

CHAPTER 1

INTRODUCTION

1.1. Background

One of many factors affecting the profit gain is the optimum inventory. It is very crucial to find the most optimum inventory stock which is related to the order point and quantity (lot-size).

Many factors have to be considered in finding the optimum lot-size, such as the cost of order setup and the cost of carrying an item in an inventory (Fogarty, 1991).

By finding the optimum lot-size, the improvement of profit margin can be reached. But instead of directly applying the calculated lot-size, it is necessary to consider about the time value of money that have to be spent as the purchasing cost. "Inflation and productivity change the time value of money, so all activities have to consider this change to make the real benefit" (Tersine, 1988).

In PT Budi Makmur Jayamurni, it seemed that there was a problem in the chemical material stock. The company prefers to import the chemical material because the purchasing price is relatively lower than the local purchasing price. The shortage of chemical material often occurs, especially the imported chemical, as its lead time -from ordering until receiving- is about 1 to 2 months. Regarding to the demand which is probabilistic, this condition can be very critical. So

the problem is how to make the chemical stock is ready when the order is received, without making the production late and wasting the time value of money.

The current policy used by the company is a rough estimation in upcoming demand for the next periods. This estimation is not appropriate as it still causes high procurement cost. The estimated causes that result in high procurement cost are:

- The holding cost is not being considered;
- The stock-out often occurs. If a shortage happens, the company usually purchases the chemicals from local suppliers. This will cause a shortage cost, as the purchasing price in local suppliers is higher than the import purchasing price.

In the previous internship study, the writer had proposed to a method to optimize the order quantities. The result showed that ordering together for some upcoming periods will result in lower setup cost, but the writer did not consider about the holding cost significance yet.

Reviewing the proposed method in previous study, the writer considers that the company may has not considered about the time value of money that they spend to purchase the chemical in specific quantities, which include the stock for many periods. This can result as a holding cost. In this final project, the writer try to propose a more appropriate method to find the order quantity and order point by considering all procurement costs, such as: setup cost, holding cost, and shortage cost.

1.2. Problem Statement

In conjunction with the background, the problem of this research is how to obtain the appropriate policy to define the order lot-size and order point, in order to minimize the procurement cost.

1.3. Objective

The objective of this research is:

To obtain the appropriate method in defining the optimum order lot-size and order point, in order to reduce the procurement cost (by achieving the trade-off between setup and the holding cost, also shortage cost as the stock-out penalty).

1.4. Scope of Research

The research is conducted with some specified limitations, such as:

1. The research is conducted at PT Budi Makmur Jayamurni, a tanned-leather manufacturing
2. The data used is the data record of year 2005, assumed that this data can represent every year's behavior as the production rate variation is not significant;
3. The analyzed chemical is the imported only, which has long lead-time and high setup-cost
4. The setup or order cost is based on the shipping cost only, as the ordering process uses e-mail facility, so there is no call cost
5. The holding cost was calculated using 6% capital interest rate per year. As there is no special

maintenance treatment required, the storage cost can be ignored

6. The shortage cost is the difference value between imported chemical's purchasing price and the local purchasing price.
7. There is no allowance of production-delay. If a stock-out occurs, it must be immediately covered by purchasing from the local supplier. This will cause the appearance of shortage cost.

1.5. Research Methodology

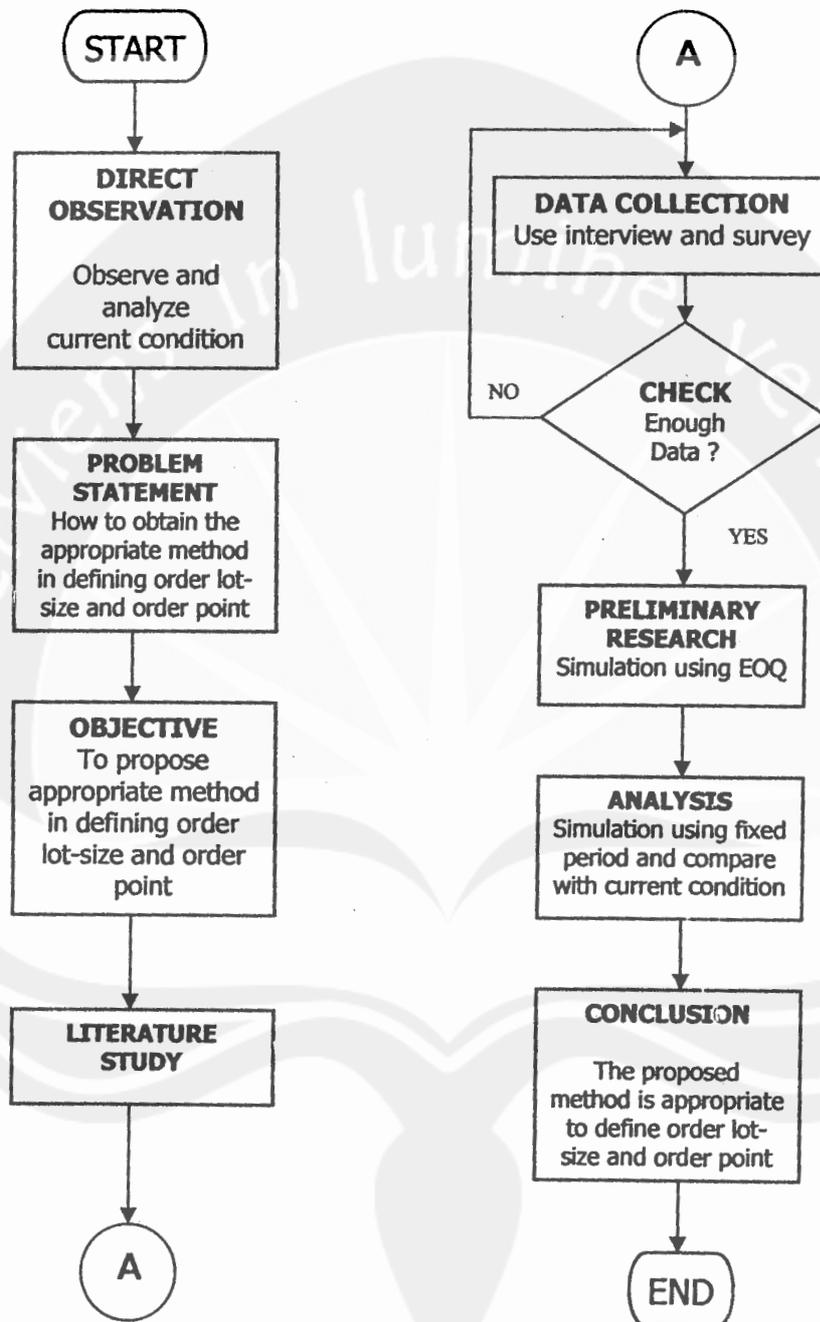


Figure 1.1. Methodology Flow Chart

1.6. Report Outline

The brief outline of this final project report:

The First Chapter of this report is begun with the Introduction that will bring the readers into the general overview about the research. And the Second Chapter is about the Literature Review that consists of the brief review of related research that has been previously conducted. The next chapter is Chapter Three, Basic Theory, it quotes the theories that are related to the research topics. Chapter Four is Data and Company Profile, it consists of the objective overview of the company, location, and all data related to the company where the research is conducted. Chapter Five is the Analysis and Discussion that will analyze the data and then discuss about the result of the data analysis. Last chapter is about Conclusion and Suggestion, the Conclusion part consists of the brief summary of the discussion result that is related to the previously proposed research objectives, and the Suggestion part consists of the opinion and suggestion that will be given either to the company or to the next incoming research.