

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

#### 1.1.1 Background Topic

The key to success for distributorship or stockists is to operate in efficient manner, turn inventory over quickly and handle minor logistics and import issues smoothly. One major problem that happens in supply chain and distribution world is lack of traceability, fragmented information between the suppliers and customers, and failure to track inventory from the logistics to a repository. Fortunately, the utilization of information technology has resolved problems faced in supply chain industry such as purchasing and inventory issues. According to Khan et al. (2016), the fundamental usage of IT tools and information systems helps the business to gain the ability to respond better to market changes and stay competitive across its chain of supply, especially in a distributorship company that handles the flow of supply chain connectivity.

In process reengineering terms, according to Davenport, processes are redesigned from an end-to-end perspective in the senses of organizational goals, and intensely capitalize the potential of IT as major driver for innovation (Brocke & Rosemann, 2015). Hence, utilization of information technology is required to give business greater insight, control, data visibility, process efficiency across the entire supply chain, especially in purchasing and distribution companies. New technologies not only allow increase in efficiency and flexibility, but also modify the relationship between the levels of supply chain and importance of consumer (Canella et al., 2018).

Many major distributors and manufacturers have realized the usefulness of systems to improve on managing their business, and one of the choices of implementing computerized company functions is by using Business Process Reengineering (BPR) method. Manufacturing or service companies apply BPR because BPR improves overall quality by reducing disintegration of work and establish well-defined process ownership (Jha et al., 2016). BPR takes fundamental

level changes in organizations, to enable them to maximize competitiveness. BPR enables companies to invest in recent smart technology and leverage business process management tools from business reports to predictive analysis in real-time.

BPR is important because it enables acceleration of cycle and process efficiency and is necessary as a response to changes in economic environment, in accordance with the subject, PT Kusuma Kemindo Sentosa. Although BPR has been recognized by many companies, BPR is not widely used. Thus, this project will use Business Process Management (BPM), a more incremental approach to process improvement as a framework as a guideline to access company's end-to-end processes. While the company's overall supply chain consists of a subset of their embedded end-to-end core and support process, it builds a platform to evaluate and optimize the whole process foundation. In addition, regarding the improvements, an integrated system of procurement and inventory management using data-driven decision making that will be applied to this thesis in order to formulate efficient procedures and controls, transforming the company processes to more ideal version.

BPM helps organizations build standpoint to identify supply chain processes before implementing any technology. The goal is preparing business processes to be optimized with computerization towards automation and real-time data processing in the supply chain. This will ensure consistency and faster execution to speed up processes while maintaining accuracy. Using BPM, company's overall processes and their supply chain goals can be achieved.

### **1.1.2 Company Background**

PT Kusuma Kemindo Sentosa is a national importer, stockist company that engages in trade and distribution fields. The company specifically focus on dealing in industrial, food, and mostly on specialties chemicals. The company has been in the industry since 1990. With more than 29 years of valuable knowledge and experience, they have become a progressively growing distribution company in Indonesia. As an importer and distribution company, PT Kusuma Kemindo Sentosa plays a big role in supply chain elements such as planning, shipping, storing, and tracking process. Although these components can be influenced by and heavily rely on the lead time,

process duration and control, the company still uses conventional procedures and systems to run the business.

PT Kusuma Kemindo Sentosa in carrying out its business activities, there is still a lack of process optimization that occurred in the day-to-day transaction processes which reveal a whole lot of room for improvement. The company may have utilized an antiquated basic software system in the past. However, it no longer supports the growing trend of supply chain ecosystem. Current procedure and system managing the procurement still relies on manual form handling and manual data entry in inventory recording that may trigger human error and cause buffer in business. As a result, the company encounter issues from inaccurate business insights that affect decision making, therefore lead to a loss that disrupts activities and of business opportunity.

While their mission is to continuously innovate their supply chain management and product, the author is motivated to work on measuring the scope of work, thus figuring out that some of their supply chain processes may be remodelled. One of best candidates is using BPM implementation framework to remodel and eliminate efficiencies of their business process in supply chain environment. As BPM involves automating and standardizing end-to-end processes, it will be suitable to achieve company's supply chain goals: inventory optimization, internal control, faster and accurate processes, and minimize errors. Through the thesis paper, the author will create an assessment of analysis and design implementation using BPM of current listed end-to end process of the company with detail in supply chain process in the company through process revamp towards optimization, in which the inventory management and procurement activity particularly occurs in the process cycles.

### **1.1.3 Problem Identification**

The company happened to encounter lack of information and delay as main issue. Mainly the company issues can be felt through the lower income, rise of cost of production, slower performance time and excessive number of documents are being generated by the inefficient administration. By looking at company's end-to-end process from sales to supply chain, the current problem happened in the company can

be listed, and will be resolved in the research by the author, herewith collected from the company:

1. Lack of business agility to compensate the fluctuate change of lead time in product import, usually happens because of a long queue in the harbour. It produces carrying costs and stock-out costs (high operating expenses and undesirable costs)
2. There is a need for an integrated procurement system for automated procurement documentation using electronic data interchange.
3. A need in process optimization for the gap in business processes and internal control has way too much authorization, also the current standard of procedures is too lengthy.
4. A risk of data entry error and time-consuming processes because the need of handling many calculation and analysis in a transaction.
5. A need to redesign company's information architecture phasing out of old application to web services systems.
6. Missing warehouse management and inventory functions;
  - a. There are still document related activities created using single manual forms such as delivery note, goods receipt note.
  - b. Very limited technology usage. Stock placement and transfer are still using manual documentation, and no stock-taking feature.
  - c. The need for implementing inventory forecasting for purchasing department to optimize inventory control and replenishment.

## **1.2 Scope**

The scope of this thesis is defined to 2 main points, which are:

1. Business Process Reengineering

The author will focus on business process reengineering using Business Process Management implementation framework that will be used to understand the analysis of the business foundation and two current main processes in supply chain, which are the procurement process and inventory management. This to find new avenues to create desirable solutions for both business and information technology implementations through the set of requirements.

2. Analysis and design of an integrated procurement with the new inventory management systems
  - a. Design new procedures and functions
    - i. **Automated Procurement Cycle** which includes new standard of procedures and system design for requirement determinations (purchase requisition), source of supply determinations as well as supplier selections, order processing, PO monitoring, and support automated document workflow using EDI for data collection with the suppliers/principals. The new procurement process will follow trigger from inventory management.
    - ii. **Streamlined Inventory Management** related to stock recording and inventory control which includes the following:
      - Minimized data entry for daily transaction documents. Re-innovated stock placement/movement and tracking, stock-taking, stock level balance for demand forecast. In addition, there will be newly created data entry supported with RFID or barcoding in warehouses and logistics as an accurate SKU identifier to better track the stock, and authorization for internal control.
      - Dashboard information regarding inventory level monitoring and inventory analysis report will be determined using formulation of accounting inventory valuation and determination of forecasting parameters such as economic order quantity and reorder-point formula from real-time data processing.
  - b. Prototype new system architecture and new data warehouse design using diagrams, flowchart and user interfaces required for development part in BPM framework.

### **1.3 Aims and Benefits**

#### **1.3.1 Aims**

The purpose of making the thesis is defined into 3 main key objectives. These includes:

1. To analyse current processes, discover problems and configure updates to initiate changes in PT Kusuma Kemindo Sentosa.

2. To design an integrated supply chain infrastructure and process optimisation, regarding procurement and inventory control efficiency.
3. To design a collaboration between practical systems that are streamlined and restructured as a means of establishing sustainable inventory management combined with strategic automated procurement management information systems.
4. To establish a proposed supply chain driver with best combination of efficiency and high responsiveness rate within the company

### **1.3.2 Benefits**

Benefits obtained using objective results (2.3) from the thesis are for:

1. PT Kusuma Kemindo Sentosa will be able to have restructured system integration with real-time data processing and total visibility seen through the dashboard.
2. Improve levels of productivity and decrease in time and cost, through elimination of redundant business processes.
3. Increase in information accuracy, advanced internal control of purchasing, inventory performance analysis and forecasting through information systems.
4. Fulfil end-user customer satisfaction by enabling on time delivery, minimized cost of inventory shortage, reducing operational expenses and inventory bottlenecks at once.

### **1.4 Research Questions**

1. What are the most significant key variables of process analysis to be explored in the research?
2. How does BPM affect company's fundamental business process problem?
3. Are the standard of procedure and internal control enough to prepare the company for process optimization and automation?
4. How will the implementation strategy affect both human and processes, and create sustainable performance?
5. Does the implementation of integrated procurement and inventory management systems can help to drive company growth and performance?

## **1.5 Thesis Structures**

This thesis will be divided into seven chapters. The systematic of the writing of the thesis is as follows:

### **CHAPTER 1 INTRODUCTION**

This chapter elaborates on the background of the research, scope, aims and benefits, and the systematic structure of the research.

### **CHAPTER 2 THEORETICAL FOUNDATION**

This chapter covers the theoretical foundation and technical framework as a guideline and standard parameter for the paper. Relevant theories that revolves around the thesis topics will be summarized and formulated to support the design of solution in accordance with the problem.

### **CHAPTER 3 ANALYSIS ON THE EXISTING SYSTEM**

This chapter will examine the foundation of business and current system of PT Kusuma Kemindo Sentosa. It is important to understand the business objectives and requirements from end user to determine the needed functions that correspond to the scope. There will be 4 phases of this chapter, which include the organization strategy, process architecture phase, launchpad as BPM foundation and understand phase

### **CHAPTER 4 SOLUTION DESIGN**

Chapter 4 will comprise of solution design creation of BPM and new procurement and inventory systems. There will be 2 phases of this chapter, which include:

1. Innovate phase that consists of new activity diagram, updated process selection matrix, and BPMN for new process model.
2. Develop phase consisting the design of new system architecture in UML version and user interface.

## CHAPTER 5 IMPLEMENTATION PLAN

This chapter will discuss the result, observations, and preparation of the necessary needs to initiate implementation of the solution. There will be 2 phases of this chapter, which include:

1. People phase that consists of people capability matrix gap analysis and RACI model.
2. Implement phase that consists of implementation strategy, technology requirements, and new process-people-technology.

## CHAPTER 6 EVALUATION

This chapter is to evaluate the important results from previous chapters. There will be assessment of designed UI usability, KPI benchmarking and a brief discussion.

## CHAPTER 7 CONCLUSION AND RECOMMENDATION

This chapter is to summarize important findings, conclude overall results of the thesis which will be carried out, and give recommendation and advice which should be taken and addressed related to better solve the problem regarding to the implementation of BPM and procurement and inventory management systems in the thesis.