Total Quality Management
Concepts, Evolution and Acceptability in Developing Economies

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Introduction
In recent years, Total Quality Management (TQM) has received worldwide attention and is being adopted in many industries, particularly in developed economies. TQM has evolved primarily because of the changes in the global economy and also because of demand in market forces. Although control of quality has been practised in many industries for several years, the adoption of TQM as a major preoccupation of businesses worldwide is very recent. The traditional control methods being implemented in industries to ensure quality have not yielded the results that were expected of them. Furthermore, rapidly changing technology and customer expectations have already affected organizations worldwide and thus have promoted the need for taking a new look at quality management. In this study we intend to discuss how TQM can be adopted in organizations that are replacing existing quality control systems to promote competition and growth.

Various pioneering researchers have made significant contributions towards the design, development and application of the TQM system. This article takes a synoptic view of the existing state-of-the-art and makes an attempt to present an overview of some of the key studies, focusing on the following specific issues:

- What are the key concepts of TQM?
- What is the global acceptability of TQM?
- How should TQM be implemented?
- What role can TQM play in developing economies?

TQM: The Key Concepts
TQM may be defined as a continuous quest for excellence by creating the right skills and attitudes in people to make prevention of defects possible and satisfy customers/users totally at all times. TQM is an organization-wide activity that has to reach every individual within an organization. Oakland[1] has defined TQM as follows:

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> Total Quality Management (TQM) is an approach to improving the effectiveness and flexibility of business as a whole. It is essentially a way of organizing and involving the whole organization; every department, every activity, every single person at every level.

TQM is regarded as an integration of various processes characterizing the behavioural dynamics of an organization. For this, an organization is referred to as a total system (socio-technical), where all the activities carried out are geared towards meeting the requirements of customers with efficiency and effectiveness. Zaire and Simintiras[2] have propounded this viewpoint by stating:

> Total Quality Management is the combination of the socio-technical process towards doing the right things (externally), everything right (internally) first time and all the time, with economic viability considered at each stage of each process.

TQM has been based on the quest for progress and continual improvement in the areas of cost, reliability, quality, innovative efficiency and business effectiveness. Pfau[3] states that TQM is an approach for continuously improving the quality of goods and services delivered through the participation of all levels and functions of the organization. Tobin[4] views TQM as the totally integrated effort for gaining competitive advantage by continuously improving every facet of organizational culture. Deming[5] provides an operational definition of TQM which gives a motivational meaning to the concept. Sink[6] states that TQM can be successful only if the operational definition is translated into strategies by the leadership of the organization and which are crystallized into actions and communicated to all the people with conviction and clarity.

However, TQM may also be viewed functionally as an integration of two basic functions, i.e. total quality control and quality management. Quality has been defined in a variety of ways[7], such as “fitness for use”; “conformance to requirements”; “the amounts of unpriced attributes contained in each unit of priced attributes”, among many others. Total quality control is a long-term success strategy for organizations. Customer satisfaction, employee satisfaction, product quality assurance in all its stages, and continuous improvement and innovation, are the main ingredients of total quality control; whereas quality management is a way of planning, organizing and directing that will facilitate and integrate the capabilities of all employees for continuous improvement of anything and everything in an organization to attain excellence. Thus, TQM in an organization brings all the people together to ensure and improve product-process quality, the work environment and working culture.

Oakland[8] depicts TQM as a pyramid representing five distinct components – management commitment, customer-supplier chain, quality systems, Statistical Process Control (SPC) tools and teamwork. The customer-supplier chain forms the top of the Oakland pyramid. It reflects process ownership, process management and process improvement, propelled throughout the customer-supplier chain. Sohal *et al.*[9] have explained that the continuous improvement in quality has to come from an integrated approach of controlling

quality via action plans in different operations of the business cycle. They have identified five elements such as customer focus, management commitment, total participation, statistical quality control and systematic problem solving. Zaire[10] has mentioned that TQM can be formulated in terms of the three important aspects of continuous improvement, value-added management and employee involvement. Price and Gaskill[11] have identified three dimensions of TQM. They are:

(1) *the product and service dimension*: the degree to which the customer is satisfied with the product or service supplied;

(2) *the people dimension*: the degree to which the customer is satisfied with the relationship with the people in the supplying organizations;

(3) *the process dimension*: the degree to which the supplier is satisfied with the internal work processes, which are used to develop the products and services supplied to the customers.

According to Feigenbaum[12], in an increasingly competitive world quality is no longer an optional extra, it is an essential business strategy for survival.

TQM: The Evolution

Zaire[10] outlines the evolution of quality concepts and points out that they have evolved from two extremes:

- from control driven to culturally driven;
- from controlling-in to managing-in quality.

Hansen[13] has identified two notable milestones in the evolution:

- the transition from one-off manufacture to mass production or the differential piece-rate system (Taylorism);
- the transition to the communication-oriented industrial society (electronic data processing).

The evolution of TQM is the outcome of four major eras of development, as outlined by Garvin[14]. He illustrates the evolutionary process where quality has moved from an initial stage of inspecting, sorting and correcting standards to an era of developing quality manuals and controlling process performance. The third stage was to develop systems for third-party certification, more comprehensive manuals including areas of organization other than production, and to use standard techniques such as SPC. The present and fourth era of TQM is primarily strategic in nature and is based on continuous improvement as the driving force.

Sink[6] identifies the primary factors behind the need for TQM as: the global economy; complex and dynamic technology; complex and dynamic resources; customer orientation and expectations; complex and dynamic task environment; and a shrinking feasible solution space for many critical problems, issues and opportunities.

Foster and Whittle[15] have found that TQM is a fundamental shift away from traditional thinking. The systematic analysis, preplanning and blueprinting of operations remain essential, but the focus switches from a process driven by external controls through procedure-compliance and enbasement to a process of habitual improvement, where control is embedded in and driven through the culture of the organization.

According to Sink[6], TQM has evolved out of these five checkpoints:

(1) Selection and management of upstream systems.

(2) Incoming quality assurance.

(3) Process quality management and assurance.

(4) Outgoing quality assurance.

(5) The proactive assurance that the organizational system is meeting or exceeding customers' needs, specifications, requirements, worths, desires and expectations.

He further states that if an organizational system successfully manages each of these five checkpoints, it will manage quality totally.

Nessa L'Abbe[16] emphasizes integrity, methodology and humanity as the essential evolutionary features of TQM. According to him, integrity relates to a management philosophy that focuses on quality with emphasis on both vertical and horizontal integrity. Methodology requires the universal application of scientific methods for the processing of data; and humanity implies that all people are made creative participants through teamwork and quality control circles.

The TQM approach differs from traditional management in the following ways:

(1) TQM focuses on customers absolutely. The firm customer focus brings competitive edge to the organization.

(2) "Products conquer markets" is the basic edifice of TQM.

(3) TQM takes the view that profits follow quality, not the other way around.

(4) TQM views total quality as having multi-dimensional attributes.

(5) TQM creates goal-directed connections between customers, managers and workers. Everyone is motivated to contribute towards quality. TQM empowers each and every employee, regardless of level, to find better ways to work. Traditional management, in contrast, is monolithic: workers work and managers manage the workers.

(6) TQM is process-oriented, as against the traditional result-oriented approach.

(7) TQM favours a long span of control, with authority pushed down almost to the lowest level, as against short spans of control and many layers of authority in traditional management cultures. Accountability for quality is embedded at every level.

(8) TQM requires a multiskilled workforce with job rotation, in contrast to division of labour.

In essence, TQM is collectively owned by all people in the organization and it is everybody's concern to improve perpetually.

TQM's Acceptability

TQM is receiving global acceptance and every organization tries to follow and implement TQM. However, Sink[6] feels that this rush to show the world that the TQM philosophy is being practised by organizations is made without proper understanding of TQM. Dale and Lightburn[17] also claim that not all companies are willing to embrace the fundamentals of TQM. It is argued that there is a considerable number of companies who are using all the popular quality management tools and techniques; however, these techniques, procedures and systems are used in a superficial manner. The main reasons for such a situation are lack of management commitment to the basic principles of TQM and quality improvements and ineffective leadership to direct the improvement process.

The study carried out by Lewis[18] to compare the attitudes of Spanish and American quality assurance managers reveals that many of the responses of both groups were incompatible with TQM principles. The general conclusion reached is that managers from both countries must be further educated in TQM principles.

A survey carried out by Singh[19] to assess the status of TQM in India revealed that only 39 companies out of 1,000 surveyed are practising TQM to some extent. However, it concluded that these organizations are not able to distinguish between TQM and quality control.

TQM in Japan

Throughout the 1950s, "Made in Japan" was synonymous with poorly-made products. Today the phrase means the exact opposite. Japanese quality, technology and ingenuity are much sought after by consumers throughout the world. The primary source of their success is the implementation of total quality management in every walk of life.

Efforts to study quality control in Japan started in 1949, when a special group was organized in the Union of Japanese Scientists and Engineers, with the purpose of providing an educational programme to promote quality control in Japanese firms. Dr W.E. Deming from the United States was invited in 1950 to deliver a lecture on statistical quality control (SQC). The years 1946 to 1950 were declared to be the SQC period in Japan. Although this resulted in establishing statistical control techniques and quality control education programmes, top management remained aloof from quality control activities. All this changed in 1954, after Dr J.M. Juran's lecture on "Planning and Practice in Quality Control". The period between 1955 and 1960 was designated the "Years of TQC". During that period, quality control activities were backed by

top management and programmes of company-wide quality control were launched. Some of the more important considerations in implementing successful company-wide quality control programmes in Japanese companies, as outlined by Ishikawa[20], are top management involvement, emphasis on training and education, a formal organization of quality, the use of informal quality control circles, giving awards and, above all, lots of patience.

TQM in the USA

American businesses are at a crossroads today. The dominance of the US in both American and world markets has undergone some changes over the years. Juran[21] identified this shift in the early 1960s, and also the potential threat from Japanese manufacturing. This convinced him that Japanese attention to quality would lead them to the forefront in the global marketplace. The Japanese approach to the management of operations and its contribution to their success were also noted by Drucker[22]. However, American management realized such a threat from Japanese corporations only in the late 1970s.

The realization that quality management and quality control were vital elements in Japan's economic success finally led American industries to focus on quality management and the statistical techniques proposed by Deming[5], Feigenbaum[23], Crosby[24], Juran[25] and Deming and Geoffrey[26]. This was further substantiated by Hayes[27], who identified the importance of such things as daily preventive maintenance on equipment, less-than-maximum-capacity product and "thinking quality" into the product. Wheelwright[28] noted the strategic importance of quality by pointing out the benefits derived by the Japanese through a strategic operations policy that stresses high quality standards. Garvin[7] directed further attention to the management of quality as a critically important element for the successful recovery of market share by US firms. These ideas brought some conceptual changes in the traditional approach to quality management.

The significance of the Japanese quality management approach and its associated use of statistical quality control tools have been noted repeatedly in the literature[29-31]. A study carried out by Modarress and Ansari[32] reveals that traditional American industries are still not practising quality management in its totality.

This new quality management approach depends on quality systems, participative management and statistical methods to identify and disclose the causes of production and quality problems. According to the literature, the primary reason for the success of Japanese manufacturing firms relates to the comprehensive and consistent use of these tools by all levels of workers at all times[33-35]. Today American firms are adopting the same philosophy which they exported to Japan in the early 1950s.

A survey carried out by Modarress and Ansari[32] of 285 US manufacturers reveals that most of them are in the preliminary stages of quality control implementation. Quality control techniques have been used extensively in manufacturing processes, but the majority of firms have not used quality

control techniques in design and engineering, research and development and other areas. Another survey carried out by Embrahimpour and Withers[36], indicates that Japanese and non-traditional American firms have a significantly higher level of worker involvement and use simple SQC tools to a significantly higher level than do traditional American firms. The main reason identified for failure of quality practices in American firms was lack of top management participation in quality management programmes.

TQM in Europe

Germany, the UK, France and Italy are some of the European countries that have taken a significant interest in adopting TQM. However, a study carried out by Lascelles and Dale[37] in the UK automative industries indicate that companies have a traditional attitude towards quality management. The changes in the European market have given a major impetus to TQM implementation. The focus seems to be changing to quality improvement processes, quality-related training and consideration of the relationship of the firm to the outside world in pursuing quality. Although the industries had a traditional approach towards quality matters, the adoption of BS 5750 and ISO 9000 have given new impetus to the quality movement in those countries, and is reflected by a top management commitment through better investment, rewards and treating everyone in the same way.

TQM in Developing Nations

The developing nations are synonymous with poor quality products. Some countries, which centuries ago were recognized as the best manufacturers of quality goods, are now producing shoddy products. This change has taken place because of severe constraints on their economies, lack of political will, lack of education and training and lack of commitment. Studies carried out[38,39] indicate that the concepts of quality management are not understood by businesses. Often, quality is considered an optional extra. Unfortunately, many enterprises in the developing world have their production function isolated from the quality function.

Most organizations in the developing world are suffering from the following:

- Lack of employee involvement and participation in quality improvement efforts.
- Lack of management commitment and motivation.
- Perception that quality is an optional extra and not a necessity for development.
- Traditional belief that “quality costs money”.
- Lack of communication and trust between suppliers, dealers, management and trade unions.
- Unorganized and indifferent customers.
- Lack of political support.
- Lack of established quality standards and inadequate test facilities.

- Obsolete technologies.
- Low level of education.
- Negligible capital investment in technologies, research and development and employees' education, etc.
- Disrespect to the people so far as quality of life is concerned.
- Undesirable social tensions such as terrorism, violence, religious fundamentalism, etc.

However, with increased competition, changes in global markets, changes in import-export policies and increased customer consciousness, some systematic efforts towards quality are taking place in some of the developing countries. Companies are realizing that not only growth but also, basically, their survival depends on quality matters. Some firms, therefore, are reorienting themselves and, by obtaining the help of foreign collaborators, are trying to give a new boost to the quality drive.

A comparison of consumer's perceptions of quality and approaches of businesses towards quality in different national settings is presented in Table I. A comparison of business strategies which affect quality improvement practices (QIP) in developed and developing nations is presented in Table II.

TQM: Implementation

Implementing TQM is a major task. TQM, as stated earlier, is a major socio-technical system and an organization-wide intervention. As such, TQM must be approached in a systematic, pragmatic, well-thought-through fashion.

Sink[6] has suggested the following approach to the design, development and implementation of TQM:

- *Stage 0*: understanding the organizational system.
- *Stage 1*: developing a strategic plan for the TQM effort.
- *Stage 2*: planning assumptions.
- *Stage 3*: specifying strategic objectives.
- *Stage 4*: specifying tactical objectives.
- *Stage 5*: implementation planning.
- *Stage 6*: project management.
- *Stage 7*: measurement and evaluation.
- *Stage 8*: evaluation, accountability, follow through, ensuring effective implementation.

Luchsinger and Blois[40] outline the TQM implementation plan of AFSC (Air Force System Command) as:

- awareness and commitment;
- incorporation into the acquisition process;
- assessment of progress;
- elimination of barriers.

Nation	Consumers' views about quality: Quality determined by	Consumers' views about quality: Decision to buy product determined by	Approaches of business towards quality: Quality promotion activity aims at	Approaches of business towards quality: Emphasis for achieving quality
USA	1. Well known name	1. Price	1. Use of statistical quality control	1. Use of process simplification techniques
	2. Word of mouth	2. Quality	2. Administration of quality control system	2. Customer satisfaction in strategic planning
	3. Past experience	3. Performance	3. Selling quality consciousness	3. Quality performance as criterion for compensating senior management
Japan	1. Well known name	1. Performance	1. Motivating people	1. Incorporating customer expectations in design of products and services
	2. Performance	2. Price	2. Improving skills	2. Employee participation in regularly scheduled meeting about quality
	3. Ease of use	3. Ease of use	3. Providing better jobs	3. Customer satisfaction in strategic planning
				4. Process simplification and cycle time reduction
Europe	1. Price	1. Price	1. Comprehensive quality improvement education	1. Incorporating customer expectations in design of new products and services
	2. Well known name	2. Quality itself	2. Use of measurement systems	2. Past performance as criterion for compensating senior management
Developing nations	1. Price	1. Price	1. Inspection and measurement	1. Use of technologies to meet customer expectations
	2. Well known name	2. Appearance	2. Promoting brand name	2. Use of process simplification and cycle time reduction
	3. Appearance	3. Word of mouth		

Table I.
Consumer Perceptions of and Business Approaches towards Quality

Table II.
Comparison of Business Strategies Affecting QIP in Developed and Developing Nations

Element	Developed nations	Developing nations
Manufacturing focus	Process/product	Unfocused
Product objective	Quality/utility	Profit-related performance
Business focus	Market share/customer satisfaction	Profitability and exploitation of customers
Risk/reward	Learn from failures	Punish the innocents and absolve the guilty
Employee attitude	Team building; co-operation	Individual leg-pulling, jealously and conflict
Market focus	In a large market	In a narrow market
Manpower training	Company training across a variety of tasks; high investment in human capital	Training primarily by outside institutions; low investment in human capital
Method adopted for promoting quality	Quantitative, statistical quality control and work group responsibility for quality	Role specialization with specialists responsible for discrete functions such as quality
Motivation emphasis	Rewards linked to company performance; all employees in the same boat	Short-term incentives for workers, and showering of praises on managers who sell shoddy products successfully in the market-place

According to Oakland[8,41], the task of implementing TQM can be daunting. The first decision is where to begin. This can be so difficult that many organizations never get started; this has been called TQP (Total Quality Paralysis). Oakland proposes 13 steps to TQM:

(1) Understanding of quality.
(2) Commitment to quality.
(3) Policy on quality.
(4) Organization for quality.
(5) Measurement cost of quality.
(6) Planning for quality.
(7) Design for quality.
(8) System for quality.
(9) Control of quality.
(10) Teamwork for quality.
(11) Capability for quality.
(12) Training for quality.
(13) Implementation of TQM.

Endosomwan and Savage-Moore[42] propose a four-stage model to help organizations understand their TQM posture for the Malcolm Baldrige National Quality Award criteria and the TQM improvement process as:

Stage 1: current organizational environment assessment.

Stage 2: development of quality improvement strategy.

Stage 3: assessment of education and training needs.

Stage 4: implementation of quality strategy.

However, implementation of TQM is not an easy task as it requires a total change in organizational culture, shifting of responsibility to management, and continuous participation of all in the quality improvement process. Matherly and Lasater[43] point out the roadblocks in implementation of TQM in hospitals as:

- lack of participation of managers;
- overlapping of responsibilities of leadership;
- limited resources;
- fear of change;
- work overloads.

Luchsinger and Blois[40], therefore, propose two cautions while implementing TQM:

(1) lack of commitment to change efforts;

(2) lack of accountability structure.

Burstein and Sedlack[44] find the major challenges to TQM implementation efforts in federal agencies:

- lack of comprehensive quality improvement education;
- uneven top management support;
- lack of customer orientation;
- lack of clarity in measurement systems;
- scant resources for required investment.

As implementation of TQM is an important aspect, we feel that the organization must initially ask the following questions:

(1) What do we want from TQM?

(2) What are the implications for the organization?

In order to have a successful implementation of TQM, we propose three conceptual frameworks.

Figure 1 represents the effect of an interactive environment on business systems. We postulate that the process of continuous improvement is plausible in an organization only if disturbances created due to interactions of the organization with different environments are identified and strategies are formulated to minimize these disturbances.

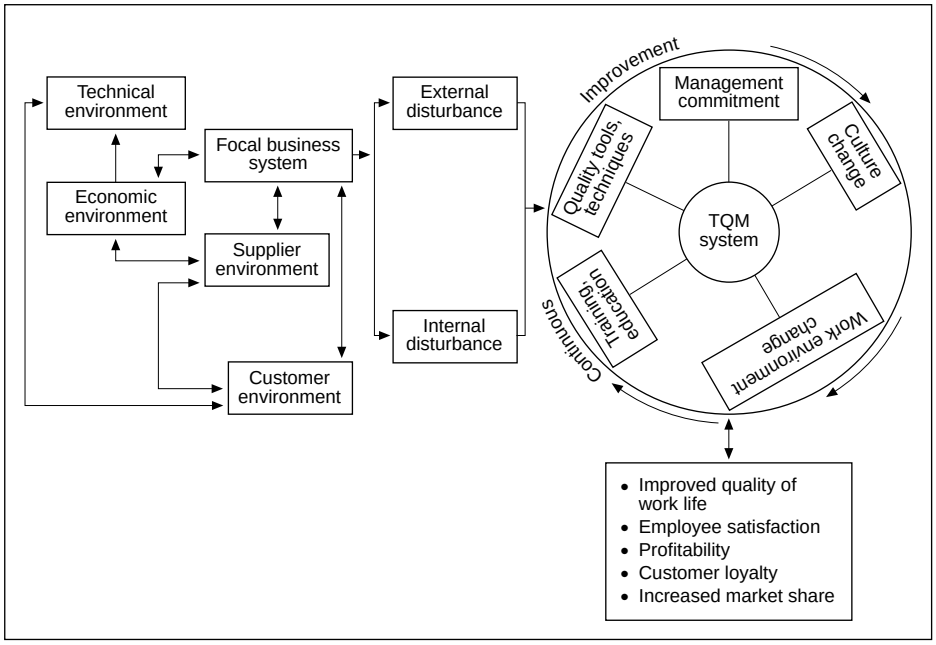

Figure 1.
Effect of Interactive Environment on Business System

As indicated in Figure 1, the external environment has several sub-systems such as supplier environment, customer environment, economic and technological environment. The interaction between these sub-systems will have an impact on the focal business system. Each of them may view quality in different perspectives. The contrasting perceptions very often puts the focal business system in disarray. The objective of TQM is to identify and recognize these varied perspectives and create conditions within the focal system to maintain internal balance and eventually to gain external equilibrium.

The relationship between quality and productivity is strong and positive. Efforts to improve quality, if effective and efficient, can have a significant impact on a firm's productivity. Productivity starts from a definition that confers an amount of physical output to its related inputs, where the inputs constitute labour, capital, materials, energy and services. Productivity improvement requires balanced attention to the technical, behavioural and management systems. Output would be counted only if it is "good" output. Thus, there is a convergence between organizational productivity improvement and organizational process quality improvement.

Figure 2 explains the linkages between productivity and TQM. TQM adopts a three-pronged approach: management commitment; teamwork and participation help to bring about cultural change resulting in an improved work environment which enhances worker morale. These in turn are the essential ingredients for better service and product quality. The quality systems SQC and SPC reduce the inventory and quality costs and contribute to a better quality product and timely delivery. Improvements in work culture and internal communication thus improve customer (internal and external) satisfaction which is essential for market growth and profitability in the long term.

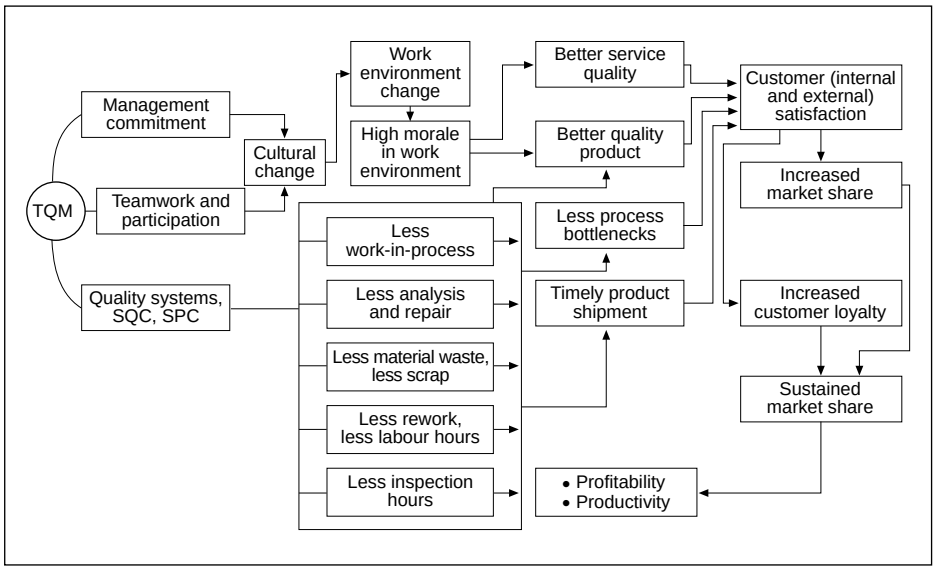

Figure 2.
TQM and Productivity Linkage

Table III outlines the framework for implementing TQM in an organization.

TQM: A Company Case

XYZ Company started in 1967 with a vision to become an industrially self-reliant leading manufacturer in India. The company is located in Bombay, has 27 fully-fledged branches at different locations nationwide and over 800 dealers.

The products manufactured by XYZ can be divided into four categories:

(1) Office equipment.

(2) Electronic business engineering.

(3) Consumer durables.

(4) Industrial products – made-to-order machines.

XYX has:

- 17 manufacturing plants;
- Rs600 crores sales turnover;
- 8,000 employees;
- 35 per cent of the Indian market;
- a reputation as a good quality manufacturer.

Today XYZ is a household name. It has an infrastructure second to none in terms of support and potential for growth. It is a company of young (under 40 years of age) management professionals who comprise one-third of the total workforce.

1.	Identify the degree of commitment and key interests and list the long-term changes required
2.	Define the objectives of TQM
3.	Identify resources available and develop understanding of organizational system with quality system
4.	Specify top management commitment through quality policies, procedures and processes
5.	Create company-wide awareness and participative work environment by emphasizing customer-oriented values. Encourage quality commitment
6.	Design action plans and develop specifics about future
7.	Identify key issues and constraints on implementation and develop strategies for implementation
8.	Identify and allocate resources, execute plans and build momentum for change
9.	Implement and monitor
10.	Measure benefits in terms of increased customer satisfaction
11.	Review and reward

Table III.
Framework for Implementing TQM

Until the late 1980s, XYZ had been a product-centred company, producing high quality products which it marketed by using the concepts of direct sales and promotion. Competition intensified, and many of the company's competitors began to produce goods which were similar to those produced by XYZ. This made the company reassess its strategy and move away from a selling approach to a marketing approach, with the company fulfilling the needs, wants and future expectations of customers, resulting in profit through customer satisfaction. This approach is very much in its infancy within the company.

Why TQM?

Today XYZ is working towards becoming a TQM company. XYZ has always been a quality conscious and customer-oriented company. It built its reputation by providing customers with something more than they expected and wanted. However, with increased competition because of changes in import and export policies and the new global market avenues, the need was felt, first, to focus more attention on building a quality culture. Second, the company aimed to diversify the market and increase exports. As the managing director of the company said: "Total exports at present are less than 1 per cent of turnover; it could be raised to 15 per cent within a span of ten years". Third, it was felt that the changes in the way the company operates can only be made by gaining the commitment and involvement of every employee. Fourth, there was a realization that meeting customer requirements is the only vehicle for further growth. Last, the need was felt to focus on the potential of every individual towards the overall progress and development of the company as well as the nation. The need for an inter-disciplinary approach and team effort was strongly felt. Total quality management was seen as the key to success and as growth and the vehicle to carry through the changes.

Preparing for Change

In order to bring about a cultural change, it is essential to investigate the present. Insights into various issues were obtained by carrying out a survey using interview questionnaires. The focus primarily was on:

- Can TQM techniques be applied to the work?
- What are the responses from different departments?
- Do people see management as committed to TQM?
- How is TQM perceived?
- What perception exists about customer satisfaction in the company?
- What are the quality costs?
- What are the results of partial quality improvement efforts?

The following are the main conclusions:

(1) TQM was considered by most in the organization as important for further growth and success.

(2) The level of service offered by XYZ was not always acceptable to customers.

(3) Cost of poor quality amounted to 18 per cent of the operating costs.

(4) Of the people surveyed, 40 per cent felt they received inadequate information/training about what quality was expected in their work.

(5) Of the people surveyed, 54 per cent felt they were given little or no incentive to improve the quality of their work.

(6) Of the people surveyed, 77 per cent felt quantity was the main criterion for reward in XYZ, not quality.

(7) The earlier quality improvement efforts were well supported by people and were successful.

(8) People expected more commitment to quality from top management.

Armed with both internal and external details, a commitment from top management was vital, in order to move forward. The initiative was taken by the company in April 1989 by sending senior executives to the USA on a Deming's Seminar on TQM missions. This was essentially to create an awareness about TQM and its implementation aspects.

Based on this awareness and learning, these senior executives in turn created a similar awareness among other senior managers and middle-level managers.

In January 1990, a Quality Secretariat comprising senior managers of the company was formed. It was entrusted with implementing TQM and formulated a five-year aggregate plan.

Towards the end of 1990, it was decided to start the TQM process with a pilot scheme in the furniture division. The mission statement clearly emphasized the need to satisfy customer expectations consistently, through the commitment and involvement of people.

Implementation

In January 1991, TQM was launched. On the same day, it was also announced that the company was going all-out for ISO 9000. The furniture division had the assistance of outside consultants, who were primarily responsible for training on new approaches. Initially, a TQM session was conducted by consultants for plant personnel, at various supervisory levels, from 1-4 January 1991. The discussions centred mainly on the need for a change in the approach towards achieving "Total Quality". The idea focused on was the requirement for a gradual transition from the "results-oriented" to the "process-oriented" method. The focus was on the contribution of every individual towards overall progress and development. The need for an interdisciplinary approach and team effort was also stressed.

The management of the furniture division identified 50 areas of management priority, and specific project groups of eight to ten people were formed. Each group voluntarily selected projects from identified areas and worked on them, and the groups made a presentation on their projects. The progress of these

projects were reviewed by the consultants, the plant managers and the steering committee.

Some of the salient features of these project groups were:

- Initially around ten groups were formed comprising mostly supervisors and willing workers.
- To date, 30 projects have been completed and another 20 projects are at various stages of completion. The participation is 100 per cent at staff level and about 30 per cent at worker level.
- These projects cover a wide range of activities, such as productivity, product quality, process capability, safety etc.
- At the end of every project, the group writes a quality accounts of their specific project work which is circulated in the organization.

Around mid-1991, six senior executives were sent for lead assessor programming. Simultaneous to the TQM activities of the furniture division, the electronic business equipment (EBE) division initiated activities towards implementation of ISO9000 requirements. The EBE division has made a draft copy of its Apex manual and is also in the process of writing lower-level procedures and work instructions.

In the appliance division, since around August 1989, the top management, in consultation with the functional group heads and front-line supervisors, have developed some concrete systems which is a primitive requirement of ISO9000. It is strongly believed that if systems, are strong and well documented and procedures are properly outlined, the process of TQM implementation will be expedited.

A lot of effort and initiatives have been taken towards building concrete systems in the different functional areas, like material quality, production planning, R&D, safety and maintenance. In essence, the objective of this broad three-year plan was setting up ground work for implementation of ISO 9000. Some of the systems developed by the appliance division are:

- quality information system;
- material quality system;
- material accounting system;
- production and planning system;
- research and development system;
- safety and maintenance system;
- capital expenditure system.

A brief synopsis of these systems is outlined in the manufacturing manual of the appliance division. Further to building up concrete systems in the different functional areas, these are documented in the form of a quality manual and a manufacturing manual with the assistance of external consultants.

Case Analysis

The company is taking a planned, long-term approach to implementing the total quality culture. However, management faced certain problems, as observed below:

(1) There was difficulty in convincing people about management's commitment. Though management is committed to quality and adopting TQM, people in the organization expressed their doubts about management's intention. This is due to the fact that for a long time the emphasis was on profitability and production. Suddenly, however, employees are finding increased insistence by management to improve quality, and this they find difficult to digest. But management must make it clear that this shift towards quality is primarily because of increased competition and the opening up of export opportunities. The issue, therefore, is first of survival and then growth.

(2) It was also being stated that management expresses its commitment and expects others to work for quality. "What is management doing to improve and ensure quality?" is a question which most managements in the developing nations are likely to face. It is, therefore, necessary to express visible commitment through investment in quality improvement training programmes, purchasing new and precise measuring instruments, personal contacts and continuous interests.

(3) Management of the company, it was observed, gets involved in other issues, leaving the job of implementing TQM to a quality secretariate. However, merely updating the quality manuals, hiring an outside consultant, forming work improvement teams, or sending managers abroad for training is not enough. The senior management must realize that not only their money but their personal participation is required and that TQM starts with their own change of behaviour.

(4) Resistance to change is human nature and, as TQM demands a total change in all aspects of the business, it was resisted in the initial stages. This resistance was primarily because everyone wanted to know what they were expected to do and what benefits they would derive. Management thus needs to convince everyone that it does not expect anything extra from employees but wants them to adopt the TQM philosophy as a way of life. Management also needs to explain the tangible and intangible benefits everyone would be receiving.

(5) Another problem faced by management is how to assess the effectiveness of TQM. This was because no earlier records about tangible outputs were available and management found it difficult to measure the intangible benefits. However, by continuous periodic surveys, using standardized questionnaires and assessment tools, this problem can be overcome.

The problems observed in the case under consideration hold good for most organizations in developing economies, as the working climate and the culture are the same.

The obstacles encountered in implementing TQM specifically from the developing nations' point of view are outlined below:

- Inadequate knowledge and information about TQM.
- Doubts in the minds of employees about management's intention.
- Failure of management to maintain its interest and commitment over a long period of time.
- People consider TQM as another bandwagon.
- Difficulty in measuring TQM's effectiveness.
- Resistance to change at different levels.
- Lack of strong commitment from all senior managers.
- Insufficient education and training resources.
- Lack of awareness among customers and difficulty in assessing customer expectations and satisfaction.
- Poor internal communication.

The company in particular, and the developing economies in general, thus need a systematic approach towards TQM.

TQM for Developing Economies

In the recent past a lot of positive but undirected changes have taken place in the global market. The scenario is undergoing a change as the open market philosophy is gaining a strong hold as also is the propagation of uniform quality standards. The product thus produced will have to get a certificate from ISO to be eligible to be sold everywhere without undergoing retests and cross-checking. This will naturally reduce the cost of retesting as well as saving time and labour. In addition, companies will be forced to adopt standard, recognized practices to get an ISO certificate.

Most of the developing countries are also undergoing drastic changes in import-export policies and opening new avenues for multinationals and companies in developed countries. This naturally will add to competition in existing industries. A need is also felt to increase exports. In the emerging development paradigm, technology has to be tailored to meet societal needs, developmental imperatives and the emerging global commercial opportunities. Industry has to shoulder major responsibility in this sense.

"Low product quality" is a term that has become synonymous with consumer goods manufactured in developing countries. This is because of the seller's market scenario which exists in these countries. Since imports are often banned in order to protect local industries, consumers have limited options but to purchase these low quality products. Initially, it was felt that because of low

labour costs, only surplus industrial output can be exported to obtain much needed foreign exchange. However, because of low quality, these products are not accepted by others. Also, developing countries have to divert significant resources to prevent an influx of imported goods. In addition to the problem of forcing consumers to be content with poor quality, locally made, products in the "national interest", inefficient quality control in many ways results in poor utilization of valuable resources. A need, therefore, has arisen to look for strategies to improve quality.

Crosby[45] feels that the emerging nations are blessed with a large advantage – they do not have to repeat the mistakes and omissions that were made by industrialized countries. They can leap right in to the proper position if they take time to study the trends.

According to Feigenbaum[12], in an increasingly competitive world, quality is no longer an optional extra, it is an essential strategy: without quality an organization cannot survive. The generation of quality products and services demands total commitment from the entire organization; it requires TQM. TQM therefore is a solution for improving the quality of products in developing economies so that they are accepted in a global market.

Juran[46] identifies the following as strategies for world-class quality:

- Adoption of the concept of big Q.
- Creation of an infrastructure for improvement.
- Initiatives of senior management.
- Incorporation of quality goals into a business plan.
- Replacement of the Taylor system.
- A great deal of work.

In order to adopt the philosophy of TQM, the following approach is suggested:

(1) *Develop a vision*: The top leadership should focus on how organizations can best meet the needs of external and internal customers. It should promote quality improvement goals, strategies and projects. The leadership should tell the organization what it must aim for in quality matters. A clear, well-projected vision would help organize resources and focus them on the objective to achieve the results; it should reflect a total commitment.

This long-term commitment to quality is reflected, for example, in the statement issued by the managing director of XYZ: "Quality is not something that we can think of on the first of April and then forget about it during the rest of the year. It is something that has to be ingrained in our thinking. Quality is an attitude of mind. It is the most important attitude we could think of to focus on so that various human values could all come together in pursuit of quality." Strolle[47] points out that the greatest challenge faced by the leader is to point employees towards a

vision that will generate reactions, either positive or negative, and where management can tackle any resistance by being a role model.

(2) *Promote a policy on quality*: People follow policies, good or bad. To ensure that all employees understand what behaviour is expected of them by top management, a clear, concise policy on quality needs to be formulated. It needs to state the level of defects or errors that is acceptable. The policy also needs to state the relationship between the company and the customer. The policy should be direct and concise and should clearly define management's commitment to quality.

The policy on quality has to be a statement that will not be misunderstood. It has to cover conformance to requirements, time and money. The policy statement guiding XYZ's TQM efforts is "we need to satisfy our customers' requirements through the commitment and involvement of people, our most valuable asset". The survey carried out by Lakhe and Tidke[38] in small-scale industries revealed that very few companies have a well-defined quality policy. The survey carried out by Singh[19] revealed that only 73 per cent of companies from among those initiating TQM, have clear-cut policies laid down. The need, therefore, is for organizations in developing countries to realize the importance of clear, well-defined policy statement's on quality, reflecting management's commitment and orientation and to propagate them through various modes, such as circulation of documents, newsletters, training, meetings, pledge cards and personal contacts.

Once the policy is written, management needs to determine how to explain it to employees. The best method is for top executives to meet personally with groups of employees to explain the policy. This also ensures that the commitment and interest of top management is properly understood by all.

(3) *Create a total quality-oriented culture*: The efforts to adopt TQM will succeed only if a cultural change is brought about. This can be achieved by focusing on cultural traits in the organization. The following measures are essential to obtaining cultural change:

- The operating policy, procedure and processes of the business must all reflect an emphasis on quality.
- Everyone in the organization must have a clear understanding of the importance of quality in achieving their business objectives.
- People at every level must be aware of the requirements and needs of the customer.
- The structure of the organization should allow for continuous improvement.
- There should be integration of internal and external customer requirements in the business plan.

- Use of customer-based measures of performance is important.
- There is a need to develop strong communication lines.
- Customer commitment should be fostered.
- Emphasis on customer-oriented values and beliefs must be supported by top management.

McLaurin and Bell[48] point out that implementation of TQM is sometimes distressing and difficult, as the behavioural change required by it does not come easily and naturally. They suggest that by opening communication lines, before implementation of TQM, cultural and behavioural changes need to be obtained.

According to Strolle[47], creating a TQM culture is not restricted to the individual or group, but is the responsibility of everyone in the organization.

(4) *Training and education*: Each person within the organization, and those who deal with it, must learn a common language where quality is concerned. They have to understand it in the same way. To achieve this, it is imperative to give structured and well-framed training to the people. The training and education should focus on understanding quality requirements, knowing the methodology required to attain them. It should also stress doing things right the first time, every time, with no allowable error. People should understand how much it costs if small things go wrong. Training and education, should thus try to develop a vision for quality in everyone.

One of the major problems faced by developing countries is lack of expertise and inadequate training facilities. Inviting TQM consultants from outside, and sending managers abroad for training, may sound good in the initial stages of implementation. However, in the long run the responsibility for training everyone in the organization and maintaining a continual effort has to be shouldered by managers. Moreover, small- and medium-scale industries, because of constraints of finance, find it difficult to arrange expert consultants from abroad and thus large-scale organizations have a moral obligation to share their acquired expertise and experiences with them for the well-being of the country, as the small industrial sector contributes significantly to the economy and to nation-building. TQM efforts, therefore, will not serve its purpose in a true sense if it is restricted to individual organizations. An all-out effort at national level is required so as to bring about a total cultural change in society, leading to improved quality of life.

The above four absolutes should lead developing countries into following the TQM approach which would help them compete in the global marketplace.

Conclusion

The aim of this article is to provide a synoptic picture of TQM. In the second section basic definitions and models of TQM were outlined to clarify the key concept of TQM. The third section discussed the evolution of TQM philosophy

and the functions behind it. It also includes a comparison of TQM with traditional management. In the fourth section, we discussed the global acceptability of TQM. In the fifth section, we discussed the implementation of TQM and proposed three conceptual frameworks for implementing TQM. A comprehensive company case focusing on TQM adoption and implementation was presented in the sixth section. The seventh section highlighted the implications of TQM for developing economies.

Attention to the field of research in TQM is very recent but efforts aimed at spreading it are increasing at a rapid rate. Despite these efforts there exists confusion in relation to definition, circumstances and application. It is indicative that there is no comprehensive conceptualization of TQM. An understanding of TQM, its philosophy and development of a vision are the necessary requirements for future quality goals.

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Further Reading

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