

MINIMIZING INVENTORY COST OF WELL SANITARY

IN CV ROJO SOLO

FINAL REPORT

Submitted as Partial Fulfill of the Requirement to
Obtain the Bachelor of International Industrial
Engineering Degree



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INTERNATIONAL INDUSTRIAL ENGINEERING PROGRAM

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YOGYAKARTA

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STATEMENT OF WORK'S ORIGINALITY

I honestly declare that this final project report which I wrote does not contain the work or part of the works of other people, except those cited in the quotations and bibliography as the references.

Yogyakarta, October 2012

The writer,

Melliana Sari

APPROVAL

Final Project Report of International S-1 Program

MINIMIZING INVENTORY COST OF WELL SANITARY

IN CV ROJO SOLO

Proposed by:

Melliana Sari (07 14 05244)

Has been examined, checked, and approved

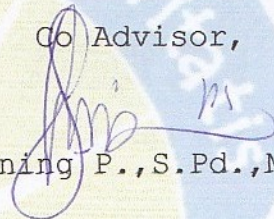
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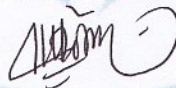
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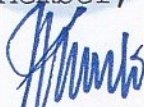
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FAKULTAS
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CHAPTER 1

INTRODUCTION

1.1. Background

CV Rojo is a business entity which sells complementary construction product, such as roofs, tiles, granites, parquets, paints, kitchen sets, air freshener, water pump, stainless and polyethylene water storage tanks, sanitary ware and bathroom equipments.

CV Rojo as a newcomer in sanitary industry is trusted to be an authorized dealer of some brands. There are many brands of sanitary ware that dominate the sanitary industry, such as Toto Sanitary, Hansgrohe, Kohler, American Standard, Blanco Germany, and Ina Sanitary. The well known brands compete with new sanitary brands which mostly are imported from china, such as Well Sanitary, Beyond, and Lexus Sanitary Ware. China sanitary ware becomes the most wanted products because of the cheaper price than the well known brands.

People who are looking for cheap sanitary ware will choose the China sanitary. One of the new sanitary brands that attract the buyers is Well Sanitary. Well Sanitary has the similar models with the well known brand, and offer them in cheaper prices. Based on the interview with the store employees, Well Sanitary becomes the most wanted china sanitary wares because of its price, models, technology, and colors.

In order to satisfy the buyer, CV Rojo has to manage their availability of the product, but CV Rojo

also needs to avoid the overstock to minimize the inventory cost. This research will analyze the Well Sanitary Inventory to eliminate the stockless but also minimize inventory cost.

At this time, CV Rojo orders the Well Sanitary products from PT. Wellindo Jakarta. There is a discount policy for delivery cost based on the number of order quantity. The minimum quantity to order is 10 sets for all types of product, and there is Rp 3,500.00 per item discount of delivery cost for order over 25 sets for all types. If the order is less than 25 sets, the delivery cost is Rp 12,500.00. If the order is more than or equal to 25 sets, the delivery cost is Rp 9,000.00.

Based on the data during 2011, CV Rojo ordered with an average 247 products per month with the average demand of 110 products per month, and this caused the overstock in the warehouse. Even though the number of stock was excessive, CV Rojo was still able to get stockless.

1.2. Problem Formulation

CV Rojo didn't have a policy in ordering and storing the products. At one time, there might be overstock for some type of products, but it could also be stockless for the other types.

If there is overstock in high quantity and long period, CV Rojo will get capital loss because the capital is stuck and the storing cost will be higher. If it is stockless, there will be loss in sales. Buyers

will go to another store to get the product with similar specification.

The main problem is how to control the Well Sanitary inventory by designing the best inventory model, including Order Quantity and Reorder Point; by considering the minimum quantity order and delivery cost for PT Wellindo Jakarta.

1.3. Research Objective

The objective of this research is to know which inventory policy that best for Well Sanitary by eliminating stock out and minimizing cost.

1.4. Problem Limitation

There are some limitations to make this research focused:

1. The data is daily data within one year, starting from January 2011 until December 2011.
2. The solution is done by a simulation because there are multi item inventory with probability demand and probability lead time; by considering limit quantity and discount of delivery cost.
3. The simulation is conducted by using the Microsoft Excel.

1.5. Research Method

This research is carried out by using several steps as shown in figure 1.1:

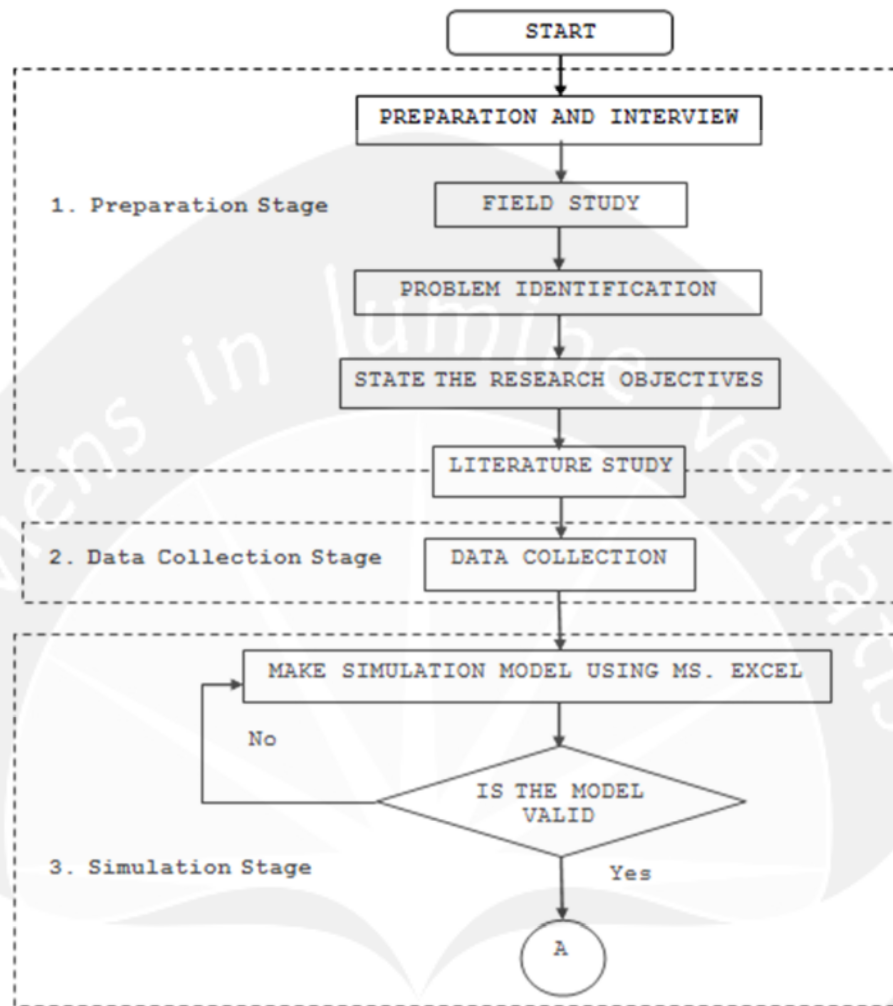


Figure 1.1 Research Methodology Flowcharts

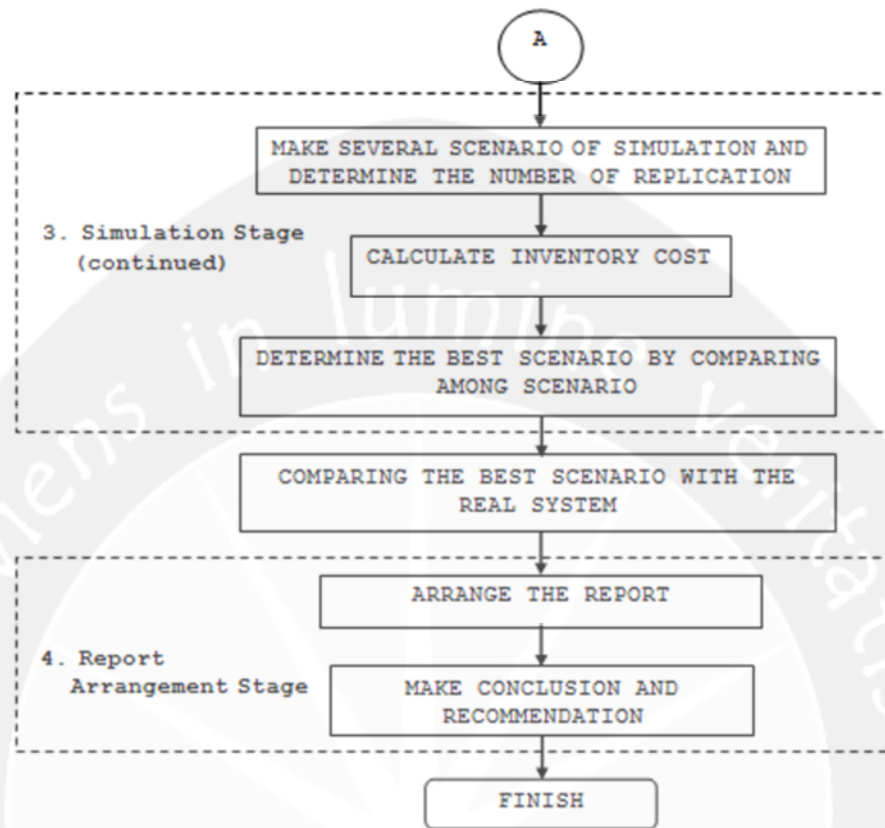


Figure 1.1 (Continued)

1.5.1. Preparation Stage

The preparation stage starts from an observation at CV Rojo on the kinds of problems occurred especially those related to inventory. This stage is done by interviewing the owner assistant, auditor, and warehouse personnel.

Several initial observations are done and followed by identification of the important factors which are needed to be considered, and what factors that might be important to be analyzed, solved, and optimized. The objectives of this thesis are stated as a guidance to solve the problem.

The information from the book, articles, and former research with the same topic are collected to determine the best method that will solve the problem.

1.5.2. Data Collection Stage

This stage has been done by interviewing the auditor and warehouse personnel to identify what kind of data that exist in the databases in order to support the simulation and analysis of this research. The information at the stock card, documents of purchase order (PO), and selling memorandum, and direct order (DO), is collected to support the simulation. The data then being sorted using Microsoft Excel.

The data which are gathered are:

- a. product series,
- b. daily demand from January 2011 up to December 2011,
- c. purchasing price,
- d. saving interest rate,
- e. daily stock of the products,
- f. lead time for each order,
- g. delivery cost.

1.5.3. Simulation Stage

The simulation model will be conducted using Microsoft Excel. The next step is validation. When the model isn't valid, the simulation model should be redesigned to represent the real condition. When the model is valid, the next step will be making some scenarios and replication through trial and error until the researcher found the best result.

The parameter of simulation result is the total inventory cost which in the next step will be compared with the real system.

1.5.4. Report Arrangement Stage

In this stage, the thesis is arranged as the summary of the analysis and result.

1.6. Report Outline

Chapter 1 : Introduction

This chapter tells the reader about the background, problem formulation, objectives of the research, problem limitation, research methodology and report outline.

Chapter 2 : Literature Review

This chapter contains the list of former research and the differences between the former research and the current research. There are several researches with similar concept about inventory simulation.

Chapter 3 : Theoretical Review

This chapter provides the theories from text books, websites, and articles as the research references. The theories are focused on inventory, inventory models, inventory cost, simulation, and Microsoft Excel.

Chapter 4 : Company Profile and Data

This chapter provides the story about the company and the details of the data that

were collected using interviewing and direct observation.

Chapter 5 : Data Analysis and Discussion

This chapter contains the analysis and the discussion of the data using Microsoft Excel in order to find the best inventory policy.

Chapter 6 : Conclusion and Suggestion

This chapter tells about the result of the research, resume of discussion, and the suggestion for CV Rojo to obtain a better operational system.