



CHAPTER 1

INTRODUCTION

This chapter introduces an introduction of research. Firstly, it describes a background of research. Next, statement of problem, objective, and scope of the study are followed. Finally, research methodology is explained and expected results from study will be proposed.

1.1 Background of research

Nowadays, plastic is one and the most famous component in every products for example, plastic homewear products, parts of industrial product, and electronics part. Different products need different plastics, so types of plastic depend on types of product. It acts like a raw material that widely used in wide ranges of industrials. A case study of this research is a plastic manufacturing company.

The company, named shortly as ABC, is a production of plastic injection and paint. It produces many kinds of plastic part for electrical appliances. There are two groups of product, big part and small part. For instance, big part is front cabinet and rear cover of television, and cover of copy machine. Small part is camera case, projector case, handle of refrigerator, and etc. For plastic injecting, the company use plastic injection machines ranging from 50 to 1300 tons of size. An average productivity of company is 12 million units per year.

Company's organisation consists of two sections, office and plant. There are four departments in the office section that is financial department, human department, purchasing department, and marketing department. In plant section, there are five departments that are planning department, engineering and quality assurance department, plastic injection department, plastic painting department, and inventory department. The company's organisation is shown in figure 1.1.

The only biggest company's problem in the present is defective products that effect to the company's cost. Especially, injection department is the highest of defective product problems. From the observations, there are many reasons of defective product. It maybe comes from an appropriate of sampling method for product inspection, variation of parameters in production process, or never uses the control tools seriously.

The company sets target of total defective products of injection at 5% in 2002 but it cannot reach the target. The minimum that can do is 8.72% and the total average is 8.87%. Therefore, it needs an appropriate quality tools to improve the defective products of injection. This research does not concern 5% total target and time period to reach the target but concern to apply quality tools to reduce some percents of defective products in the research time frame.

Company's organization

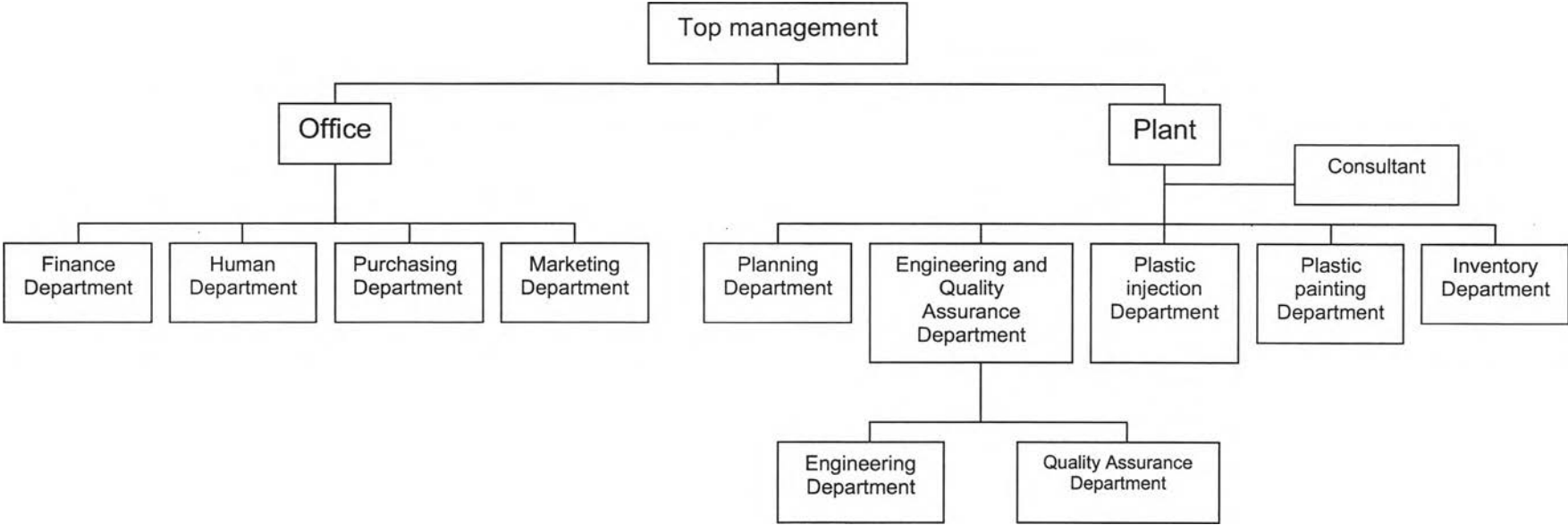


Figure 1.1: Company's organisation

1.2 Statement of problem

According to company data, eighty percents of total product injection are the big part and also have high defective products. The first three ranking of highest defective products is cover of copy machine, front cabinet of television 25 inches, and front cabinet of television 14 inches. This research cannot focus on the cover of copy machine and front cabinet of television 25 inches because both of two did not operate in every month and its value is not clear. Thus, the research will focus on front cabinet of television 14 inches because it operated in every month last year and continue to this year.

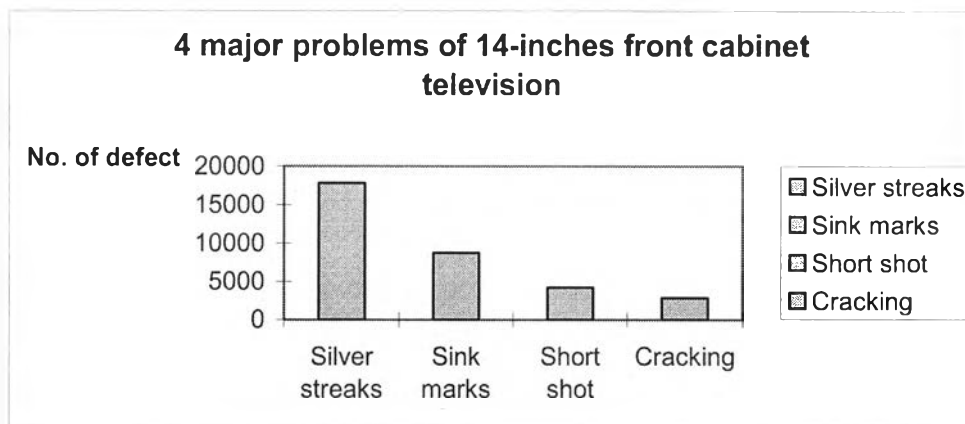


Figure 1.2: The defective parts per million of front cabinet of television 14 inches

From the Pareto diagram above shows 4 major problems of front cabinet of television 14 inches. A silver streak is the highest number of defective product. Therefore, the research focuses on silver streaks of front cabinet of television 14 inches as a sample case. In the further study, the quality improvement tools will be used to analyse, improve, and maintain the quality levels. For example, cause-and-effect diagram will be used to analyse more detail in silver streaks of sample product. The result will show in decreasing number of defective product.

1.3 Objective of the study

To reduce defective products in the sample company.

1.4 Scope of the study

The study covers on the product of television 14 inches front cabinet from the process of raw material, plastic injection, injection inspection, not including painting process and screening process.

1.5 Research methodology

1. Study from literature, document, research and topics related to quality improvement tools.
2. Study and analyze factors related to defective products of plastic injection process and collect data and information.
3. Analyze data and information by using quality improvement tools such as cause-and-effect diagram, relation diagram, Failure Mode and Effects Analysis, and etc.
4. Suggest the countermeasures or alternatives for defective products reduction.
5. Summarize the improvement and compare the result between before and after improvement.
6. Review the performance, make conclusion, and recommendation.
7. Write up thesis and submit thesis.

1.6 Expected results

1. Able to specify the influence factors that effect to the defective product.
2. Reduce defective product and save money and time.
3. Able to control quality of the research's product and the others.