CHAPTER I

INTRODUCTION

1.1 Background

PT XYZ is a subsidiary company of auto parts manufacturer that produce gearbox as their main product. As any other new company, PT XYZ has set its target market and setting departments to run its business. Due to the capability of the human resource available in PT XYZ is still far from the expectation of its owner, in the development of the business, they hired a group of consultants to help them develop their business.

From the research and observation conducted by both the consultants and PT XYZ, while taking PT XYZ's parent company experience in the auto parts business for 20 years, it turned out that the material cost is the biggest cost driver and takes more than 40% out of total expenditure (see Figure 1.1). Direct labor also took 21% out of total expenditure. This cost should have been taken into account as well due to its tendency that it gets higher every year (ILO, 2017). Yet, in contrast, IT cost and Machining cost that is included in others section tends to get lower year by year (APJII, 2017). Based on the result of PT XYZ's consulting, in order to have the optimal management of these three type of cost, it is highly suggested that Vendor Managed Inventory (VMI) should be implemented in the procurement business process.

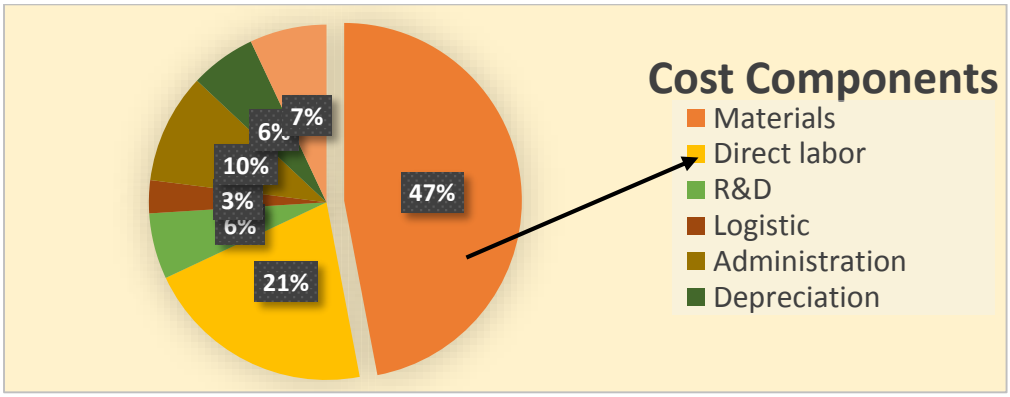

Figure 1.1 Percentage of PT XYZ's cost drivers

The term “procurement” itself is a source of confusion. Novak and Simco highlight in (Aro-Gordon, 2015) the confusion by citing studies in which procurement is defined as “the act of buying and all those activities necessary to acquire goods and services consistent with user requirements”. Later, The Global Supply Chain Forum re-engineered the term, from procurement process, to become “supplier relationship management (SRM)”. Thus, in this case, VMI as a business model, would be implemented in the SRM business process. By the use of SRM term, it broadens the context, since the goal of SRM not only as a process that defines how a company interacts with its suppliers, but also make the process more effective and streamline it.

SRM itself, as a process, is a holistic framework. It means that the steps are intimately interconnected and explicable only by reference to the whole. The early step of SRM business process in PT XYZ was to select suppliers. PT XYZ was in need of part suppliers for the gearbox. Selecting supplier in the SRM is about applying analytic to decisions about what to buy and from whom to buy it. The selection of the most appropriate supplier for cooperation is being increasingly important for PT XYZ since it is stated earlier that PT XYZ would implement VMI. Therefore, the criteria that will be considered by PT XYZ were related to the future implementation of VMI. The criteria included availability and capability of the vendor to do VMI. Future partners possibility will be explored through their readiness to be fully implementing VMI.

The problem in selecting suppliers is multi-criteria in nature. There are a variety of multi-criteria decision-making methodologies. However, the interrelationships among the critical success factors and the fuzziness of the data should be involved in deciding the preferences of the factors. This research is proposing a fuzzy analytic network process model to evaluate various aspects of suppliers. Usage of ANP was caused by the interrelationship factors and usage of fuzzy was caused by the use of linguistic measure such as poor, fair, good, and excellent in the criteria.

After the suppliers are chosen, over the life of the agreement, changes in circumstances are bound to happen. Hence, legal bounding document is needed to tie the operational relations between PT XYZ and its suppliers. Therefore, monitoring fulfillments of obligations and rights from both parties should be managed, bounded, and represented by a solid contract management.

Thus state of the art of this research is that this study on correlating SRM framework to build the good basis of VMI, starting from supplier selection to VMI implementation has not been conducted yet. A good basis of VMI in PT XYZ should be able to work only if the SRM has been applied. Aside, VMI and SRM will be sealed and steady by the help of good contract management.

Based on above explanation, this research meant to prepare for an implementation of SRM in start-up manufacturer, PT XYZ. Starting from creating conceptual SRM strategy, conducting supplier selection by predetermined criteria, preparing potential SRM partners to be ready in implementing VMI, conducting pilot implementation of VMI, then develop and drafting contract management to be the framework of SRM implementation in PT XYZ. The state of the art itself could be seen in Figure 1.2.

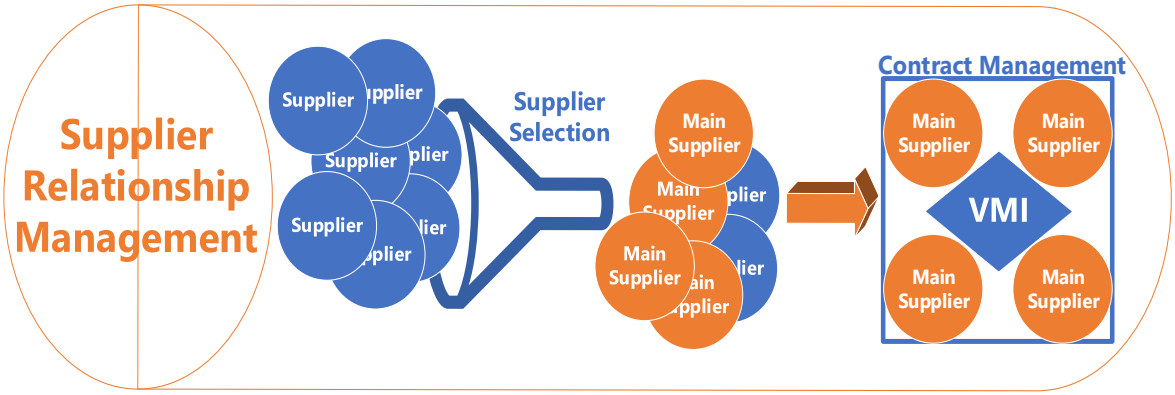

Figure 1.2 Illustration on Research Main Topic

1.2 Problem Formulation

Based on background issues in the previous sub-chapter, the issues could finally be formulated. The question below could represent the problem formulation:

a. PT XYZ, as a new manufacturing company, need to determine their source of supply. How to select the suitable suppliers to be PT XYZ's partners?

b. After the supplier are determined, PT XYZ need to determine policies and procedure to manage their relationship with supplier. How PT XYZ determine policies and procedure for managing relationship with their supplier?

c. PT XYZ need leverage for the execution of supply base. PT XYZ will implement VMI business model through pilot trial. How PT XYZ able to conduct the pilot trial?

1.3 Research Objectives

This research was conducted at PT XYZ, the subsidiary of auto parts manufacturer. Below are the objectives from this research:

a. To select suitable suppliers for PT XYZ, a gearbox start-up manufacturer, using Fuzzy ANP method.

b. To determine policies and procedures for maintaining PT XYZ relationship with their suppliers.

c. To conduct pilot trial for Vendor Managed Inventory implementation under Supplier Relationship Management business process framework in PT XYZ.

1.4 Benefits of research

SRM is about the need to analyze when and how to leverage suppliers' assets, capabilities, and knowledge as a source of competitive advantage and the need to view and manage supplier relationships as a strategic asset, as opposed to merely a cost center. By implementing SRM, rather than just sourcing, the company will gain a more beneficial mutual relationship with vendors, such as:

a. Supplier performance and evaluation
b. Inventory Management (Vendor Managed Inventory)
c. Risk Management (Sharing risk between company and vendor)

d. Reducing tied-up capital
e. Reducing procurement man-power
f. Clear standard operating procedure (SOP)
g. Assurance in business relationship

As for supplier selection, it is still rare to find a journal that considers the interrelationships among the critical success factors and the fuzziness of the data in deciding the preferences. This research attempt to complete the decision making according to the interrelationship nature of supplier criteria.

Research regarding Supplier Relationship Management is also often found in term of sourcing or supplier selection. Yet, in this research, the researcher attempts to connect Supplier Relationship Management to Vendor Managed Inventory that often falls under categories of Inventory Management subject.

1.6 Scope and Limitations

To obtained a focused result based on the research objectives, researcher set the problems limitations to refer to in this thesis. Thus the limitation could be defined as follow:

a. This thesis only discussed the implementation of sourcing selection using the Fuzzy-ANP method in SRM and the development of VMI SOP through contract management. This research will not discuss the VMI implementation in detail, especially regarding calculation of demand and so on since this is a pilot project of VMI that will be implemented in the future.

b. Research conducted at PT XYZ, a start-up gearbox manufacturer. It is not taking an approach on another type of business and product, such as perishable goods, fast-moving goods, and retailing business. Thus the outcome might be fit only for PT XYZ.

The authors' believe that all these limitations are necessary due to the available timeframe.

1.7 Structure of The Thesis

Writing method that will be used throughout this research refers to the standard of *Thesis and Internship Guide* that was published by Industrial Engineering – International Program, FTI, UIII. This research consists of six chapters.

CHAPTER 1 INTRODUCTION

This chapter gives the reader a better understanding of the main issue, purpose, scope and limitations, and thesis structure.

CHAPTER 2 LITERATURE REVIEW

The chapter includes a literature review containing theories that the authors' used as a base to achieve the purpose of this thesis.

CHAPTER 3 RESEARCH METHODOLOGY

In this chapter are the research methods, used in this thesis, explained. The chapter also consists of a description the authors' course of action.

CHAPTER 4 DATA COLLECTING AND PROCESSING

Presents the collected data, that gathered through various method.

CHAPTER 5 ANALYSIS AND DISCUSSION

Collected data is, in this chapter, analyzed and compared with the theories covered in the literature review.

CHAPTER 6 CONCLUSION AND SUGGESTION

This chapter comprises conclusions, suggestion, and possible future research.