

The Importance of Quality Control for The Success of A Company

Maria V. V. Zacharias^{1*}

^{1*}Business Administration, Faculty of Social and Political Sciences, University of Nusa Cendana, Indonesia,
mayanzacharias2001@gmail.com

^{*}(Correspondent author): mayanzacharias2001@gmail.com

Abstract

Quality control is an important part of the company's production process, especially for manufacturing companies. Quality control itself is a comprehensive process that needs to be upheld by the company to make sure it has quality products. This article aims to provide enrichment about quality management, quality control, the process, the approach, as well as the tools gathered from diverse sources. Information from journals, books, and others was first gathered and combined to produce a comprehensive and full understanding of the topic. This article helps to provide a better understanding of quality control, however, it is necessary to explore the examples that have been applied by various companies.

Keywords

Defect; production management; quality; quality control;

INTRODUCTION

Quality is one of the most important parts of the company in carrying out its operational strategy. Quality is a dimension of the ability of a product to meet customer satisfaction and therefore the product that must be produced must comply with predetermined quality standards (Webber & Wallace, 2007). Quality is a combination of the properties of goods and services that demonstrate their ability to meet customer needs. The higher the quality, the higher the customer satisfaction. Every company must be able to control the quality of a product in accordance with quality standards or quality set by the government. Products produced must also refer to these standards. By implementing this on an ongoing basis the company will be able to attract market attention which will ultimately bring high profits for the company. If the company does not pay attention to the quality of its products, it will fail in competition with other companies. Therefore, every company must pay attention to the quality of its products by carrying out quality control in accordance with the Indonesian National Standard (SNI) in order to meet market demands and excel in competition.

Setting and achieving these quality standards is the key to the company's success against competitors in a competitive manner. Production results with quality below the standard set by the company can eliminate customer trust so it is possible to lose customers. Companies must

produce products that produce products with good quality so that customers feel satisfied and cannot easily switch to other companies that produce the same product. Efforts to maintain trust can have an impact on increasing sales volume which will increase company profits.

Even though the production process is running well, discrepancies are often found between the products produced and what is expected. This is due to deviations from various factors, both originating from raw materials, labor, and the performance of the machine facilities used in the production process. In order for the products produced to have quality in accordance with the standards set by the company and in accordance with consumer expectations, the company must carry out activities that have an impact on the quality produced and avoid any damaged or defective products being sold to the market.

Quality control needs to be carried out by large companies and small companies to maintain the quality of their products. Controlling means assuring the standard procedure, and evaluating and correcting the production process so it conforms with the plan (Ayuni, Siswandaru, & Nupikso, 2012). There are various ways to control product quality, one of which is Statistical Quality Control (SQC), which is a quality control tool using statistical methods to solve problems that exist within the company. The product manufacturing process must follow market or consumer quality standards, but in the implementation of manufacturing, there are still many products that do not meet established standards. Therefore, quality control tools such as Statistical Quality Control (SQC) are needed as product quality control tools that can help companies know whether the products produced are within control limits or not, starting from the initial process to the final product. Statistical quality control is a technique used to control and manage processes either in manufacturing or services through statistics method (Bakhtiar, Tahir, & Hasni, 2013).

In the quality control process, defects will be found, namely products produced that are damaged or do not meet predetermined quality standards, but these products can still be economically good products, in the sense that the cost of repairing defective products is lower than the increase in the value obtained with the improvement. Defective products are products that the manufacturer does not want. But sometimes the existence of a defective product itself is unavoidable and even always exists in the production process. The existence of a defective product within the company may not be used by the company, but it can. Types of defects will vary in each industry.

METHODS

This article mainly discusses the review of the literature on quality control over the years. The articles were gathered and organized into a comprehensive literature review that will give a broad understanding of the definition of quality control, its function, its relation to production process management, the quality control approach, and its tools.

RESULT AND DISCUSSION

Quality Management

Quality management is a way to improve performance continuously (Continuous Performance Improvement) at every level of operation or process, in every functional area of an organization by using available human resources and capital (Gaspersz, 2005). Quality management as all activities of the overall management function that determines quality policies, objectives and responsibilities, and implements them through tools such as quality planning, quality control, quality assurance, and quality improvement.

The definitions of quality planning, quality control, quality assurance, and quality improvement according to ISO 8042 (Quality Vocabulary) are as follows:

1. Quality Planning (Quality Planning) is the establishment and development of goals and requirements for quality and the implementation of a quality system.
2. Quality Control is the techniques and operational activities used to meet quality requirements.
3. Quality Assurance is all planned and systematic actions implemented and demonstrated to provide sufficient confidence that the product will satisfy the need for a certain quality.
4. Quality Improvement are actions taken to increase product value for customers through increasing the effectiveness and efficiency of processes and activities through the organizational structure.

Production Management and Production Process

Production management is an activity to organize and coordinate the use of human resources, tool resources, and financial, and material resources effectively and efficiently in order to create and increase the use of goods or services (Assauri, 2004). Others argue that production management is an activity or process that transforms input into output. The main activity concerned with production management is the production process. The production process is a method and technique for creating or adding to the use of an item or service by using sources including labor, materials, funds, and other resources needed (Assauri, 2002). In other words, the production process is the activity of how the product is finished from raw materials involving machinery, energy, technical knowledge, and others (Baroto, 2022), and some other see it from the perspective of methods and techniques used by people to transform raw material into products (Nasution, 2003).

A production process will result in products. A product is anything that can be offered to a market for attention, purchase, use, or consumption that can satisfy a want or need (Kotler & Armstrong, 2001). Conceptually, the product is the subjective understanding of the manufacturer of something that can be offered as an effort to achieve organizational goals through fulfilling consumer needs and activities, in accordance with organizational competence and capacity as well as market purchasing power. The product is the central point of marketing activities because the product is the result of a company that can be offered to the market for consumption and is

a tool for a company to achieve its goals of the company. A product must have advantages over other products in terms of quality, design, shape, size, packaging, service, warranty, and taste in order to attract consumers to try and buy the product.

Defects in Quality Control

Damaged products are products that have a finished product form, but are in conditions that are not in accordance with the standards set by the company. There may be damaged products that can be sold, but there are also those that cannot be sold. Depending on the condition of the item, whether the damage is within normal or abnormal limits. Damaged products that occur during the production process refer to products that are unacceptable to consumers and cannot be reworked. A defect is a damage that prevents your products from being accepted by customers (Webber & Wallace, 2007). A defect may cause the products to show their full working potential or simply a nonconformance in appearance.

Quality is a very important thing in today's modern era. Because consumers really want a quality product to meet their needs, so companies are required to create a quality product for survival of the company. Therefore, today's companies must know and understand the ins and outs of customers by paying attention to the quality of a product produced. Quality is the totality of the characteristics of a product or service that supports its ability to meet specified needs (Gaspersz, 2022). When we measure quality statistically, we look if there is any variation in measurement between what the customer asks for and what the company produces (Webber & Wallace, 2007). There are some factors that influence the quality control carried out by companies (Montgomery, 2001), and they are:

1. Process capability

The limits to be achieved must be adjusted to the capabilities of the existing process. There is no point in controlling a process within limits that exceed the capabilities or capabilities of the existing process.

2. Applicable specifications

The specifications for the production results to be achieved must be applicable, when viewed in terms of process capability and the desires or needs of the consumers to be achieved from these production results. In this case, it must be ascertained beforehand whether the specifications can apply from the two aspects mentioned above before quality control in the process can begin.

3. Acceptable level of non-conformity

The purpose of controlling a process is to reduce substandard products to a minimum. The level of control applied depends on the amount of product that is below an acceptable standard.

4. Cost of quality

Quality costs greatly affect the level of quality control in producing products where quality costs have a positive relationship with the creation of quality products.

5. Material

Due to production costs and quality requirements, experts plan and select materials according to the expected specifications. The types of materials used will greatly affect the quality of the products produced.

6. Machines and Mechanisms

The use of machines and mechanisms can affect the expected quality. The type of machine and its maintenance are also very influential on product quality. The method used in the mechanism process also influences the results.

7. Modern Information Methods

The development of increasingly modern information technology has made it possible to collect, analyze and manipulate information in a modern way. This sophisticated method of processing data and receiving information can affect the development of the quality of a product that is made. Information through computerization that is getting faster and more accurate in managing data and analyzing it also contributes to the success of product quality.

Quality Control Purpose and Approach

Quality control is an important activity in the company to find out the damage that occurs to the product so that the company can maintain the quality of the products produced in accordance with the standards set by the company. The purpose of quality control is to control the quality of products or services that can satisfy consumers. The objectives of quality control are to reduce errors and improve quality, inspire good teamwork, encourage involvement in the task, increase motivation in employees, create the ability to solve problems, improve communication and develop relationships between managers and employees, develop high-security awareness, and promote employees and develop products properly (Handoko, 2000).

Quality has very broad activities because all quality controls must be considered. Quality control can be broadly grouped into 3 levels:

1. Raw materials approach

The raw material balance approach is a very important factor for the continuity of the production process which is very dependent on the availability of raw materials and the quality of the raw materials themselves, so the company should also pay attention to quality control of raw materials. The company produces a product where the characteristics of raw materials greatly affect the characteristics of the products produced.

2. Production Process Approach

In some companies, the production process determines the quality of the final product and not the raw materials. Such a company would be better off using a production process approach for quality control. Due to the nature and types of production processes that exist in companies generally consisting of several types, carrying out quality control through this approach will not produce adequate results if the type of production process to be monitored is not known. This is due to the type of production process being carried out, a different way of controlling the quality of the process is required. In relation to process quality control, the production process within the company will generally be separated into five types, namely process types A, B, C, D, and E where each type of production process has its own specificity, especially in relation to the implementation of existing production process control in each of these companies.

3. Final Product Approach

The product approach in company quality control is the company's effort to maintain the quality of the products it produces by looking at the quality of the final product. Implementation of quality control with the final product approach can be carried out by checking the whole final project, checking samples of the final product, providing usage instructions, and providing after-sales services.

Quality Control Stages

To obtain effective quality control results, the control of the quality of a product can be carried out using quality control techniques, because not all production results are in accordance with established standards. There are several quality standards that can be determined by companies in an effort to maintain the output of manufactured goods including standard quality of raw materials to be used, standards for the quality of the production process, standard quality of semi-finished goods, finished goods quality standard, and standard administration, packing, and delivery of the final product to the consumer (Prawirosentono, 2007).

Statistical Quality Control

Statistical quality control is a tool that plays an important role in making products according to specifications in the process from start to finish. There will always be unintentional interruptions in many production processes. Unexpected disturbances are considered problems that can still be tolerated if the disturbances that occur in this process are relatively small. Likewise, disturbances can be said to be disturbances that are outside the tolerance limit if the disturbance in this process is cumulatively large enough (Yamit, 2001). Statistical quality control is a system developed to maintain uniform standards of production control, at a minimum cost level and is an aid to achieving factory company efficiency. Statistical quality control using SQC (Statistical Quality Control), has 7 (seven) main statistical tools that can be used as tools for controlling

control, including Check Sheets, Scatter Diagrams, Histograms, Pareto Diagrams, Cause and Effect Diagrams, Process Flow Charts, Control Charts.

The Pareto chart was first introduced by an Italian economist named Vilfredo Pareto. Which states that 80% of the consequences originate or are produced by 20% of the causes or it can also be translated as 80% of business results are the fruit of 20% of productive and optimal efforts. Pareto diagrams are made to find problems or causes that are key in solving problems and comparisons to the whole. Pareto analysis is a technique for focusing attention on the most important problem areas (Stevenson & Choung, 2015). The Pareto chart is a method for managing errors, problems, or defects to help focus attention on efforts to solve the problem (Heizer & Render) and is a proper tool for increasing strong control (Ginting, 2007). The use of Pareto diagrams is as follows:

1. Helps a team focus on the causes that will have the greatest impact if resolved.
2. Displays the relative importance of the problem in a visual format that is simple and can be interpreted quickly
3. Helps prevent diversion of the problem where the solution eliminates some causes but exacerbates others
4. Progress is measured in a highly visible format that provides incentives to drive more improvement
5. Pareto analysis can be used in the application of increased manufacturing or non-manufacturing control.

Another tool that can help in quality control is Cause Effect Diagram. The cause and effect diagram is an approach that allows more detailed analysis to be carried out to find the causes of a problem, discrepancies, and existing gaps. This diagram can be used in situations where there is a discussion meeting using brainstorming to identify why a problem occurs; the problems require more detailed analysis, and there is difficulty separating causes from effects (Gasperz, 2005). In general, a cause-and-effect diagram is a graphical representation that displays data regarding the causative factors of a failure or non-conformity, to analyze it to the deepest sub of the factors that cause problems. The form of analysis in the causal diagram is in the form of data that is predominantly collected subjectively using quantitative or qualitative data (Tannady, 2015).

The uses of the cause and effect diagrams are as follows: Help identify the root cause of the problem, analyze the actual conditions that aim to improve quality improvement, help generate ideas for a solution to a problem, assist in further fact-finding, reduce conditions that cause product discrepancies with consumer complaints, determine the standardization of operations that are currently running or that will be implemented, means of decision making in determining workforce training, and planning corrective actions.

CONCLUSION

Quality is a combination of the properties of goods and services that demonstrate their ability to meet customer needs. In the production process, products are meant to be produced according to the specification required and set by the company. However, some defects may be found in the process, whether they were caused by the production process, raw materials, etc. Therefore, quality control is an essential aspect of production. Quality control can be done by using several tools and each tool can help the company to maintain its quality.

REFERENCES

- Assauri, S. (2002). *Manajemen Pemasaran: Dasar, Konsep, dan Strategi*. Jakarta: Raja Grafindo Persada.
- Assauri, S. (2004). *Manajemen Produksi dan Operasi Edisi Revisi*
- Ayuni, D., Siswandaru, K., & Nupikso, G. (2012). Analisis Penerapan Statistical Quality Control Pada Beban Usaha PT. PLN. *Jurnal Organisasi dan Manajemen*, 8(1), 22-31.
- Baroto, T. (2002). *Perencanaan dan Pengendalian Produksi*. Ghalia Indonesia, Jakarta.
- Gasperz, V. (2002). *Total Quality Management*. Gramedia Pustaka Utama. Jakarta.
- Gasperz, V. (2005). *Total Quality Management*. Cetakan keempat, Gramedia Pustaka Utama. Jakarta.
- Ginting, R. (2007). *Sistem Produksi*. Yogyakarta : Graha Ilmu.
- Handoko, T. (2000). *Dasar-dasar Manajemen Produksi dan Operasi Edisi 1*, Yogyakarta:BPFE
- Heizer & Render. (2009). *Manajemen Operasi*. Buku 1 Edisi 9 Jakarta : Salemba.
- Kotler, P. & Amstrong, G. (2001) *Prinsip-prinsip Pemasaran, Edisi Keduabelas*. Jakarta: Erlangga.
- Montgomery, D. C. (2009). *Statistical Quality Control: A Modern Introduction (6th ed)*. Asia: John Wiley & Sons, Inc.
- Nasution, A. H. (2003) *Perencanaan dan Pengendalian Produksi*, Edisi 1, Surabaya: Guna Widya.
- Prawirosentono, S. (2007). *Filosofi Baru Tentang Mutu Terpadu. Edisi 2*. Jakarta: Bumi Aksara
- Stevenson, W. J & Chuong, S. C. (2015). *Manajemen Operasi*. Penerbit Salemba Empat.
- Tannady, H. (2015). *Pengendalian Kualitas*, Jakarta: Graha Ilmu
- Webber, L. & Wallace, M. (2007). *Quality Control for Dummies*. Indianapolis, Indiana: Wiley Publishing.
- Yamit, Z. (2001). *Manajemen Kualitas Produk dan Jasa*. Yogyakarta: Ekonosia