PART - I
THEORETICAL AND EMPIRICAL FRAMEWORK OF TOTAL QUALITY MANAGEMENT PHILOSOPHY

This part of the thesis covers the first four chapters, which describe the theoretical and empirical literatures of TQM philosophy.

Chapter One:  The underpinning philosophy of Total Quality Management: This introductory chapter deals with the concept of TQM, brief summaries of world and Indian status of TQM practices, soft and hard concepts of TQM and potential benefits of TQM.

Chapter Two: Quality Gurus- Ideas and Insights: This chapter gives a review of TQM concepts suggested by various Quality Gurus such as Deming, Juran, Ishikkawa, Crosby etc.

Chapter Three: National and international quality award models: This chapter deals with various Indian and international quality award models such as Deming prize, EQA model, Malcolm Baldrige National Quality Awards, Australian quality awards etc.

Chapter Four: Review of previous empirical studies: This chapter reviews the various empirical researches carried out by the different researchers from India and abroad
CHAPTER - I

THE UNDERPINNING PHILOSOPHY OF
TOTAL QUALITY MANAGEMENT
1.1 Introduction

The aim of this introductory chapter is to provide an insight into the conceptual framework of the Total Quality Management Philosophy. Section 1.2 describes the basic concept and the definitions of the term ‘Quality’. Section 1.3 explains the evolution of quality from inspection stages to total quality. Section 1.4 gives an overview of the TQM concept. Section 1.5 discusses the meaning of TQM. Section 1.6 tests the relevance of 100% quality concept. Section 1.7 gives notable definitions of TQM. Section 1.8 presents the hard and soft concepts of TQM philosophy. 1.9 explains the various principles that lead to the successful practices of the TQM concept. Section 1.10 shows the potential benefits of TQM practices. Section 1.11 and 1.12 give a very brief introduction to quality gurus and quality award models respectively. Finally section 1.13 explains the obstacles and the common reasons for the failure of TQM practices.

1.2 Concept and definitions of Quality

The quality concept began in the early 1900s in the United States when Frederick W. Taylor introduced new approaches to improve the work of unskilled workers in industrial organizations. Taylor known as “the Father of Scientific Management” outlined two important quality principles, firstly, that the workers should have standard tools and conditions to complete the task and secondly, failure to complete the task is a high loss and should be personally costly.

There are many different definitions of quality from the conventional to the modern ones. The conventional definition of quality describes the characteristic of the products such as performance, reliability, ease of use, attractiveness, etc. (Gaspersz, 1997). Eight dimensions of product quality management can be used to analyze quality characteristics. The concept was defined by David Garvin (2008). Understanding the trade-offs desired by customers among these dimensions can help build a competitive advantage. Garvin’s eight dimensions can be summarized as follows
The Underpinning Philosophy of Total Quality Management

Table 1.1: The Dimensions of Quality

<table>
<thead>
<tr>
<th>SI. NO.</th>
<th>Dimension</th>
<th>Meaning and Example</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Performance</td>
<td>Primary product characteristics, such as the brightness of the picture</td>
</tr>
<tr>
<td>2</td>
<td>Features</td>
<td>Secondary characteristics, added features, such as remote control</td>
</tr>
<tr>
<td>3</td>
<td>Conformance</td>
<td>Meeting specifications or industry standards, workmanship.</td>
</tr>
<tr>
<td>4</td>
<td>Reliability</td>
<td>Consistency of performance over time, average time for the unit to fail.</td>
</tr>
<tr>
<td>5</td>
<td>Durability</td>
<td>Useful life includes repair.</td>
</tr>
<tr>
<td>6</td>
<td>Service</td>
<td>Resolution of problems and complaints, ease of repair.</td>
</tr>
<tr>
<td>7</td>
<td>Response</td>
<td>Human-to-Human interface, such as the courtesy of the dealer</td>
</tr>
<tr>
<td>8</td>
<td>Aesthetics</td>
<td>Sensory characteristics, such as exterior finish.</td>
</tr>
<tr>
<td>9</td>
<td>Reputation</td>
<td>Past performance and other intangibles, such as being ranked first.</td>
</tr>
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</table>

Source: David Garvin (2008)

The modern definitions began in the 1930s when Shewhart (1930) of the Bell Laboratories introduced statistical quality control in American Industries. W. Edwards Deming, Joseph Juran and Philip Crosby were recognized as the top three international leaders of modern quality. There are many assumptions about quality, from the simple definitions to the complicated ones. Some definitions are listed below.

- Quality is fitness for use (Juran, 1989).
- Quality is conformance to requirements (Crosby, 1979).
- Quality should be aimed at the needs of the consumer, present and future (Deming, 1986).
- Quality is the total composite product and service characteristics of marketing, engineering and maintenance through which the product and service in use will meet the expectations of the customer (Feigenbaum, 1991).
The Underpinning Philosophy of Total Quality Management

- Quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs (ISO 9000).

- The American National Standards Institute (ANSI) and the American Society for Quality Control (ASQC) 1978, define quality as the totality of features and characteristics of a product or service that bears on its ability to satisfy given needs. The European Foundation for Quality Management (EFQM) defines quality as to meet the needs and expectations of the customers, personnel, financial stakeholders and society.

Based on the above definitions, it can be concluded that quality is focused on customer. Customer focused quality is driven by customer satisfaction and has become the principle definition of quality from a managerial perspective. Quality is meeting and exceeding customer needs and expectations. Quality is defined by product specifications and achieved by manufacturing. The most applicable definitions are fitness for use (the design perspective) and conformance to specifications (the manufacturing perspective) where both are necessary for customer satisfaction (Evans and Lindsay, 1993).

1.3 Evolution from Quality to Total Quality

During the early days of manufacturing, an operative’s work was inspected and a decision made whether to accept or reject it. As businesses became larger, so too did this role, and full time inspection jobs were created. Accompanying the creation of inspection functions, other problems arose:

- More technical problems occurred, requiring specialised skills, often not possessed by production workers
- The inspectors lacked training
- Inspectors were ordered to accept defective goods, to increase output
- Skilled workers were promoted into other roles, leaving less skilled workers to perform the operational jobs, such as manufacturing

These changes led to the birth of the separate inspection department with a “chief inspector”, reporting to either the person in charge of manufacturing or the works manager. With the creation of this new department, there came new services and issues, e.g. standards, training, recording of data and the accuracy of the measuring equipment.
It became clear that the responsibilities of the “chief inspector” were more than just product acceptance, and a need to address defect prevention emerged. Hence, the quality control department evolved, in charge of which was a “quality control manager”, with responsibility for the inspection services and quality control engineering.

In the 1920s, statistical theory began to be applied effectively to quality control, and Shewhart (1930) made the first sketch of a modern control chart. His work was later developed by Deming and the early work of Shewhart, Deming, Dodge and Romig constitutes much of what today comprises the theory of statistical process control (SPC). However, there was little use of these techniques in manufacturing companies until the late 1940s. At that time, Japan’s industrial system was virtually destroyed, and it had a reputation for cheap imitation products and an illiterate workforce. The Japanese recognised these problems and set about solving them with the help of some notable quality gurus – Juran, Deming and Feigenbaum. In the early 1950s, quality management practices developed rapidly in Japanese plants, and become a major theme in Japanese management philosophy, such that, by 1960, quality control and management had become a national preoccupation. By the late 1960’s/early 1970’s Japan’s imports into the USA and Europe increased significantly, due to its cheaper, higher quality products, compared to the Western counterparts.

In 1969, the first international conference on quality control, sponsored by Japan, America and Europe, was held in Tokyo. In a paper given by Feigenbaum, the term “total quality” was used for the first time, and referred to wider issues such as planning, organisation and management responsibility. Ishikawa gave a paper explaining how “total quality control” in Japan was different, it meaning “company-wide quality control”, and describing how all employees, from top management to the workers, must study and participate in quality control. Company-wide quality management was common in Japanese companies by the late 1970’s. The quality revolution in the West was slow to follow, and did not begin until the early 1980’s, when companies introduced their own quality programmes and initiatives to counter the Japanese success. Total quality management (TQM) became the centre of these drives in most cases. In a Department of Trade & Industry publication in 1982 it was stated that Britain’s world trade share was declining and this was having a dramatic effect on the standard of living in the country. There was intense global competition and any
country’s economic performance and reputation for quality was made up of the reputations and performances of its individual companies and products/services.

The British Standard (BS) 5750 for quality systems had been published in 1979, and in 1983 the National Quality Campaign was launched, using BS5750 as its main theme. The aim was to bring to the attention of industry the importance of quality for competitiveness and survival in the world market place. Since then the International Standardisation Organisation, (ISO) 9000, has become the internationally recognised standard for quality management systems. It comprises a number of standards that specify the requirements for the documentation, implementation and maintenance of a quality system. TQM is now part of a much wider concept that addresses overall organisational performance and recognises the importance of processes. There is also extensive research evidence that demonstrates the benefits from the approach.

TQM was invented in the U.S., but it was used by the Japanese very effectively in the 1980's and the term has subsequently become associated with Japanese management principles. In the 1980's and early 1990's, when many large Japanese companies set up manufacturing operations in North America, they suffered from a competitive environment that caused people to think that North American goods were better in quality than Japanese goods. To redress this public perception, Japanese companies sought manufacturing methods to produce goods with a very high level of quality so they could penetrate the market. Today, the 21st century, TQM has developed in many countries into holistic frameworks, aimed at helping organisations achieve excellent performance, particularly in customer and business results. In Europe, a widely adopted framework is the so-called “Business Excellence” or “Excellence” Model, promoted by the European Foundation for Quality Management (EFQM), and in the UK by the British Quality Foundation (BQF)". And also lot of manufacturing and service organizations in the world like Japan, China, the U.S., Palastine, Pakistan, Australia, Malaysia, Singapore, Thailand etc are practicing TQM principles very effectively.

1.4 TQM - An overview

Total Quality Management (TQM) is an enhancement of traditional way of doing business. It is a proven technique to guarantee survival in world class competition. TQM is a one way of conducting organizational change into a continual
The Underpinning Philosophy of Total Quality Management

process of quality improvement towards customer satisfaction and survival into competitive world. It is the art of managing the whole to achieve excellence. TQM does not have an exact definition, perhaps because the concept itself is so encompassing of every part of a business' practices. It is a process of continual improvement, ever-changing and growing and redefining itself. Simply put, it is the complete management of all business aspects to provide quality, as it relates to the end goal of perfect customer satisfaction and zero defects.

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. According to Besterfield (1999), TQM is ‘The art of managing the whole to achieve excellence’. An integrative management concept for continuously improving the quality of goods and services delivered through the participation of all levels and functions of the organization. There is no widespread agreement as to what TQM is and what actions it requires of organizations, (Juran, Joseph M. (1995); Holmes, Ken (1992); Creech, Bill (1994)). However, a review of the original United States Navy effort gives a rough understanding of what is involved in TQM. The key concepts in the TQM effort undertaken by the Navy in the 1980s include Houston and Archecher (1988),

- "Quality is defined by customers' requirements."
- "Top management has direct responsibility for quality improvement."
- "Increased quality comes from systematic analysis and improvement of work processes."
- "Quality improvement is a continuous effort and conducted throughout the organization."
1.5 Meaning of Total Quality Management (TQM)

The elements of TQM as the name suggested are:

- Total
- Quality
- Management

Now let us briefly look into what these words imply

“TOTAL” implies

- Complete (100%)
- All areas and functions
- All activities
- All employees (everyone)
- All time – always

“QUALITY” implies

- the old view (conventional quality): products that are manufactured exactly to specification
- the new view (Total Quality): products and services that totally satisfy the customers’ needs and expectations in every respect on a continuous basis

“MANAGEMENT” implies

- quality does not happen on its own
- it requires to be planned and managed
- it is everybody’s responsibility throughout the organization

Therefore, needs systematic approach. Continuous improvement is making small improvement that ultimately result in large improvement

In short, TQM implies “ensuring the total quality in all aspects of business in the customers viewpoint in the continuous basis by adopting proper management”
1.6 Is 99% Quality Good Enough?

Quality target is 100%, not even 99.9% because even 99.99% might mean for India;

- 2-3 rail accidents every day
- More than 1,20,000 new born babies accidently dropped by doctors each year
- 22,000 checks will be deducted from the wrong bank accounts in the next 60 minutes.
- 20,000 incorrect drug prescriptions will be written in the next 12 months.
- 12 babies will be given to the wrong parents each day (Bhaskar.S, 2004)

1.7 Notable definitions of TQM

While there is no generally accepted definition of TQM, several notable organizations have attempted to define it. These include:

According to the United States Department of Defense (1989) “Total Quality Management (TQM) in the Department of Defense is a strategy for continuously improving performance at every level, and in all areas of responsibility. It combines fundamental management techniques, existing improvement efforts, and specialized technical tools under a disciplined structure focused on continuously improving all processes. Improved performance is directed at satisfying such broad goals as cost, quality, schedule, and mission need and suitability. Increasing user satisfaction is the overriding objective”. The TQM effort builds on the pioneering work of Dr. W. E. Deming, Dr. J. H. Juran, and others, and benefits from both private and public sector experience with continuous process improvement (United States Department of Defense, 1989)

According to International Organization for Standardization (standard ISO 8402:1994), "A management approach of an organisation centred on quality, based on the participation of all its members and aiming at long term success through customer satisfaction and benefits to all members of the organisation and society (Pfeifer, Tilo, 2002)."
According to British Quality Association “TQM is a business management philosophy which recognizes that customer needs and business goals are inseparable. It ensures the maximum efficiency effectiveness within a business”.

According to Deming, “total quality defined as a predictable degree of uniformity and dependability at low cost and suited to the market.”

According to the charted Quality Institute, "TQM is a philosophy for managing an organization in a way which enables it to meet stakeholder needs and expectations efficiently and effectively, without compromising ethical values”.

### 1.8 Soft and hard concepts of TQM

The concept of TQM was developed and given a scientific shape by an American statistician Dr. W. Edwards Deming. Even though this concept was introduced by Americans, it was not taken seriously by Americans. But Japanese found the importance of TQM and they adopted it in their industries. Gradually the various quality gurus (Juran, Ishikawa, Crosby, Feiganbaum etc) contributed a lot to the present TQM concepts. TQM concept has two aspects, hard aspects and soft aspects. Hard aspects involve a range of production techniques including statistical process control, change in the layout, product design, ISO series and various TQM tools and techniques.

Soft aspects of TQM, focuses on management of human resources in the organizations and lays particular emphasis on the need to change the culture. It involves vision and plan, top management commitment and support, strong leadership, treating supplier as a partner, Total employees participation, quality corporate culture, continuous improvement, continuous training, team work, empowerment, democratic management style, customer/citizen satisfaction, cultural change etc. Thus, TQM emphasizes both production oriented and employee relation oriented elements. Accordingly, the management in TQM implies that TQM is a management approach, not just a narrow quality control or quality assurance function. It should be remembered that everyone in the organization is involved in TQM, not just the project head.

### 1.9 Principles that lead to successful TQM practices

- Customer requirements must be met the first time, every time.
- Everybody must be involved, from all levels and across all functions
Regular communication (both formally and informally) with staff at all levels is must. Two way communication at all levels must be promoted

Identifying training needs and relating them with individual capabilities and requirements is must.

Top management’s participation and commitment is must

A culture of continuous improvement must be established

Emphasis should be placed on purchasing and supplier management

Every job must add value.

Quality improvement must eliminate wastes and total costs

There must be a focus on the prevention of problems

A culture of promoting creativity must be established

Performance measures are a must at organization, department and individual levels. It helps to assess and meet objectives of quality

There should be focus on teamwork

There should be proper recognition and reward system

Every employee should be assign the responsibility of quality

Quality improvements must be continuous

Quality goals must be based on customer requirements

Top management should have Visionary leadership

For process control, various statistical Tools and techniques must be used

TQM tends to focus more on internal processes. Enough attention should be given to customer’s satisfaction.

Quality should be defined initially in clear terms. TQM is success partially depends on how ‘quality’ is defined.

Never stop with fixing minimum standards-continuous improvement philosophy is to be followed.

Creativity should form a part of TQM.
The Underpinning Philosophy of Total Quality Management

- Do not force feed; make it voluntary.
- Avoid isolating the activities related to TQM by forming a separate quality cell, by appointing a quality chief, etc.
- Let everyone in the system understand the fact that quality cannot be delegated.
- Quality is more than correct processes. There should be passion, fun, joy, love and thrill among the employees in the TQM system. Otherwise, sustenance will be a problem.
- TQM attempts to standardize and routinize internal processes. Hence, Plan-Do-Check-Action (PDCA) cycle should be given greater emphasis. The system should be full of continuously changing process, change towards zero defects and change towards breakthrough developments. Later is more important.
- As the mechanization process is on, concern and love for service and product should not be forgotten.

If all these factors are taken care of, then the TQM system will prove its worth. Men may come and men may go; Quality should go on forever.

1.10 Potential benefits of TQM

- Improved product quality
- Improved productivity
- Reduced quality cost
- Increased market and customers
- Increased profitability
- Reduced employee grievances
- Improved employee participation
- Improved teamwork
- Improved working relationships
- Improved customer satisfaction
- Improved communication
• Enhancement of job interest
• Enhanced problem solving capability
• Better organization image
• Improved employee satisfaction

Table 1.2: TQM Vs Traditional Management

<table>
<thead>
<tr>
<th>SI. No.</th>
<th>Traditional management</th>
<th>TQM Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Decision based on assumption</td>
<td>Decisions based on data and facts</td>
</tr>
<tr>
<td>2</td>
<td>Everything begins and ends with management</td>
<td>Everything begins and ends with customers</td>
</tr>
<tr>
<td>3</td>
<td>Crisis management and recovery</td>
<td>Doing it right the first time</td>
</tr>
<tr>
<td>4</td>
<td>Choosing participative OR scientific management</td>
<td>Choosing participative AND scientific management</td>
</tr>
<tr>
<td>5</td>
<td>‘It is their problem’ attitude</td>
<td>Ownership of every problem affecting customers</td>
</tr>
<tr>
<td>6</td>
<td>Motivation through fear and loyalty</td>
<td>Motivation through shared vision</td>
</tr>
<tr>
<td>7</td>
<td>“The way we have always done it” attitude</td>
<td>Continuous improvement</td>
</tr>
<tr>
<td>8</td>
<td>Individual’s view themselves as Competitors</td>
<td>Workers see themselves as teammates</td>
</tr>
<tr>
<td>9</td>
<td>Short term objectives</td>
<td>Long term objectives</td>
</tr>
<tr>
<td>10</td>
<td>Product quality was the key</td>
<td>Customer requirement is the key</td>
</tr>
<tr>
<td>11</td>
<td>Focused on product and service</td>
<td>Focused on all business tasks</td>
</tr>
<tr>
<td>12</td>
<td>Responsibility lies with quality department</td>
<td>Responsibility lies with every employee</td>
</tr>
<tr>
<td>13</td>
<td>Quality was a function</td>
<td>Quality is a strategy.</td>
</tr>
<tr>
<td>14</td>
<td>Result was important</td>
<td>Process is important.</td>
</tr>
<tr>
<td>15</td>
<td>Quality champions were the quality employers</td>
<td>Quality champions are the top management teams</td>
</tr>
</tbody>
</table>
16 Mainly the system was focused | Mainly both the system and human components are focused
---|---
17 Quality was considered to be a tool | Quality is considered to be a process philosophy
18 Corrective methods were followed | Preventive methods are followed
19 Quality was measured by product attributes | Quality is measured by cost of quality

Source: By authors literature review

1.11 **Quality gurus**

To fully understand the TQM movement, it is necessary to look at the philosophies of individuals who have shaped the evolution of TQM. They are called Quality Gurus. Their philosophies and teachings have contributed to the knowledge and understanding of quality today. Details of this are discussed in Chapter II.

1.12 **Quality Award Models**

Worldwide, there are several Quality Awards, which include national and international quality award models such as the Deming Prize in Japan (1996), the European Quality Award in Europe (1994), the Malcolm Baldrige National Quality Award in the United States of America (1999). The broad aims of these awards are described as follows (Ghobadian and Woo, 1998); Rajiv Gandhi National Quality Awards (1991); Golden Peacock National Quality Awards (1991); IMC Ramkrishna Bajaj National Quality Award (1993) etc. The detailed explanation of these award models are furnished in the Chapter III.

1.13 **Obstacles to TQM practices**

Success of TQM depends on the implementation process. The reasons for the failure of TQM are as follows:

- Lack of a genuine quality culture
- Lack of top management support and commitment
- Over- and under-reliance on statistical process control (SPC) methods
- Misunderstanding about the concept of TQM
• Lack of effective communication
• Lack of employee commitment
• Lack of interest or incompetency of leaders
• Lack of continuous training and education
• Non-application of proper tools and techniques
• Lack of customer focus
• Improper planning
• Inability to change organizational culture
• Incompatible organizational structure and isolated individuals and departments
• Inadequate use of empowerment and teamwork
• Lack of teamwork among employers.
• Appropriate tools and methods are not employed.
• Employees are not trained properly and are not competent.
• Rules and regulations are followed rigidly without giving way for creativity by being flexible where necessary.
• Employers are not empowered.
• Undue importance is given to internal processes to make it perfect and the external processes are left uncared.
• Quality gurus’ views/philosophies are overemphasized, giving little or no room for the views and ideas of employers.
• Employees are not recognized for their contribution.
• Unmanageable and unrealistic goals are set, like achieving zero defects in six months’ time etc.
• System becomes so bureaucratic that more of paper work is forced making employees unhappy.
• ‘Ethics’ is not the core value of the organization.
• The cross departmental cross functional teams do not exist or are not effective.
• Organizational structure is with too many layers and is so rigid that controlling is what everyone wants to do.

• ROI is overlooked or low.

• TQM is considered as a quick fix solution for the current problem.

• Human component is given lesser priority compared to system component during its implementation.

• Initial extra expenditure incurred is felt as a burden.

• Employees refuse to believe the need for change and fail to accept change.

• The intended exercises are carried out without understanding the meaning of ‘quality’.

• Committees without commitment to quality will curb the progress

1.14 Conclusion

This chapter began with explaining the concept and definitions of the term ‘Quality’. Evolution of quality from inspection stages to total quality was explained. Meaning and definitions of TQM was explained. Soft and hard concepts of TQM were discussed. Principles that lead to successful TQM practices were furnished. Potential benefits of TQM and difference between TQM and traditional management styles were reviewed. Finally, various obstacles of TQM practices were also described