Total Quality Management (TQM): A Strategy for Competitive Advantage

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Abstract

Successful companies understand the powerful impact customer-defined quality can have on business. For this reason many competitive firms continually increase their quality standards. Today's concept of quality, called total quality management (TQM), focuses on building quality into the process as opposed to simply inspecting for poor quality after production. TQM is customer driven and encompasses the entire company quality a priority means putting customer needs first. It means meeting and exceeding customer expectations by involving everyone in the organization through an integrated effort. Total quality management (TQM) is an integrated organizational effort designed to improve quality at every level. The reason quality has gained such prominence is that organizations have gained an understanding of the high cost of poor quality. Quality affects all aspects of the organization and has dramatic cost implications. The most obvious consequence occurs when poor quality creates dissatisfied customers and eventually leads to loss of business. To survive, companies had to make major changes in their quality programs. Today, successful companies understand that quality provides a competitive advantage. They put the customer first and define quality as meeting or exceeding customer expectations

Keywords : Quality, Management, Total Quality Management (TQM)

Introduction

Since the 1970s, competition based on quality has grown in importance and has generated tremendous interest, concern, and enthusiasm. Companies in every line of business are focusing on improving quality in order to be more competitive. In many industries quality excellence has become a standard for doing business. Companies that do not meet this standard simply will not survive. The introduction of total quality management (TQM) has played an important role in the development of contemporary management. Quality, considered a key strategic factor in achieving business success, is more than ever required for competing successfully in today's global market place (Dean & Evans, 1994), and it has become the key slogan as organisations strive for a competitive advantage in markets characterized by liberalization, globalization and knowledgeable customers (Sureshchandar, Chandrasekharan, & Anantharaman, 2001). Following Millar's (1987) prediction that there will be two kinds of company in the future – companies which have implemented total quality and companies which are out of business, companies worldwide, large and small, both in the manufacturing and service sectors, have adopted quality strategies, and made TQM a well accepted part of almost every manager's 'tool kit' (Dow, Swanson, & Ford, 1999)

Quality Gurus and Their Contributions

Quality Guru	Main Contribution
Walter A. Shewhart	–Contributed to understanding of process variability. –Developed concept of statistical control charts.
W. Edwards Deming	–Stressed management's responsibility for quality. –Developed "14 Points" to guide companies in quality improvement.
Joseph M. Juran	–Defined quality as "fitness for use." –Developed concept of cost of quality.
Armand V. Feigenbaum	–Introduced concept of total quality control. Philip B. Crosby –Coined phrase "quality is free." –Introduced concept of zero defects.
Kaoru Ishikawa."	–Developed cause-and-effect diagrams. –Identified concept of "internal customer
Genichi Taguchi	–Focused on product design quality. –Developed Taguchi loss function

Quality awards and standards

- Malcolm Baldrige National Quality Award**:** An award given annually to companies that demonstrate quality excellence and establish best-practice standards in industry.
- Deming Prize A Japanese award given to companies to recognize efforts in quality improvement.
- ISO 9000 A set of international quality standards and a certification demonstrating that companies have met all the standards specified.
- ISO 14000 A set of international standards and a certification focusing on a company's environmental responsibility

Concept of TQM

TQM can be defined as a set of techniques and procedures used to reduce or eliminate variation from a production process or service-delivery system in order to improve efficiency, reliability, and quality (Steingrad & Fitzgibbons, 1993). Vuppalapati, Ahire, and Gupta (1995) stated that TQM is an integrative philosophy of management for the continuous improvement of product and process quality in order to achieve customer satisfaction. According to Dean and Bowen (1994), TQM is a management philosophy or an approach characterized by principles, practices, and techniques. They pointed out three principles that most quality frameworks had in common – customer focus, continuous improvement, and teamwork. Each principle is implemented through a set of practices, and these practices, in turn, are supported by a broad set of techniques.

Total Quality Management (TQM) is a means for improving personal effectiveness and performance and for aligning and focusing all individual efforts throughout an organization. It provides a framework within which you may continuously improve everything you do and affect. It is a way of leveraging your individual effort and extending its effect and its importance throughout an organization and beyond.

The philosophy of TQM

Customer focus	Goal is to identify and meet customer needs
Continuous improvement	A philosophy of never-ending improvement.
Employee empowerment	Employees are expected to seek out, identify, and correct quality problems.
Use of quality tools	Ongoing employee training in the use of quality tools.
Product design	Products need to be designed to meet customer expectations.
Process management	Quality should be built into the process; sources of quality problems should be identified and corrected.
Managing supplier quality	Quality concepts must extend to a company's suppliers

The main focus point of TQM is to identify the root causes of quality problems and correct them at the source, as opposed to inspecting the product after it has been made. Not only does TQM encompass the entire organization, but it stresses that quality is customer driven. TQM attempts to embed quality in every aspect of the organization. It is concerned with technical aspects of quality as well as the involvement of people in quality, such as customers, company employees, and suppliers.

1. **Customer Focus :** The first, and overriding, feature of TQM is the company's focus on its customers. Quality is defined as meeting or exceeding customer expectations. The goal is to first identify and then meet customer needs. TQM recognizes that a perfectly produced product has little value if it is not what the customer wants. Companies need to continually gather information by means of focus groups, market surveys, and customer interviews in order to stay in tune with what customers want.

2. **Continuous Improvement :** Another concept of the TQM philosophy is the focus on continuous improvement. Traditional systems operated on the assumption that once a company achieved a certain level of quality, it was successful and needed no further improvements. Continuous improvement, called kaizen by the Japanese, requires that the company continually strive to be better through learning and problem solving. Because we can never achieve perfection, we must always evaluate our performance and take measures to improve it. Now let's look at two approaches that can help companies with continuous improvement: the **plan – do – study – act** (PDSA) cycle and benchmarking.

3. **The Plan–Do–Study–Act Cycle P:** The plan – do – study – act (PDSA) cycle describes the activities a company needs to perform in order to incorporate continuous improvement in its operation. This cycle, shown in Figure 5-6 is also referred to as the Shewhart cycle or the Deming wheel. The circular nature of this cycle shows that continuous improvement is a never-ending process
. • Plan The first step in the PDSA cycle is to plan. Managers must evaluate the current process and make plans based on any problems they find. They need to document all current procedures, collect data, and identify problems. This information should then be studied and used to develop a plan for improvement as well as specific measures to evaluate performance.
• Do The next step in the cycle is implementing the plan (do). During the implementation process managers should document all changes made and collect data for evaluation.
• Study The third step is to study the data collected in the previous phase. The data are evaluated to see whether the plan is achieving the goals established in the plan phase.
• Act The last phase of the cycle is to act on the basis of the results of the first three phases. The best way to accomplish this is to communicate the results to other members in the company and then implement the new procedure if it has been successful.

4. **Benchmarking :** Another way companies implement continuous improvement is by studying business practices of companies considered "best in class." This is called benchmarking. The ability to learn and study how others do things is an important part of continuous improvement. **Employee Empowerment:** Part of the TQM philosophy is to empower all employees to seek out quality problems and correct them. With the old concept of quality, employees were afraid to identify problems for fear that they would be reprimanded. Often poor quality was passed on to someone

else, in order to make it "someone else's problem." The new concept of quality, TQM, provides incentives for employees to identify quality problems. Employees are rewarded for uncovering quality problems, not punished. In TQM, the role of employees is very different from what it was in traditional systems. Workers are empowered to make decisions relative to quality in the production process. They are considered a vital element of the effort to achieve high quality.

5. **Team Approach :** TQM stresses that quality is an organizational effort. To facilitate the solving of quality problems, it places great emphasis on teamwork. The use of teams is based on the old adage that "two heads are better than one." Using techniques such as brainstorming, discussion, and quality control tools, teams work regularly to correct problems. The contributions of teams are considered vital to the success of the company. For this reason, companies set aside time in the workday for team meetings.. Quality circles are not mere "gab sessions." Rather, they do important work for the company and have been very successful in many firms.

Implication of TQM Tools

Seven tools of quality control are extremely useful in identifying and analyzing quality problems. Sometimes workers use only one tool at a time, but often a combination of tools is most helpful

1. **Cause-and-effect diagram :** Cause-and-effect diagrams are charts that identify potential causes for particular quality problems. They are often called fishbone diagrams because they look like the bones of a fish. Cause-and-effect diagrams are problem-solving tools commonly used by quality control teams. Specific causes of problems can be explored through brainstorming. The development of a cause-and-effect diagram requires the team to think through all the possible causes of poor quality.

2. **Flowcharts :**A flowchart is a schematic diagram of the sequence of steps involved in an operation or process. It provides a visual tool that is easy to use and understand. By seeing the steps involved in an operation or process, everyone develops a clear picture of how the operation works and where problems could arise.

3. **Checklists:**A checklist is a list of common defects and the number of observed occurrences of these defects. It is a simple yet effective fact-finding tool that allows the worker to collect specific information regarding the defects observed

4. **Control Charts :**Control charts are a very important quality control tool. These charts are used to evaluate whether a process is operating within expectations relative to some measured value such as weight, width, or volume. For example, we could measure the weight of a sack of flour, the width of a tire, or the volume of a bottle of soft drink. When the production process is operating within expectations, we say that it is "in control." To evaluate whether or not a process is in control, we regularly measure the variable of interest and plot it on a control chart. The chart has a line down the center representing the average value of the variable we are measuring. Above and below the center line are two lines, called the upper control limit (UCL) and the lower control limit (LCL). As long as the observed values fall within the upper and lower control limits, the process is in control and there is no problem with quality. When a measured observation falls outside of these limits, there is a problem.

5. **Scatter Diagrams:** Scatter diagrams are graphs that show how two variables are related to one another. They are particularly useful in detecting the amount of correlation, or the degree of linear relationship, between two variables. For example, increased production speed and number of defects could be correlated positively; as production speed increases, so does the number of defects. Two variables could also be correlated negatively, so that an increase in one of the variables is associated with a decrease in the other. For example, increased worker training might be associated with a decrease in the number of defects observed. The greater the degree of correlation, the more linear are the observations in the scatter diagram. On the other hand, the more scattered the observations in the diagram, the less correlation exists between the variables.

6. **Pareto Analysis:** Pareto analysis is a technique used to identify quality problems based on their degree of importance. The logic behind Pareto analysis is that only a few quality problems are important, whereas many others are not critical. The technique was named after Vilfredo Pareto, a

nineteenth-century Italian economist who determined that only a small percentage of people controlled most of the wealth. This concept has often been called the 80 – 20 rule and has been extended to many areas. In quality management the logic behind Pareto's principle is that most quality problems are a result of only a few causes.

7. **Histogram Chart :** It is a chart that shows the frequency distribution of observed values of a variable. We can see from the plot what type of distribution a particular variable displays, such as whether it has a normal distribution and whether the distribution is symmetrical.

Factors needed for success of TQM

A company cannot achieve high quality if its accounting is inaccurate or the marketing department is not working closely with customers. TQM requires the close cooperation of different functions in order to be successful

1. **Marketing** plays a critical role in the TQM process by providing key inputs that make TQM a success. Recall that the goal of TQM is to satisfy customer needs by producing the exact product that customers want. Marketing's role is to understand the changing needs and wants of customers by working closely with them.

2. **Finance** is another major participant in the TQM process because of the great cost consequences of poor quality. General definitions of quality need to be translated into specific monetary forms. This serves as a baseline for monitoring the financial impact of quality efforts and can be a great motivator. Financial analysis of these costs is critical. This includes costs related to preventing and eliminating defects, training employees, reviewing new products, and all other quality efforts.

3. **Accounting** is important in the TQM process because of the need for exact costing. TQM efforts cannot be accurately monitored and their financial contribution assessed if the company does not have accurate costing methods.

4. **Engineering** efforts are critical in TQM because of the need to properly translate customer requirements into specific engineering terms.

5. **Purchasing** is another important part of the TQM process. Whereas marketing is busy identifying what the customers want and engineering is busy translating that information into technical specifications, purchasing is responsible for acquiring the materials needed to make the product. Purchasing must locate sources of supply, ensure that the parts and materials needed are of sufficiently high quality, and negotiate a purchase price that meets the company's budget as identified by finance.

6. **Human resources** is critical to the effort to hire employees with the skills necessary to work in a TQM environment. That environment includes a high degree of teamwork, cooperation, dedication, and customer commitment. Human resources is also faced with challenges relating to reward and incentive systems. Rewards and incentives are different in TQM from those found in traditional environments that focus on rewarding individuals rather than teams.

7. **Information systems (IS)** is highly important in TQM because of the increased need for information accessible to teams throughout the organization. IS should work closely with a company's TQM development program in order to understand exactly the type of information system best suited for the firm, including the form of the data, the summary statistics available, and the frequency of updating

Conclusion

Total Quality Management is not a destination but a journey toward improvement. Total Quality Management addresses the quality of management as well as the management of quality. It involves everyone in an organization in a systematic long-term endeavor to develop processes that are customer oriented, flexible and responsive, and constantly improving in quality. TQM is a means through which organization creates and sustains a culture committed to continuous improvement. Under TQM, organization will deliberately seek to create a positive and dynamic working environment, foster

teamwork, apply quantitative methods and analytical techniques, and tap the creativity and ingenuity of all of people. TQM depends on effective leadership.

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