

CHAPTER 3

METHODOLOGY

To reinventory management effectively, the procedures are necessary to find out, especially the plan of procedures. The information and analysis are the important steps plan for make it done. The inventory information identifies the existing situation of inventory policy and shows the way to implement it. Then the last step is the evaluation for identifies the benefits after implementation. The figure of methodology is shown in Figure 3.1

The methodology in this thesis is:

1. Study the current inventory system
2. Identify the problem area
3. Set up the inventory management plan
4. Implement the inventory management
5. Evaluate the implementation

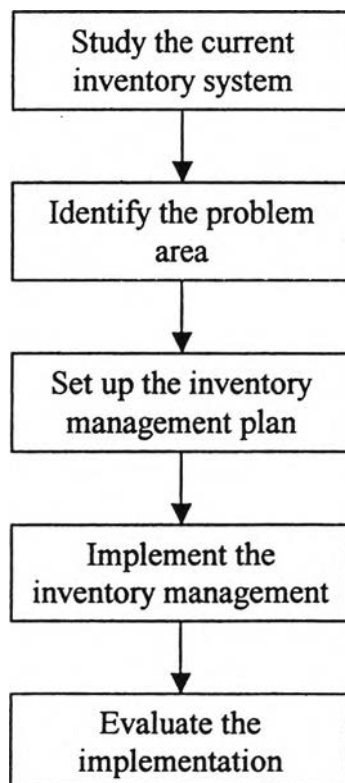


Figure 3.1: Methodology flow

3.1 Study the current inventory system

To know the problem and the way out to fix the problem, it's necessary to understand the current system clearly. In this study, it's focused on the current inventory system. There are two interested points in this step that are the current of inventory situation and inventory information.

3.1.1 Inventory situation

The current situation of inventory identifies to the status of inventory of the company and the inventory policy. All of these two identifies are shown the management of company to inventory such as the method to control the inventory. Moreover it shows the company performance to inventory management. It can consider from the problem from controlling inventory such as defect of products, continuously of processes, volume of raw material to demand, etc.

3.1.2 Inventory information

The information is important to understand the inventory system and known the method to management in inventory by using historical data. The historical data shows the input/output of raw material volume. In addition, it shows the graph trend of usage rating of raw material that identify to the company situation. On the other hand, the company knows the area of problems by historical data such as lack of product due to the raw material shortage.

3.2 Identify the problem area

After the company knows the inventory system with the information, next is finding out the problem. The problems are found from the output such as processes, products, finance, etc. For example, in this thesis, the company found that the experience of manager had the effect to the method for management in inventory such as decision plan; the worker knowledge effects to the practical of work such as material lose or use wrong instruction. Moreover, it effects to the allocation of items in warehouse space.

These are the problem areas of inventory in term of raw materials. These problems lead into the way of improvement in the next steps.

3.3 Set up the inventory management plan

This step is setup the plan for control the inventory system step by step. The inventory system is the heart to set the policies and controls the inventory level. The plan shows when stock should be replenished, what level should be ordered, and how much quantities should be ordered. This thesis split the main body statement into three main topics that are ABC analysis, forecasting, and inventory control with limited storage space.

3.3.1 ABC analysis

It is the analysis tool that identifies the item value. Sometimes a company doesn't know which items are important. Some items used a lot of quantities but less money to spend for its. In the other hand, some items used a little quantity but its high prices. This method is to classify the important of raw materials by considering in money that a company spends each year on each item.

3.3.2 Forecasting

Forecasting method is apart of planning that is a technique for estimate of what will occur in the future. In this study, it forecast the future demand level used of raw materials that cover in two years. The keys of forecasting are the information, analysis, experience, and judgment by graph. The graph of demand used shows the demand pattern for judgment which method of forecasting should be used for. It depends on the time frame (how far in the future is being forecasted), behavior of demand, and the possible existence of patterns (trends, seasonality, etc.). After forecasting, the demand forecasting can show the demand pattern in the future and use the information for plan how to control the future inventory.

3.3.3 Inventory control

Inventory control is the system to control the level of inventory. After finish in forecast, the forecasting demand uses for control the quantities to orders. Inventory control is classified into two main models: fixed-order quantity models (Q-model) and fixed-time period models (P-model).

This study use fixed-order quantity models for control the order quantities that not regard of time to order. In the other hand, fixed-time period models use for control

time to order, not regard of order quantities. To choose the models, it depends on an industry which raw materials should be used with Q-model or P-model. These are considered from the important group of items from ABC analysis.

In addition, to make sure when in a period of high/low demand, the safety stock is setup. Moreover, reorder point is the one important point for control the inventory level. Reorder point uses for limit the amount of stock level when an industry should be ordered again.

3.4 Implement the inventory management

After judgment the appropriate methods for implement, the implement plan will set up and apply its for find out the solution to control the inventory that start from ABC analysis, forecasting, and the right way to control the inventory with the limited area (control the inventory suitable for an industry) until get the exact solution. The solution is the target for makes it optimal inventory that consists of quantities order for limited area, reorder point, time frame for next order, and the quantities of safety stock.

3.5 Evaluate the implementation

After implement, an industry will evaluate the result from implementation that the new system works. An industry concerns the performance measurement of control in inventory that consisting of the cost saving comparison before and after implementation, benefits gained, and the advantages and disadvantage of both existing system and new system.