

2. THE PHILOSOPHY OF TOTAL QUALITY MANAGEMENT

Dr. Piar Chand* Yogesh Gupta**

Abstract

Total Quality Management (TQM) has assumed a pivotal role in the manufacturing industry as well as in the service sector. Today the market is fiercely competitive; only the fittest can survive and the main yardstick for measuring the fittest is nothing but quality. Corporate success today largely depends on quality. Business firms all over the world have realized that the secret to the superior performance of the Japanese companies has been their concentration on the quality. Hence Total Quality Management (TQM) is no longer thought as a concept. It is a philosophy. The historical evolution of TQM and evolution of TQM related activities in India and projection for future has been traced in this paper. Literature has been reviewed on various definitions of TQM. Implementation of TQM requires a paradigm shift in many facets of organization's functioning that has also been highlighted. On the basis of these philosophies, an integrated TQM model has been presented for the successful implementation of TQM.

INTRODUCTION

The history of quality control is as old as industry itself. During the middle ages, quality was to a large extent controlled by the long periods of training required by the guilds. This training instilled pride in workers for quality of a product.

The concept of specialization or division of labour was introduced during the Industrial Revolution. As a result, a worker no longer made the entire product, but only a portion. This change brought about a decline in workmanship. Because most products manufactured during that early period were not complicated, quality was not greatly affected. In fact, because productivity improved, there was a decrease in the cost, which resulted in lower customer

expectations. As products became more complicated and job more specialized, it became necessary to inspect products after manufacture.

In 1924, W.A.Schewhart of Bell Telephone Laboratories developed a statistical chart for the control of product variables. This chart is considered to be the beginning of statistical quality control. Later in the same decade, H.F.Dodge and H.G.Roming, both of Bell Telephone Laboratories, developed the area of acceptance sampling as a substitute for 100% inspection. Recognition of the value of statistical quality control became apparent by 1942. Unfortunately, U.S. managers failed to recognize its value.

*Department of Humanities and Social Sciences, NIT, Hamirpur (H.P.)-177005.

In 1946, the American Society for Quality Control was formed. Recently, the name was changed to American Society for Quality (ASQ). This organization, through its publications, conferences and training sessions, has promoted the use of quality for all types of production and service.

In 1950, W. Edward Deming who learned statistical quality control from Schewhart, gave a series of lectures on statistical methods to Japanese engineers and on quality responsibility, to the CEOs of the largest organizations in Japan. Joseph M. Juran made his first trip to Japan in 1954 and further emphasized management's responsibility to achieve quality. Using these concepts the Japanese set the quality standards for the rest of the world to follow.

In 1960, the first quality control circles were formed for the purpose of quality improvement. Simple statistical techniques were learned and applied by the Japanese workers. By the late 1970s and early 1980s, U.S. managers were making frequent trips to Japan to learn about the Japanese miracle. These trips were really not necessary—they could have read the writing of Deming and Juran. Nevertheless, a quality renaissance began to occur in U.S. products and services; and by the middle of 1980, the concepts of TQM were being publicized.

In the late 1980s the automotive industry began to emphasize Statistical Process Control (SPC) suppliers and their suppliers were required to use these techniques. The department of defense also implemented SPC. The Malcolm Baldrige National award was established and became the means to measure TQM. Genichi Taguchi introduced his concepts and parameter and tolerance design and brought about a resurgence of design of experiments (DOR) as a valuable quality improvement techniques. Emphasis on quality continued in the auto industry in the 1990s as a result the Saturn automobile ranked first in customer satisfaction (1996). In addition, ISO 9000 became the worldwide model for a quality management

system. ISO 14000 was approved as the worldwide model for environmental management system. The new millennium brought about increased emphasis on quality and internet.

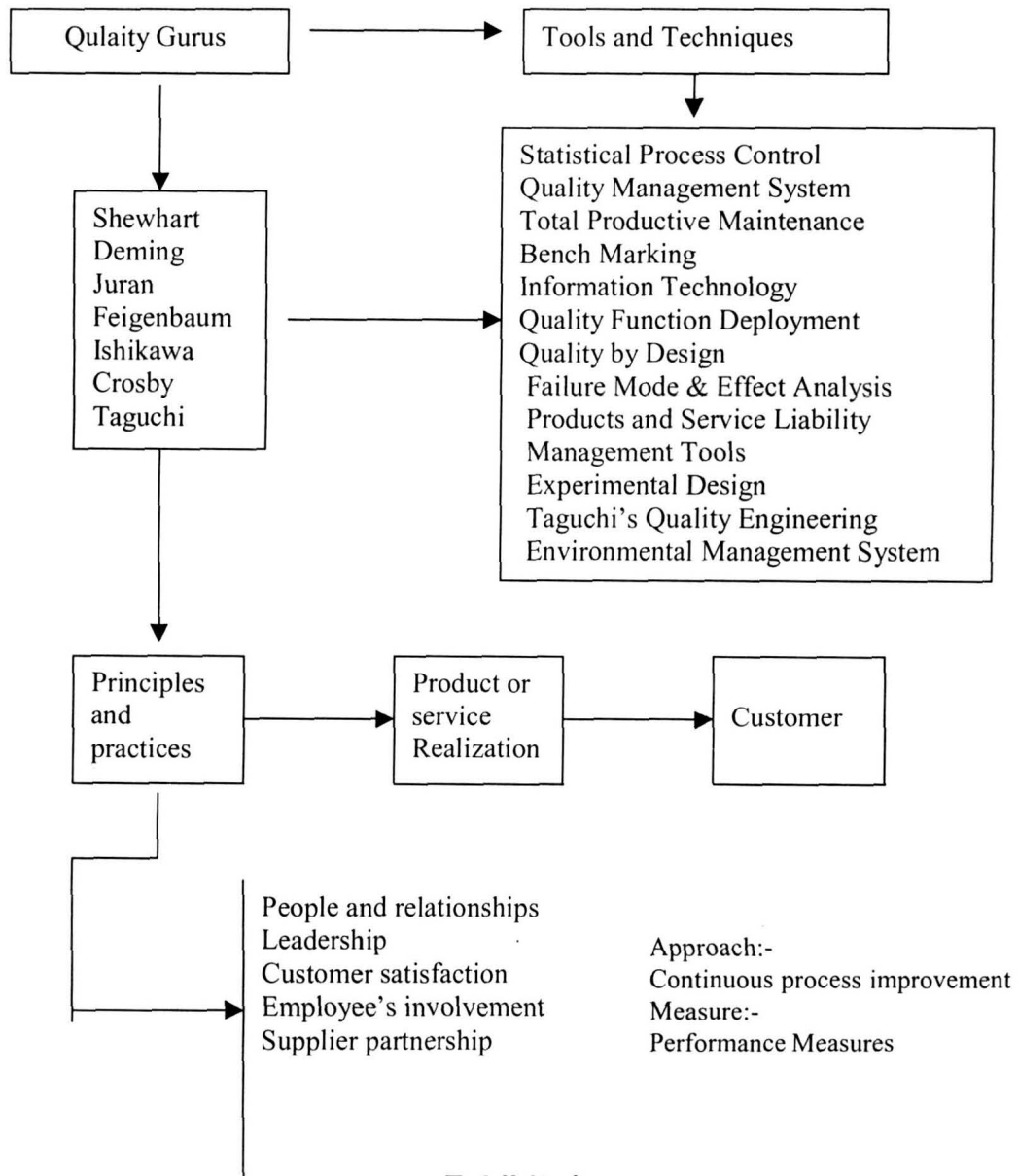
TQM Framework

Exhibit-1 shows the framework for the TQM system. It begins with the knowledge provided by the quality gurus : Schewhart, Deming, Juran, Feigenbaum, Ishikawa, Crosby and Taguchi. As the exhibit shows that they contributed to the development of principles and practices and/ or the tools and techniques. (Exhibit-1 on page no. 15).

TQM Defined

TQM is defined as both a management philosophy and a set of guiding principles that represent the foundation of continuously improving organization. It is an application of quantitative methods and human resources to improve all the processes within an organization and exceed customer needs, now and in the future. TQM integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach. The simple objective of TQM is **"Do the right things, right the first time, every time"**. TQM is infinitely variable and adaptable. Although originally applied to manufacturing operations, and for a number of years only used in that area, TQM is now becoming recognized as a generic management tool, just as applicable in service and public sector organizations. There are a number of evolutionary strands, with different sectors creating their own versions from the common ancestor. TQM is the foundation for activities, which include:

- Commitment by senior management and all employees
- Meeting customer requirements
- Reducing development cycle times
- Just In Time/ Demand Flow Manufacturing
- Improvement teams
- Reducing product and service costs

**Exhibit -1**

- Systems to facilitate improvement
- Line management ownership
- Employee involvement and empowerment
- Recognition and celebration
- Challenging quantified goals and benchmarking

- Focus on processes/ improvement plans
- Specific incorporation in strategic planning

This shows that TQM must be practiced in all activities by all personnel, in manufacturing, marketing, engineering, R&D, sales, purchasing, HR, etc. Hyde, (1992).

HISTORICAL EVOLUTION OF TQM

The Philosophy of quality has emerged in industries and started with inspection followed

by quality control, quality assurance and then Total Quality Management (TQM). Exhibit-2 illustrates the historical evolution of TQM.

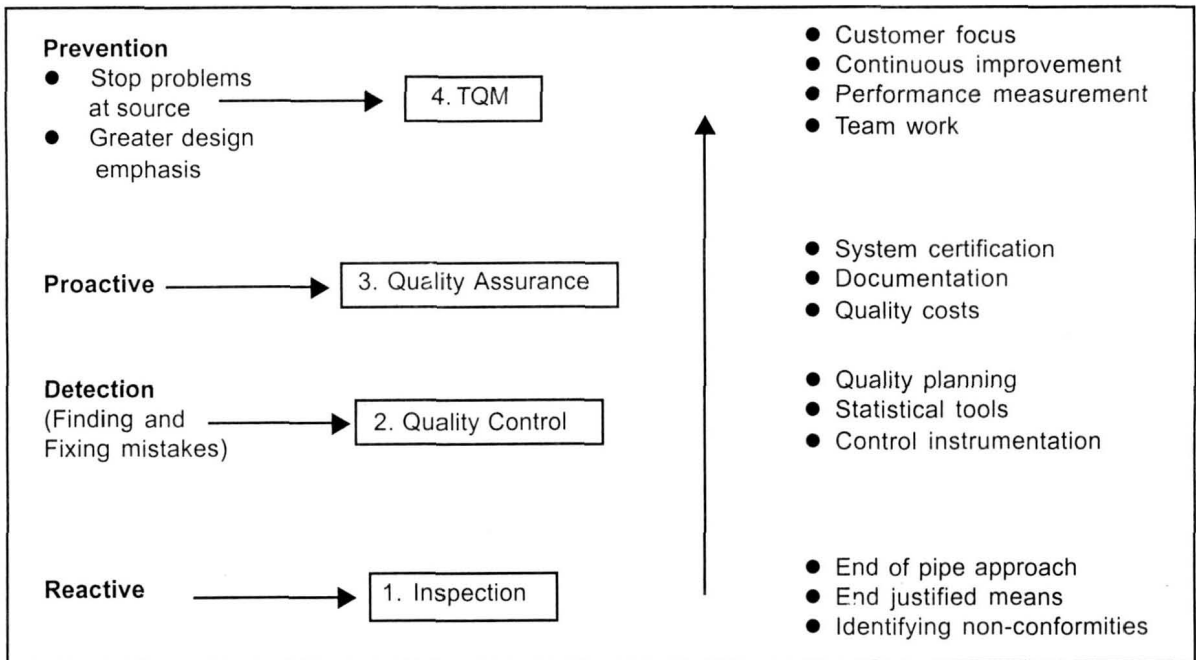


Exhibit - 2

(Exhibit-3 on page no. 17).

OBSTACLES ASSOCIATED WITH THE IMPLEMENTATION OF TQM

During the introduction of TQM and its implementation, several problems/obstacles may arise. The companies have experienced different types of difficulties, but most common obstacles have been found by the Robert J Masters, (1998) after conducting an extensive search in the field of TQM, which are as follows:

- Lack of management commitment
- Inability to change organizational culture
- Improper planning
- Lack of continuous training and education
- Incompatible organizational structure and

isolation between individuals and departments.

- Ineffective measurement techniques and lack of access to data and results
- Paying inadequate attention to internal and external customers
- Inadequate use of empowerment and teamwork
- Failure to continually improve. Tichey, (1983) has also suggested some of the symptoms; if these symptoms are prevailing in the organization, then TQM would not be appropriate to implement.
- Very unstable funding base
- Weak administrative system

Evolution of TQM related activities in India, and projection for the future

Changes in social and Economic environment	Development in Quality	QC Tools	QA System	Change of concept in Policy Management
(1947-1982) ●Regulation of economy ●Slow rate of economy Growth ●Very low competition	●QC in inspection stage (identification of defectives)	●Inspection	●Regulation of inspection ●Regulation of product audit	●Focus on inspection as means to achieve quality
(1983-1994) ●Slow growth rate ●Imported kits ●Emerging domestic Competition	●Growing quality awareness ●Attempted use of QC circles	●7 tools of QC	●QA system ●Compliance with ISO 9000 quality system requirements	●Growing awareness for customer satisfaction and employee involvement ●Ownership of quality with the doer
(1995-2000) ●Adequate growth rate of economy ●Growing domestic Competition ●Select international Competition	●QC in manufacturing stage (prevention of defectives)	Various statistical methods: ●DOE ●FMEA ●FTA ●Quality table	●Regulation of process control ●QC process chart, control chart and checksheet ●Quality tables deploying required quality	●Focus on measures/ means in addition to targets ●Focus on cross functional management ●Autonomy to act
(2001-2007) Deregulation of economy ●High growth of economy ●Open competition requirements	●QC in design stage 7 management tools	●Multivariate analysis	●Quality tables transforming required qualities to design qualities	●To attach importance to mid term and long term policies ●Using quality as means to manage business
(2008-2020) Self regulated Economy ●Total integration With global markets ●Development of Technology for new Products ●Steady growth of Economy	●QC in research stage	●Subsystem in managing research programmes using a combination of quality table and process development process control (PDPC)	●Regulation of design review	●Transition to strategic management of business by the participation of all members and all divisions

Source: Quality Update, 4(8): P.4, August, 2004.

Exhibit - 3.

- Lack of managerial skill
- Poor employee morale

IMPLEMENTATION OF TQM

The implementation of TQM requires a paradigm shift in many facets of organization's functioning. A few of the vital issues are highlighted here:

- To assess the organization's current reality
- A management audit
- Departures from traditions
- A crisis or galvanizing event
- Strategic decisions
- Individual "prime movers"
- Action vehicle

DEVELOPMENT

Following a review of progress using survey or other methods, thought must be given to how TQM is to develop in the organization. Suggestions for consideration may include:

- Development of long term TQM strategies
- Re-emphasis on the TQM culture
- Reorganizations of the TQM structure
- Increase in QITs and quality circles

membership

- Additional training and resources
- Improvement in measurements- especially for administrative area
- Improvement in communication of progress, results

Perhaps TQM's one of the Guru, Ishikawa (1985) has rightly said that TQM will be difficult, comprehensive and long term process. Hence, leader will need to maintain their commitment, keep the process visible, provide necessary support and hold people responsible for results. Use input from stakeholders (clients, referring agencies, funding sources etc.) as far as possible; and of course maximize employee involvement in the design of the system.

INTEGRATED TQM MODEL

In integrated TQM model, preventive measures will ensure that without completing one's responsibility, one will not be able to take up the next responsibility. This way performance accomplishment is guaranteed. Hence, there is no need for performance appraisal. In the integrated model shown in the Exhibit-4, this approach is followed which takes care of all the TQM principles.

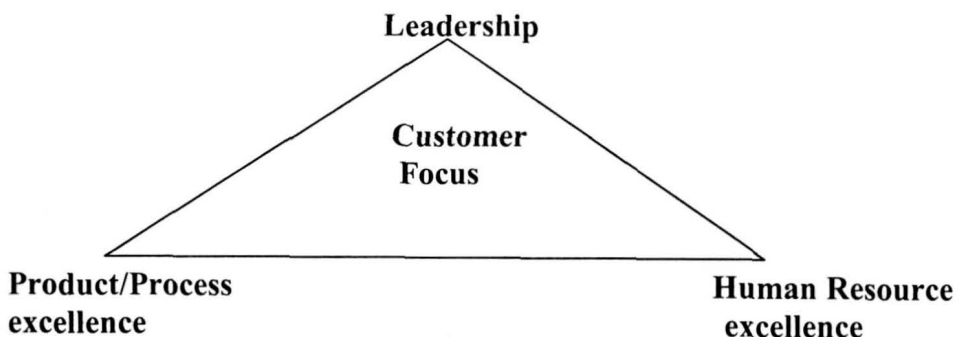


Exhibit-4, Integrated TQM Model

Leadership

- Proper vision
- 100% commitment from leaders/management
- Strategic planning
- Motivation to employees

Product/Process Excellence

- Continuous improvement
- Preventive measures
- Documentation
- Data based approach

Human Resource Excellence

- Training
- Team building
- Information flow/communication
- Cross Functional style

TQM is not a strategy or concept. It is a way of life. Organizations need to understand this while implementing TQM. It advocates norms and guidelines to be followed. It is essential that the principles and characteristics highlighted for successful implementation of TQM have been understood and redefined from an organization's point of view.

In conclusion, we can say that all these issues raised above must be taken into consideration in order to implement TQM. If not, it is better that TQM implementation should be avoided or delayed until favourable conditions exist.

REFERENCES

1. Crosby, Philip. B (1979). *Quality is free*, McGraw-Hill, New York. And *Quality without Tears* (1984), McGraw-Hill, New York.
2. Deming, W. Edwards (1982). *Quality, Productivity and competitive position*, Cambridge, Massachusetts: MIT centre for advanced Engineering Study.
3. Dodge, H.F., and Roming H.G. (1959). *Sampling Inspection Tables, Single and Double Sampling*, 2nd Ed., John Wiley, New York.
4. Feigenbaum, A.V. (1983). *Total Quality Control: Engineering and Management*, 3rd ed., McGraw-Hill, New York.
5. Hyde, A. (1992). The Proverbs of Total Quality Management: *Recharting the Path to Quality Improvement in the Public Sector*. *Public Productivity and Management Review*, 16 (1) 25-37.
6. Ishikawa, K. (1972). *Guide to Quality Control*, Asian Productivity Organization, Tokyo.
7. Ishikawa, K. (1985). *What is Total Quality Control? The Japanese way*, Englewood cliffs, New Jersey, Prentice - Hall.
8. Juran's early approach appears in J.M. Juran (1951). *Quality Control Handbook*, New York, McGraw Hill. For more contributions, see (all by Juran) "The Quality Trilogy", *Quality Progress*, Aug. (1986). PP 19-24, "Universal Approach to Managing Quality", *Executive Excellence*, May (1989). pp. 15-17, "Made in USA- A quality Resurgence". *Journal for quality and participation*, March, (1991). pp. 6-8, "Strategies for world progress", *Quality progress*, March (1991). Pp .81-85.
9. Robert, J. Masters (1996). "Overcoming the Barriers to TQM Success", *Quality progress*, 53-55.
10. Schewhart, A Walter, (1931). *Economic Control of Quality of Manufactured Products* New York: Van Nostrand Reinhold, p.6. Re-issued (1980). by the American Society for Quality.
11. Taguchi, G. (1986). *Introduction to Quality Engineering*, Tokyo: Asian Productivity Organization.
12. Tichey, N.(1983). *Managing strategic change*, New York: John Wiley& Sons.

