

## **Chapter-21**

# **Total Quality Management (TQM): The Concept and Application**

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### **What is Total Quality Management (TQM) ?**

**Total quality management (TQM)** consists of organization-wide efforts to install and make permanent a climate in which an organization continuously improves its ability to deliver high-quality products and services to customers. While there is no widely agreed-upon approach, TQM efforts typically draw heavily on the previously developed tools and techniques of quality control. TQM enjoyed widespread attention during the late 1980s and early 1990s before being overshadowed by ISO 9000, Lean manufacturing, and Six Sigma.

A core definition of **total quality management (TQM)** describes a management approach to long-term success through customer satisfaction. In a **TQM** effort, all members of an organization participate in improving processes, products, services, and the culture in which they work.

### **History**

In the late 1970s and early 1980s, the developed countries of North America and Western Europe suffered economically in the face of stiff competition from Japan's ability to produce high-quality goods at competitive cost. For the first time since the start of the Industrial Revolution, the United Kingdom became a net importer of finished

goods. The United States undertook its own soul-searching, expressed most pointedly in the television broadcast of *If Japan Can... Why Can't We?* Firms began reexamining the techniques of quality control invented over the past 50 years and how those techniques had been so successfully employed by the Japanese. It was in the midst of this economic turmoil that TQM took root.

The exact origin of the term "total quality management" is uncertain. It is almost certainly inspired by Armand V. Feigenbaum's multi-edition book *Total Quality Control* (OCLC 299383303) and Kaoru Ishikawa's *What Is Total Quality Control? The Japanese Way* (OCLC 11467749). It may have been first coined in the United Kingdom by the Department of Trade and Industry during its 1983 "National Quality Campaign".<sup>[1]</sup> Or it may have been first coined in the United States by the Naval Air Systems Command to describe its quality-improvement efforts in 1985.

In the spring of 1984, an arm of the United States Navy asked some of its civilian researchers to assess statistical process control and the work of several prominent quality consultants and to make recommendations as to how to apply their approaches to improve the Navy's operational effectiveness. The recommendation was to adopt the teachings of W. Edwards Deming. The Navy branded the effort "Total Quality Management" in 1985.

From the Navy, TQM spread throughout the US Federal Government, resulting in the following:

- The creation of the Malcolm Baldrige National Quality Award in August 1987
- The creation of the Federal Quality Institute in June 1988
- The adoption of TQM by many elements of government and the armed forces, including the United States Department of

Defense, United States Army, and United States Coast Guard . The private sector followed suit, flocking to TQM principles not only as a means to recapture market share from the Japanese, but also to remain competitive when bidding for contracts from the Federal Government since "total quality" requires involving suppliers, not just employees, in process improvement efforts.

**TQM PRINCIPLES:**

Different consultants and schools of thought emphasize different aspects of TQM as it has developed over time. These aspects may be technical, operational, or social/managerial.

The basic elements of TQM, as expounded by the American Society for Quality Control, are **1) policy, planning, and administration; 2) product design and design change control; 3) control of purchased material; 4) production quality control; 5) user contact and field performance; 6) corrective action; and 7) employee selection, training, and motivation.**

The real root of the quality movement, the "invention" on which it really rests, is statistical quality control. SQC is retained in TQM in the fourth element, above, "production quality control." It may also be reflected in the third element, "control of purchased material," because SQC may be imposed on vendors by contract.

In a nutshell, this core method requires that quality standards are first set by establishing measurements for a particular item and thus defining what constitutes quality. The measurements may be dimensions, chemical composition, reflectivity, etc.—in effect any measurable feature of the object. Test runs are made to establish divergences from a base measurement (up or down) which are still acceptable. This "band" of acceptable outcomes is then recorded on one or several Shewhart charts. Quality control then begins during the production process itself. Samples are continuously taken and

immediately measured, the measurements recorded on the chart(s). If measurements begin to fall outside the band or show an undesirable trend (up or down), the process is stopped and production discontinued until the causes of divergence are found and corrected. Thus SQC, as distinct from TQM, is based on continuous sampling and measurement against a standard and immediate corrective action if measurements deviate from an acceptable range.

TQM is SQC—plus all the other elements. Deming saw all of the elements as vital in achieving TQM. In his 1982 book, *Out of the Crisis*, he contended that companies needed to create an overarching business environment that emphasized improvement of products and services over short-term financial goals—a common strategy of Japanese business. He argued that if management adhered to such a philosophy, various aspects of business—ranging from training to system improvement to manager-worker relationships—would become far healthier and, ultimately, more profitable. But while Deming was contemptuous of companies that based their business decisions on numbers that emphasized quantity over quality, he firmly believed that a well-conceived system of statistical process control could be an invaluable TQM tool. Only through the use of statistics, Deming argued, can managers know exactly what their problems are, learn how to fix them, and gauge the company's progress in achieving quality and other organizational objectives.

#### Making TQM work

In the modern context TQM is thought to require participative management; continuous process improvement; and the utilization of teams. Participative management refers to the intimate involvement of all members of a company in the management process, thus de-emphasizing traditional top-down management methods. In other words, managers set policies and make key decisions only with the

input and guidance of the subordinates who will have to implement and adhere to the directives. This technique improves upper management's grasp of operations and, more importantly, is an important motivator for workers who begin to feel like they have control and ownership of the process in which they participate.

Continuous process improvement, the second characteristic, entails the recognition of small, incremental gains toward the goal of total quality. Large gains are accomplished by small, sustainable improvements over a long term. This concept necessitates a long-term approach by managers and the willingness to invest in the present for benefits that manifest themselves in the future. A corollary of continuous improvement is that workers and managers develop an appreciation for, and confidence in, TQM over a period of time.

Teamwork, the third necessary ingredient for TQM, involves the organization of cross-functional teams within the company. This multidisciplinary team approach helps workers to share knowledge, identify problems and opportunities, derive a comprehensive understanding of their role in the overall process, and align their work goals with those of the organization. The modern "team" was once the "quality circle," a type of unit promoted by Deming. Quality circles are discussed elsewhere in this volume.

For best results TQM requires a long-term, cooperative, planned, holistic approach to business, what some have dubbed a "market share" rather than a "profitability" approach. Thus a company strives to control its market by gaining and holding market share through continuous cost and quality improvements—and will shave profits to achieve control. The profitability approach, on the other hand, emphasizes short-term stockholder returns—and the higher the better. TQM thus suits Japanese corporate culture better than American corporate culture. In the corporate environment of the U.S., the

short-term is very important; quarterly results are closely watched and impact the value of stocks; for this reason financial incentives are used to achieve short term results and to reward managers at all levels. Managers are therefore much more empowered than employees—despite attempts to change the corporate culture. For these reasons, possibly, TQM has undergone various changes in emphasis so that different implementations of it are sometimes unrecognizable as the same thing. In fact, the quality movement in the U.S. has moved on to other things: the lean corporation (based on just-in-time sourcing), Six Sigma (a quality measure and related programs of achieving it), and other techniques.

### **PRACTICING TQM**

As evident from all of the foregoing, TQM, while emphasizing "quality" in its name, is really a philosophy of management. Quality and price are central in this philosophy because they are seen as effective methods of gaining the customer's attention and holding consumer loyalty. A somewhat discriminating public is thus part of the equation. In an environment where only price matters and consumers meekly put up with the successive removal of services or features in order to get products as cheaply as possible, the strategy will be less successful. Not surprisingly, in the auto sector, where the investment is large and failure can be very costly, the Japanese have made great gains in market share; but trends in other sectors—in retailing, for instance, where labor is imposed on customers through self-service stratagems—a quality orientation seems less obviously rewarding.

For these reasons, the small business looking at an approach to business ideal for its own environment may well adapt TQM if it can see that its clientele will reward this approach. The technique can be applied in service and retail settings as readily as in manufacturing,

although measurement of quality will be achieved differently. TQM may, indeed, be a good way for a small business, surrounded by "Big Box" outlets, to reach precisely that small segment of the consuming public that, like the business itself, appreciates a high level of service and high quality products delivered at the most reasonable prices possible.

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