

What the differences between quality control

[Business](#), [Management](#)



This study aims at evaluating the differences between quality control and quality management. Through reading several research paper and academic books, there is a path of developing the concept of total quality, starting from quality control, then go into quality assurance and eventually the concept of total quality management. Moreover, several tools are particularly discussed for each quality concept to pinpoint their unique characteristics, so that weaknesses behind will be more easily discovered.

After the comprehensive analysis, total quality management seems to have considered the collaboration of the management philosophy with the quality system internally and externally. Keywords: quality control, quality assurance, total quality management, management philosophy

Introduction

Quality plays a key role in all industrial development. Traditionally, quality has been associated with the product that a customer receives. This is very laudable but placing a high-quality product or service in the marketplace does not, on its own, guarantee either sales or business success.

As a business student and studying at Management Sciences, I have studied Quality Management (QM) before. Therefore, in order to learn further those philosophies and methods that exclude from my course, I have decided to choose the this topic . Moreover, when I studied (QM) in last semester, I have noticed that there has been a surge of books on quality and new quality methodologies such as TQC, TQM, QFD and so on. This blizzard of ideas and methods is my indication of an increased interest in quality.

However, I found that one of the main difficulties evident in the field of quality management is the variety terms employed. Many are used both

interchangeably and inconsistently. Therefore, in order to clarify this kind of confusion, this paper will mainly discuss the following generic terms: quality control (QC) and total quality management (TQM) followed by analysing their major differences. Literature Review Before we understand what are differences between QC and TQM, basically we should understand what means of quality.

Quality as being “ fitness for use” (Joseph Juran), or that of Philip Crosby who defines quality as “ conformance to specification”. To further extend its meaning, quality can have two meanings basically: (1) the characteristics of a product or service that bear on its ability to satisfy stated or implied needs and (2) a product or service free of deficiencies. ” Quality Control (QC) is defined as the techniques or activities which sustain quality to specified requirements. In other words, it is used to secure products or services quality as laid out in a product specification.

Moreover, QC is not a prevention-based system, its basic activity is inspection, including the determination of inspection points, the inspection method development, data collection and analysis and prevention of chronic problems. Quality Assurance (QA) means to assure quality in a product so that a customer can buy it with confidence and use it for a long period of time with confidence and satisfaction. Here, the product must have true quality characteristics. That means it is insufficient to deliver to the customer product which is not flawed or defective.

What does QA do will further shift the emphasis from detection to prevention of non-conformance. Total quality management (TQM) is defined as the

application of quality management principles to all aspects of business. In fact, the Japanese experience of total quality control (TQC) was rapidly “reimported” back to the US and received widespread adaptation. TQC in western countries is commonly referred to as Total Quality Management (TQM). Principally, TQC and TQM are referred to as the same quality improvement system.

According to Feigenbaum, “TQC is an effective system for integrating the quality development, quality maintenance, and quality improvement efforts of the various groups in an organization so as to enable production and service at the most economic level which allows for full customer satisfaction.” Also, Feigenbaum defines “total” as an “internal quality” of an organization. When explain its meaning regard of the organization itself, “totality” refers to participation by all the three levels of the management hierarchy, from the top management through the middle level to the bottom level.

After committing the quality vertically and externally, the real spirit of “total” in total quality management can be achieved. Main Body Traditionally, every plant must carry out the inspection processes at the end of the production line to ensure that products are defect-free before it is launched in the marketplace, which is exactly what the department of quality control does. Besides, raw material testing is also included in the quality control system. Inspection is essential because defects and detectives always exist.

When there are defects, the only action the manufacturers can take is that of implementing the correction plan such as making adjustments, reworking

the products or consigning it to scrap. Naturally, it is not cost-effective to perform 100% inspection of the supplier quality, instead the acceptable quality level (AQL) is developed to identify a certain percentage of defective products that accepted by both suppliers and manufacturing plants. Normally, consumers (the manufacturing plants) assume 10% risk of accepting defective raw materials while producers assume 5% risk of accepting their products being wrong for the first time.

Meanwhile, by keeping production output within the certain desired level of specification by detecting causes of variation and removing those causes, the simple statistical techniques will be used like the " Pareto Diagram" (Appendix 1). It is effective in the quality analysis as most of the quality problems are actually attributed to a very small number of causes, in the more practical term, that means 20% of the causes are responsible for 80% of the defects. Therefore, if the causes of these vital few problems are identified, the inspector actually can eliminate almost all the problems.

However, a very critical weakness in quality control is that it emphasises on the recovery of defective products rather than performing the defect prevention process. Moreover, what if problems occur in the designing or development process but not the end of production line, it is obvious that quality control cannot be solved it (Appendix 2). In today's modern society, it is insufficient to deliver to the customer products which are good enough or perfect. In fact, consumers will also consider the quality of design, produce the products are fully functional in the way as they expected.

Therefore, the concept of quality assurance has been defined that starting from the planning of new product to after sales service, evaluation is to be tightly conducted and quality assured. Simply to say, no matter in the “ product design stage” or “ process design stage”, the engineers have a goal to design a product which are meet the specifications and equipment for manufacture and meet customer requirements simultaneously. In this stage, we can see quality assurance emphraize on prevention more than detection, with the use of Statistic Process Control (SPC) and quality system audit.

Statistic Process Control is an effective way to measure and distinguish between the assignable and common variations, predict the occurrence of variations, and help the engineers to hold variations within acceptable limits. After collecting data and plotting in a graph called “ control chart”, which consist of a central line representing the mean and a pair of control limit allocating above or below the central limit. The values plotted on the chart which represents the state of the process.

When the producers some of the values are located outside the control limits, it can be traced to assignable variables which are the prevailing factor to weave the usual patterns of variation (Appendix 3). Once all the assignable variables are removed, the process is operating in a random manner with no special disruption present, it is said to be stable which means its process capability can be assessed. Therefore, with the use of SPC, producers can ensure that every product meets quality standard through controlling of the manufacturing process.

Regards to Quality Control and Quality Assurance, you will notice that whether the quality problems have happened, it seems that only production managers have to bear the responsibility. How about the other business level in the organisation? It is incredible that the top managers and middle managers have no more or no less responsibility than the front-line managers like them as far as putting a quality program to work is concerned. In 1961, Armand V. Feigenbaum has developed the concept of Total Quality Management.

It requires that the principles of quality management should be applied in every branch and at every level in the organization. Individual departmental systems and requirements to meet this standard would be no longer that the responsibility is only mounted by bottom level of management hierarchy. Ideally, every successful quality revolution has included the participation of upper management which emphasize the importance of the involvement of the top management. Basically, the critical reason accounting for the failure of quality standards can be attributed to the lukewarm support offered by the top management.

What if the top managers just put up the publicity blitz about their commitment to TQM, this kind of lip service will certainly yield to no results. Instead, they should spread the message of “ quality first” over the entire organization, then all members of the organization will state a mind that ensuring the high quality of products or services is the first priority of the organizational culture. Apart from cooperating in the organization, TQM also emphasizes on process-oriented management which refers to the continuous

effort by the management as well as employees to ensure the long term customer loyalty and customer satisfaction.

However, under the quality control, the manager focuses on result-oriented management and holds a short-term perspective, once a particular result is achieved, they will call off the quality circle until another problem is to be solved, another circle may be formed. While in the process-oriented management, an upstream control is involved which requires the management's attention to cure the underlying root cause of a problem instead of just solving the problem and letting it arise again in future.

Trouble-shooting is never targeted in the TQM.

The quality circle members usually use the cause and effect diagram to investigate into the immediate and root causes of an effect (Appendix 4). It helps managers to solve problems by identifying causes systematically. It is no doubt that the variation in the actual product is caused by many causes, which included a number of secondary causes which can be easily identified while the primary causes which influenced by the secondary causes are required the continuous effort by management to figure out them to ensure the long-term high-quality performance.

Moreover, a " Plan-Do-Check-Act" (PDCA) cycle is widely accepted as a tool in TQM (Appendix 5). " Plan" means define and identify the causes of the problem. " Do" means the implementation of countermeasures for attacking the problem identified and then measure which strategy is the most effective one. " Check" means the comparison of before and after data to confirm the effectiveness of the processes and measure the results. " Act" means

employees document their results and standardize the successful implementation.

When the cycle is constantly rotating by the force of customer and quality-orientation, constant improvement in quality can be achieved. Therefore, we will notice that quality actually is an ongoing process of improvement, the management level should not only think about how to detect and prevent the defect of the end products, but also consider the improvement of ineffective processes, that is what the concept of TQM means. Conclusion The analysis indicated that the distinguish between quality control and quality management.

Since quality is an ongoing process, actually there is a path to develop different quality concepts due to the ever-changing business environment. In the 1800s, customers only emphasize whether there is any defect in the products, so the concept of quality control was developed. Until the 1950s, the manufacturing managers discovered that the design and development process should also be assured so the concept of quality assurance has replaced the previous idea.

Start from 1961s, Feigenbaum found that it is impossible that only the producer managers bear the risk of the quality problem, the duty of poor quality should be born in all aspects of business. In order to have the effective continuous improvement of quality, it requires the cooperation of the workers organizational-wide and a general commitment to quality. Consequently, the term " Total Quality Management", continuous reviewing

and assessing of all operational and management practices to ensure that quality is always maintained.

Up to now, TQM is still widely used to deal with the quality problems.

Therefore, the study will be useful for students to understand the distinction between quality control and quality management. Thus, I hope to further investigate the major differences between the overseas Chinese system of management and quality management requirements, and discover is there any potential threat that TQM will be replaced by the other quality philosophy.