CHAPTER 1

INTRODUCTION

1.1. Research Background

Providing good service to the customer is one of the most important things the company has to do. It can be done by providing the good relationship between the company and their customers. However, in this intense competition in market, good relationship between company and their customers is not enough to succeed the company. The company needs to find a way to attract more and also attract customer to come.

Bengkel ABC is a repair shop that offers two kinds of services that are repairing motorcycles and selling spare parts (retail). Recently, there are more than hundred types of spare parts are sold in Bengkel ABC. In addition, there are also unused parts (waste) from repairing activity. Therefore, Bengkel ABC has to organize two types of parts inside the shop, which are new spare parts and waste. Currently, Bengkel ABC has several racks to keep those parts. They are storefront, tire rack, oil rack, wall rack, bolt rack, and hanging rack.

As it was mentioned in the previous paragraph, the company has to find a way to attract more customers to come in order to get survived in this intense competition that has also a role as a retail shop to have a good display and arrangements of the parts to impress the customers. In addition, good arrangement of parts lead to reduce searching time for the employee in

finding parts that customer wants. This could improve the customer satisfaction.

Currently, Bengkel ABC hires two employees (Employee A and Employee B). Their job description are maintaining, selling, checking stocks, buying stocks, and cleaning the shop. Recently, the owner of Bengkel ABC said that the employees do not arrange both new spare parts and used parts properly. Both employees also place those used parts not only in one but also several locations so that causes dirt everywhere inside store room.

According to the owner of Bengkel ABC, both new and used parts are placed inside Bengkel ABC as it is shown in Figure 1.1, Figure 1.2, and Figure 1.3 The intended area is shown in several planes, such as; triangle, trapezoid, circle, square, and pentagonal planes.
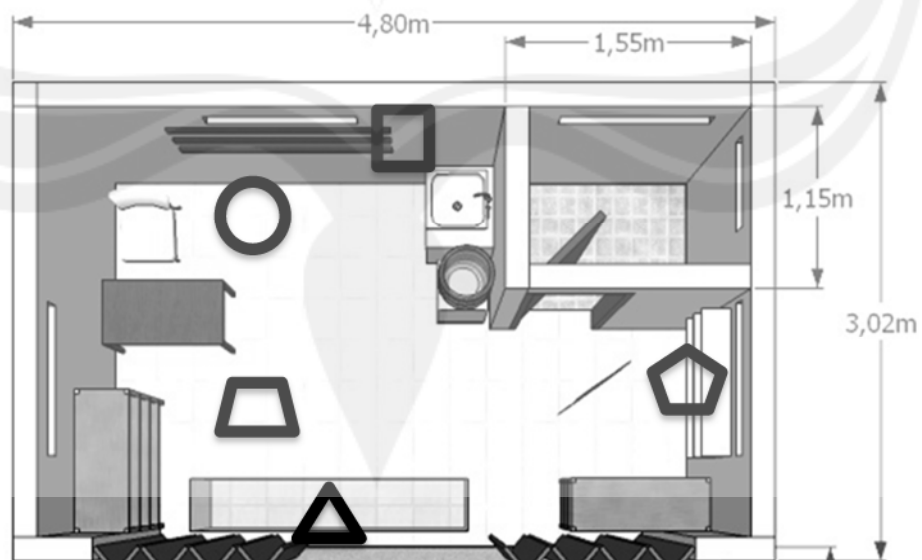

Figure 1.1. Top View Store Room Layout

Figure 1.2. Right Side of Store Room

Figure 1.3. Left Side of Store Room

The area that shown by the trapezoid in Figure 1.2 shows that the used tire stocks are placed on the floor. It blocks the way of the employees to get the other parts in the storefront. This thing makes the employees move slower because the employees need to twists their hip and walks-side. The other things that shown by this figure are the empty boxes on the tire stocks. Those boxes impress full the shop.

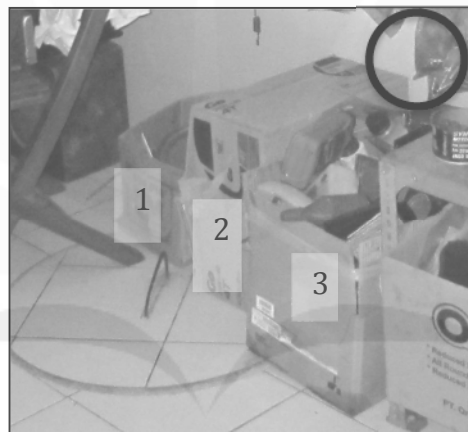Figure 1.4. Bottles Hide Spare Parts Inside Storefront

Figure 1.5. Three Boxes of Used Oil Bottles

The rectangle in Figure 1.4, shows the condition of the glass rack. Recently, there are used oil bottles that are placed in front of the storefront and block the view of the spare parts inside bottom of the storefront. Whereas, the function of the storefront is to impress the parts that can be easily seen by the passers-by.

According to Figure 1.5, the numbers shows the three boxes of used oil bottles near the cashier desk.

The bottles produce oil dirt under the boxes and limit the access of the cashier.

Figure 1.6. Spare Parts Arrangement in front of the Washbasin

Figure 1.6 shows the condition of the wall rack. This rack has a function to put many varieties of parts from small until big parts. Visually, by that condition, the employees could not identify, search, and take parts easily from this rack. For example, the area shown in oval, there exist parts that are hanged in more than a layer. Therefore, it takes longer searching time for the employee to find the item, especially if the parts are located behind the front layer.

The pentagonal in Figure 1.7 shows the hand grinder, battery charger, and funnel on tire rack. The employees usually are put those tools randomly on it.

Therefore, this makes the employees need to search the tools first before using it at the next usage session.

Figure 1.7. Hand Grinder on Tire Rack

Based on the explanation above, assuming that the parts and tools are well organized, it is hope that the searching time is reduced and good display can attract customers.

5S is one of the methods to manage stocks and unused things inside shop or office. Therefore this method is implemented to organize parts and tools in Bengkel ABC.

1.2. Problem Formulation

Based on research background mentioned, the researcher formulates the problem research into: how to organize spare parts and tools in Bengkel ABC using 5S?

1.3. Research Objective

The objective of this research was to implement 5S in Bengkel ABC in order to organize spare parts and tools.

1.4. Scopes and Limitation

The scope and limitation of this research are:

- To evaluate the performance of 5S implementation, this research is using free space, payback period, service time, and responses from employees and customers.
- The service time data taken is only for every spare parts purchasing
- The data was taken during the November 18 2012 until April 20 2013

1.5. Research Methodology

Research methodology discuss step by step of the research to reach the research objective. The research methodology is presented in Figure 1.8.
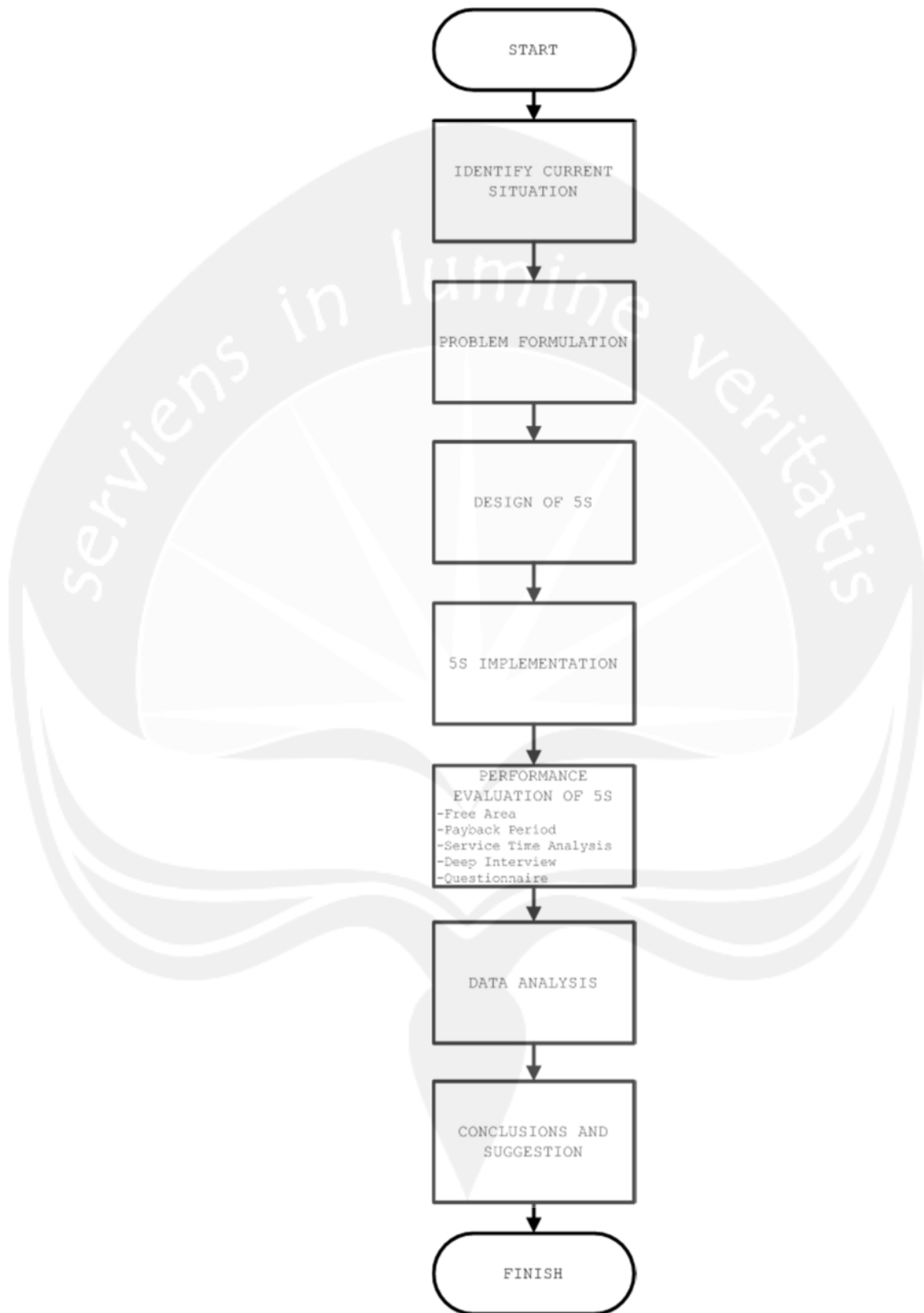
Figure 1.8. Research Methodology

1. Identify Current Situation

There are two activities in identifying current research that are; preliminary research and literature review.

a. Preliminary Research

In preliminary research step, the researcher observed the current condition, identified problems, and interviewed the employees about their service and the owner about inventory purchasing schedule.

The data collected in this step is consists of recent condition pictures, spare part selling data, and service time. Using the data collected above, the researcher creates a layout design for new spare parts and tools to define the new location. This step is using a stopwatch, service time form, and a camera (Nikon Coolpix 4800ED).

b. Literature Study

This step aims at finding the latest research about 5S implementation.

2. Problem Formulation

In this step, the problem is formulated.

3. Design of 5S

The third step discussed about 5S Implementation as it is explained ;

a. *Seiri*

Seiri activities were done by identifying the current situation of Bengkel ABC based on visual

approach and interview and then throw the unused things out from Bengkel ABC. The focus of *seiri* are; used parts, empty boxes, and dirt. The tool in *seiri* are; broom, brush, soap, moop, and by hand.

b. *Seiton*

Seiton activities were done by organizing new spare parts using method; the more important and more needed the things, the closer is the place to the employees' arm reach and entrance door. The tools in *seiton* are; selling data record and temporary labels.

c. *Seiso*

Seiso step is focus on keeping and checking the cleanness that has been done in the first 2S. The research prepared a broom and mop to clean the dirt left.

d. *Seiketsu*

Seiketsu activities were done by; placing labels for every spare part location and new coming stock line and making 5S poster.

e. *Shitsuke*

Shitsuke were done by making discussion and commitment about 5S implementation between the researcher, owner, and employees to keep 5S alive.

4. 5S Implementation

This is the main step of the research based on 5S steps. The researcher worked together with Employee A as **5S team**. After done, the researcher took photographs for every change that have been made.

5. Performance Evaluation of 5S

After the 5S implemented, the researcher measuring the performance of 5S method toward proof the effect of the changes. The researcher using 3 kinds of performance measurements, there are; service time analysis, deep interview, and questionnaire. The brief description about the method is shown in below.

a. Free Area

Free area is measured by compare store area between before and after 5S implementation.

b. Payback Period

Payback period measures the investment of 5S implementation payback of 5S implementation cost.

c. Service Time Analysis

Service time is the first performance measurement. The researcher took before and after 5S implementation service time data. After that, the researcher compares the service time between before and after 5S implementation.

d. Deep Interview

Deep interview is taken after the researcher done 5S implementation. This interview is taken to support the data analysis.

e. Questionnaire

Questionnaire consists of opinion from employees and customers about the effect of 5S. Questionnaire provides photographs and service time data analysis.

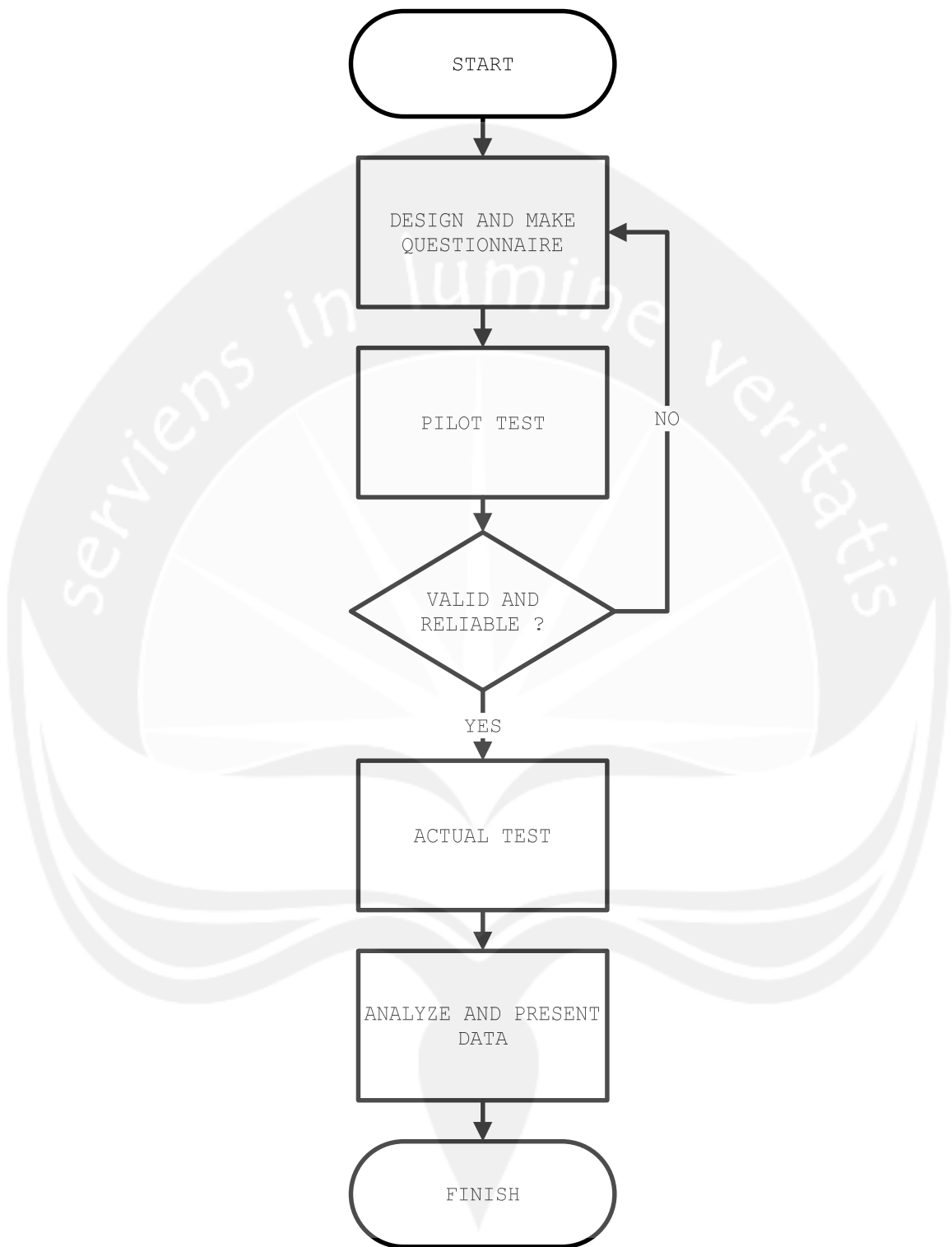The questionnaire methodology flow chart is shown in Figure 1.9.

Figure 1.9. Questionnaire Methodology Flowchart

Questionnaire Methodology

1. Making questionnaire

The first step is making a questionnaire. The researcher using 3 questionnaires, there are; 2 kind of questionnaire for employees and 1 kind of questionnaire for customers.

The first one is the questionnaire that distributed to the employees. There are two kind of scales that are used, which are; Likert Scale and Guttmann Scale. Each scale was applied for one questionnaire. The Likert Scale consists of 5S dimensions to indicate the objects that have been improved or moved, there are;

   a. neatness (represents *seiton*),
   b. access (represents *seiton*),
   c. easiness (represents *seiton*),
   d. cleanness (represents *seiso*), and
   e. self-change (represents *shitsuke*).

The second questionnaire is the Guttmann Scale questionnaire. This questionnaire has two kinds of score, if the answer is "yes", the score is "1" and if the answer is "no", the score is "0". This questionnaire was developed from Takashi Osada (2000) 5S checklist.

The second kind of questionnaire is the questionnaire that distributed to the customers. This questionnaire is using Likert scale and developed from Veronica (2008) Servqual Questionnaire.

2. Pilot Testing

The second step is only for the customers' questionnaires. This step contains statement that possibly eliminated or modified. The researcher takes 35 respondents in pilot test.

3. Checking the validity and reliability

This process conducting through the Likert questionnaire that distributed to the customers and employees.

4. Actual Testing

When the validity and reliability are meeting the standards, the actual test was applied for customers. The researcher takes 62 customers and both employees as respondents.

5. Analyzing and presenting data

After all of the data were collected, the researcher analyzed and presented the data.

6. Data Analysis

The sixth step is data analysis. Researcher analyzed the 5S in Bengkel ABC that based on 5S theory and the performance measurement.

7. Conclusions and Suggestion

This step is the result of 5S implementation analysis and suggestion for future research.