CHAPTER I

INTRODUCTION

A. Background

Thurow (1999) defined three remarkable phases in industrial revolution which began at the end of the eighteenth century until present, during which economic activities for each phase are performed in different ways. The first industrial revolution, triggered by the invention of steam engine, brought agricultural wealth creation to its end and opened up opportunities previously impossible to do by animals or humans. Electrification and the invention of systematic industrial research and development at the beginning of the twentieth century had led to the second industrial revolution. The expansion of electricity use and technological frontiers moved outward much more rapidly than in the past. The second industrial revolution was also highlighted by the inclination of local economies and the emergence of new national economies.

Today a third industrial revolution is under way. Technologies are changing more rapidly than ever before and transforming all facets of life. The invention of internet permits faster and cheaper flow of information than the previousphases and microelectronics contributes lots of innovation in the telecommunications industry. Computers are changing how machines and engines work. Just as the second industrial revolution moved from local to national economies, so the third industrial is moving from national economies to a global economy. The technological breakthroughs had led the economies to a broader horizon in which activities and technologies were managed in different ways causing substantial changes on how firms run their business. At the same time, customers continue to expect more from any products and services than what is offered in the market place. Consequently, firms expand their focus beyond local market, eventually creating a global-wide competition.

Clarke and Clegg (1998) described how globalization in the last decade brough about a great deal of transformation in international economy and trade:

all forms of economic activities are eventually regarded on a global basis. Investment, research and development, production, distribution and marketing are becoming increasingly globalized in a growing number of industries and products. Globalization of industry refers to an evolving pattern of cross border activities of firms, involving international investment, trade and collaboration for purposes of product development, production and sourcing, and marketing. These international activities enable firms to enter new markets, exploit their technological and organizational advantages and reduce business costs and risks. Economic globalization has resulted in a tight competition in technology, products and services. Customer behaviour towards quality of products and services changes rapidly and leads market to an increasingly competitive environment.

Handfield (2002: 14) affirmed that to survive, many organizations today must increase market share on a global basis while simultaneously defending their domestic market from international competitors to sustain growth objectives. To meet this challenge, these companies are seeking ways to expand their global logistics and distribution networks, in order to ship products to the customers who demand them in a dynamic and rapidly changing set of market channels. This requires an effective management of materials flow across the supply chain to achieve global growth objectives and generate financial returns.

The ever-changing demands for greater level of responsiveness, shorter cycle time for high-quality goods, and, for services at lower price eventually have changed how businesses are run today. As firms aim their strategies at meeting this market requirement, managing an effective business process and coordinating an efficient supply chain becomes a critical issue. Deployment of an ineffective business process will result in an inefficient supply chain and will threaten a firm's competitive advantage.

The challenge of managing supply chain derives from the uncertainty and complexity present across the supply chain. Problems associated with poor supply chain management such as delayed deliveries, excessive inventory and production shortage are mostly caused by poor coordination between supply chain stages. Many approaches were then developed to avoid these problems

and increase efficiency in supply chain. In fact, many firms began to develop an integrated supply chain in order to maintain a close linkage and coordination of its resources: product, service and fund. Establishing an integrated supply chain (Handfield, 2002: 39) which provides end customers and supply chain member organizations with the required materials, in the proper quantities, in the desired form, with appropriate documentation, at the desired location, at the right time, and at the lowest possible cost, lies at the heart of supply chain management.

Effective supply chain management is viable to achieve when information are available at the right time to any party of supply chain requiring it. Information availability enables supply chain member to respond effectively when problems arise. For instance when a shipment delayed due to production or due to raw material supply problems, and when the relevant information is instantaneously passed through, other related parties can act promptly to establish a rescheduling initiative. Concisely, lack of information or distorted information passed from one end of the supply chain to the other can create significant problems, including, but not limited to, excessive inventory investment, poor customer service, lost revenues, misguided capacity plans, ineffective transportation, and missed production schedules. These are not deliberate attempts to sabotage the performance of supply chain members. Rather, distorted information throughout the supply chain is a common result of what have been termed as the *bullwhip effect* (Handfield, 2002: 295). *Bullwhip effect* is a key issue in supply chain because its existence can damage the overall supply chain performance. Many companies struggle to overcome this phenomenon by developing information system which enables close linkage and coordination between functions and members of the supply chain.

The increasingly need for an integrated supply chain system induces rapid development of supply-chain application software. Technological breakthroughs have offered solutions to supply chain problem and other needs since early 1960s (Handfield, 2002: 17), when business computing first emerged. Wireless applications and software are enabling companies to do things considered impossible in the past. These systems raise accuracy, frequency and speed of communication among its internal sub divisions and in its broader application,

between suppliers and customers. Handfield (2002: 90) regards key to using information systems to develop and maintain succesful supply chain is the need for virtually seamless linkages within and between organizations. Information systems such as computer networks and ERP (Enterprise Resource Planning) are enabling companies to re-engineer their supply chain processes such as customer order management, supplier evaluation and selection, and new product development.

ERP systems have a broad range of application and are designed to meet efficient supply chain requirements. A successful implementation of ERP systems typically result in a low inventory stock, quick and timely access to information, and better customer service. With ERP system in place, the objective of supply chain management to generate maximum profit can more likely be achieved than using traditional means. However, inspite of the potential of big benefits, it may face hurdles and constraints during the implementation process which consequently decrease its overall effectiveness. Many companies are not prepared to adopt the system properly due to lack of fundamental supply chain infrastructure required to apply the technology across the supply chain functions.

In order to attain the objective of system application, company must first address the flaws in their internal supply chain. Several issues associated with successful ERP implementation range from decision of implementation to organizational structure and culture. Critical drivers such as trust, particularly sharing data between functions requires a fundamental change in the organization culture. Information-system application in itself is unlikely to reach its full potential when unwillingness to share information is still present. In other words, organizations must be willing to share risk and build the underlying infrastructure if they are to adopt advanced information system tool, such as ERP system, successfully.

Given the amount of organizational and process change (Reddy, 2001: 15) that a firm and its supply chain have to go through, selecting and installing a technology suite that addresses all of the supply chain management areas are challenging tasks. The track record of ERP systems, which call for significant process and organizational change, has not been very good. Generally, the

failures were not the result of poor technology; rather, the amount of process and organizational and process change needed to successfully utilize the technology were underestimated. Firms that were able to successfully implement the necessary organizational and process changes were characterized by strong leadership from the top. Therefore, continuous support from top management before and after going-live system implementation is critical for the success of the system implementation to generate maximum benefits from the system. Furthermore, firms should ensure that the organization culture and its business processes are aligned to support effective utilization of the technology. Otherwise, the system is in place but cannot work properly which makes its implementation less effective than it should.

Another critical driver of a successful system implementation is the availability of a proper on-going training and education. Providing adequate training for all employees and communicating firm's objectives clearly will eventually enhance business performance. Only by integrating all existing resources, processes, people and the underlying system, will ERP system operates in an effective manner, and, in turn, enables the firm to generate maximum benefits out of it.

B. Problem Statement

The complexity and associated problems of managing supply chain has been an increasing issue since the term of globalization first emerged. As more products and services become available than ever before in the global market, customers demand shorter cycle time, better quality products and better services, resulting in an increasingly competitive landscape. The need to meet these market challenges has induced the development of information technology and design systems to be used by organizations to keep pace with customers requirement in ways of speed, accuracy and reliable information.

The emergence of sophisticated information system such as ERP (Enterprise Resource Planning) to manage supply chain is regarded as a promising enabler to closely meet the market demand. When implemented

successfully, ERP system provides a capability for organizations to enhance customers satisfaction, that is, shorter lead time and accurate information. Eventually, ERP system implementation results in an efficient suply chain that helps generate maximum profit while reduces unnecessary costs across the supply chain.

Given the opportunity to yield more benefits offered by globalization, XYZ Corporation has long embarked on an expansion of its market share. The goal of continously providing its customer with best products and excellent customer service is established while reducing unnecessary costs across its supply chain. As XYZ Corporation aims its strategy to customer satisfaction focus, re-engineering the supply chain is considered as an indispensable initiative. Realizing its business nature as a global company with with operating plants and sales representative offices around the world, XYZ Corporation is aware of the need for an adequate information system to manage its supply chain and to execute corporate's winning strategy, that is, to win global competition through cost leadership.

Information technological breakthrough offers a promising software innovation to meet the need for integrating business processes in order to attain an efficient suply chain. Understanding the benefits of its utilization, XYZ Corporation applies ERP system to support its business processes and manage supply chain within XYZ Corporation sales offices and plants, including PT. XYZ Indonesia which will be the subject of this case study. Relying on its capabilities to establish effective communication between supply chain members and efficient business processes throughout XYZ Corporation, corporate's objective of consistently providing its customers with best products and service in a reliably and timely manner would be viable.

ERP system has been implemented to manage business processes for more than 4 years at PT. XYZ Indonesia (a plant and subsidiary of XYZ Corporation operating in Indonesia). During this period, interorganizational business and communication processes has been improved significantly. Through real time and seamless information linkage, the cycle time and decision making process has decreased exponentially. However, despite of superior

benefits offered by ERP system compared to its predecessor, the legacy system, many ERP system users at PT. XYZ Indonesia are not aware of its full utilization. PT. XYZ Indonesia employees view ERP system as a better way of doing their works, yet business-related activities performed traditionally still spans the daily operations and business processes. Even when real-time information can be easily captured from the system, ERP system users tend not to rely on it for sharing and obtaining the required information.

Anothey key issue in ERP system implementation is associated with application modules and user's role and responsibility which sometimes viewed to be rigid for information-sharing requirements. Users then seek ways to circumvent these problems in various ways, for instance via spreadsheets utilization and traditional information sharing (through phone or e-mail communication). This situation reveals the facts that in some conditions, the system implementation is less effective than it promises.

Related to the facts mentioned in the above passage, research questions to address are as follows:

What are the impacts of ERP system on supply chain performance of PT. XYZ Indonesia and what are the hurdles in its implementation?

C. Purpose and Significance of Research

C.1. Purpose of Research

Research is designed to evaluate the current performance of ERP system implementation at PT. XYZ Indonesia against best practices. In particular, the research attempts to reveal the existing benefits as well as hurdles affecting the system effectiveness.

C.2. Significance of Research

1. From an Academic Point of View

    1.1. To provide an overview and understanding to the author and academic members how successful ERP system implementation will result in an efficient supply chain and how to manage possible constraints which can decrease the system's effectiveness.

    1.2. The research also attempts to point out the importance of implementing ERP system against best practices in order to gain potential benefits and overcome hurdles influencing the ERP system's effectiveness

2. From a Practical Point of View

    To provide recommendation for PT. XYZ Indonesia for business processes improvement purposes and to obtain full benefits of ERP system implementation. By means of which, company will be able to provide better service to customers and sustain its competitive advantage.

D. Organization of Thesis

The organization of this thesis is divided into 5 (five) chapters with the following details:

CHAPTER I INTRODUCTION

This chapter describes the problem background, the problem structure, the research purpose and its significance, and organization of the thesis. The problem background describes how a technological application, in this case the ERP system, has transformed the way business is run in the third industrial

revolution. The significance of this research is particularly to provide an overview about ERP system application and culture underlying the system environment and to develop a guide for a better system application.

CHAPTER II THEORETICAL FRAMEWORK AND RESEARCH METHOD

This chapter contains the theoretical framework from various published resources, underlying the structure of the problem. The description of research method consists of data collection method, data analysis and the technique of Oliver Wight ABCD Checklist, research objectives and its limitation.

CHAPTER III OVERVIEW OF THE RESEARCH OBJECT

This chapter describes an overview on the nature and characteristic of the research object, in this case, PT. XYZ Indonesia, a subsidiary of global XYZ Corporation.

CHAPTER IV RESEARCH FINDINGS

This chapter is an explanation about the findings derived from the survey as well as analysis within the relevant theoretical framework. Research findings on ERP system application were based on the Oliver Wight ABCD checklist and reveal the impacts of the application on supply-chain performance of PT. XYZ Indonesia.

CHAPTER V CONCLUSION AND RECOMMENDATION

This chapter provides conclusion based on research findings as well as recommendations for PT. XYZ Indonesia.