation. It also involves the understanding in changing customer needs and focusing resources on top priority customer or customer segments, and re-engineering processes to develop service level which supposes to align customer expectation. Another point is process integration and simplification of activities. Process integration has the purpose to meet the maximum efficiency and effectiveness. Ellram and Cooper (1993) studied that the process integration is to manage the performance of total flow in order processing system from suppliers to ultimate customer. The results of the process integration are major cost declining by sharing infrastructure and resources, the simplifications of activities, eliminate process redundancy, synchronized of all operating system, and provide more consistently information processing and differentiate services toward value customers. (Frohlich & Westbrook, 2001).

Therefore, the data accuracy and authenticity of the requirement or specification from customer's order being processed and analyzed are very crucial for the quality, value and usefulness (Lee & Siau, 2001). Understanding customers is a critical step, incorrect or insufficient interpretation of customer's request may generate poor performance. Hence, the accuracy of order details, warehouse inventory, manufacture production, carrier shipment schedule, etc. are very important to avoid any misapplications.

2.3 Effective Communication

Eugene (2006) mentioned that effective cost management demands effective communication. Communication is a method to motivate people or individual to change their behavior, convince employee to work with higher contribution, diligent, follow work rules and procedure, influencing people and maintaining customers' lifelong loyalty. Communication is the interaction among people in order to share their knowledge, experience, understanding, etc. in common form of speaking, writing, touching, and broadcasting. There are also activities to improve communication not only internally by means of better relationships of internal resources and capabilities, but also externally by harden collaboration within parties in order processing flow (Harrington, 1993). Obuks, Olalekan and Kachi (2017) stated that communication is an important player who plays significant role in the quality of trust, relationship and collaboration between internal and external parties. Inter-firm communication is crucial to supply chain success because doing international business between parties involves ample coordination, negotiation of supply chain operations and resolving conflicts among internal and external parties (Cristian & Talai, 2014). There is an existence of many studies stating that the significant factor of poor performance in many areas is the ineffective communication among stakeholders (Atkinson, 2002). It was revealed that the workers' perception and nature of information could affect information flow. Moreover, research showed that the differences in personality and interest, lack of information checking among internal and external parties, use of inappropriate visualization techniques, inadequate resources (manpower and time), workers' attitude, work experience, timing of information, cultural barriers, and organizational cultural barriers were the factors that impact the effective communication between parties (Goh, 2005). Therefore, in Atkin and Brooks' (2000) opinion, effective communication between parties both internal and external is very important in order to ensure that the implementation of strategies is both understood and acted upon.

In the order processing step, it requires the extent of communication among relevant parties in supply chain as each process is linked together and affects the order

19

fulfillment process. Tomas (2014) stated that the extent of communication could represent the degree of competitiveness, cooperation and relationship between parties to transfer the knowledge, process integration and development, and simplified activities in the order fulfillment process. Hammer (2001) identified that super-efficiency can succeed through communication and collaboration between suppliers themselves and outsourcer and share a single network in order to save cost and enhance joint effectiveness. Lado (2011) also mentioned that relational abilities consist of devotion in long-term relationships and participation in related partners to create, deliver, and enhance value to customer.

There are three types of main communication which are internet-based data technology, email, and phone. All of them could be arranged along with the communication richness which is directly related to the creation of business relationship maintenance. Internet-based data technology allows the data communication exchange in the systems regarding shipment orders, inventory level, payment term, invoice and other functional information. Email allows for interpersonal communication and the use of evidence. Lastly, phone allows for communication of voice inflexion and has emotional content. There are many variables which impact effective communication as follows (Cristian, 2014).

Infrastructure development
It is the macro (country) level which many studies indicate that infrastructure development may influence many result variables of interest (Vemuri & Siddiqi, 2009). Based on the research of developing countries (Jagun, 2008) and developed countries (Moen, 2008), Cristian and Talai, 2014 found out that the infrastructure development has an impact on different communication technologies because of the easier communication development that exists in the sophisticated infrastructure while deficiency of infrastructure development could obstruct the development of many communication technologies.

20

Relationship-level antecedents

Effective communication is based on trust, commitment, collaboration, and long-term orientation (Bond-Barnard, 2013). Long-term collaboration and cooperation has purpose to achieve the competitive advantage based on high trust and commitment between parties (Dwyer, 1987). Chen and Paulraj (2004) identified that collaboration is needed in the crossing of companies' boundaries by participating with external outsourcers, carrier partners and customers. Chan (2004) stated that the collaboration between organizations can improve the benefit toward customer in terms of faster responsiveness, more flexibility for market condition changing, reduce the inventory stock and improve customer service. In the process of working together, business partners develop relationships based on social norms, such as flexibility, solidarity, and information exchange (Kaufmann & Stern, 1988). On the other hand, ineffective communication is power - based relationships, with one party highly dependent on another. The dominant party attempts to control more the relationship using various influence attempts, ranging from provision of information to recommendations, to requests, to warnings, culminating in threats and legalistic pleas (Frazier, 1989).

Degree of technical barrier

The unclear definition of technical terms, the conditions of case, the difference in interpretation between parties, would lead to misunderstanding of the information transmitted (Bowen & Edwards, 1996)

Cultural and Language barrier

The differences in personality, interest, work experience, organization cultural are the factors that affect the effective communication between parties (Goh, 2005). The internal working across geography or outsourcing with external parties has generated new communication problem which is raised by multicultural work environment. Loosemore and Lee (2002) also found that the ability of staff to write and speak the language of the target country is related to effective communication.

2.4 Human perception

Human movement and perception could result in information behavior. The embodiment has physical body as the essential for perception (Gibson, 1979/1986). The "embodied cognition" perspective states that cognitive systems and their bodies can be dependently understood of each other as they are adapted to each other in very profound ways (Clark, 2008). The "Scaffolding minds" perspective suggests that human intelligent behavior depends on a large extent on structuring and exploiting the physical as well as the social environment (Clark, 1997).

There is also a cognitive bias that influences what we "see". There is evidence that we always recognize what is in front of us. Humans often miss information that they do not expect to see. The "invisible gorilla" experiments by Simons and Chabris (1999), is a particularly well-known example of what is called in-attentional blindness (Mack & Rock, 1998). In the invisible gorilla experiments, about 50 percent of people will not "see" the additional information that is presented to them. Hyman (2010) demonstrated that in-attentional blindness may also happen while walking around if people get distracted, e.g. by talking on a mobile phone, failing to notice stationary information sources but may be very similar to not spotting a colleague that could provide relevant information. Moreover, there is an argument put forward in particular by technologists caused by "information overload" (Maes, 1994). Case (2012) defined information overload as "a state in which too much information leads to a generalized state of anxiety and/or confusion, or an inability to make a decision regarding a specific problem".

To sum up, having (human) bodies and corresponding perception systems means that we are likely to miss some of the information that may be relevant to a task at hand. Depending on the conditions, humans may not "see" a potentially relevant information or may see information that does not actually exist. We may also interpret information differently depending on the specific circumstances. Also, the information overload could lead to anxiety or confusion.

22

2.5 Order Entry Performance

The efficiency, effectiveness, accuracy and speed of handling the customer's order do not only guarantee the marketing success but also impact the organization's overall profitability. The mistake and lead time expansion within organization in handling customer's order increase the overall company cost, higher operating expenses and reduce customer service levels. The order processing requires accuracy and reliability of information to trigger the system; the correctness of order requirement, the inventory level report that identifies material availability, the reliability of trucking and shipping line schedule, and the documents that complete the cycle. Many companies are using this information to produce and run through a flow chart of order path by processing the orders across several different functional boundaries within the company as shown in Figure 2.3. Hence, the core significant of order cycle time to reach customer order fulfillment is the order entry processing which all organizations aim to improve the order entry performance.

Figure 2.3: Activities Identified in the Order Fulfillment Process

23
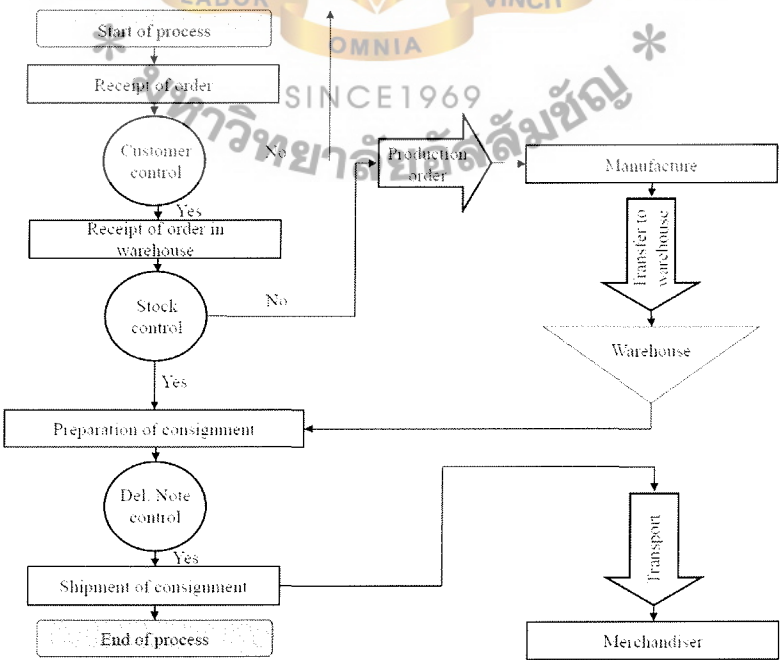
Source: Rodriguez, M. D. (2014). Determining the core activities in the order fulfillment process: an empirical application. *Business Process Management Journal, 20*(1), 2-24

At the start point of the process, the Customer Service team receives the order requested from sales or customers called "order acquisition". Then, the Customer Service team verifies the order information whether or not it is valid, accurate, complete details, etc. called "order transmission". If the order information is valid, the Customer Service team enters the order detail into the system called "order entry". Then, the order information flows through the supply chain to the warehouse for checking the inventory level. Once the material is available, the warehouse prepares for consignment and the freight forwarder prepares to book the truck and sea transportation schedule. In case of material unavailability, the order information flows to manufacturing to plan and adjust the production schedule. Then, the goods are transported from the place of origin to the place of destination. Customers receive the goods at the point of end process. To service customers' order and improve the order entry performance, the following activities have to be performed:

Order acquisition

The order acquisition from customer is the important first step in the order processing system as there is no any activities performed until an order is anticipated. Order acquisition can be divided into three stages: order generation, order data recording, and order data transmission. There are multiple ways for a company to record and transmit the order into the system once an order is received from customers. However, the Customer Service team needs to ensure that the orders are recorded correctly and transmitted consistently. The research showed that there is a heavy reliance on technology for order entry and order processing, but it is a fairly limited technology for initial order recording and order transmission. Therefore, the order handling system must be flexible enough to cover the possibilities which can be caused by internal factors or external factors.

Cooper (1997) stated that one of the key issues in order processing is the information exchange and transmission. Stank (1996) found that information that is correctly transmitted is positively related to order entry performance. The research of Helena (2007) found that information quality helps to create better performance in order processing as timeliness or accuracy. Due to customers' orders put the order cycle in motion and trigger the order fulfillment process (Croxton, 2003), the information quality and order accuracy transmitted are necessary in the order entry performance. Unreliable information or incorrect order transmission could lead to uncertainty of all parties in order processing which has to be compensating an expensive buffers, such as incorrect picking-packing the orders, documentation mistake, and wrongly shipped product. It is very obvious that if the orders are conveniently received, the information has high quality and transmitted appropriately, they could improve the order entry performance (Petersan, 1999).

Order entry

The activities of order entry are handled with receiving, entering, and editing the orders. When short lead time is requested, the more demand on critical arrival time for on-time delivery is necessary. Revising the order content, product detail, delivery location, order quantity or arrival time is often challenging during the restrain lead time (Helena, 2007). Orders might be received on fax, email or in excel sheet which are not directly entered into the system. It could imply that customers' information needs to be recorded, transmitted the order, and entered manually into the order system. Valuable time is consumed and mistake in order entering can be very costly (Croxton, 2003). There are several steps for normal action in the order entry stage:

1) Orders are sorted according to customers' requirement, such as the material type and quantity, delivery date, delivery area, port of discharge, inland container depot, and payment term.

2) Orders are screened to ensure that all data requirements are in computer-acceptable form and link the information through EDI to internal and external parties, such as warehouse, manufacture, freight forwarder and logistic service provider.

25

3) Information on the order is validated. The product availability is checked, the containerized packaging is acceptable, picking-packing lead time is sufficient, and the delivery route and shipment schedule are feasible. In the meantime, order checking, screening, and validating are performed by hand using hard-copy order checklists and guides.

4) Orders are examined against customers' payment term and credit limits.

5) The validated orders are confirmed with the unique reference number (sales order number) and pass through the other parties in the order flow.

In today's new competitive environment, organization requires a new perspective of the company in terms of converting organizational structures by improving the processes (Harrington, 1993) and the relationship between internal and external parties within a single network (Morgan & Hunt, 1994). The collaboration could have the benefit in faster customer responsiveness in order requirement, increase of flexibility for order editing, reduction of order transmission error and improvement of customer service (Chan, 2004).

2.5.1 Technology System, Information Processing, Effective Communication, and Human Perception affect to Order Entry Performance

Based on the literature review, it enables this study to propose the conceptual framework as shown in Figure 2.4. Kuei and Madu (2001) specified the significant success factors for executing the order fulfillment concept which is order processing entry. Order processing composes of the relationship among variables which are technology system, information processing, effective communication, and human perception influencing toward order entry performance (Mack & Rock, 1999). The research model aims that these variables are positively affected toward order entry performance. In the meaning of when these variables are properly performed, they affect the order entry performance positively.

26

Figure 2.4: Conceptual Framework
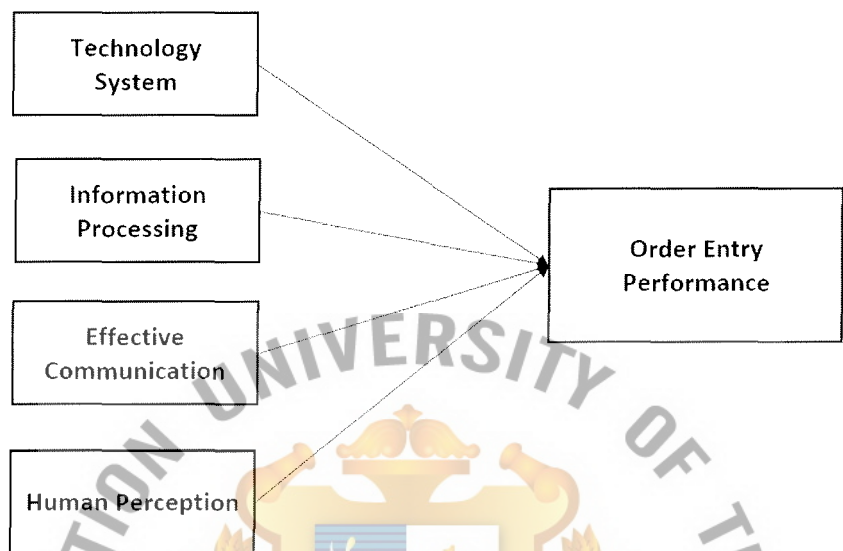
2.6 Chapter Summary

In order to complete customer's order fulfillment and maximize the order-to-delivery result, the order entry is the foundation process on which many supporting activities of key functional areas in the company depend on (James, 2006). In the era of order processing, many organizations have done many development functions to improve the order entry strategies. However, there are many challenges for companies to achieve the more complex demand from customer while maintaining competitive advantage and drive value to ultimate customers. According to literature review, John (2006) said that one of the earliest computer technology applications in logistics was probably in the area of order processing. There are also other significant factors which affect the order entry performance.

CHAPTER III

RESEARCH METHODOLOGY

In this chapter, this research has verified the relationship between technology system, information processing, effective communication, human perception and order entry performance as shown in the conceptual framework. The researcher explains the research design, data collection and sample, data analysis, factor analysis, and reliability test in the pilot group to receive the outcome based on quantitative method. Dainty (2008) classified research approach study into four groups: qualitative, quantitative, mixed, and review. Yin and Wing (1998) mentioned that the greater variables on the research problem and research situation are the factors that impact on the choice of particular research method. Amaratunga and Wing (1998) indicated that the generalization of finding and testing of a hypothesis is the key strength of the quantitative approach. So, this study used a quantitative approach to examine the hypotheses. The objective of this research was to find out the factors that affect towards order entry performance during order processing in ABC Company, as previously discussed in Chapter 1.

3.1 Research hypotheses

The conceptual framework presents the interpose relationship on technology system, information processing, effective communication, human perception and order entry performance. Bagozzi (1996) considered that the nomological validity defines the detail of confirmation of the predictions of a focal concept of a broader or superior theory based on the measures of the concept under study. In this study, the proposed hypotheses allowed the adaptation of the nomological validity where the dependent variable is order entry performance and independent variables are technology system, information processing, effective communication and human perception. So, this

study was developed to test fourteen hypotheses to achieve the research objectives as follows:

3.1.1 Relationship between technology system, information processing, effective communication, human perception and order entry performance

Order entry performance could be improved by linking all order processing activities of parties involved into one entity so that customers' order can be accurate, competent and delivered in the sufficient lead time. An efficient way to link together all order processing activities is through integrated technology system (Laudon, 2004). Vakharia (2001) considered that the adoption of technology system is the core area to the improvement of order processing system. Frohlich (2002) identified that as integrated technology system which has a positive effect on order entry performance. Technology concept has 10 features that relate to order entry performance (1) the system generates correct search results or information; (2) the system has been maintained frequently; (3) the system has user-manual guideline or instruction; (4) the system improves the communication and collaboration among users; (5) the system has a standardized display format; (6) the system enhances personal productivity; (7) the system is friendly-user; (8) the system supports swift response time and information exchange; (9) the system requires minimal training; (10) the up-to-date information is provided (Wing, 2004). So, information technology can influence order entry performance.

Higher market demands basically result in diversity of customer needs, especially leading to greater information exchange between sales, customers, customer service, other internal departments and external parties involved in order processing (Kritchanchai & Lin, 1998). Normally, customer orders usually consist of much information about specific requirement which in result, many companies must focus on information processing to meet exactly customers' demand and achieving responsiveness, while still maintaining efficiency (Kingsman, 1996). The information processing does not only consist of order verification and order data transmission but also concerns the information matching according to customer demand. In order to

29

achieve efficient order data entry performance, the need of great deal information processing is required (Waller, 1995).

The inter-firm communication is major requirement in the process of doing international business by involving negotiation, coordination among internal and external parties, and resolving conflicts among members. Datta (2001) studied that the more effective communication is on the organization, the better it enables to have more time for market information, greater information exchange and processing, shorten delivery time sales, reduce inventory level, maintain and improve trust-bases ties between members, and allowing the development of order processing to achieve the requirement from ultimate customers.

Hence, this research studied the relationship between technology system, information processing, effective communication, human perception and order entry performance to receive the outcome.

Hypothesis 1: Technology system, information processing, effective communication, human perception affect order entry performance of ABC Company

3.1.2 Difference in order entry performance among employees who have different demographic profile

Generally, the people who have different demographic profile could lead to different performance in order entry. The background information of respondents is in the questionnaire, such as gender, age, marital status, and length of work experience.

Hypothesis 2: There is a difference in order entry performance between people who are different in gender.

Hypothesis 3: There is a difference in order entry performance among people who are different in age.

Hypothesis 4: There is a difference in order entry performance among people who are different in marital status.

30

Hypothesis 5: There is a difference in order entry performance among people who are different in length of work experience.

3.1.3 Difference in information processing among employees who have different demographic profile

People who have different background may lead to different interpretation during information processing. The background information of respondents is in the questionnaire, such as gender, age, marital status, and length of work experience. The customers' order requirement has to be interpreted into production orders and order agreements. At the point of this process, information processing is one of the significant dimensions to confront the customers' order complexity, and it places a high priority on customer orientation (Gera & Jan, 2006).

Hypothesis 6: There is a difference in information processing between people who are different in gender.

Hypothesis 7: There is a difference in information processing among people who are different in age.

Hypothesis 8: There is a difference in information processing among people who are different in marital status.

Hypothesis 9: There is a difference in information processing among people who are different in length of work experience.

3.1.4 Difference in order entry performance among employees who handle different country and consume different lead time to enter order

Employees who handle different country could have different order processing steps subject to the country's regulation, the process of export, transportation mode, people cultural, language barrier, order acquisition, information processing, order documentation, etc. All of these factors are important toward order entry performance. The lead time of order entering is one key factor to represent the order entry performance. Clark (1997) stated that lead time activities normally subject to a great

31

extent on structuring which influences what we see, what we think we see, and what we do not see. Maes and Case (2012) defined that too much information leads to anxiety and/or confusion, or an inability to enter the order. Also, the lead time of order entering represents carefulness, order interpretation, order checklist, etc. of the employees. Hence, this research studied the relationship between order entry performance and employees who handle different country and different order entering lead time to receive the outcome.

Hypothesis 10: There is a difference in order entry performance among employees who handle different country.

Hypothesis 11: There is a difference in order entry performance among employees who experience different lead time of order entry.

3.1.5 Difference in order entry performance among employees who ever edited or cancelled correctly and incorrectly the orders

Two events that need the order management procedure are customer request to amend or cancel the order. These typical management procedures require training activities because they could lead to severity of the issues to customers, such as over inventory, wrong product requirement, incorrect quantity, request to prepone or postpone the order, plant shutdown, etc. (Yamisi & Michael, 2006). All of these reasons require order amendment or order cancellation which company must be very proactive to maximize customer expectation and perform correctly.

Hence, this research studied the relationship between order entry performance and employees who ever edited or cancelled correctly and incorrectly the orders to receive the outcome.

Hypothesis 12: There is a difference in order entry performance between employees who ever edited the order correctly and incorrectly

Hypothesis 13: There is a difference in order entry performance between employees who ever cancelled the order correctly and incorrectly

32

3.2 Population and Data Collection

This research focused on respondents who work in ABC Company. The main department is Customer Service function that directly receives the order information, perform information processing or order data interpretation, and enter the data into the system instantly. The target respondents were divided into six groups depending on geography: (1) Greater China (China, Hong Kong and Macau); (2) South Asia (India, Bangladesh, Nepal, Sri Lanka, etc.); (3) Southeast Asia (Thailand, Indonesia, Philippines, Singapore, Malaysia, etc.); (4) East Asia (Korea, Japan, Taiwan); (5) Europe (Belgium, France, Spain, Germany, etc.); and (6) United states of America. The estimated population in ABC Company is 250 under Customer Service function (ABC Company, 2018) and the researcher distributed the questionnaire to all of them. The survey was conducted during each regional working hours when it was ensured that the survey could be distributed to all Customer Service functions for all regions.

Table 3.1: List of Geographical Areas with Number of Respondents

Geographical Area	Number of Respondents
Greater China (China, Hong Kong and Macau)	150
South Asia (India, Bangladesh, Nepal, Sri Lanka, etc.)	30
Southeast Asia (Thailand, Indonesia, Philippines, Singapore, Malaysia, etc.)	25
East Asia (Korea, Japan, Taiwan)	25
Europe (Belgium, France, Spain, Germany, etc.)	10
United states of America	10
Total	**250**

3.3 Sampling Technique

This research aimed to survey all 250 employees who work in Customer Service team in ABC Company. Thus, the probability sampling technique was conducted. Probability sampling is a sampling technique wherein the samples are gathered in a process that gives all individuals in the population equal chances of being selected (John, 2009). There are five methods in probability sampling, but this study applied

33

only stratified random sampling method. Stratified random sampling is also known as proportional random sampling. Initially, the subjects are grouped based on different classifications, such as country, gender, level of education, level of experience, or status but not overlapping subjects. Then, researcher selected the final list of subjects from different categories. However, this research did not determine the sample size in each stratum to be proportionate to the total size of the population which John (2009) considered as disproportionate stratified random sampling. Referring to McCracken (1988), interviewees should not be included in sample and how they are chosen does not followed the sampling rules. Moreover, Henry (1990) indicated a sampling frame as the list of sample being chosen such as manager or supervisor who can support the sampling frame for this study of the population in community. Receiving the target respondents list which understands the order processing logic is one of the main criteria for sampling. The sample contains only Customer Service function within ABC Company that is straightly involved in order processing and directly affects the order entry performance. Snowball or chain sampling indicates the interest case from people who understand what cases are information rich (Miles & Hubernam, 1984).

The current study adopted the sampling method and identified the respondents from six different regions in Customer Service function for the study. A geographical area is selected because of the following reasons. First, nowadays multinational companies attempt to standardize the process globally in order to save cost while maintaining efficiency. Secondly, it is possible that different geography perception could impact multinational companies' performance. Hence, this study adopted the probability sampling method for the distribution of questionnaires to all respondents in the target population. Two hundred fifty (250) questionnaires in total were distributed to respondents who have different year of experience, gender, age, and handling different country of order processing. The researcher went to each team in Customer Service function and asked one by one to answer the questionnaire.

To facilitate supporting and further data analysis from quantitative analysis result, the researcher collected data from the target respondents using questionnaire. This study focused on finding out which independent variables affect order entry performance.

34

The research that improve from existing theories will explain more precisely in the relationship between variables (Perry, 2002) which is similar in this study. There is quantitative part in the questionnaires that were distributed within ABC Company in result of specifying the relationship between technology system, information processing, effective communication, human perception and order entry performance. For the examination part, the results from questionnaire were validated with the experience of Customer Service function during data collection. After concluding the results, most surveyors have experience in order processing. The questionnaire was also translated into the local language in order to ensure the interpretation of the meaning of the question is similar. The reason for translating to the local language is in reference to Bolton (1993) who stated that the result may consist of some erroneous elements if the respondents misunderstand or find a problem in the questions. Backing up Bolton statement, Assael (1982) mentioned that error is one of the greatest factors in the questionnaire. Converse and Pres, (1986) suggested to perform a pilot study to evaluate whether the questionnaire can be used or needed to be improved. The pilot study was tested with 30 respondents to see the result. Thus, the questionnaire could be improved.

3.4 Questionnaire Design

A questionnaire survey approach was selected because of its appropriacy for collecting data from a large group of respondents, the Customer Service employees in ABC Company. A modified questionnaire (Appendix A) was used based on the factors impacting order entry performance identified from the literature review. The final list of the four factors of order entry performance is the core content in the questionnaire. To avoid respondents' misunderstanding, the researcher explained the survey purpose to all participants. The survey questions applied numeric rating questions which the respondents were asked to evaluate the degree of each item which is a related factor toward order entry performance by using a five-point Likert scale ranging from 5=strongly agree to 1=strongly disagree in order to measure the study variable. Likert scale is the most usual scaling method according to Thornhill (2007).

35

Table 3.2: Classification of Weight of Scale

Average	Meaning Opinion level of current order processing
1	Strongly Disagree
2	Disagree
3	Normal
4	Agree
5	Strongly Agree

Table 3.3: Concept of Questionnaire

Concept	Number of questions	Authors
Technology System	6	Richard & Lucy (2013), Wing (2006)
Information Processing	3	Gera & Jan (2006), Bassam (2006)
Effective communication	5	Cristian & Talai (2014), Obuks (2017)
Human Perception	5	Chirstopher (2014)
Order Entry Performance	5	Helena (2007), Thomas & Manuel (2014)
Personal information	8	Adapted from Cristian (2014)
Demographic	5	Adapted from Yamisi (2006)

This research was conducted by using a structured questionnaire from many models. These models were used in many studies such as Ka (2017), Michael (2006), Olalekan (2017), and Nourredine (2006). The questions were added in the set of questionnaire as shown in Table 3.3 by separating the variable types to test the agreement of sampling using the Customer Service Function in ABC Company. Table 3.4 shows the sample questionnaire and code of each variable for pilot testing, 30 sets in the system.

36

Table 3.4: Variable and Questionnaire

Variable	Code	Question
Technology System	TEC1	I believe that the current system produces an accurate and up-to-date search result / information of order entry
Technology System	TEC2	I believe that the current system allows fast information exchange of order entry to internal and external parties
Technology System	TEC3	I believe that the current system is friendly for the user to place the order with full of order data accuracy and completeness
Technology System	TEC4	I believe that the current system is optimized without system failure
Technology System	TEC5	I believe that the current system displays the orders in standardized format
Technology System	TEC6	I believe that the current system supports the need of real time business communication and enhances collaboration among users
Information Processing	INF1	I believe that the order details from customer or sales are clearly indicated along with the clear requirements and specifications
Information Processing	INF2	I believe that the order details from customer or sales are always accurate
Information Processing	INF3	I believe that the information of inventory level, production schedule, the availability and allocation of material are properly updated by internal parties
Effective communication	EFF1	I believe that both internal and external communication have been effective via phone, email and internet-based data technology
Effective communication	EFF2	I believe that the infrastructure development in the country has an effect towards effective communication technology development
Effective communication	EFF3	I believe that effective communication is based on trust, relationship, collaboration and partnership
Effective communication	EFF4	I believe that specific technical terms could lead to miscommunication and misinterpretation among parties
Effective communication	EFF5	I believe that there are cultural and language barrier impacts towards miscommunication among parties

37

Table 3.4: Variable and Questionnaire (Cont.)

Human Perception	HUM1	Sometimes, I use my personal assumption to place order data that missed or apart from order requirement
Human Perception	HUM2	Sometimes, I miss the information that I am not familiar with or I don't expect to see what is called "in-attentional blindness"
Human Perception	HUM3	Sometimes, I overlook customer's order specification due to the large extent of details
Human Perception	HUM4	Sometimes, there is too much information (information overload) which leads to the state of anxiety and/or confusion
Human Perception	HUM5	Sometimes, I use personal judgement to interpret the meaning of information
Order Entry Performance	ORD1	I am certain that my order entry performance meets and fulfills the standard requirement
Order Entry Performance	ORD2	I am certain that my order entry is well performed without mistake, error or failure
Order Entry Performance	ORD3	I usually complete my order entry on time
Order Entry Performance	ORD4	I am able to finish the order entry job by myself successfully
Order Entry Performance	ORD5	I always use order checklist to improve the order entry performance and meet the expectation

3.5 Data Analysis

Once the data are collected from the target respondents using questionnaire, initially, the survey questions are tested by using SPSS program – the reliability analysis technique to test the survey reliability. Then, the validity of the contents inside the questionnaire is guaranteed by the principal component analysis of factor analysis (Mentzer & Flint, 1997). Gerbing and Anderson (1988) mentioned that the main approach when a theoretical basement drives improvement scale usually depends on factor analysis to certify scale unidimensionality, followed by the construct validity assessments and scale reliability. The factor analysis of quality of information is

conducted to ensure the significance of certain variables and decrease the number of variables to be meaningful (Ho, 2014).

3.5.1 Descriptive Statistics

It is simply used to explain, describe, show or summarize the basic information of the data in a meaningful way of the research. It allows to simplify the data interpretation. In this study, Descriptive Statistics was used to present the overall sample data of variables, basically demographic information. It describes the positive relationship between variables. However, Descriptive Statistics does not grant researchers to reach the conclusions.

Table 3.5: Frequency Table of Demographic Profile

	Gender			
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	13	43.3	43.3	43.3
Female	17	56.7	56.7	100.0
Total	30	100.0	100.0	
	Age			
Less than 22 years	2	6.7	6.7	6.7
22 - 25 years of age	17	56.7	56.7	63.3
26 - 35 years of age	9	30.0	30.0	93.3
36 - 45 years of age	2	6.7	6.7	100.0
Total	30	100.0	100.0	
	Marital Status			
Single	28	93.3	93.3	93.3
Married	2	6.7	6.7	100.0
Total	30	100.0	100.0	

39

Table 3.5: Frequency Table of Demographic Profile (Cont.)

		Level of Education		
Diploma	1	3.3	3.3	3.3
Bachelor degree	23	76.7	76.7	80.0
Master degree	5	16.7	16.7	96.7
Other	1	3.3	3.3	100.0
Total	30	100.0	100.0	

		Years of work experience		
Less than 1 year of exp	7	23.3	23.3	23.3
1-3 years of exp	14	46.7	46.7	70.0
4-5 years of exp	5	16.7	16.7	86.7
From 5 years of exp upward	4	13.3	13.3	100.0
Total	30	100.0	100.0	

Frequency Table 3.5 presents that in the pilot survey, the number of respondents between male and female is quite similar, most respondents are from 22 - 25 years old, single status, bachelor degree graduates and have 1-3 years of experience.

Table 3.6: Descriptive Statistics of Demographic Profile

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Gender	30	1.00	2.00	1.5667	.09202	.50401	.254
Age	30	1.00	4.00	2.3667	.13116	.71840	.516
Status	30	1.00	2.00	1.0667	.04632	.25371	.064
Education	30	3.00	6.00	4.2000	.10057	.55086	.303
Work Exp	30	1.00	4.00	2.2000	.17551	.96132	.924
Valid N	30						

Statistics Table 3.6 presents that in the pilot survey (30 respondents), the number of mean shows that most respondents are between male and female, from 22 - 25 years old and 26-35 years old, most of them are single, bachelor degree graduates and have 1-3 years of experience.

3.5.2 Inferential Statistics

It is an important technique that grants researchers to make generalizations about the population from which the samples are drawn. This is to ensure that the samples correctly represent the population. Inferential statistics show the truth that sampling naturally happens sampling error, thus a sample is not expected to ideally represent the population. By applying this statistics, this study aimed to test the correlation or significant relationship between dependent variable and independent variable.

Table 3.7: Inferential Statistics of Demographic Profile

	N	Mean		95% Confidence
	Statistic	Statistic	Std. Error	interval for Mean
Gender	30	1.5667	.09202	1.3785 - 1.7549
Age	30	2.3667	.13116	2.0984 - 2.6349
Status	30	1.0667	.04632	0.9719 - 1.1614
Education	30	4.2000	.10057	3.9943 - 4.4057
Work Exp	30	2.2000	.17551	1.8410 - 2.5590

Table 3.7 shows that 95% of confidence interval for gender is both male and female, from 22 - 25 years old and 26 - 35 years old, single, bachelor degree and master degree graduates, less than 1 year work experience and 1-3 years work experience.

3.6 Reliability of the Measurement Items

Reliability analysis allows researchers to study the properties of measurement scales and the items that compose the scales. It refers to the extent to which a scale produces consistent results. Hair (1998) identified that Cronbach's coefficient alpha is usually the most used measurement for testing inter-item reliability. The acceptable value is 0.70 or higher. The researcher conducted a pilot testing to test the reliability of the questionnaire by randomly distributed the questionnaire to Customer Service team for all regions. Consequently, the data were used for testing the reliability of the pretest only.

41

Table 3.8: Result of Reliability Test

Construct	Measurement Items	Cronbach's alpha
Technology System	6	0.700
Information Processing	3	0.720
Effective Communication	5	0.846
Human Perception	5	0.901
Order entry performance	5	0.794

Table 3.8 shows that Cronbach's alphas of all constructs range from 0.700 to 0.901 which is acceptable. The measurement of technology system, human perception, effective communication and order entry performance represents a satisfying result. The assessment of construct validity is presented in the following part.

3.7 Factor Analysis Result

Factor analysis is a technique that is used to reduce a large number of variables into fewer numbers of factors (Yarnold, 1995). This technique extracts maximum common variance from all variables and puts them into a common score. The result is consistent with the result obtained from the pretest. Hair (1998) mentioned that the acceptable minimum level or interpretation of the structure should be greater than 0.4, which all measurement items yield are acceptable correlation coefficient.

Table: 3.9: Exploratory Factor Analysis of Independent Variables

Measurement Items	Information Processing
INF1	0.707
INF2	0.738
INF3	0.490

Table: 3.9: Exploratory Factor Analysis of Independent Variables (Cont.)

Measurement Items	Technology System
TEC1	0.847
TEC2	0.409
TEC3	0.429
TEC4	0.737
TEC5	0.485
TEC6	0.646
Measurement Items	**Effective Communication**
EFF1	0.649
EFF2	0.565
EFF3	0.715
EFF4	0.672
EFF5	0.522
Measurement Items	**Human Perception**
HUM1	0.628
HUM2	0.773
HUM3	0.822
HUM4	0.682
HUM5	0.691

Table 3.9 shows that the factor loading of technology system, information processing, effective communication, and human perception are all greater than 0.4, which all measurement items yield are acceptable correlation coefficient and meet the minimal level of the structure.

Table: 3.10: Exploratory Factor Analysis of Dependent Variable

Measurement Items	Order Entry Performance
ORD1	0.917
ORD2	0.940
ORD3	0.806
ORD4	0.890
ORD5	0.413

Table 3.10 shows that the factors loading of order entry performance are all greater than 0.4, which all measurement items yield are acceptable correlation coefficient and meet the minimal level of the structure.

3.8 Chapter Summary

Chapter 3 discusses the research methodology by focusing on quantitative approach. The questionnaires were distributed to Customer Service employees who work in ABC Company and handle different region and the researcher conducted a sample test for 30 sets. Data were analyzed by using frequency table of demographic profile, descriptive statistics, measurement reliability and validity to test the quality of the questionnaire. The operational definitions and measurement of the variables were conceptualized from the research framework and correlation to hypothesis. Explanatory study was focused on the relationship between variables whether the relationship can be explained. In this study, the researcher used descriptive statistics for an accurate profile and explanation to explain the variable relationship between technology system, information processing, effective communication, human perception and order entry performance.

CHAPTER IV

PRESENTATION AND CRITICAL DISCUSSION OF RESULTS

Chapter 4 shows the results of descriptive statistics of the questionnaire regarding the respondents number in percentage (%), mean of the variable, and standard deviation for describing demographics (gender, age, marital status, educational level and year of work experience). Then, multiple regression analysis was used to test and analyze the relationship of independent variables and present the correlation. The researcher also applied ANOVA to test the differences and simple linear regression analysis for demographic variables.

4.1 Sample Presentation for Customer Service Department in ABC Company

Figure 4.1: Conceptual Framework
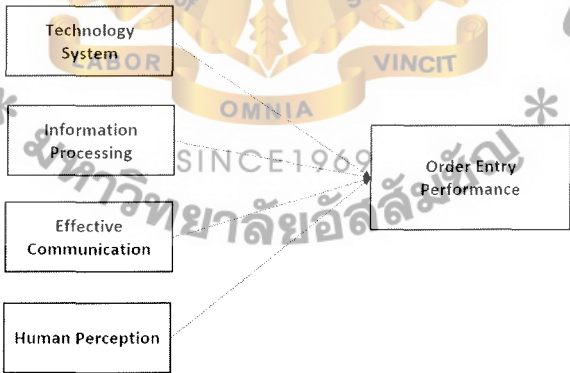
Order processing is composed of the relationship among variables which are technology system, information processing, effective communication and human perception influencing the order entry performance (Mack & Rock, 1999). The research model aims to find out whether or not these variables are positively affecting the order entry performance.

4.1.1 General information on employee respondents

Table 4.1 – 4.13 present the report on the general information about employees perception who handle different regions (Greater China, South Asia, Southeast Asia, East Asia, Europe, United States of America) toward order processing in the questionnaire as presented in the following table.

Table 4.1: Gender

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Sex	Female	17	68.00	14	56.00	83	55.33	16	53.33	12	60.00
	Male	8	32.00	11	44.00	67	44.67	14	46.67	8	40.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.1 shows that in five regions, majority of the respondents are female. The following are the number and percentage in every region: East Asia -17 (68%); Europe -14 (56%); Great China- 83 (55.33%); South Asia- 16 (53.33%); and USA -12 (60%).

Figure 4.2: Gender
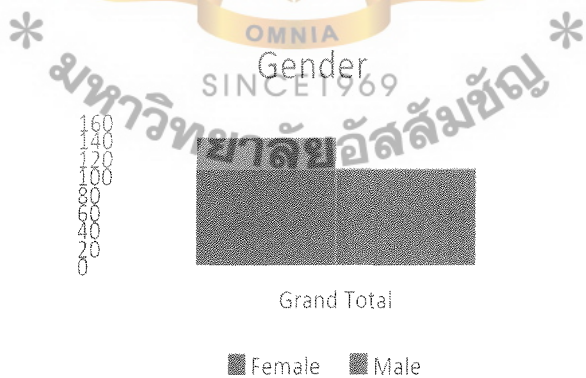
Figure 4.2 shows that most respondents are female, equal to 142 or 56.80%, which is higher than male, 108 respondents or 43.20%.

46

Table 4.2: Marital Status

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Marital Status	Married	3	12.00	2	8.00	35	23.33	6	20.00	2	10.00
	Single	22	88.00	23	92.00	115	76.67	24	80.00	18	90.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.2 shows that majority of the respondents in East Asia, Europe, Great China, South Asia and USA are single, 22 (88%), 23 (92%), 115 (76.67%), 24 (80%) and 18 (90%) respectively. None of the employees fall under the category of divorce, separated or others.

Figure 4.3: Marital Status
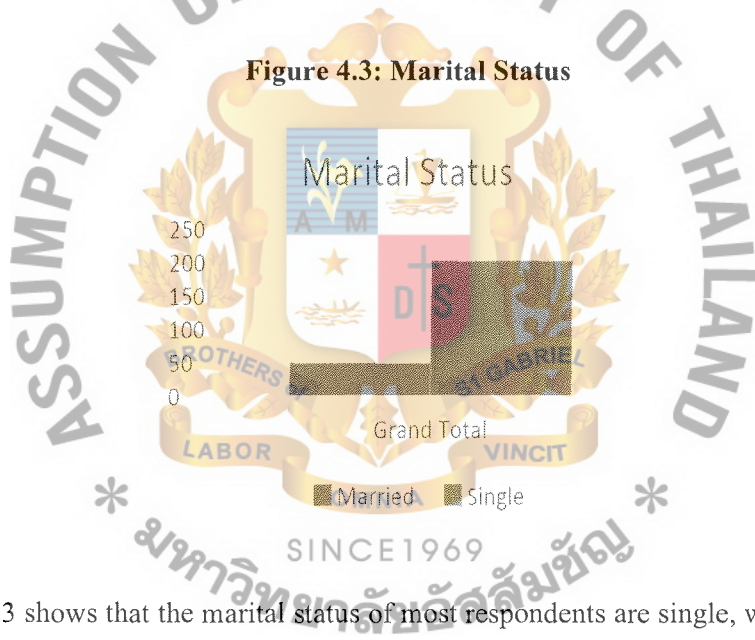
Figure 4.3 shows that the marital status of most respondents are single, which is equal to 202 or 80.80% , higher than married, which is equal to 48 respondents or 19.20%.

Table 4.3: Age

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Age	Less than 22 yrs	8	32.00	8	32.00	43	28.67		0.00	3	15.00
	22 - 25 yrs	11	44.00	11	44.00	59	39.33	13	43.33	10	50.00
	26 - 35 yrs	5	20.00	6	24.00	30	20.00	12	40.00	7	35.00
	36 - 45 yrs	1	4.00		0.00	18	12.00	5	16.67		0.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.3 shows that majority of the respondents in East Asia, Europe, Great China, South Asia and USA are from 22 – 25 years old, 11 (44%), 11 (44%), 59 (39.33%), 13 (43.33%) and 10 (50%) respectively.

Figure 4.4: Age
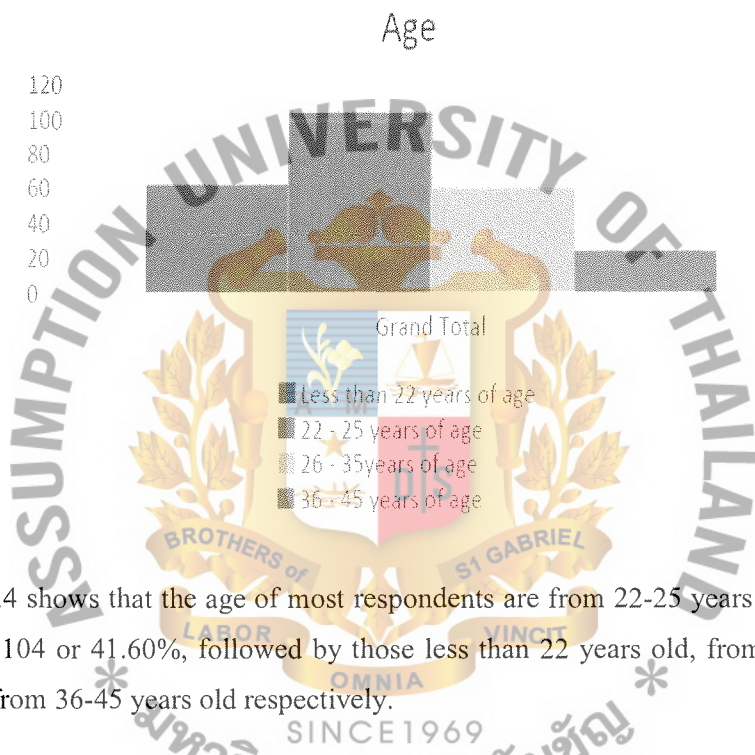
Figure 4.4 shows that the age of most respondents are from 22-25 years old, which is equal to 104 or 41.60%, followed by those less than 22 years old, from 26-35 years old and from 36-45 years old respectively.

Table 4.4: Education Level

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Educati on Level	Bachelor degree	23	92.00	21	84.00	127	84.67	24	80.00	13	65.00
	Diploma		0.00		0.00	1	0.67		0.00		0.00
	Master degree	2	8.00	4	16.00	22	14.67	5	16.67	7	35.00
	Other		0.00		0.00		0.00	1	3.33		0.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.4 shows that majority of the respondents in East Asia, Europe, Great China, South Asia and USA are Bachelor degree holders, 23 (92%), 21 (84%), 127 (84.67%), 24 (80%) and 65 (65%) respectively.

48

Figure 4.5: Education Level
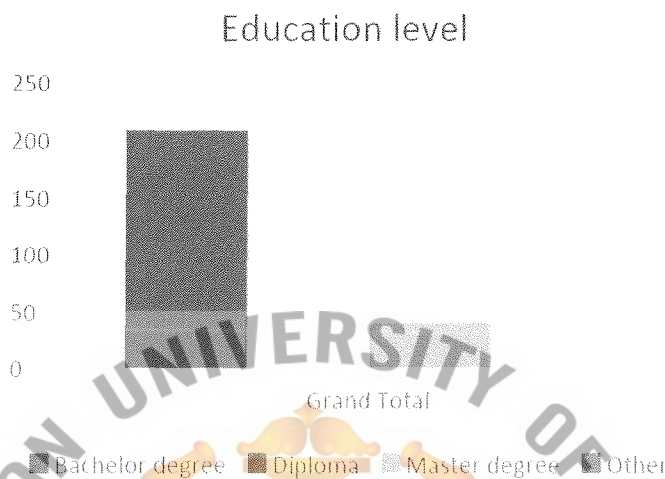
Education level

Figure 4.5 shows that the educational level of most respondents is Bachelor degree, which is equal to 208 or 83.20%, followed by Master degree 40 or 16%, then diploma and others respectively.

Table 4.5: Years of Work Experience

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Yrs of work exp.	Less than 1 yr exp.	9	36.00	9	36.00	44	29.33	3	10.00	3	15.00
	1-3 yrs of exp.	9	36.00	10	40.00	58	38.67	14	46.67	10	50.00
	4-5 yrs of exp.	3	12.00	4	16.00	19	12.67	7	23.33	6	30.00
	Above 5 yrs of exp.	4	16.00	2	8.00	29	19.33	6	20.00	1	5.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.5 shows that majority of the respondents in East Asia, Europe, Great China, South Asia and USA have 1-3 years of experience, 9 (36%), 10 (40%), 58 (38.67%), 14 (46.67%) and 10 (50%) respectively.

49

Figure 4.6: Years of Work Experience

Years of work experience

Figure 4.6 shows that most of the respondents have 1-3 years of experience, which is 101 (40.40%), then less than 1 year of experience 68 (27.20%), over 5 years of experience 42 (16.80%), and 4-5 years of experience 39 (15.60%).

Table 4.6: Who Provide Order Request

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Who provide order	Sales	4	16.00	4	16.00	34	22.67	2	6.67	2	10.00
	Customer	8	32.00	7	28.00	36	24.00	2	6.67	5	25.00
	Both	13	52.00	14	56.00	80	53.33	26	86.67	13	65.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.6 shows that majority of the respondents receive the order request from both sales and customer. In East Asia, 13 (52%); Europe, 14 (56%); Great China, 80 (53.33%); South Asia, 26 (86.67%); and USA 13 (65%).

50

Figure 4.7: Who Provide Order Request

Who provide order request
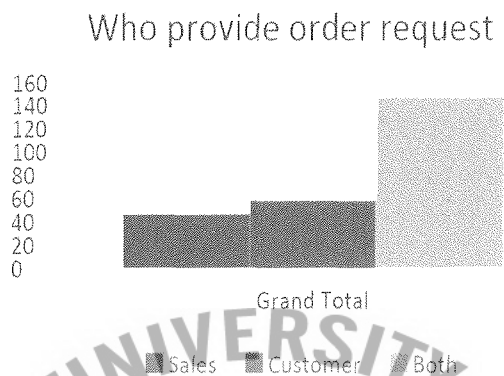
Figure 4.7 shows that both sales and customers mostly are those who provide order request to respondents, which is equal to 146 or 58.40%, then receive from customer only is equal to 58 or 23.20% , and receive from sales only is equal to 46 or 18.40%.

Table 4.7: Who Process Order Transmission

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Who process order transmission	Sales	7.00	28.00	9.00	36.00	39.00	26.00	9.00	30.00	10.00	50.00
	Customer	4.00	16.00	2.00	8.00	8.00	5.33	6.00	20.00	2.00	10.00
	Customer Service	14.00	56.00	14.00	56.00	103.00	68.67	15.00	50.00	8.00	40.00
	Total	25.00	100.00	25.00	100.00	150.00	100.00	30.00	100.00	20.00	100.00

Table 4.7 shows that in East Asia, Europe, Great China, South Asia, majority of the respondents process the order transmission by themselves, 14 (56%), 14 (56%), 103 (68.67%) and 15 (50%) respectively. In contrast, in the USA, majority of the respondents have sales to process order transmission, which is equal to 10 (50%).

Figure 4.8: Who Process Order Transmission

Who process order transmission
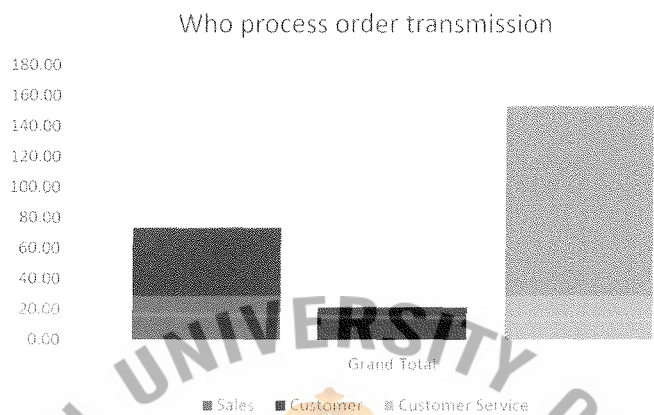
Figure 4.8 shows the persons who process order transmission for customer service employee in ABC Company, most of the respondents process order transmission by themselves, which is equal to 154 or 61.60%, then by sales only, which is equal to 74 or 29.60%, and by customers only, which is equal to 22 or 8.80%.

Table 4.8: Lead Time of an Order Entry

	General Data	East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Lead time	Less than 15 mins	11	44.00	8	32.00	18	12.00	13	43.33	3	15.00
of an	From 16 mins – 30 mins	8	32.00	9	36.00	34	22.67	9	30.00	8	40.00
order entry	From 31 mins – 45 mins	5	20.00	6	24.00	58	38.67	6	20.00	5	25.00
	From 46 mins – 1 hr	1	4.00	2	8.00	40	26.67	2	6.67	4	20.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.8 shows that in East Asia and South Asia, majority of the respondents spend less than 15 minutes to enter an order, 11 (44%) and 13 (43.33%) respectively. In Europe and USA, 9 (36%) and 8 (40%) spend 16-30 minutes respectively. In Great China, 58 (38.67%) spend 31-45 minutes.

52

Figure 4.9: Lead Time of an Order Entry

Lead time of an order entry

Grand Total

- Less than 15 minutes
- From 16 minutes – 30 minutes
- From 31 minutes – 45 minutes
- From 46 minutes – 1 hour
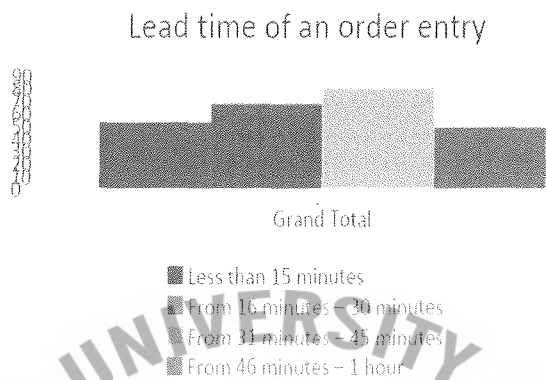
Figure 4.9 shows that most respondents, 80 (32%) spend 31-45 minutes to enter an order, then 68 (27.20%) spend 16-30 minutes, 53 (21.20%) spend less than 15 minutes and 49 (19.60%) spend 46 minutes to 1 hour.

Table 4.9: Ever Edit or Cancel Order

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Ever edit or cancel order	Yes	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.9 shows all respondents in all regions whoever edit or cancel the order.

Table 4.10: Incorrect Order Entry

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Incorrect order entry	Yes	14	56.00	18	72.00	104	69.33	28	93.33	12	60.00
	No	11	44.00	7	28.00	46	30.67	2	6.67	8	40.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.10 shows that the majority of the respondents in all regions ever enter the order incorrectly, 14 (56%), 18 (72%), 104 (69.33%), 28 (93.33%) and 12 (60%) respondents respectively.

Figure 4.10: Incorrect Order Entry

Incorrect order entry
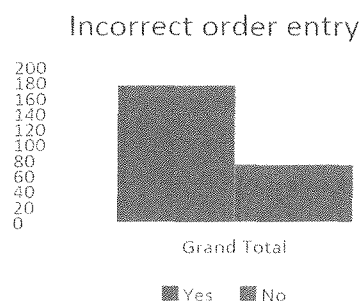
Figure 4.10 shows that most of the respondents, 176 (70.40%) enter order incorrectly and 74 (29.60%) never enter incorrectly.

Table 4.11: Incorrect Amend Order

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Incorrect	Yes	12	48.00	16	64.00	95	63.33	17	56.67	10	50.00
amend order	No	13	52.00	9	36.00	55	36.67	13	43.33	10	50.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.11 shows that majority of the respondents, 13 (52%) never incorrectly amend order for East Asia. Europe, Great China and South Asia, ever amend order incorrectly at 16 (64%), 95 (63.33%), and 17 (56.67%) respectively. In the USA, the number of respondents who ever amend order correctly and incorrectly is equal to 10 (50%).

Figure 4.11: Incorrect Amend Order

Incorrect amend order

54
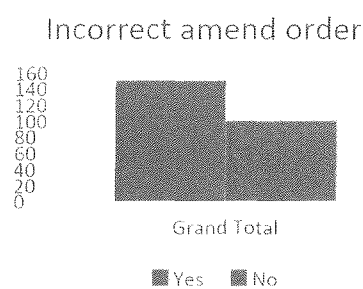
Figure 4.11 shows that most of the respondents, 150 (60%) ever amend the order incorrectly, which is more than the employees who never amend incorrectly at 100 (40%).

Table 4.12: Incorrect Cancel Order

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Incorrect cancel order	Yes	8	32.00	12	48.00	65	43.33	13	43.33	5	25.00
	No	17	68.00	13	52.00	85	56.67	17	56.67	15	75.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.12 shows that majority of the respondents in all regions never cancel the order incorrectly, 17 (68%), 13 (52%), 85 (56.67%), 17 (56.67%), and 15 (75%).

Figure 4.12: Incorrect Cancel Order
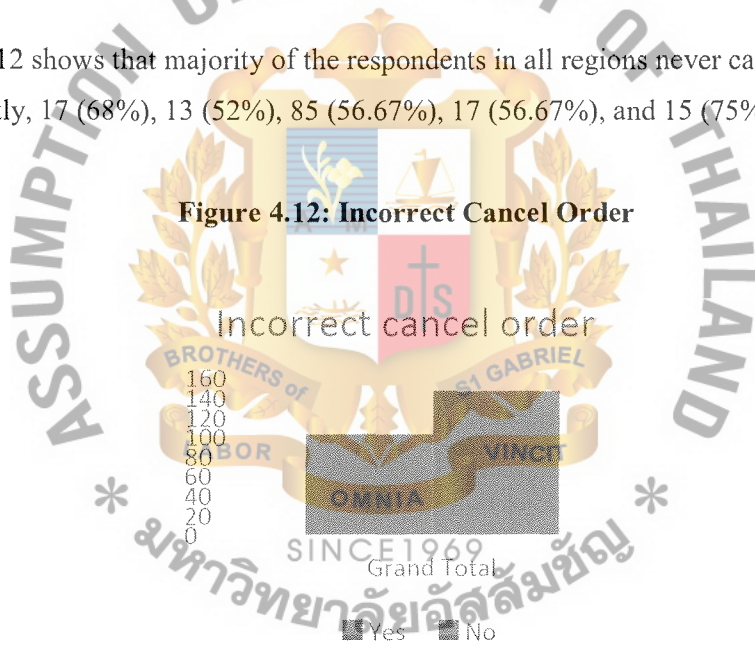
Figure 4.12 shows that most of the respondents cancel the order correctly, 147 (58.50%), which is more than the employees who ever cancel incorrectly at 103 (41.20%).

55

Table 4.13: Party Involved to Complete the Order Entry

General Data		East Asia		Europe		Great China		South Asia		USA	
		N	Percent	N	Percent	N	Percent	N	Percent	N	Percent
Party involved to complete the order entry	Sales	10	40.00	8	32.00	31	20.67	10	33.33	6	30.00
	Warehouse	1	4.00	2	8.00	23	15.33	1	3.33	1	5.00
	Logistic Service Provider (Trucker)	2	8.00	4	16.00	16	10.67		0.00	1	5.00
	Freight Forwarder and Shipping Line	2	8.00	2	8.00	17	11.33	1	3.33	4	20.00
	All of the above	10	40.00	9	36.00	63	42.00	18	60.00	8	40.00
	Total	25	100.00	25	100.00	150	100.00	30	100.00	20	100.00

Table 4.13 shows that in East Asia, majority of the respondents, 10 or 40% select sales equal with all of the above that need to be involved to complete the order entry. The respondents in Europe, Great China, South Asia and USA select all of the above that need to be involved to complete the order entry, 9 (36%), 63 (42%), 18 (60%), and 8 (40%) respectively.

Figure 4.13: Party Involved to Complete the Order Entry

Figure 4.13 shows that the party needs to be involved to complete the order entry in ABC Company. Most of the respondents choose all related parties need to be involved at 108 or 43.20%, followed by sales at 65 or 26%, warehouse at 28 or 11.20%, freight forwarder and shipping line at 26 or 10.40%, and logistic service provider (trucker) at 23 or 9.20%.

56

4.2 Regression Analysis Result

4.2.1 Hypothesis 1: Technology system, information processing, effective communication, human perception affect order entry performance of ABC Company

Table 4.14: Multiple Regression Result of Hypothesis 1

Dependent Variable: ORD

Number of Observations Read			250		
Number of Observations Used			250		
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	131.28662	32.82165	27.51	<.0001
Error	245	292.29677	1.19305		
Corrected Total	249	423.58339			
Root MSE		1.09227	R-Square	0.3099	
Dependent Mean		2.82548	Adj R-Sq	0.2987	
Coeff Var		38.65776			

Table 4.14 shows the analysis of variance, P-value is <0.0001 that is less than 0.05 and F-value is 27.5, which means that technology system, information processing, human perception and effective communication affect order entry performance. Hypothesis 1 is supported. Adjusted R square of the result shows 0.2987, it means that technology system, information processing, human perception and effective communication can explain order entry performance at 29.87%.

Parameter Estimates						
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate
Intercept	1	0.84625	0.72492	1.17	0.2442	0
Technology System	1	-0.19972	0.14058	-1.42	0.1567	-0.07594
Information Processing	1	0.74626	0.07414	10.06	<.0001	0.54110
Effective Communication	1	0.19482	0.11997	1.62	0.1057	0.08754
Human Perception	1	-0.02566	0.07125	-0.36	0.7190	-0.01951

57

From table of parameter estimates table of variance, P-value is <0.001 that is less than 0.05 is information processing which means that information processing is the main factor that impacts order entry performance by standardized estimation of 0.54110 (54.11%).

4.2.2 Hypothesis 2: There is a difference in order entry performance between people who are different in gender

<div align="center">

Table 4.15: T Test Result of Gender for Hypothesis 2

Variable: ORD

</div>

Gender	N	Mean	Std Dev	Std Err	Minimum	Maximum
Female	142	2.9165	1.2875	0.1080	1.1700	5.0000
Male	108	2.7058	1.3224	0.1273	1.1700	5.0000
Diff (1-2)		0.2106	1.3027	0.1663		

Gender	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Female		2.9165	2.7029	3.1301	1.2875	1.1532	1.4576
Male		2.7058	2.4536	2.9581	1.3224	1.1665	1.5269
Diff (1-2)	Pooled	0.2106	-0.1169	0.5382	1.3027	1.1974	1.4284
Diff (1-2)	Satterthwaite	0.2106	-0.1183	0.5396			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	248	1.27	0.2065
Satterthwaite	Unequal	227.26	1.26	0.2083

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	107	141	1.05	0.7617

From table 4.15 equality of variance, P-value is 0.7617 that is more than 0.05, variances are equal at 0.2065 and F-value is 1.05. Hypothesis 2 is not supported. It means that different gender has no effect toward order entry performance. Different genders of customer service employee perceive order entry performance not differently. Mean score of female is 2.9165 and mean score of male is 2.7058, which means that female employees perceive order entry performance higher than male employees.

4.2.3 Hypothesis 3: There is a difference in order entry performance among people who are different in age

Table 4.16: Anova Result of Age for Hypothesis 3

Class Level Information

Class	Levels	Values
Age	4	22 - 25 years of age 26 - 35years of age 36 - 45 years of age Less than 22 years of age

Number of Observations Read   250
Number of Observations Used   250

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	144.0336700	48.0112233	42.25	<.0001
Error	246	279.5497224	1.1363810		
Corrected Total	249	423.5833924			

R-Square	Coeff Var	Root MSE	ORD Mean
0.340036	37.72852	1.066012	2.825480

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Age	3	144.0336700	48.0112233	42.25	<.0001

Alpha	0.05
Error Degrees of Freedom	246
Error Mean Square	1.136381
Harmonic Mean of Cell Sizes	47.57501

Number of Means	2	3	4
Critical Range	.4305	.4532	.4683

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	Age
A	3.4251	104	22 - 25 years of age
A	3.2600	62	Less than 22 years of age
B	1.7658	24	36 - 45 years of age
B	1.7610	60	26 - 35years of age

From table 4.16, P-value <0.001 is less than 0.05 and F-value is 42.25. Hypothesis 3 is supported. It means that at least one group perceive order entry performance differently. So, Duncan Multiple range test is performed. The result shows there are two groups with different perception on order entry performance. Refer to Duncan, grouping and mean score, employees whose age is less than 25 years old perceive order entry performance higher than employees who are between 26 and 45 years old. So, employees who are different in age perceive order entry performance differently.

59

4.2.4 Hypothesis 4: There is a difference in order entry performance among people who are different in marital status

Table 4.17: T Test Result of Marital Status for Hypothesis 4

Variable: ORD

Marital Status	N	Mean	Std Dev	Std Err	Minimum	Maximum
Married	48	1.5106	0.7698	0.1111	1.1700	4.6000
Single	202	3.1379	1.2074	0.0850	1.1700	5.0000
Diff (1-2)		-1.6273	1.1375	0.1826		

Marital Status	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Married		1.5106	1.2871	1.7341	0.7698	0.6408	0.9642
Single		3.1379	2.9704	3.3054	1.2074	1.1000	1.3382
Diff (1-2)	Pooled	-1.6273	-1.9870	-1.2676	1.1375	1.0456	1.2472
Diff (1-2)	Satterthwaite	-1.6273	-1.9045	-1.3501			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	248	-8.91	<.0001
Satterthwaite	Unequal	109.29	-11.63	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	201	47	2.46	0.0004

From table 4.17 equality of variance, P-value is 0.0004 that is less than 0.05, variances are unequal at <0.0001 and F-value is -11.63. Hypothesis 4 is supported. It means that different marital status has different perception in order entry performance. Employees who are different in marital status perceive order entry performance differently. Mean score of married is 1.5106 and mean score of single is 3.1379, which means that single employees perceive order entry performance higher than married employees.

60

4.2.5 Hypothesis 5: There is a difference in order entry performance among people who are different in year of work experience

Table 4.18: Anova Result of Year of Work Experience for Hypothesis 5

Class Level Information

Class	Levels	Values
Experience year	4	1-3 years of experience 4-5 years of experience From 5 years of experience upward Less than 1 year of experience

Number of Observations Read   250
Number of Observations Used   250

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	142.6310714	47.5436905	41.63	<.0001
Error	246	280.9523210	1.1420826		
Corrected Total	249	423.5833924			

R-Square	Coeff Var	Root MSE	ORD Mean
0.336725	37.82305	1.068683	2.825480

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Experience year	3	142.6310714	47.5436905	41.63	<.0001

Alpha	0.05
Error Degrees of Freedom	246
Error Mean Square	1.142083
Harmonic Mean of Cell Sizes	54.01214

Number of Means	2	3	4
Critical Range	.4050	.4264	.4406

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	Experience year
A	3.3616	101	1-3 years of experience
A	3.3282	68	Less than 1 year of experience
B	1.7682	39	4-5 years of experience
B	1.7040	42	From 5 years of experience upward

From table 4.18, P-value <0.001 is less than 0.05 and F-value is 41.63. Hypothesis 5 is supported. It means at least one group perceive order entry performance differently. So, Duncan Multiple range test is performed. The result shows that there are two groups with different perception on order entry performance. According to mean score, employees who have working experience less than three years perceive order entry performance higher than the other groups. So, employees who are different in years of experience perceive order entry performance differently.

61

4.2.6 Hypothesis 6: There is a difference in information processing between people who are different in gender

Table 4.19: T Test Result of Gender for Hypothesis 6

Variable: INF

Gender	N	Mean	Std Dev	Std Err	Minimum	Maximum
Female	142	2.7191	0.9234	0.0775	1.0000	4.3333
Male	108	2.6821	0.9783	0.0941	1.0000	4.3333
Diff (1-2)		0.0370	0.9474	0.1210		

Gender	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Female		2.7191	2.5659	2.8722	0.9234	0.8270	1.0453
Male		2.6821	2.4955	2.8687	0.9783	0.8629	1.1295
Diff (1-2)	Pooled	0.0370	-0.2013	0.2752	0.9474	0.8709	1.0389
Diff (1-2)	Satterthwaite	0.0370	-0.2033	0.2773			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	248	0.31	0.7600
Satterthwaite	Unequal	223.32	0.30	0.7619

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	107	141	1.12	0.5186

From table 4.19 equality of variance, P-value is 0.5186 that is more than 0.05, variances are equal at 0.7600 and F-value is 0.31. Hypothesis 6 is not supported. It means different in gender has no effect toward information processing. Different genders of customer service employee perceive information processing not differently.

62

4.2.7 Hypothesis 7: There is a difference in information processing among people who are different in age

Table 4.20: Anova Result of Age for Hypothesis 7

Class Level Information

Class	Levels	Values
Age	4	22 - 25 years of age 26 - 35years of age 36 - 45 years of age Less than 22 years of age

Number of Observations Read   250
Number of Observations Used   250

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	86.2567684	28.7522561	51.84	<.0001
Error	246	136.4420711	0.5546426		
Corrected Total	249	222.6988395			

R-Square	Coeff Var	Root MSE	INF Mean
0.387325	27.55166	0.744743	2.703080

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Age	3	86.25676842	28.75225614	51.84	<.0001

Alpha	0.05
Error Degrees of Freedom	246
Error Mean Square	0.554643
Harmonic Mean of Cell Sizes	47.57501

Number of Means	2	3	4
Critical Range	.3008	.3166	.3272

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	Age
A	3.1613	62	Less than 22 years of age
A	3.0962	104	22 - 25 years of age
B	1.8872	60	26 - 35years of age
B	1.8558	24	36 - 45 years of age

From table 4.20, P-value <0.001 is less than 0.05 and F-value is 51.84. Hypothesis 7 is supported. It means that at least one group perceive information processing differently. So, Duncan Multiple range test is performed. The result shows that there are two groups with different perception on information processing. According to mean score, employees who are less than 25 years of age perceive information processing higher than people who are 26 to 45 years old. So, employees who are different in age perceive information processing differently.

63

4.2.8 Hypothesis 8: There is a difference in information processing among people who are different in marital status

Table 4.21: T Test of Marital Status for Hypothesis 8

Variable: INF

Marital Status	N	Mean	Std Dev	Std Err	Minimum	Maximum
Married	48	1.7181	0.7593	0.1096	1.0000	3.6667
Single	202	2.9371	0.8285	0.0583	1.0000	4.3333
Diff (1-2)		-1.2190	0.8158	0.1310		

Marital Status	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
Married		1.7181	1.4977	1.9386	0.7593	0.6321	0.9511
Single		2.9371	2.8222	3.0521	0.8285	0.7548	0.9183
Diff (1-2)	Pooled	-1.2190	-1.4770	-0.9610	0.8158	0.7499	0.8946
Diff (1-2)	Satterthwaite	-1.2190	-1.4662	-0.9718			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	248	-9.31	<.0001
Satterthwaite	Unequal	75.935	-9.82	<.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	201	47	1.19	0.4850

From table 4.21 equality of variance, P-value is <.0001 that less than 0.05, variances are equal at <0.0001 and F-value is -9.31. Hypothesis 8 is supported. It means that different in marital status has different perception in information processing. Employees who are different in marital status perceive information processing differently. Mean score of married is 1.7181 and mean score of single is 2.9371, which means that single employees perceive information processing higher than married employees.

4.2.9 Hypothesis 9: There is a difference in information processing among people who are different in year of work experience

Table 4.22: Anova Result of Work Experience for Hypothesis 9

Class Level Information

Class	Levels	Values
Experience year	4	1-3 years of experience 4-5 years of experience From 5 years of experience upward Less than 1 year of experience

Number of Observations Read   250
Number of Observations Used   250

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	74.7574661	24.9191554	41.44	<.0001
Error	246	147.9413734	0.6013877		
Corrected Total	249	222.6988395			

R-Square	Coeff Var	Root MSE	INF Mean
0.335689	28.68920	0.775492	2.703080

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Experience year	3	74.75746612	24.91915537	41.44	<.0001

Alpha	0.05
Error Degrees of Freedom	246
Error Mean Square	0.601388
Harmonic Mean of Cell Sizes	54.01214

Number of Means	2	3	4
Critical Range	.2939	.3094	.3197

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	Experience year
A	3.1569	68	Less than 1 year of experience
A	3.0264	101	1-3 years of experience
B	1.9922	39	4-5 years of experience
B	1.8510	42	From 5 years of experience upward

From table 4.22, P-value <0.001 is less than 0.05 and F-value is 41.44. Hypothesis 9 is supported. It means that at least one group perceive information processing differently. So, Duncan Multiple range test is performed. The result shows that there are two groups with different perception on information processing. According to mean score, employees who have experience less than three years perceive information processing higher than employees who have experience of more than four years. So, employees who are different in years of experience perceive information processing differently.

65

4.2.10 Hypothesis 10: There is a difference in order entry performance among employees who handle different country

Table 4.23: Anova Result of Different Country for Hypothesis 10

Class Level Information

Class	Levels	Values
Country	5	East Asia Europe Greater China South Asia USA

Number of Observations Read   250
Number of Observations Used   250

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	56.3805347	14.0951337	9.40	<.0001
Error	245	367.2028577	1.4987872		
Corrected Total	249	423.5833924			

R-Square	Coeff Var	Root MSE	ORD Mean
0.133104	43.32891	1.224250	2.825480

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Country	4	56.38053473	14.09513368	9.40	<.0001

Alpha	0.05
Error Degrees of Freedom	245
Error Mean Square	1.498787
Harmonic Mean of Cell Sizes	29.41176

Number of Means	2	3	4	5
Critical Range	.6288	.6619	.6841	.7004

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	Country
A	3.0807	30	South Asia
A	3.0504	25	East Asia
A	3.0404	150	Greater China
B	1.8728	25	Europe
B	1.7405	20	USA

From table 4.23, P-value <0.001 is less than 0.05 and F-value is 9.40. Hypothesis 10 is supported. It means at least one group perceive order entry performance differently. So, Duncan Multiple range test is performed. The result shows that there are two groups with different perception on order entry performance. According to mean score, employees who handle South Asia, East Asia and Greater China countries perceive order entry performance higher than employees who handle Europe and

66

USA countries. So, employees who are different in the handled country perceive order entry performance differently.

4.2.11 Hypothesis 11: There is a difference in order entry performance among employees who experience different lead time of order entry

Table 4.24: Anova Result of Different Lead Time for Hypothesis 11

Class Level Information

Class	Levels	Values
Lead time to enter an order	4	From 16 minutes – 30 minutes From 31 minutes – 45 minutes From 46 minutes – 1 hour Less than 15 minutes

Number of Observations Read   250
Number of Observations Used   250

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	123.7788035	41.2596012	33.85	<.0001
Error	246	299.8045889	1.2187178		
Corrected Total	249	423.5833924			

R-Square	Coeff Var	Root MSE	ORD Mean
0.292218	39.07143	1.103956	2.825480

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Lead time to enter a	3	123.7788035	41.2596012	33.85	<.0001

Alpha	0.05
Error Degrees of Freedom	246
Error Mean Square	1.218718
Harmonic Mean of Cell Sizes	60.16669

Number of Means	2	3	4
Critical Range	.3964	.4173	.4313

Means with the same letter are not significantly different.

Duncan Grouping	Mean	N	Lead time to enter an order
A	3.4748	80	From 31 minutes – 45 minutes
A	3.4451	49	From 46 minutes – 1 hour
B	2.5475	53	Less than 15 minutes
C	1.8318	68	From 16 minutes – 30 minutes

From table 4.24, P-value <0.001 is less than 0.05 and F-value is 33.85. Hypothesis 11 is supported. It means at least one group perceive order entry performance differently. So, Duncan Multiple range test is performed. The result shows that there are three groups with different perception on order entry performance. According to mean

67

score, employees who spend lead time from 31 minutes to 45 minutes and from 46 minutes to 1 hour to enter an order, perceive order entry performance higher than employees who spend lead time less than 15 minutes and who spend lead time from 16 minutes to 30 minutes. So, employees who have different lead time to enter an order perceive order entry performance differently.

4.2.12 Hypothesis 12: There is a difference in order entry performance between employees who ever edit order correctly and incorrectly

Table 4.25: T Test Result of Edit Order for Hypothesis 12

Variable: ORD

incorrect amend order	N	Mean	Std Dev	Std Err	Minimum	Maximum
No	100	2.9723	1.3771	0.1377	1.1700	5.0000
Yes	150	2.7276	1.2485	0.1019	1.1700	5.0000
Diff (1-2)		0.2447	1.3013	0.1680		

incorrect amend order	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
No		2.9723	2.6991	3.2455	1.3771	1.2091	1.5997
Yes		2.7276	2.5262	2.9290	1.2485	1.1214	1.4084
Diff (1-2)	Pooled	0.2447	-0.0862	0.5756	1.3013	1.1962	1.4269
Diff (1-2)	Satterthwaite	0.2447	-0.0932	0.5826			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	248	1.46	0.1465
Satterthwaite	Unequal	197.78	1.43	0.1548

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	99	149	1.22	0.2779

From table 4.25 equality of variance, P-value is 0.2779 that is more than 0.05, variances are equal at 0.1465 and F-value is 1.46. Hypothesis 12 is not supported. It means that different employees who ever edit order correctly and incorrectly have no different perception in order entry performance. Different edit order correctly and incorrectly of customer service employee perceive order entry performance not differently.

68

4.2.13 Hypothesis 13: There is a difference in order entry performance between employees who ever cancel order correctly and incorrectly

Table 4.26: T Test Result of Cancel Order for Hypothesis 13

Variable: ORD

incorrect cancel order	N	Mean	Std Dev	Std Err	Minimum	Maximum
No	147	2.9128	1.3072	0.1078	1.1700	5.0000
Yes	103	2.7009	1.2963	0.1277	1.1700	5.0000
Diff (1-2)		0.2119	1.3027	0.1674		

incorrect cancel order	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
No		2.9128	2.6997	3.1259	1.3072	1.1729	1.4764
Yes		2.7009	2.4475	2.9542	1.2963	1.1402	1.5023
Diff (1-2)	Pooled	0.2119	-0.1178	0.5416	1.3027	1.1974	1.4284
Diff (1-2)	Satterthwaite	0.2119	-0.1175	0.5413			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	248	1.27	0.2067
Satterthwaite	Unequal	220.82	1.27	0.2062

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	146	102	1.02	0.9357

From table 4.26 equality of variance, P-value is 0.9357 that is more than 0.05, variances are equal at 0.2067 and F-value is 1.27. Hypothesis 13 is not supported. It means different employees who ever cancel order correctly and incorrectly have no different perception toward order entry performance. Different cancel order correctly and incorrectly of customer service employee perceive order entry performance not differently.

69

4.3 Chapter Summary

The results from quantitative analysis represent the factors that customer service employees perceive toward order entry performance in ABC Company. The research has concluded the frequency analysis to describe the means of the observed variables for all six regions (Appendix C) discussed in Chapter 3 and the hypotheses results were tested and developed according to the significant correlation coefficient ($Pr < 0.05$). The conceptual framework consists of four independent variables: technology system, information processing, effective communication, and human perception which the results show that information processing has the highest score perceived toward order entry performance. Furthermore, the results of the other independent variables also have a positive and significant effect toward order entry performance. Another hypotheses results applied with the demographic variables (age, marital status and year of work experience except gender) have a great impact toward order entry performance in all six regions. Further results show that different country handling and different lead time of entering an order have a positive and significant effect toward order entry performance. In contrast, the employees' behavior to edit or cancel the order correctly and incorrectly has the result with no effect toward order entry performance in all six regions. The analysis of variance shows P-value < .0001 for all hypotheses, except hypothesis 2 P-value which is 0.2065, hypothesis 6 P-value which is 0.7600, hypothesis 12 P-value which is 0.1465, and hypothesis 13 P-value which is 0.2067.

CHAPTER V

SUMMARY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter is the summary and the result of research question or hypotheses. This chapter contains the conclusions, theoretical implications, managerial implications, limitation and recommendation for the future research. The conclusion is referred from Chapter 4 and the discussion is based on the literature reviews from Chapter 2.

5.1 Summary of the Findings

Based on hypothesis testing, the conceptual framework of order entry performance toward ABC Company shows a positive relationship between the independent variables (technology system, information processing, effective communication and human perception) and the dependent variable (order entry performance). The findings of hypotheses testing in Chapter 4 are presented in Table 5.1 below.

Table 5.1: Conclusion of Hypotheses Testing

	Hypotheses	Findings
H1	Technology system, information processing, effective communication, human perception affect order entry performance of ABC Company	Supported
H2	There is a difference in order entry performance between people who are different in gender	Not supported
H3	There is a difference in order entry performance among people who are different in age	Supported
H4	There is a difference in order entry performance among people who are different in marital status	Supported

Table 5.1: Conclusion of Hypotheses Testing (Continued)

	Hypotheses	Findings
H5	There is a difference in order entry performance among people who are different in year of work experience	Supported
H6	There is a difference in information processing between people who are different in gender	Not Supported
H7	There is a difference in information processing among people who are different in age	Supported
H8	There is a difference in information processing among people who are different in marital status	Supported
H9	There is a difference in information processing among people who are different in year of work experience	Supported
H10	There is a difference in order entry performance among employees who handle different country	Supported
H11	There is a difference in order entry performance among employees who experience different lead time of order entry	Supported
H12	There is a difference in order entry performance between employees who ever edit order correctly and incorrectly	Not Supported
H13	There is a difference in order entry performance between employees who ever cancel order correctly and incorrectly	Not Supported

Table 5.1 presents the summary of hypotheses testing of the factors affecting order entry performance that hypotheses are supported except hypotheses 2, 6, 12 and 13, which are not supported. The main research problem was answered by hypotheses 1 that technology system, information processing, effective communication and human perception affect order entry performance in ABC Company.

72

Technology System, Information Processing, Effective Communication, Human Perception and Order Entry Performance

Hypothesis 1 result shows that technology system, information processing, human perception and effective communication have relationship between each of the variables and affecting the order entry performance. Especially, the information processing has the most influence on order entry performance.

Technology system is the linkage network between the initial function and the order processing system. Sometimes, the order processing system is not friendly for user because the system is slow, erroneous, and does not adapt to the change requirement. So, ABC Company has to improve the technology system to be more user-friendly. Moreover, order entry performance is related to the communication between customer service, sales, customers, warehouse, manufacturer, freight forwarder, logistic service provider and shipping line. The order requirement must be aligned and understood in the same manner across functions. Also, once the order details are received with too much content, unfamiliar or unspecific word and unclear information, they cause customer service employees confusion, anxiety, unsureness and assumption about the order requirement to enter the order. So, all employees should have a transparent mindset which any unclear information can be asked for clarification. Also, they should be very careful with order requirement and use order checklist to improve the order entry performance all the time.

Information Processing and Order Entry Performance

Information processing is highly affecting the order entry performance because the correct interpretation of order requirement from customer is a must which leads to order accuracy that the customer service enters into the system. The problem is order details from customers or sales which are sometimes unclear, incomplete and too much extent which cause confusion to customer service employees. So, the order details should be aligned and improved across functions and the information processing should be developed by customer service employees as well.

73

5.2 Conclusions

Based on the relationship between dependent factors, it shows that the information processing has an influence on order entry performance. When the interpretation of order details are correct as per requested by customers, the order entry from customer service also has clarity and accurately placed into the system. The accuracy order details are flown to cross function to schedule production, adjust inventory level, pick-pack material, booking vessel and deliver the container from place of origin to place of destination. Once the order requests are properly performed along the supply chain and meet the customers' requirement, they will have more satisfaction. So, the result of information processing affects order entry performance in ABC Company. Moreover, employees who are different in age, marital status, year of work experience perceive order entry performance and information processing differently. According to the mean score, employees who are less than 25 years old, single and have experience less than three years perceive order entry performance and information processing higher than the other groups. Also, employees who handle different country and different lead time to enter an order perceive order entry performance differently.

Appendix C shows that USA has the highest perception on information processing while Greater China has the lowest perception, which means that the order from customers, sales and internal information of inventory level, production schedule in China have lower clarity and less accuracy. Furthermore, Human Perception shows low mean in all regions, which means majority of the respondents in all regions do not use personal perception or assumption to enter the orders. In addition, Order Entry Performance in Europe and USA regions show very low mean, which means that majority of the respondents in Europe and USA are confident in entering the order properly, without mistake and meet the standard requirement. The possible reason is majority of the respondents in Europe and Asia are from 22-25 years old who are fresh graduates and have less experience. In contrast, Technology System and Effective Communication have high mean in all regions, so most respondents perceive these two variables to have high impact toward order entry performance.

5.3 Theoretical Implications

Based on this study, the empirical findings are aimed as part for discussion. The theoretical contribution, concept and relevance were used to find the factors that impact the improvement of order entry performance and enhance customers' satisfaction. The model was developed from many previous researches and provided the literature in the sense of contributing the knowledge, importance, impacts and factors of order processing. To conclude, a new model was developed on the foundation of existing theories and empirical results. It was combined into new model by referring from many literature reviews to ensure that all relevant factors are considered and included in the research. The previous studies contribute for future research that someone can study further with more factor combinations toward order entry performance.

Most of the studies state that information processing and technology system are crucial toward order entry performance. Lee and Siau (2001) found that the data accuracy and specification from customer's order being processed and analyzed are very important for the quality, value and usefulness to customers and any incorrect or insufficient interpretation of customer's request may generate poor performance. Burgelman (2009) mentioned that technology system has been the important component of business definition and competitive advantage. The earliest computer technology applications in supply chain is probably the order processing area. However, these two variables were sufficient to conclude the factors that impact order entry performance in today's business. Hence, this study added two more variables on the basis of theories for a deeper study, which are effective communication and human perception. Another main impact is also effective communication and the findings are consistent with the study of Obuks, Olalekan and Kachi (2017). They stated that communication is an important player that plays a significant role in the quality of trust, relationship and collaboration among internal and external parties. Inter-firm communication is crucial to order processing and supply chain success.

75

From conclusion of these results, I believe that the present study has many things to be discussed and useful for ABC Company. All independent variables affect order entry performance supporting the theory of Laudon (2004), the effective order processing depends on many factors, such as organizational culture, language barrier, and technical terms. Moreover, the theory supports the model of my research that different perception of technology system, information processing, effective communication, and human perception directly affect order entry performance.

5.4 Managerial Implications

The researcher believes that this research is useful for ABC Company and other companies to understand the factors that impact order entry performance. Firstly, the result can be applied to improve the order entry performance of company and maintain competitive advantage by achieving customers' satisfaction. This study can be a deep insight toward an improvement of the company's performance because wrong order entry could lead to the company's bad reputation and dissatisfaction of customer. A company could focus on the most important dimension that is information processing because any misunderstanding or omitted point could result to customer dissatisfaction through the order fulfillment process. Secondly, the findings show the different perceptions of customer service employee to order entry performance and other independent variables by separate regions. It shows their level of effort and perception toward each variable. Hence, this study provides answers related to how employees of each region perceive order entry performance. Thirdly, this study supports the different perceptions toward technology system, information processing, effective communication, human perception, and order entry performance based on demographic profile of respondent in each region. A company could develop the training package for each region appropriately and adjust the recruitment guideline to have the right person for entering the order and improve order entry performance. For example, company could have special training for employees who are between 26 to 45 years old, married and have work experience of more than three years because these employees have lower mean score compared to the other groups,

which means they perceive order entry performance lower than the others. Lastly, the result of this study can be a part of decision making, planning, controlling, and managerial discussion for the working process to achieve the goals. The company can develop its competency, flexibility, dependability, equity, and integrity to create core competency and maintain competitive advantage over competitors. Also, the result can be a guideline for solving the root cause of order entry performance problem.

5.5 Limitations and Recommendations for Future Research

This research has studied the order entry performance of ABC Company. There are many functions in a company, but the researcher focused only on employees who work in Customer Service function. This research was limited to those areas for several reasons. Firstly, the data collection was focused only in ABC Company. There was a limitation because the questionnaire could not be distributed to employees in another company. It will impact on completeness and accuracy of the study and cannot represent as a whole order processing field. Secondly, the sampling group has different background, various demographic profile, different years of work experience and handle different country. So, the interpretation of questionnaire may differ based on individual team process, country regulation, and order processing policy. The answers given may have an impact on the accuracy and have been distorted. Thirdly, the limitation was due to the sampling group from different regions with different managers. It required much discussion with supervisor and manager to get the permission of doing survey, distributing questionnaire, and collecting the data. Also, each region has different working time, the questionnaire had to be distributed based on each team's working time as well. Lastly, future research could be conducted in another form of data collection to expand the group of respondents and analyze the factors that affect order entry performance at business or industry level. Therefore, the next research is for anybody who is interested in this issue and it is possible to explore more other variables affecting order entry performance. The researchers may investigate in depth for the actual root cause and specific area for improvement.

77

REFERENCES

Almannai, B. R., & Kay, J. G. (2008). A decision support tool based on QFD and FMEA for the selection manufacturing automation technologies. *Robotics and Computer-Integrated Manufacturing, 24*(1), 501-7

Cristian, C., & Talai O. (2014). Communication technology in international business-to-business relationships. *Journal of Business & Industrial Marketing, 29*(1), 24-33. doi:10.1108/JBIM-09-2012-0162

Cecilia, L., & Emilia, R. N. (2017). Information technology and performance in industrial business relationships: the mediating effect of business development. *Journal of Business & Industrial Marketing, 32*(7), 998-1008. Doi:10.1108/JBIM-12-2016-0282

Carman, J. R. (1997). What Have Computers Done for You Lately. *Handling and Shipping, 45*(2), 49-52.

Chan, S.L., & Choi, C.F. (1997). A conceptual and analytical framework for business process reengineering ; Special Issue on Business Process Reengineering. *International Journal of Production Economics, 50*(1)

Chan, J. (2005). Competitive strategies and manufacturing logistics – an empirical study of Hong Kong manufacturers. *International Journal of Physical Distribution & Logistics Management, 35*(1), 20-43.

Chow, W.S., & Lui, K.H. (2001). Discriminating factors of information systems function performance in Hong Kong firms practicing TQM. *International Journal of Operations & Production Management, 21*(5/6), 749-71.

Christopher, P.L. (2014). Characteristics of human perception and their relevance when studying information behavior. *Journal of Documentation, 70*(4), 562-574. Doi :10.1108/ JD-05-2012-0064

Eugene, F.F. (1991). Controlling Costs Through Effective Communication. *Journal of Business Strategy, 12*(6), 59-61. Doi :10.1108/eb039459

Ekman, P., & Windahl, T. (2014). Extending the ERP system: considering the business relationship portfolio. *Business Process Management Journal, 20*(3), 480-501.

Flynn, B., & Flynn, E.J. (2005). Strategies between supply chain management and quality management: emerging implications. *International Journal of Production Research, 43*(16), 3421-3426.

Flynn, B., & Flynn, E. (1990). Empirical research methods in operations management. *Journal of Operations Management, 9*(2), 250-85.

Fisher, C.W., & Kingma, B.R. (2001). Criticality of data quality as exemplified in two disasters. *Information & Management, 39*(2), 109-16

Forza, C., & Salvador, F. (2002). Managing for variety in the order acquisition and fulfillment process: the contribution of product configuration systems. *International Journal of Production Economics, 76*(1), 87-98

Gera, A.W., & Jan, D.V. (2005). Formalising the ordering process to achieve responsiveness. *Journal of Manufacturing Technology Management, 16*(4), 396-410. Doi :10.1108/17410380510594499

Helena, F. (2007). Measuring information quality in the order fulfillment process. *International Journal of Quality & Reliability Management, 24*(5), 515-524

Helena, F., & Stig, M. (2001). Order-to-delivery process performance in delivery scheduling environments. *International Journal of Productivity and Performance Management*, 2008

Kingsman, B., & Deloug, S.A. (1996). Responding to customer enquiries in make-to-order companies: problems and solution. *International Journal of Production Economics, 46*(47), 219-31.

Kritchanchai, D., & MacCarthy, B.L. (1999). Responsiveness of the order fulfillment. *International Journal of Operations & Production Management, 19*(8), 812-33.

Keely, L.C. (2003). The Order Fulfillment Process. The International Journal of Logistics Management, 14(1), 19-32. Doi :10.1108/09574090310806512

Kongkiti, P. (2010). Sustaining effective business value chain: future challenges. *Industrial Management & Data Systems, 110*(8), 1176-1191

James, L.L. (1984). Automatic Order Entry—with a Field Sales Order Entry Management System. *Industrial Management & Data Systems, 84*(7/8), 19-22

Mentzer, J.T. (1981). Technological Developments in Order Processing Systems. *International Journal of Physical Distribution & Materials Management, 11*(8), 15-21. Doi :10.1108/eb014517

Mentzer, J.T. (2003). The Order Fulfillment Process. *The International Journal of Logistics Management, 14*(1), 19-32.

Lin, F.R., & Shaw, M.J. (1998). Reengineering the order fulfillment process in supply chain networks. *The International Journal of Flexible Manufacturing Systems, 10*(1), 197-229.

Lee, C., & Chie, J. (2008). The impacts of organizational culture and learning on innovation performance. *International Journal of Innovation and Learning, 5*(4), 413-28.

Loosemore, M. (1998). The influence of communication structure upon management efficiency. *Construction Management & Economics, 16*(6), 661-671.

Michael, G. (1997). Order completion accuracy - a pragmatic approach. *Logistics Information Management, 10*(2), 57-61.

Malcolm, P. (1990). Customer Service. *Marketing Intelligence & Planning, 8*(7), 16-20. Doi :10.1108/EUM0000000001092

Malcolm, P. (1995). Practical teamwork for customer service. *Team Performance Management: An International Journal, 1*(3), 35-41

Murat T. (2010). Improving "order handling" process by using QFD and FMEA methodologies: a case study. *International Journal of Quality & Reliability Management, 27*(4), 404-423. https:// doi.org/10.1108/02656711011035110

Mack, A. (2003). Inattentional blindness: looking without seeing. *Current Directions in Psychological Science, 12*(5), 180-185.

Kris M.Y., & Kongkiti P. (2010). Critical factors for an effective business value chain. *Industrial Management & Data Systems, 110*(1), 63-77.

Porter M. (1983). The technological dimension of competitive strategy. *Research on Technological Innovation, Management and Policy, 11*(1), 1-33

Redman Y. (1998). The impact of poor data quality on the typical enterprise. *Communications of the ACM, 41*(2), 79-82.

Richard L.H., & Lucy L. (2013). Technology strategy and sustainability of business: Empirical experiences from Chinese cases. *Journal of Technology Management in China, 8*(2), 62-82.

Stephen L.C. (2000). Information technology in business processes. *Business Process Management Journal, 6*(3), 224-237.

80

Srinivasan K., & Jayaraman S. (1999). The changing role of information technology in manufacturing. *IEEE Computer, 32*(3), 42-9.

Ramani, K., & Pavri, F. (1995). Information technology enables business process reengineering at YCH Distripark (Singapore). *Strategic Information Systems, 4*(2), 149-64.

Tan, C.M. (2003). Customer-focused build-in reliability: a case study. *International Journal of Quality & Reliability Management, 20*(3), 378-97.

Tomas F.E., & Manuel R.Z. (2014). Determining the core activities in the order fulfillment process: an empirical application. *Business Process Management Journal, 20*(1), 2-24, https://doi.org/10.1108/BPMJ-01-2013-0012

Vakharia, A.J. (2001). E-business and supply chain management. *Decision Sciences, 33*(4), 495-504.

Waller, M.A., & Seaker, R. (1995). Reengineering order fulfillment. *The International Journal of Logistics Management, 6*(2), 1-10.

Walters, D., & Lancaster, G. (2000). Implementing value strategy through the value chain. *Management Decision, 38*(3), 160-78.

Wing S.C. (2004). The quest for e-fulfillment quality in supply chain. *International Journal of Quality & Reliability Management, 21*(3), 319-328.

Xu, Q.R., & Guo, B. (1998). Perspective of technological innovation and technology management in China. *IEEE Transaction on Engineering Management, 45*(4), 347-365.

Yemisi A., & Douglas M. (2003). The Customer Service Management Process. *The International Journal of Logistics Management, 14*(2), 15-31. doi.org/10.1108/09574090310806576

APPENDICES

APPENDIX A

Questionnaire

FACTORS THAT AFFECT ORDER ENTRY PERFORMANCE IN ABC COMPANY (PRIVATE SECTION)

Which country have you ever handled in order entry? Please specify and continue to Part 1.

       o Greater China (China, Hong Kong and Macau)
       o South Asia (India, Bangladesh, Nepal, Sri Lanka, etc.)
       o Southeast Asia (Thailand, Indonesia, Philippines, Singapore, Malaysia, etc.)
       o East Asia (Korea, Japan, Taiwan)
       o Europe (Belgium, France, Spain, Germany, etc.)
       o United States of America

1. Who mostly provide the order information to you?
       Customer   Sales
       Both

2. Who perform order verification or order data transmission?
       Customer   Sales
       Customer Service

3. How long do you normally take to enter order?
       Less than 15 minutes
       From 16 minutes – 30 minutes
       From 31 minutes – 45 minutes
       From 46 minutes – 1 hour
       Over 1 hour

4. Have you ever edited or cancelled the orders? (If no, please skip question no. 6 & 7)
       Yes   No

5. Have you ever entered the order incorrectly?
       Yes   No

6. Have you ever edited the order incorrectly?
       Yes   No

7. Have you ever cancelled the order incorrectly?
       Yes   No

8. Which functions need to be involved to place an order successfully (Can √ more than one)
    o Sales   o Warehousing
    o Logistic Service Provider (Trucker)   o Freight Forwarder and Shipping Line
    o All of the above

Part II: Construct measurement variables (Check only one)

1 Strongly disagree
2 Disagree
3 Neither agree nor disagree
4 Agree
5 Strongly Agree

		Strongly Disagree			Strongly Agree	
		←				→
TEC	**Technology System**	1	2	3	4	5
1	I believe the current system produces an accurate and up-to-date search result / information of order entry	1	2	3	4	5
2	I believe the current system allow fast information exchange of order entry to internal and external parties	1	2	3	4	5
3	I believe the current system is friendly for user to place the order with full of order data accuracy and completeness	1	2	3	4	5
4	I believe the current system is optimize without system failure	1	2	3	4	5
5	I believe the current system display the orders in standardize format	1	2	3	4	5
6	I believe the current system support the need of real time business communication and enhance collaboration among users	1	2	3	4	5
INF	**Information Processing**	1	2	3	4	5
1	I believe the order details from customer or sales are clearly indicated along with the clearly requirements and specifications	1	2	3	4	5
2	I believe the order details from customer or sales is always accuracy	1	2	3	4	5
3	I believe the information of inventory level, production schedule, the availability and allocation of material are properly updated by internal parties	1	2	3	4	5
EFT	**Effective communication**	1	2	3	4	5
1	I believe both internal and external	1	2	3	4	5

	communication has been effective via phone, email and internet-based data technology					
2	I believe the infrastructure development in the country has an affect towards effective communication technology development	1	2	3	4	5
3	I believe the effective communication is based on trust, relationship, collaboration and partnership	1	2	3	4	5
4	I believe the specific technical terms could lead to miscommunication and misinterpretation among parties	1	2	3	4	5
5	I believe there is cultural and language barrier impact towards miscommunication among parties	1	2	3	4	5
HU M	**Human Perception**	**1**	**2**	**3**	**4**	**5**
1	Sometimes, I use my personal assumption to place order data that missed or apart from order requirement	1	2	3	4	5
2	Sometimes, I miss the information that I don't familiar or don't expect to see which called "in-attentional blindness"	1	2	3	4	5
3	Sometimes, I overlook customer's order specification due to the large extent of details	1	2	3	4	5
4	Sometimes, there is too much information (information overload) which leads to the state of anxiety and/or confusion	1	2	3	4	5
5	Sometimes, I use personal judgement to interpret the meaning of information	1	2	3	4	5
ORD	**Order Entry Performance**	**1**	**2**	**3**	**4**	**5**
1	I am certain that my order entry performance meets and fulfill the standard requirement	1	2	3	4	5
2	I am certain that my order entry is well performed without mistake, error or failure	1	2	3	4	5
3	I usually complete my order entry on time	1	2	3	4	5
4	I am able to finish order entry job by myself successfully	1	2	3	4	5
5	I always use order checklist to improve order entry performance and meet the expectation	1	2	3	4	5

Part III: Personal Profile (Check only one and fill in the blank)

1. Gender
   - Male
   - Female

2. Age
   - Less than 22 years of age
   - 22 - 25 years of age
   - 26 - 35years of age
   - 36 - 45 years of age
   - From 46 years of age upward

3. Marital status
   - Single
   - Married
   - Divorce/ separated
   - Other …………

4. Educational Level
   - Under high school
   - High School
   - Diploma
   - Bachelor degree
   - Master degree
   - Other …………

5. Year of work experience
   - Less than 1 year of experience
   - 1-3 years of experience
   - 4-5 years of experience
   - From 5 years of experience upward

Thank you for your cooperation

APPENDIX B

Questionnaire in Thai language

FACTORS THAT AFFECT ORDER ENTRY PERFORMANCE IN ABC COMPANY (PRIVATE SECTION)

➢ ประเทศไหนที่คุณดูแลเรื่องการระบุคำสั่งซื้อสินค้าลงในระบบ กรุณาระบุและดำเนินต่อใน ส่วนที่ 1

o ภูมิภาคจีน (จีน, ฮ่องกง และมาเก๊า)

o เอเซียใต้ (อินเดีย, บังกลาเทศ, เนปาล, ศรีรังกา, และอื่นๆ)

o เอเซียตะวันออกเฉียงใต้ (ไทย, อินโดนิเซีย, ฟิลิปปินส์, สิงคโปร์, มาเลเซีย และอื่นๆ)

o เอเซียตะวันออก (เกาหลี, ญี่ปุ่น และไต้หวัน)

o ยุโรป (เบลเยี่ยม, ฝรั่งเศษ, สเปน, เยอรมัน และอื่นๆ)

o สหรัฐอเมริกา

1. ใครเป็นผู้ให้ข้อมูลรายละเอียดคำสั่งซื้อสินค้ากับคุณ
   ลูกค้า   ฝ่ายขาย
   ทั้งคู่

2. ใครเป็นผู้ตรวจสอบความถูกต้องและรายละเอียดของคำสั่งซื้อสินค้า
   ลูกค้า   ฝ่ายขาย
   แผนกลูกค้าสัมพันธ์

3. ระยะเวลาในการระบุคำสั่งซื้อสินค้าลงในระบบต่อครั้ง

   น้อยกว่า 15 นาที

   ระหว่าง 16 นาที ถึง 30 นาที

   ระหว่าง 31 นาที ถึง 45 นาที

   ระหว่าง 46 นาที ถึง 1 ชั่วโมง

   มากกว่า 1 ชั่วโมง

4. คุณเคยแก้ไขหรือยกเลิกคำสั่งซื้อสินค้าในระบบหรือไม่? (หากไม่เคย, กรุณาข้ามข้อ 6 และ 7)
   เคย   ไม่เคย

5. คุณเคยระบุคำสั่งซื้อสินค้าลงในระบบผิดพลาดหรือไม่

89

◻ เคย   ◻ ไม่เคย

6. คุณเคยแก้ไขคำสั่งซื้อสินค้าในระบบผิดพลาดหรือไม่

     ◻ เคย   ◻ ไม่เคย

7. คุณเคยยกเลิกคำสั่งซื้อสินค้าในระบบผิดพลาดหรือไม่

     ◻ เคย   ◻ ไม่เคย

8. แผนกใดที่มีความจำเป็นต่อความสำเร็จในการระบุคำสั่งซื้อสินค้าลงในระบบ (สามารถเลือกได้มากกว่าหนึ่งข้อ)
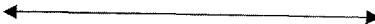
     o ฝ่ายขาย   o ฝ่ายคลังสินค้า

     o ฝ่ายขนส่งรถบรรทุก   o ฝ่ายตัวแทนการส่งสินค้าและฝ่ายสายเรือ

     o ทั้งหมดทุกข้อ

Part II: Construct measurement variables (Check only one)

1 ไม่เห็นด้วยอย่างยิ่ง
2 ไม่เห็นด้วย
3 เฉยๆ
4 เห็นด้วย
5 เห็นด้วยอย่างยิ่ง

		Strongly Disagree				Strongly Agree
TEC	**Technology System**	**1**	**2**	**3**	**4**	**5**
1	ฉันเชื่อว่าระบบการระบุคำสั่งซื้อสินค้าในปัจจุบันสามารถแสดงข้อมูลที่แม่นยำและทันสมัย	1	2	3	4	5
2	ฉันเชื่อว่าระบบการระบุคำสั่งซื้อสินค้าในปัจจุบันมีความรวดเร็วในการแลกเปลี่ยนข้อมูลการสั่งซื้อระหว่างส่วนงานทั้งภายในและภายนอก	1	2	3	4	5
3	ฉันเชื่อว่าระบบการระบุคำสั่งซื้อสินค้าในปัจจุบันมี	1	2	3	4	5

90

	ความเอื้ออำนวยต่อผู้ใช้ในการกรอกข้อมูลการสั่งซื้อให้เสร็จสมบูรณ์					
4	ฉันเชื่อว่าระบบการระบุคำสั่งซื้อสินค้าในปัจจุบันถูกพัฒนาให้เหมาะสมโดยปราศจากข้อผิดพลาดของระบบ	1	2	3	4	5
5	ฉันเชื่อว่าระบบการระบุคำสั่งซื้อสินค้าในปัจจุบันแสดงข้อมูลในรูปแบบมาตรฐาน	1	2	3	4	5
6	ฉันเชื่อว่าระบบการระบุคำสั่งซื้อสินค้าในปัจจุบันสนับสนุนความต้องการในการสื่อสารทางธุรกิจแบบทันทีและเพิ่มการร่วมมือระหว่างผู้ใช้	1	2	3	4	5
INF	**Information Processing**	**1**	**2**	**3**	**4**	**5**
1	ฉันเชื่อว่าข้อมูลการสั่งซื้อสินค้าจากลูกค้าหรือฝ่ายขายมีการระบุรายละเอียดและเงื่อนไขไว้อย่างชัดเจน	1	2	3	4	5
2	ฉันเชื่อว่าข้อมูลการสั่งซื้อสินค้าจากลูกค้าหรือฝ่ายขายมีความถูกต้องและแม่นยำเสมอ	1	2	3	4	5
3	ฉันเชื่อว่าข้อมูลของจำนวนสินค้าคงคลัง, ตารางการผลิต, ความพร้อมและการจัดสรรสินค้า มีการแสดงผลอย่างถูกต้องจากหน่วยงานภายใน	1	2	3	4	5
EFT	**Effective communication**	**1**	**2**	**3**	**4**	**5**
1	ฉันเชื่อว่าการสื่อสารของทั้งหน่วยงานภายในและภายนอกมีประสิทธิภาพผ่านช่องทางโทรศัพท์ อีเมล และเทคโนโลยีทางอินเตอร์เน็ต	1	2	3	4	5
2	ฉันเชื่อว่าการพัฒนาระบบสาธารณูปโภคภายในประเทศมีผลกระทบต่อประสิทธิภาพของความก้าวหน้าในเทคโนโลยีการสื่อสาร	1	2	3	4	5
3	ฉันเชื่อว่าการสื่อสารที่มีประสิทธิภาพนั้นเกิดจากความไว้วางใจ ความสัมพันธ์ การร่วมมือและการเป็นหุ้นส่วนทางธุรกิจ	1	2	3	4	5
4	ฉันเชื่อว่าคำศัพท์ทางเทคนิคที่เฉพาะเจาะจงนั้นอาจ	1	2	3	4	5

	นำไปสู่การสื่อสารผิดพลาดและการตีความหมายผิด ระหว่างฝ่ายได้					
5	ฉันเชื่อว่าความแตกต่างทางวัฒนธรรมและภาษามี ผลกระทบต่อการสื่อสารผิดพลาดระหว่างฝ่ายได้	1	2	3	4	5
HU M	**Human Perception**	**1**	**2**	**3**	**4**	**5**
1	บางครั้งฉันใช้ สมมติฐานส่วนตัวในการระบุคำสั่งซื้อ สินค้าลงระบบ ซึ่งแตกต่างและนอกเหนือจากความ ต้องการของใบสั่งซื้อ	1	2	3	4	5
2	บางครั้งฉันพลาดข้อมูลที่ไม่คุ้นเคยหรือไม่คาดคิดที่จะ เห็น ซึ่งเรียกว่า การมองผ่านโดยไม่ตั้งใจ	1	2	3	4	5
3	บางครั้งฉันมองข้ามข้อกำหนดในรายละเอียดคำสั่งซื้อ ของลูกค้าเนื่องจากข้อมูลที่มากเกินไป	1	2	3	4	5
4	บางครั้งข้อมูลและรายละเอียดที่มากเกินไป ทำให้ฉัน เกิดอาการวิตกกังวล และ/หรือสับสน	1	2	3	4	5
5	บางครั้งฉันใช้วิจารณญาณส่วนตัวเพื่อแปลความหมาย ของรายละเอียดคำสั่งซื้อ	1	2	3	4	5
ORD	**Order Entry Performance**	**1**	**2**	**3**	**4**	**5**
1	ฉันมั่นใจว่าการระบุคำสั่งซื้อสินค้าของฉันในระบบ เป็นไปตามมาตรฐานที่กำหนดไว้	1	2	3	4	5
2	ฉันมั่นใจว่าการระบุคำสั่งซื้อสินค้าของฉันในระบบ เป็นไปด้วยดี โดยไม่มีข้อผิดพลาด	1	2	3	4	5
3	ฉันมักระบุคำสั่งซื้อสินค้าลงในระบบตรงต่อเวลา	1	2	3	4	5
4	ฉันสามารถระบุคำสั่งซื้อสินค้าลงในระบบให้เสร็จ ด้วยตัวฉันเอง	1	2	3	4	5
5	ฉันจะทำการตรวจสอบคำสั่งซื้อสินค้าในระบบทุกครั้ง ก่อนบันทึก เพื่อพัฒนาประสิทธิภาพและเป็นไปตาม มาตรฐานที่กำหนด	1	2	3	4	5

Part III: Personal Profile (Check only one and fill in the blank)

1. เพศ
   - ชาย
   - หญิง

2. อายุ
   - น้อยกว่า 22 ปี
   - ระหว่าง 22 – 25 ปี
   - ระหว่าง 26 – 35 ปี
   - ระหว่าง 36 – 46 ปี
   - ตั้งแต่ 46 ปีขึ้นไป

3. สถานะ
   - โสด
   - แต่งงาน
   - หย่าร้าง/แยกทาง
   - อื่นๆ ....

4. ระดับการศึกษา
   - ต่ำกว่ามัธยมศึกษา
   - มัธยมศึกษา
   - อาชีวะศึกษา
   - ปริญญาตรี
   - ปริญญาโท
   - อื่นๆ ....

5. ประสบการณ์การทำงาน
   - น้อยกว่า 1 ปี
   - ระหว่าง 1-3 ปี
   - ระหว่าง 4-5 ปี
   - ตั้งแต่ 5 ปีขึ้นไป

ขอบคุณสำหรับความร่วมมือ

APPENDIX C

Table of Mean, Standard Deviation and Opinion Level of employees toward Order
Entry Performance

Table 4.29: Mean, Standard Deviation and Opinion Level of employees toward Order Entry Performance

	East Asia			Europe			Greater China			South Asia			USA		
	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion
TEC1	3.76	0.83	Normal	4.20	0.82	Agree	3.93	0.80	Normal	3.83	0.70	Normal	4.10	0.91	Agree
TEC2	3.68	0.63	Normal	3.96	0.68	Normal	3.79	0.66	Normal	3.77	0.57	Normal	4.00	0.79	Agree
TEC3	3.00	0.71	Normal	3.68	0.90	Normal	3.62	0.69	Normal	3.73	0.64	Normal	3.70	0.73	Normal
TEC4	3.48	0.77	Normal	3.84	0.99	Normal	3.90	0.79	Normal	3.57	0.77	Normal	3.90	0.91	Normal
TEC5	3.68	0.63	Normal	4.20	0.65	Agree	3.91	0.72	Normal	3.70	0.65	Normal	3.95	0.76	Normal
TEC6	3.52	0.51	Normal	3.76	0.88	Normal	3.76	0.77	Normal	3.47	0.68	Normal	4.10	0.85	Agree
Total	3.52	0.72		3.94	0.84		3.82	0.75		3.68	0.67		3.96	0.82	

	East Asia			Europe			Greater China			South Asia			USA		
	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion
INF1	2.87	1.07	Normal	2.92	1.14	Normal	2.67	1.19	Normal	2.70	1.19	Normal	3.10	1.01	Normal
INF2	2.59	0.83	Normal	2.80	1.10	Normal	2.45	0.99	Normal	2.47	0.99	Normal	3.00	0.96	Normal
INF3	3.03	0.81	Normal	3.08	1.02	Normal	2.45	1.01	Normal	2.80	1.04	Normal	2.90	0.63	Normal
Total	2.83	0.92		2.93	1.08		2.45	1.07		2.65	1.08		3.00	0.87	

	East Asia			Europe			Greater China			South Asia			USA		
	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion
EFF1	3.60	0.71	Normal	3.72	0.74	Normal	3.67	0.68	Normal	3.83	0.75	Normal	3.75	0.64	Normal
EFF2	3.92	0.70	Normal	3.96	0.73	Normal	3.97	0.72	Normal	4.10	0.80	Agree	4.00	0.73	Agree
EFF3	4.20	0.71	Agree	4.16	0.75	Agree	4.16	0.74	Agree	4.33	0.76	Agree	4.35	0.67	Agree
EFF4	4.32	0.75	Agree	4.12	0.88	Agree	4.21	0.78	Agree	4.27	0.78	Agree	4.40	0.68	Agree
EFF5	4.00	0.91	Agree	4.16	0.85	Agree	4.14	0.82	Agree	4.30	0.79	Agree	4.30	0.66	Agree
Total	4.01	0.79		4.02	0.80		4.03	0.77		4.17	0.79		4.16	0.71	

Table 4.29: (Continued)

	East Asia			Europe			Greater China			South Asia			USA		
	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion
HUM1	2.72	0.98	Normal	2.76	0.93	Normal	2.67	1.09	Normal	2.43	1.10	Normal	2.45	1.28	Normal
HUM2	2.96	0.89	Normal	2.84	1.11	Normal	2.88	1.12	Normal	2.57	1.14	Normal	2.60	1.19	Normal
HUM3	2.40	1.26	Normal	2.44	1.33	Normal	2.55	1.39	Normal	2.27	1.41	Normal	2.35	1.50	Normal
HUM4	3.28	1.10	Normal	2.80	1.22	Normal	3.00	1.19	Normal	2.70	1.21	Normal	2.85	1.39	Normal
HUM5	2.76	0.93	Normal	2.68	1.07	Normal	2.81	1.08	Normal	2.67	1.18	Normal	2.75	1.21	Normal
Total	2.82	1.06		2.70	1.13		2.78	1.19		2.53	1.21		2.60	1.30	

	East Asia			Europe			Greater China			South Asia			USA		
	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion	Mean	S.D.	Opinion
ORD1	2.91	1.21	Normal	1.84	0.89	Disagree	3.06	1.37	Normal	3.04	1.24	Normal	1.75	0.72	Disagree
ORD2	2.95	1.30	Normal	1.80	0.81	Disagree	3.00	1.35	Normal	2.94	1.17	Normal	1.70	0.57	Disagree
ORD3	3.11	1.44	Normal	1.92	1.11	Disagree	3.10	1.46	Normal	3.21	1.37	Normal	1.70	0.57	Disagree
ORD4	3.19	1.49	Normal	1.92	1.11	Disagree	2.98	1.46	Normal	3.17	1.31	Normal	1.75	0.72	Disagree
ORD5	3.11	1.39	Normal	1.88	1.05	Disagree	3.07	1.41	Normal	3.04	1.19	Normal	1.80	0.89	Disagree
Total	3.05	1.35		1.87	0.99		3.04	1.41		3.08	1.24		1.74	0.69	

96

Siam
safety.com

Kit for Safety and Environment Limited

present this certificate to certify that
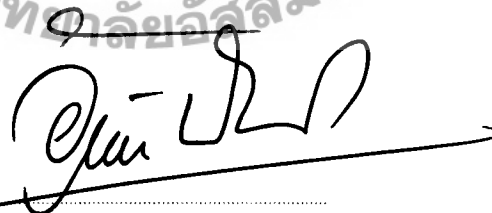
DARANEE   SIRISAJJAKOON

has passed the training and workshop in the course of

"Occupational Safety, Health and Environment for General and New Employees"

In accordance with the Notification of the Department of Labour Protection and Welfare on the Criteria, Methods of Training for Management,
Supervisors and Employees regarding Occupational Safety, Health and Environment at Work B.E. 2554 (2011),
Clause 7(1) and (2) by Kit For Safety and Environment Ltd. And Clause 7(3) by Esso (Thailand) Public Company Limited / ExxonMobil Limited

on the 8th day of January 2018, with 3 hours training session

given on the 8th day of January 2018

_____
Miss Anchana Buawaranon
Technical Service Manager

Certificate No. 18/4000009

ExxonMobil

Safety Health and Environment

Basic Safety Training Certificate

THIS IS TO CERTIFY THAT

Daranee Sirisajjakoon

Attended The ExxonMobil Basic Safety Training Course – 3 hours

On the 8th day of January 2018, At Marriott Executive Apartments Sukhumvit Park

This course is to fulfill the requirement of MOL's notification.

ประกาศกรมสวัสดิการและคุ้มครองแรงงาน เรื่อง หลักเกณฑ์ วิธีการ และเงื่อนไขการฝึกอบรมผู้บริหาร หัวหน้างาน และลูกจ้าง

ด้านความปลอดภัย อาชีวอนามัย และสภาพแวดล้อมในการทำงาน พ.ศ.2555

WITAYA SANSNAPONGPRECHA
SSHE SUPERVISOR

DR. BOWORNSAK WANICHKUL
ASIA PACIFIC SSH&E ADVISOR (THAILAND)