

CHAPTER 1

INTRODUCTION

In this chapter, the research background is introduced. Then the problem to be researched for an electronics appliance company will be stated. The objectives, scope and expected benefit of this research are also outlined in this chapter. Finally, the procedures and methodologies and schedule will be discussed. This is just a guideline of the research for this chapter.

1.1 Research Background

The research is performed in an electronics appliance company. It is one of the manufacturing factories of a multi-national company which the head quarter is in Taiwan. It mainly produce the Colour Display Tube (CDT) monitor for some world class company such as HP, Packard Bell, Siemens, Nokia, Intel, etc. It also produces all-in-one (combination of PC and monitor) and also colors television chassis.

CDT monitor consists of 95% of the business. The factory manufactures the monitor while the design function is in Taiwan.

The product is guaranteed for one year that after Original Equipment Manufacture (OEM) customer received it. An Average Failure Return (AFR) target is set up. If the failure is higher then AFR, a big compensation will be paid. Serious compensation is 1 Million US dollar in year 2000.

As an OEM business, it requires economy of scale and cost leadership. It is very important to supply the products with a higher quality and lower price thus to keep the customers against competitors and maintain the profit.

1.2 Problem statement

Nowadays CDT monitor is a popular and mature product among the display products. Liquid Crystal Display (LCD) monitor is developed and becoming the

substitution of the CDT monitor in the future. The price is so competitive for CDT monitor. With the more investors in CDT and LCD monitors manufacturing, the more competitive the price will fall down.

Currently, the company faces a hard challenge on cost down. A key customer requires to reduce the monitor price by 5%. Otherwise, they will transfer to the other supplier who can support a cheaper product. And in fact, the customer had already move some orders for small size product to another monitor manufacturer. Now about 80% of the company's order come from this customer so that the company is trying to cost down by using various approaches. The company performs many programs such as raw material cost reduction via introducing second source, reduce over-time pay in order to achieve the cost reduction in a short time. However, most of them mainly focus on material cost and productivity improvement.

Quality cost program was not studied in the factory before. However, a big expense on the quality-related issue such as compensation, scrap, and repair and reworks. Then draw an attention the company starts to study the quality cost and try to take action to improve the product quality and reduce the quality related cost.

Generally, the company has a good quality assurance system. It is an ISO certified company and approved by much agency approval such as UL, TUV, CSA, BEAB, etc. It also has two quality experts from U.K., as QA manager and system & approval engineer. However, to compete in today's fierce competition, the company still need improve its quality system.

For the quality cost, the current main problem is that the failure cost is too high which mainly on compensations, scraps, corrective actions, repairs, and reworks.

The problems were mainly caused by design problem, poor incoming material, and improper workmanship. According to a preliminary quality cost study, all the causes can be prevented. These failure cost should be reduced greatly by increasing the appraisal cost or prevention cost properly, but overall cost can be reduced.

1.3 Objectives of the research

To facilitate quality improvement efforts to achieve total quality costs reduction opportunities.

1.4 Scope of the research

1. Generally, monitor product life cycle is about 1 and half year. This company produce five major models. In this research, a certain model will be selected for analysis in this thesis.
2. The research will refer to BSI 6143 part 2 (1990), PAF (prevention, appraisal, failure cost) model.

According to the disadvantage of quality costs is that some activities are difficult or may not be measured by money. Therefore, the following costs may be not measured in this research,

- Some prevention costs such quality auditing, quality review and verification of design.
- Some appraisal costs such as analysis and reporting of test and inspection results, stock evaluation.
- Some failure costs such as customer complaints, concession, down time.

The following costs may be considered in this research.

- Prevention costs such as quality planning, quality training, calibration and verification, quality improvement program.
- Appraisal costs such as receiving inspection, inspection and testing inspection and test equipment, approvals and acceptance testing.
- Failure costs such as scraps, reworks and repairs, re-inspection / re-testing, warranty claims (compensation), recall costs.

1.5 Expected benefit

1. Through the application of a successful quality costs program and associated successful action to reduce overall quality costs thus to increase profitability.
2. Through reduce the external failure, we can satisfy the customers with an improved product quality.

1.6 Procedures and methodologies of research

1. Study literature and related theory to define the methodologies and techniques for the research.
2. Review existing quality cost along the whole process and identify the problem. Some quality tools such as Pareto analysis, cause-and-effect analysis will be used.
3. Apply quality cost theory perform quality cost programme.

Analyses the ratio of each category quality cost according to the whole monitor manufacturing process. As the company in this case study is the manufacturing based, the research will start from incoming material, manufacturing process until shipping.

Some quality tools such as Pareto analysis, cause-and-effect analysis will be used. If time permits, performance across a wide range of quality –related activities will be measured and this will provide a basis for internal quality cost comparisons between departments, processes, services and products.

4. Analyze the data, and then compare the result of the programme and the current situation.
5. Review the performance of the quality cost system against sales value.
6. Prepare for the report and final examination.
7. Examination.