

# Impact of Total Quality Management Practice on Human Resource Management for Sustainable and Organizational Performance

Ashutosh Kumar Yadav

Student, IGNOU

## CHAPTER 1: Introduction on TQM

**Total quality management (TQM)** consists of organization-wide efforts to "install and make permanent climate where employees continuously improve their ability to provide on demand products and services that customers will find of particular value." "Total" emphasizes that departments in addition to production (for example sales and marketing, accounting and finance, engineering and design) are obligated to improve their operations; "management" emphasizes that executives are obligated to actively manage quality through funding, training, staffing, and goal setting. While there is no widely agreed-upon approach, TQM efforts typically draw heavily on the previously developed tools and techniques of quality control. TQM enjoyed widespread attention during the late 1980s and early 1990s before being overshadowed by ISO 9000, Lean manufacturing, and Six Sigma. TQM is the concept that quality can be managed and its process. The following information is provided to give an understanding of the key elements of this process :- Meeting Customer Requirements, Reducing Development Cycle Times, Just In Time/Demand Flow Manufacturing, Reducing Product and Service Costs, Improving Administrative Systems Training. Total Quality Management in organizational performance is originated from the idea that performance is achievable in a quality useful environment and This can only be accomplished by everyone in the organization working together to continuously improve processes and for long run sustainability (Dhamasanti and Sudaryati, 2020). For the past two decades, TQM has been a comprehensive quality improvement strategy for associations to increment execution concerning quality and development. Total quality management is a method of planning, understanding, and organizing each task that is different for each person at each stage. The philosophy of total quality management is one of prevention rather than defect detection (Zhu et al., 2020).

### TOTAL QUALITY MANAGEMENT

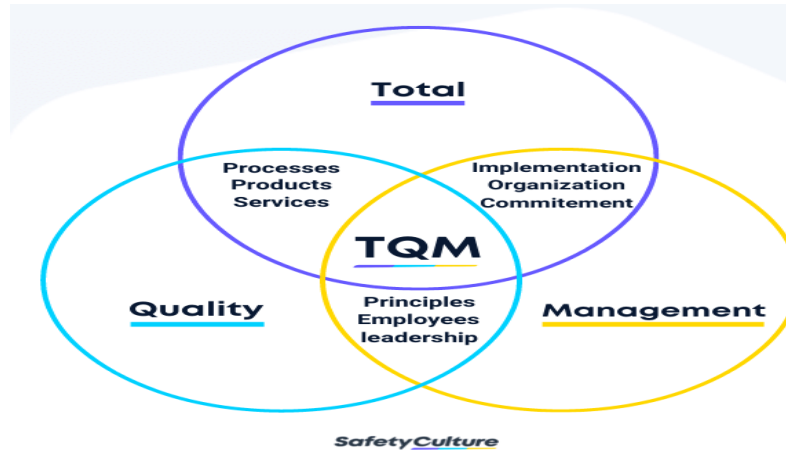


### TOTAL QUALITY MANAGEMENT



Total quality management (TQM) is a standard management practice wherein each employee within an organization continually analyzes its production processes to improve the manufacturing quality of products and services and enhance customer satisfaction. It involves conducting management training and implementing analytical methods to identify and remove problem areas in business operation

Total quality management (TQM) is a term that originated in the 1950s and is today used mainly in Japan. It is the equivalent of what other countries or organizations may call a company-wide quality management system, enterprise quality management system, or integrated quality management system, to name a few. The term ‘total’ means the entire organization—all teams, departments and functions—is involved in quality management. The ‘system’ refers to the managerial and technological methods to achieve quality requirements and business objectives throughout an entire organization. Although it may go by various names, Juran believes ‘enterprise excellence’ to be a more appropriate name for TQM.



Total quality management is a management’s approach towards the quality; it can be in regard to products, customer satisfaction and employee’s satisfaction. Total Quality Management seeks to understand and deliver customer expectations, via continuous improvement across every function within an organization. Improvement “always with the customer in mind”, will be actively and successfully implemented, and will be seen as part of normal daily responsibility for all staff. Improvement will be driven in:

- Product features,
- Process efficiency,
- Service delivery,
- Staff development,
- Systems development,
- Awareness and responsibility towards the environment, etc..# 1.1 Introduction to Total

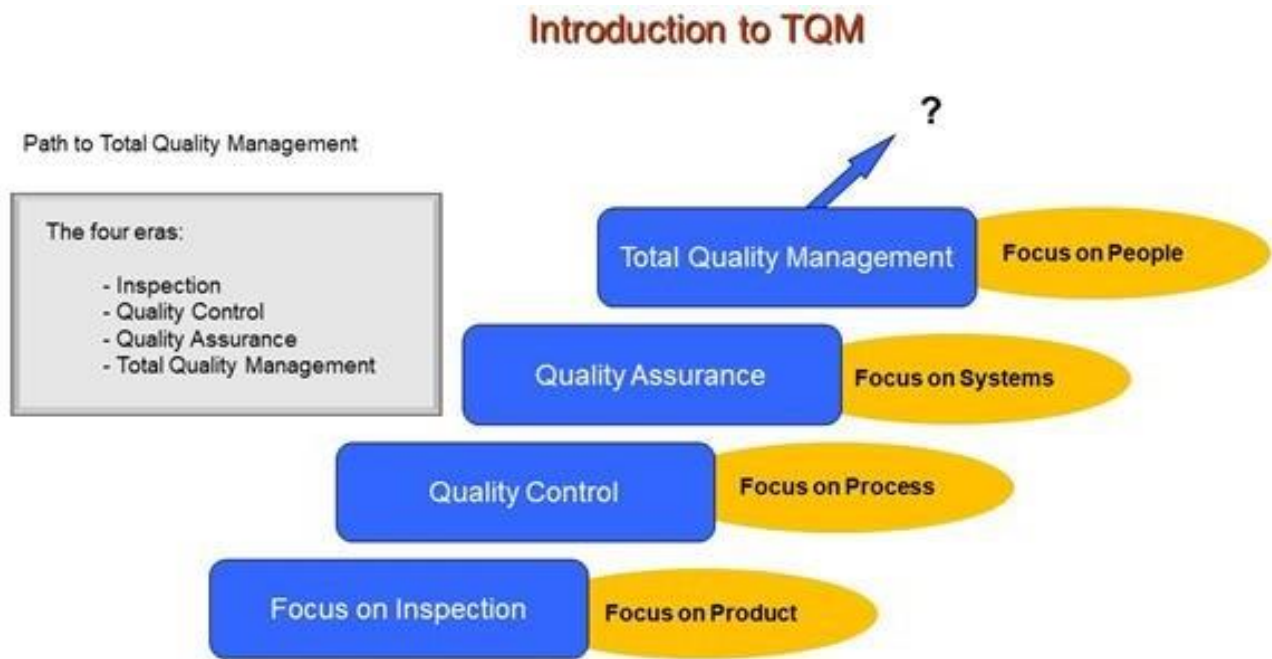
**Quality Management:**

Total quality management is a management’s approach towards the quality; it can be in regard to products, customer satisfaction and employee’s satisfaction. The concept of TQM was developed by an American W. Edwards Deming and i.e., why it is called as Deming’s concept of TQM .He introduced this concept for improving the quality of various products and services. Earlier it was just related with the quality of products which an organization is producing but now other concepts like marketing, finance design, customer service has also joined the area. TQM works on one belief that mistakes can be avoided and defects can be prevented.

Total Quality Management, as its name implies, is related to the monitoring of quality throughout the organization by everyone in that organization. This means that if problems are spotted during the production process, it is the responsibility of that person to solve the problem before it goes any further

through the process. This way, problems should be identified before they ever get near the consumer but if they do, every effort is made to sort the problem out. TQM talks about the satisfaction of customer, supplier, employees etc. and it requires continuous improvement. If the workers of an organization are efficiently working then their morale will go up. TQM works effectively if the organization works in a family manner.

Here management is like a father, employees are the children and manager is like mother; and as father and mother takes care for their home collectively the same way, management and managers are supposed to take care for their organization with the help of tool called TQM. In a TQM effort, all members of an organization participate in improving processes, products, services and the culture in which they work



The result will be the achievement and continuous enhancement of customer expectations, with consequent benefits for the organization, staff, the community and all stakeholders. Total Quality Management is an organizational philosophy, based on the principle that consistent delivery of customer expectations, can only be achieved if each and every contributor into the customer expectation performs as required, in order to meet the needs of the customer. In TQM the customer is everyone who is provided with a product or service, at every stage along the various contributory processes towards the final end customer. Unless all customer expectations are delivered, then an organization cannot hope to delivery to the expectations of the final end customer. TQM entails meeting customer requirements. Includes the internal and external customers. Making continuous improvement part of ongoing activity for all. The path to Total Quality Management, followed through the stages of “Inspection”, “Quality Control”, “Quality Assurance” and onto “Total Quality Management”. Total Quality Management (TQM) is an integrative management system that focuses on quality while providing value to customers. It implies the **quest for quality** in the organization. It concentrates on ongoing and accruing gains in quality, productivity and cost reduction. Achievement of these gains is possible by way of continuous improvement in product design. It looks for participation from every department, section and activity to promote constant improvement efforts.

It is a **Japanese approach** to quality that relies on three main philosophies:



1. Never-ending push to improve i.e. **continuous improvement**
2. **Involvement of every employee** in the organization
3. The goal for **customer satisfaction**, i.e. meeting or exceeding customer expectations.

In this process, the organization aims for continuous improvement at each level. Customer Satisfaction is the core of the entire process.

**T:** **Total** – Comprising of the whole, or organization-wide.

**Q:** **Quality** – Level of excellence a product or service provides.

**M:** **Management** – Process involving planning, organizing, staffing, directing and controlling.

The approach is comprehensive in the sense that it works **horizontally** so that employees of all departments, sections and units can take part. Further, it extends **backwards and forwards** to cover both suppliers of raw materials along with clients and customers. It aims at a constant increase in the satisfaction of consumers but at a low cost.

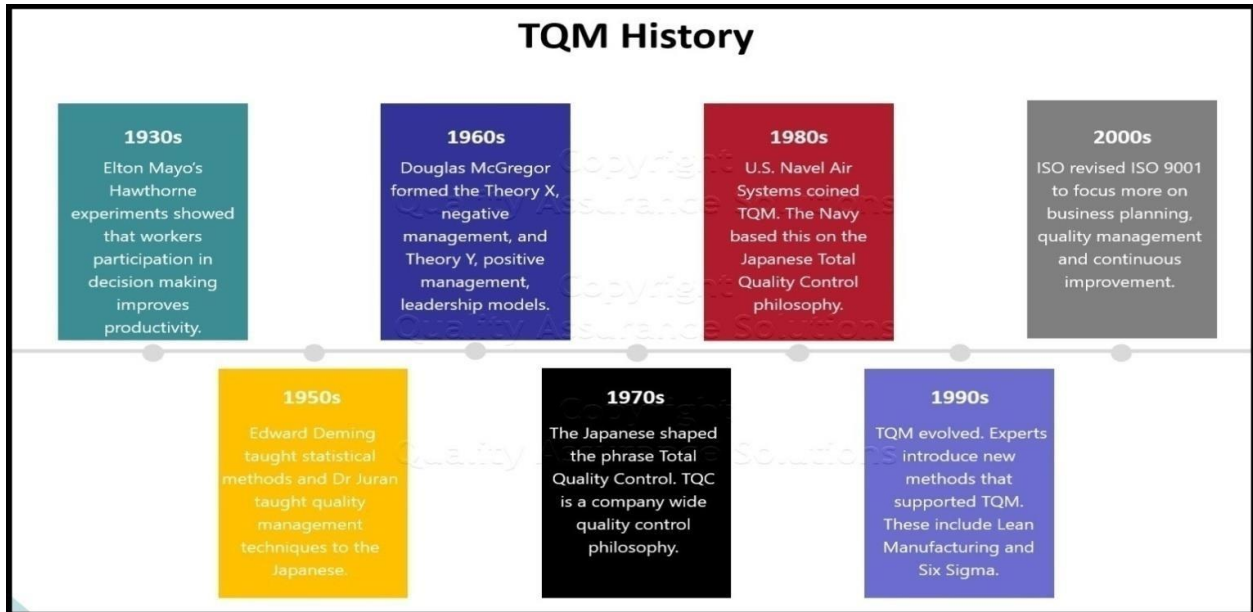
## Basic Concepts

- Committed and participative management to supply long term thorough organizational support.
- Consistent focus on customers. It covers both internal and external customers.
- Effective participation and commitment of the whole workforce.
- Ongoing improvement of business and production processes.
- Treatment of suppliers as partners
- Setting performance standards for the processes.

## #1. 2 Evolution/Origin of Total Quality Management:

The concept of quality has existed for many years, though it's meaning has changed and evolved over time. In the early twentieth century, quality management was merely inspecting products to ensure that they met specifications. After the First World War, quality inspection became more commonplace in Manufacturing environments and this led to the introduction of Statistical Quality Control (SQC), a theory developed by Dr. W. Edwards Deming. This quality method provided a statistical method of quality based on sampling. Where it was not possible to inspect every item, a sample was tested for quality. The theory of SQC was based on the notion that a variation in the production process leads to

variation in the end product. If the variation in the process could be removed this would lead to a higher level of quality in the end product. After World War II, the industrial manufacturers in Japan produced poor quality items. In a response to this, the Japanese invited Dr. Deming to train engineers in quality processes. By the 1950's quality control was an integral part of Japanese manufacturing and was adopted by all levels of workers within an organization.



Statistical sampling techniques were used to evaluate quality, and quality control charts were used to monitor the production process. In the 1960s, with the help of quality gurus, the concept, took on a broader meaning. The meaning of quality for businesses changed dramatically in the late 1970s. Before then quality was still viewed as something that needed to be inspected and corrected. Since the 1970s, competition based on quality has grown in importance and has generated tremendous interest, concern, and enthusiasm. Companies in every line of business are focusing on improving quality in order to be more competitive. In many industries quality excellence has become a standard for doing business. Today, successful companies understand that quality provides a competitive advantage. They put the customer first and define quality as meeting or exceeding customer expectations.

Process analysis	DESCRIPTION/EVOLUTION OF TQM
1920s	<ul style="list-style-type: none"> <li># Some of the first seeds of quality management were planted as the principles of scientific management swept through U.S. industry.</li> <li># Businesses clearly separated the processes of planning and carrying out the plan, and union opposition arose as workers were deprived of a voice in the conditions and functions of their work.</li> </ul>
1930s	# Walter Shewhart developed the methods for statistical analysis and control of quality.
1950s	# W. Edwards Deming taught methods for statistical analysis and control of quality to Japanese engineers and executives. This can be considered the origin of TQM.



# Joseph M. Juran taught the concepts of controlling quality and managerial breakthrough.

# Armand V. Feigenbaum's book Total Quality Control, a forerunner for the present understanding of TQM, was published.

# Philip B. Crosby's promotion of zero defects paved the way for quality improvement in many companies.

1968 # The Japanese named their approach to total quality "companywide quality control." It is around this time that the term quality management systems arises.

# Kaoru Ishikawa's synthesis of the philosophy contributed to Japan's ascendancy as a quality leader.

Today # TQM is the name for the philosophy of a broad and systemic approach to managing organizational quality.

# Quality standards such as the ISO 9000 series and quality award programs such as the Deming Prize and the Malcolm Baldrige National Quality Award specify principles and processes that comprise TQM.

# TQM as a term to describe an organization's quality policy and procedure has fallen out of favor as international standards for quality management have been developed. Please see our series of pages on quality management systems for more information.

### # 1.3 Definition of Total Quality Management:

**Total Quality Management (TQM) is made of three words namely: Total:**

Made up of the whole.

#### **Quality:**

Degree of excellence a product or service provides.

#### **Management:**

Act, art, or manner of handling, controlling, directing, etc.

Therefore, TQM is the art of managing the whole to achieve the excellence.

### **Some of the definitions of TQM as given by various quality experts are:**

TQM is an integrated organizational effort designed to improve quality at every level.

OR

TQM is a process and philosophy of achieving best possible outcomes from the inputs, by using them effectively and efficiently in order to deliver best value for the customer, while achieving long term objectives of the organization.

OR

Total Quality Management is a structured system for managing the quality of products, processes, and resources of an organization in order to satisfy its internal and external customers, as well as its suppliers.

OR

TQM is a philosophy that is designed to make an organization faster, flexible, focused and friendly. It leads to a structured system that focuses each employee on the customer. It creates an environment that allows organization-wide participation in planning and implementing a continuous improvement process to meet customer needs.

**In brief, TQM is a comprehensive management system which:**

- a. Focuses on meeting owners'/customers' needs, by providing quality services at a reasonable cost.
- b. Focuses on continuous improvement.
- c. Recognizes role of everyone in the organization.
- d. Views organization as an internal system with a common aim.
- e. Focuses on the way tasks are accomplished.
- f. Emphasizes teamwork.

**# 1.4 Concepts of Total Quality Management:**

The main feature of TQM is to focus on identifying root causes of quality problems and correcting them at the source, as opposed to inspecting the product after it has been made. TQM attempts to involve quality in every aspect of the organization. It is concerned with technical aspects of quality as well as the involvement of people in quality, such as customers, company employees, and suppliers.

**Some of the specific concepts that make up the philosophy of TQM are:**

1. Customer Focus.
2. Continuous Improvement.
3. Leadership from Top management.
4. Actions Based on Facts.
5. Employee Participation.
6. Employee Empowerment.
7. Use of Quality Tools.
8. Product Design.

**1. Customer Focus:**

The first feature of TQM is the company's focus on its customers. Quality is defined as meeting or exceeding customer expectations. The goal is to first identify and then meet customer needs. TQM recognizes that a perfectly produced product has little value if it is not what the customer wants. Therefore, it can be said that quality is customer driven. Customer satisfaction is seen as the company's highest priority. The company believes it will only be successful if customers are satisfied.

It is not always easy to determine what the customer wants, because tastes and preferences change. Also, customer expectations often vary from one customer to the next. For example, in the auto industry trends change relatively quickly, from small cars to sports utility vehicles and back to small cars. The same is true in the retail industry, where styles and fashion are short lived. Companies need to continually gather information by means of market surveys, and customer interviews in order to stay in tune with what customers want.

**2. Continuous Improvement:**

Another concept of the TQM philosophy is the focus on continuous improvement. Earlier companies works on the assumption that once it has achieved a certain level of quality, it was successful and needed no further improvements. But nowadays this trend has changed as more and more companies think of improvements in terms of quality.

Continuous improvement of all operations and activities is at the heart of TQM. Once it is recognized that customer satisfaction can only be obtained by providing a high-quality product, continuous improvement of the quality of the product is seen as the only way to maintain a high level of customer satisfaction. Japanese called Kaizen as continuous improvement, which requires that the company continually strive to be better through learning and problem solving. Elimination of waste is a major component of the continuous improvement approach.

**The two approaches that help companies with continuous improvement are:**

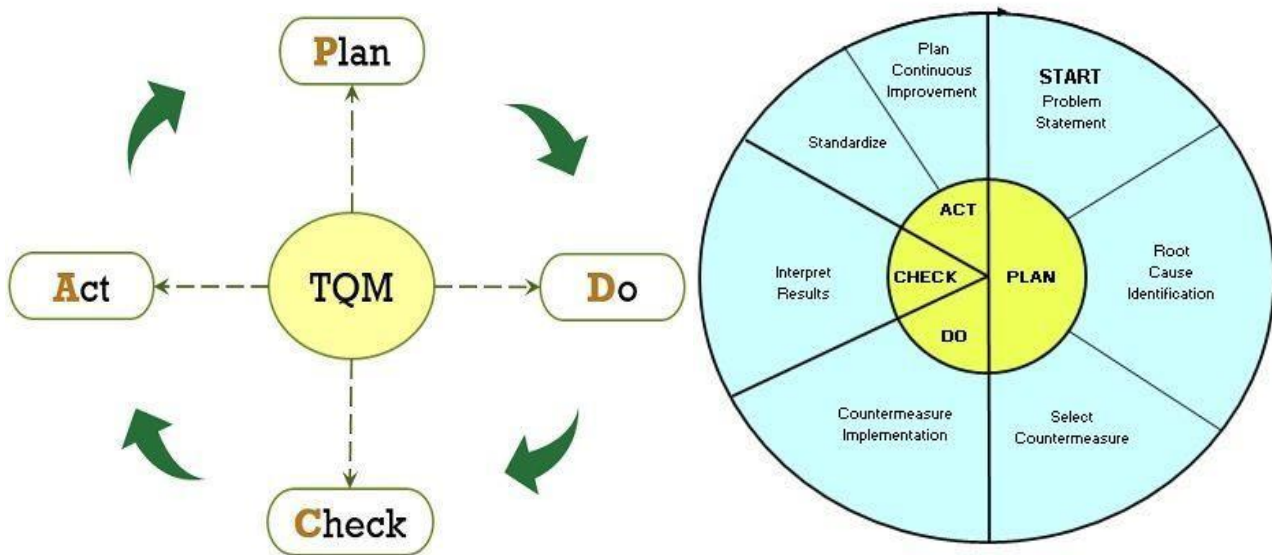
**a. Plan-Do-Check-Act (PDCA) Cycle:**

The Plan-Do-Check-Act (PDCA) cycle, also known as the Shewhart Cycle or the Deming Cycle, is a popular model for continuous improvement.

**As the name indicates, it consists of 4 distinct steps:**

1. **Planning**, which refers to the act of identifying opportunities for improvement and identifying ways of achieving these improvements;
2. **Doing**, which refers to the actual implementation of the actions needed to effect the change;
3. **Checking**, which refers to the act of verifying whether the implemented changes resulted, in the desired improvements; and
4. **Action**, which is what one does in response to the effects observed.

In step 4, if the effects observed are the desired improvements, then the actions implemented are made permanent and even deployed more widely. If the effects are negligible or even negative, the cycle is repeated using a different plan of action.





**b. Benchmarking:**

Benchmarking is another process adopted by the companies for continuous improvement. Benchmarking is the systematic comparison of organizational processes and performance to create new standards or to improve processes. Benchmarking involves looking outside an organization, industry, region etc. to examine how others achieve their performance levels and to understand the processes they use.

**3. Leadership from Top Management:**

TQM is a way of life for a company. It has to be introduced and led by top management. This is a key point. Attempts to implement TQM often fail because top management doesn't lead and get committed. Commitment and personal involvement is required from top management in creating and deploying clear quality values and goals consistent with the objectives of the company, and in creating and deploying well-defined systems, methods and performance measures for achieving those goals. These systems and methods guide all quality activities and encourage participation by all employees.

**4. Actions Based on Facts:**

The statistical analysis of engineering and manufacturing facts is an important part of TQM. Facts and analysis provide the basis for planning, review and performance tracking, improvement of operations, and comparison of performance with competitors. The TQM approach is based on the use of objective data, and provides a rational rather than an emotional basis for decision-making.

The statistical approach recognizes that most problems are system-related, and are not caused by particular employees. In practice, data is collected and put in the hands of the people who are in the best position to analyze it and then take the appropriate action to reduce costs and prevent non-conformance.

Usually these people are not managers but workers in the process. If the right information is not available, then the analysis, whether it is of shop floor data, or engineering test results, can't take place, errors can't be identified, and so errors can't be corrected.

**5. Employee Participation:**

A successful TQM environment requires a committed and well-trained Work force that participates fully in quality improvement activities. Such participation is reinforced by reward and recognition systems, which emphasize the achievement of quality objectives. On-going education and training of all employees supports the drive for quality. Employees are encouraged to take more responsibility, communicate more effectively, act creatively, and innovate.

**6. Employee Empowerment:**

Another concept of TQM is to empower all employees to seek out quality problems and correct them. Employee empowerment is a strategy and philosophy that enables employees to make decisions about their jobs. Employee empowerment helps employees own their work and take responsibility for their results.

Employees are considered a vital element of the effort to achieve high quality. Their contributions are highly valued, and their suggestions are implemented. In order to perform this function, employees are given continual and extensive training in quality measurement tools.

For employee empowerment to work successfully, the management team must be truly committed to allow employees to make decisions.

### **7. Use of Quality Tools:**

Another concept of TQM is use of quality tools, which help organizations to identify, analyze and assess qualitative and quantitative data that is relevant to their business. These tools can identify procedures, ideas, statistics, cause and effect concerns and other issues relevant to their organizations. Each of these tools can be used to enhance the effectiveness, efficiency, standardization and overall quality of procedures, products or work environment, in accordance with standards.

### **8. Product Design:**

A critical aspect of building quality into a product is to ensure that the product design meets customer expectations. To produce a product that customers want, the organization's needs to translate customers' everyday language into specific technical requirements. A useful tool for translating the voice of the customer into specific technical requirements is Quality Function Deployment (QFD).

QFD enables organizations to view the relationships among the variables involved in the design of a product, such as technical versus customer requirements. QFD begins by identifying important customer requirements, which typically come from the marketing department. These requirements are translated into specific product characteristics.

### **# 1.5 Characteristics of TQM:**

**Some of the characteristics of TQM are:**

1. TQM is a customer-focused approach.
2. Aims at satisfying the customer or delighting them.
3. Provides best quality product at lowest possible price.
4. It is companywide strategy.
5. Involves everyone in the organization.
6. Prevention of defects is the way and the target is zero defects.
7. Total quality management is methodical.
8. It makes moves based on information.
9. It is a continuous process.

## **CHAPTER 2: Principles of TQM**

Total Quality Management denotes the managerial and operational task to perform a process of planning, organizing, directing and controlling activities that lead to determine and implement the standards and levels of quality to be needed in product and services. Fore mostly, the concept of total quality is the notion that excellences and optimum performances are being very essential in all the functions of business and its allied activities. A management philosophy which seeks to integrate all organizational functions (marketing, finance, design, engineering, production, customer service) to focus on meeting customer needs and organizational objectives.

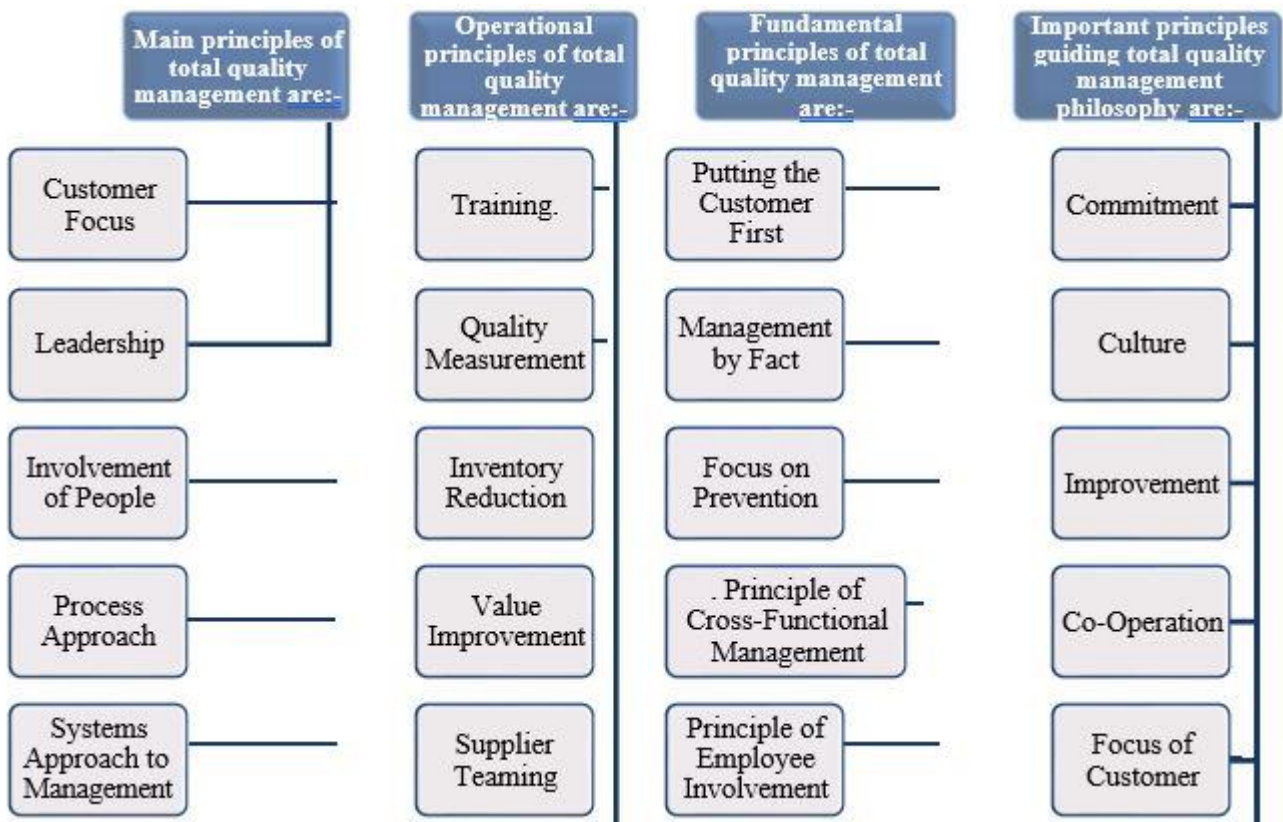
It views organizations as a collection of processes. It maintains that organizations must strive to continuously improve these processes by incorporating the knowledge and experiences of workers. Total quality management is the management approach of an organization, centered on quality, based on

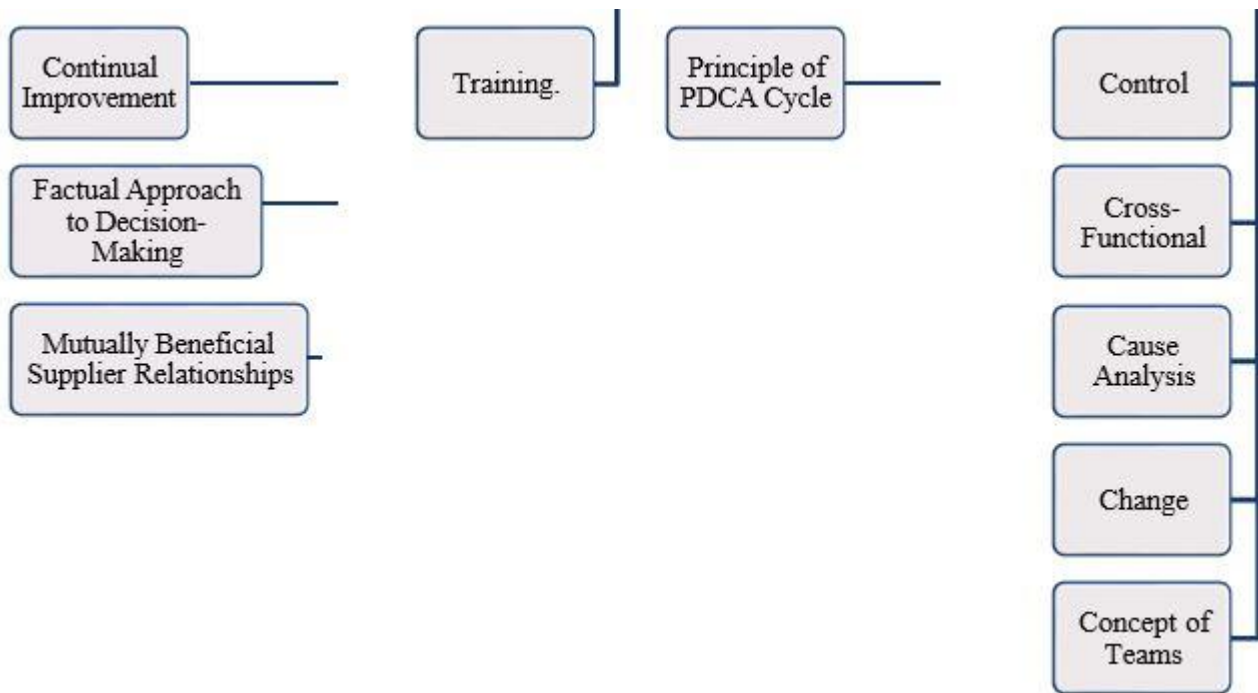
the participation of all of its members, and aiming at long-term success through customer satisfaction and benefits to all members of the organization and to society.

Total Quality Management is a structured system for satisfying internal and external customers and suppliers by integrating the business environment, continuous improvement, and breakthroughs with development, improvement, and maintenance cycles while changing organizational culture. The task force set up for revising the ISO (International Organization for Standardization) 9000 series of standards decided that organizations can continually improve their performance if they follow the following (eight) principles of quality management-

**# 2.1 Beliefs of TQM:**

- a. Owner/customer satisfaction is the measure of quality.
- b. Everyone is an owner/customer.
- c. Quality improvement must be continuous.
- d. Analysis of the processes is the key to quality improvement.
- e. Measurement, a skilled use of analytical tools, and employee involvement are critical sources of quality improvement ideas and innovations.
- f. Sustained total quality management is not possible without active, visible, consistent, and enabling leadership by managers at all levels.
- g. It is essential to continuously improve the quality of products and services that organization provides to its owners/customers





**#2.2: Main principles of total quality management 8 Main Principles are : Customer Focus, Leadership, Involvement of People, Process Approach and a Few Other Principles**

**Principle # 1. Customer Focus:**

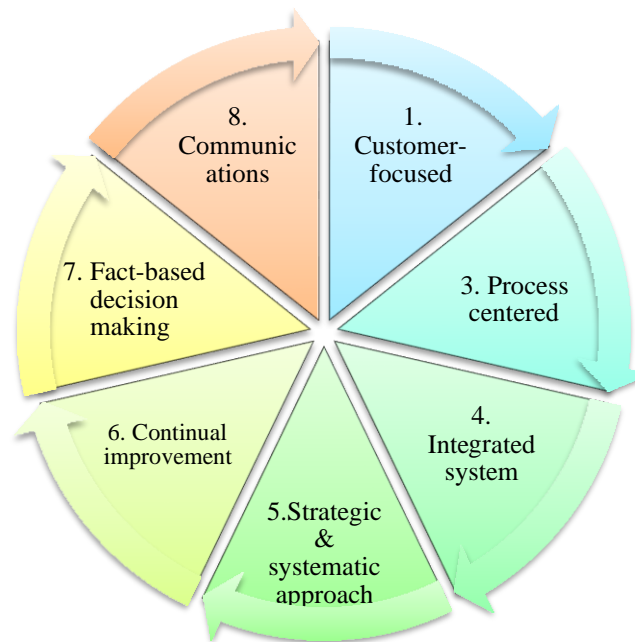
All organizational activities are directed towards producing goods and services that will satisfy the present and future customer requirements. Being aware of customer requirements and always satisfying them is the integral part of TQM.

**Principle # 2. Leadership:**

Organization should have good and effective leaders who provide unity of action and direction to all those working in the organization. The leaders should strive the organizational efforts towards achievement of overall goals.

**Principle # 3. Involvement of People:**

Structures, systems and technology by themselves do not provide quality unless people who run the organization fully exploit their abilities to work for the organization’s progress and benefits. Unless people understand what to do, how to do and obtain feedback on their performance, they cannot be encouraged to take responsibility for quality of their work. Greater involvement of people will lead to greater customer satisfaction.



#### **Principle # 4. Process Approach:**

Organizational goals can be achieved when resources and activities are managed as a process. “A process is a combination of methods, materials, manpower and machines that, taken together, produce a product”. Quality improvement aims at reducing variations amongst different processes by removing the causes of variations and bringing the process under control.

#### **Principle # 5. Systems Approach to Management:**

An organization should be viewed as a system with interrelated set of activities that link the internal organizational environment with its external environment and help to efficiently achieve the goals in terms of quality products.

#### **Principle # 6. Continual Improvement:**

TQM is not an end. It is the road to achieving the end, the quality improvement. It is a continuous process of incremental change that aims at improving organization’s operational efficiency according to improvement in competitors’ policies and customers’ requirements.

#### **Principle # 7. Factual Approach to Decision-Making:**

Managers should know their current quality standards in order to improve upon them. The decision to improve depends upon available information and its dissemination to all concerned and, therefore, it is necessary that right and accurate information is available to managers through effective information systems.

#### **Principle # 8. Mutually Beneficial Supplier Relationships:**

The organization and its suppliers should work for mutual benefit of each other to provide value to overall organizational activities.



### **#2.3: Operational principles of total quality management are:- 6 Operational Principles of TQM: Universal Quality Responsibility, Quality Measurement, Inventory Reduction and a Few Others**

#### **1. Universal Quality Responsibility:**

Quality is an organization-wise guiding philosophy that is not restricted to the firm's quality control/quality assurance department. Under TQM, every person or department takes responsibility for quality.

#### **2. Quality Measurement:**

Under TQM, quality is recognised as a measurable commodity, and in order to improve, we need to know where we are (i.e., what the current quality levels are), and we need to have some idea where we are going (i.e., what quality levels we aspire to achieve). Statistical methods are used to support quality efforts in process-simplification and product-design variation.

#### **3. Inventory Reduction:**

Inventory reduction leads to –

- Cost reduction
- Quality improvement. This management philosophy is called Just-in-Time (JIT) inventory management.

#### **4. Value Improvement:**

The essence of value improvement is the ability to meet or exceed customer expectations while removing unnecessary costs. The philosophy is one of “Cost Management” and not merely “Cost Containment”.

#### **5. Supplier Teaming:**

Developing long-term relationships with a few high-quality suppliers, rather than simply selecting those suppliers with the lowest initial cost is termed as supplier teaming. This will ensure quality at the source level, i.e., at the raw materials / component procurement stage.

#### **6. Training:**

Training is one of the pre-requisites to ensure –

- a. Employee Involvement,
- b. Employee Empowerment, and
- c. Continuous Improvement.

**#2.4: Fundamental principles of total quality management are: - Putting the Customer First, Management by Fact, Focus on Prevention, Principle of Cross-Functional Management, Principle of Employee Involvement and Principle of PDCA Cycle.**

### **Total Quality Management Principles – Fundamental Principles of TQM**

TQM principles can be better explained by examining those companies which have been successful. Some India companies which have won the Golden Peacock National Quality Awards from Quality Council of India (QCI) and Institute of Director (IOD) are Telco, Philips, Bharat Electronics, Kirloskar, SAIL and EIL.

On examining companies like Malcolm Baldrige Award winners in the USA like Motorola the Deming Prize winners like Toyota; and the European Quality Award winners like Corning, we find that the following fundamentals of TQM are common in each of these award winning international companies.

### **1. Putting the Customer First:**

Achieving customer satisfaction is at the heart of total quality management. This principle supports the traditional view that the “customer is king”. If a company cannot satisfy its customers, another accompany will. Processes and products must be designed with one thing in mind-satisfying the customer.

Companies in India must move from a “product-out” mentality (i.e., pushing product or Service-out) to a “customer-in” attitude (i.e., providing the product or service that customers expect or better yet, beyond what they expect). These days the emphasis has shifted from the customer satisfaction to delighting the customer. The Indian companies in order to succeed in global competition are to adapt to this latest version of customer focus.

### **2. Management by Fact:**

The second principle which TQM companies world over are adopting these days is management by fact. This principle is difficult to institutionalize because every employee in an organization has opinions, views and notions about how things should be done. They may tell you what the root cause of a problem is but may not give you the facts for solving the problem. This way people may become the part of the problem itself rather than solvers. Facts are far better than opinions although opinions, views and ideas cannot be ignored.

### **3. Focus on Prevention:**

Indian Companies like Telco, Philips, etc., which have mastered TQM realized that solving problems is the first step in making improvement. These Indian companies realized that until methods are instituted to prevent the recurrence of problems, long-lasting results cannot be achieved.

Most companies in India do not understand this fundamental principle and generally end up solving the same problem over and over again. That is they keep on inventing the wheel again and again. The companies must ensure that problems are solved once for all and recurrence of these problems is prevented.

### **4. Principle of Cross-Functional Management:**

Cross-functional management recognize that no organizational unit can by itself control every aspect of the business operation to ensure that the customer’s requirements are met. Cross- functional management is a method of cooperating across functional organizational boundaries- interacting with each other to make sure that the product or service meets the quality standards that are set.

Indian organizations may take some time to fully appreciate the power of this foundational principle of TQM. Because there may be a feeling that each manager in his/her department is functioning well. Generally, there may be every person for him/herself focus. They are interested in getting their jobs done and do not bother about others.

With the application of this principle and more decentralized approach, managers will be able to control the resources necessary to satisfy customers. Thus there would be improvement in customer satisfaction and cost savings. Slowly on implementation of TQM, Indian managers will understand and realize the meaning and application of cross functional management. Communication among departments will improve.

Cross-functional management techniques would reduce design time, improve product and service

quality and build a sense of missing among company employees. This principle is very powerful as it aligns the vectors so that everyone and everything is going in the same direction. In the absence of this principle, no other approach for TQM can be successful.

### **5. Principle of Employee Involvement:**

Surrounding the above four fundamental principles are two others that relate to how people should work together. Sometimes, this principle is referred to as respect for people. In some Indian business organizations still the workers and employees are treated as persons with brawn only and not with brain. This was the traditional way of exploiting the workers.

For becoming TQM Company, we have to respect and optimally use employees brain power along with their technical skills and physical power. Most employees have very good minds and can contribute creatively if recognized. The companies must start tapping employees' brainpower innovative and exciting ideas. Employees know about problem within the business much better and can help solve them.

Successful TQM companies world over recognize that workers' energy, enthusiasm and value to the company can be limitless given the proper forum where their ideas can be expressed and given the proper respect for their abilities. The Indian business organizations must start applying this TQM principle for increasing their effectiveness.

### **6. Principle of PDCA Cycle:**

The plan-do-check-act (PDCA) principle is another essential tool for implementing a TQM programme successfully in Indian organizations. The PDCA also referred to as the "Deming Wheel" is the principle of continuous improvement. Most Indian companies do not have practices in place that force continuous improvement.

Following the PDCA principle would force the organizations in India to examine their business processes, check is the most important step in process against a standard and stated business objective. Practice of the PDCA cycle generates numerous opportunities for further improvement. A systematic process for examining how to improve things is necessary successful application of TQM.

Because conditions are never as good as they might be in any business. Managers should never be satisfied with the status quo. Becoming complacent will allow competitors to win; but by following the PDCA principle they can guard against this complacency. Thus all Indian business organizations implementing TQM must follow the principle of PDCA for their future success. Japanese companies have the PDCA principle as their main forte for improvement.

**#2.5: Important principles guiding total quality management philosophy are:-** Commitment , Culture , Improvement , Co-Operation, Focus of Customer , Control , Cross-Functional ,Cause Analysis , Change , Concept of Teams.

### **Principle # 1. Commitment:**

If a TQM culture is to be developed, total commitment must come from top management. It is not sufficient to delegate 'quality' issues to a single person or department. Quality expectations must be made clear by the top management, together with the support and training required for its achievement.

**Principle # 2. Culture:**

Training lies at the centre of effecting a change in culture and attitudes. Negative perceptions must be changed to encourage individual contributions and to make ‘quality consciousness’ a normal part of everyone’s job.

**Principle # 3. Continuous Improvement:**

TQM should be recognised as a ‘continuous process’. It is not a ‘one-time programme’ Continuous improvement refers to both “incremental” improvement, as well as “breakthrough” improvement. Improvement may be of various types, like –

- a. Providing more value to the customer through new and improved products and services,
- b. Identifying new business opportunities,
- c. Reducing errors, defects, inefficiencies and wastes,
- d. Improving responsiveness and cycle time performance, and
- e. Improving productivity and effectiveness in the utilization of resources.

**Principle # 4. Co-Operation:**

Employee involvement and co-operation should be sought in the development of improvement strategies and associated performance measures. TQM visualises –

1. Employee Involvement – This means that every employee is involved in running the business and plays an active role in helping the firm meet its goals.
2. Employee Empowerment – This means that employees and management recognize that there are many obstacles in achieving organizational goals and can be overcome by employees who are provided with the necessary tools and authority to do so.

**Principle # 5. Focus of Customer:**

The needs of external customers (in receipt of the final product or service) and also the internal customers (colleagues who receive and supply goods, services or information), should be the prime focus.

**Principle # 6. Control:** Documentation, procedures and awareness of current best practice are essential if TQM implementations are to function appropriately. Unless control procedures are in place, improvements cannot be monitored and measured nor deficiencies corrected.

**Principle # 7. Cross-Functional:**

TQM is a total system approach, and not a separate area or program. It is an integral part of high-level strategy-making. It works horizontally across functions and departments, involves all employees, and extends backward and forward to include the supply chain and the customer chain.

**Principle # 8. Cause Analysis:**

TQM seeks to design and build quality in the product, rather than allow defectives and then inspect and rectify them. The focus is on the causes rather than the symptoms of poor quality. This is done by identifying the root causes of the problems, and by implementing corrective actions that address problems at the root cause level.

**Principle # 9. Change:**

TQM stresses learning and adaptation to continual change as keys to organizational success. Improvement and learning should be a regular part of daily work. The objective is to eliminate problems at their source itself, and be driven by opportunities to do better, as well as by problems that need to be corrected. This requires a “learning” attitude, i.e., adaptation to change, leading to new goals or approaches.

**Principle # 10. Concept of Teams:**

Taking advantage of the synergy of teams is an effective way to address the problems and challenges of continuous improvement.

TQM prescribes a series of ways for organizations to accomplish this, with the pathway to successful continuous improvement centred on the use of strategy, data and effective communication to instill a discipline of quality into the organization's culture and processes. More specifically, TQM puts a spotlight on the processes that organizations use to produce their products, and it calls for organizations to define those processes, continuously monitor and measure their performance, and use that performance data to drive improvements. Furthermore, it calls for all employees, as well as all organizational departments, to be part of this process. TQM's objectives are to eliminate waste and increase efficiencies by ensuring that the production process of the organization's product (or service) is done right the first time. This management framework was initially applied to companies in the manufacturing sector, but, over the decades, organizations in other sectors have adopted it, as well.

**Principles of TQM :**

- Quality can and must be managed.
- Everyone has a customer and is a supplier.
- Processes, not people are the problem.
- Every employee is responsible for quality.
- Problems must be prevented, not just fixed.
- Quality must be measured.
- Quality improvements must be continuous.
- The quality standard is defect free.
- Goals are based on requirements, not negotiated.
- Life cycle costs, not front end costs.
- Management must be involved and lead.
- Plan and organize for quality improvement.

TQM can be summarized as a management system for a customer-focused organization that involves all employees in continual improvement. It uses strategy, data, and effective communications to integrate the quality discipline into the culture and activities of the organization. Many of these concepts are present in modern quality management systems, the successor to TQM.

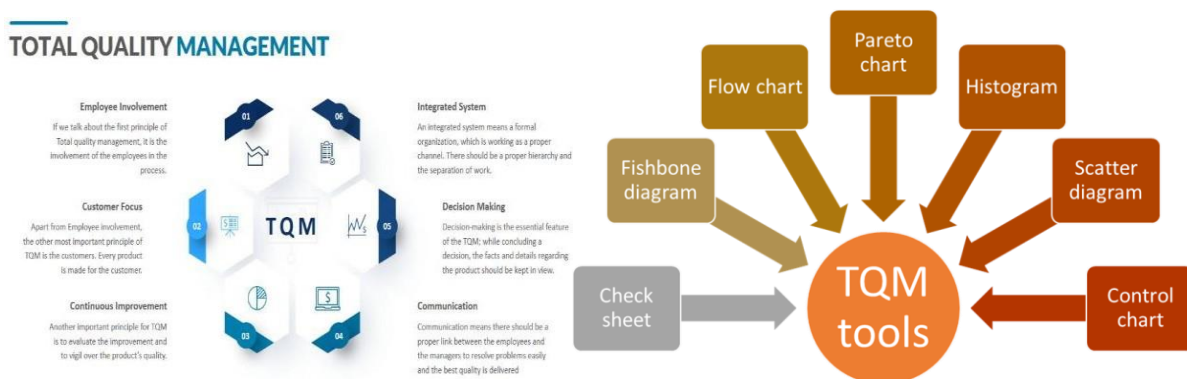
**Total Quality Management Principles: 11 Points**

Total quality management (TQM) is defined as an integrated organizational approach in delighting customers both inside and outside by meeting their quality expectations on a continuous basis as everyone involved with the organization working on continuous improvement in all products along with



proper problem solving methodology.

1. Business success can only be achieved by understanding and fulfilling the needs of customers.
2. Leadership in quality is the responsibility of top management



3. Statistical reasoning with factual data is the basis for problem solving and continuous improvement.
4. All functions at all levels of an organization must focus on continuous improvement to achieve corporate goals.
5. Problem solving and process improvements are best performed by multifunctional work team.
6. Continuous learning, training and education is the responsibility of everyone in the organization.
7. Strive for competitive quality.
8. Continuous for improvement of production processes establish performance measures.
9. Empowerment of people, use of teams and effective utilization of the entire work force.
10. Continuous improvement in business process quality and management.
11. Establish partnership with suppliers.

The main principles that underlie TQM are summarized below:

1. **Prevention** – Prevention is better than cure. In the long run, it is cheaper to stop product defects than trying to find them.
2. **Zero defects** – The ultimate aim is no (zero) defects – or exceptionally low defect levels if a product or service is complicated.
3. **Employee involvement** – Those involved in production and operations have a vital role to play in spotting improvement opportunities for quality and identifying quality problems.
4. **Quality involves everyone** – Quality is not just the concern of the production or operations department – it involves everyone, including marketing, finance and human resource departments.
5. **Continuous improvement** – Businesses should always be looking for ways to improve processes to improve quality.

### CHAPTER 3 :-Implementation of TQM on HRM

TQM views quality as a long-term company strategy aimed at providing products and services that fulfil the explicit and implicit expectations of both internal and external consumers. At the basic, it is the issue of measurement which is the source of continuity, strength, and sustainable performance. On the other hand, sustainability is described as the long-term maintenance of systems based on economic, environmental, and social factors (Abbas, 2020). A conceptual and empirical study of the literature on

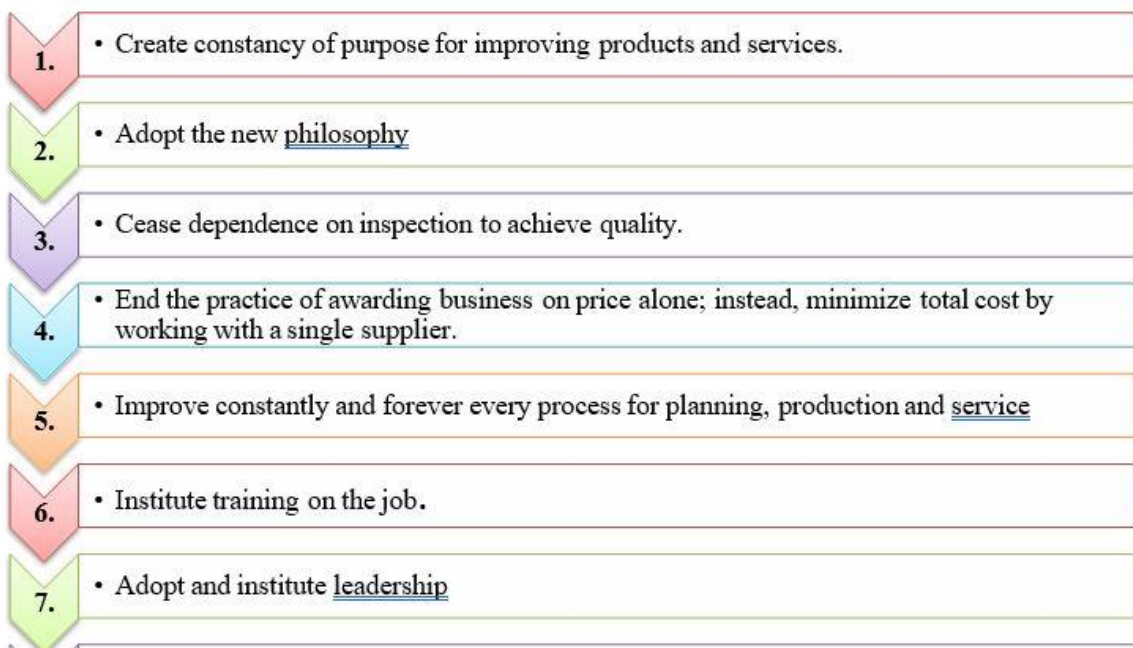
the connection among sustainability and Quality Management from various viewpoints, models, and methods was studied by (Allur et al., 2018). Zairi (2001) proposed a model, referred to as the TQM capability and Sustainable Performance Model (TQM-MSPM). This TQM Capability and Sustainable Performance Model is founded on the idea that to adopt process management principles, an organizational framework that supports cooperation, learning, and innovation is required. TQM dates back to the 1920s, when the science of statistics was applied to quality control in an industrial setting. Walter A. Shewhart, an engineer at Western Electric and Bell Telephone Laboratories, created a statistical control chart in the mid-1920s, and then published Economic Control of Quality of Manufactured Product in 1931. Many still refer to his statistical quality control method as the Shewhart cycle. It is also called the Deming cycle, or the PDCA (plan, do, check, act) model. Quality control methods evolved in subsequent decades, with industrial engineer Joseph Juran first employing Shewhart's methods and, later, in 1951, publishing his influential book Juran's Quality Control Handbook.

### W. EDWARDS DEMING'S 14 POINTS FOR TOTAL QUALITY MANAGEMENT:

Deming's 14 Points on Quality Management, or the Deming Model of Quality Management, a core concept on implementing total quality management (TQM), is a set of management practices to help companies increase their quality and productivity.

#### Importance of TQM

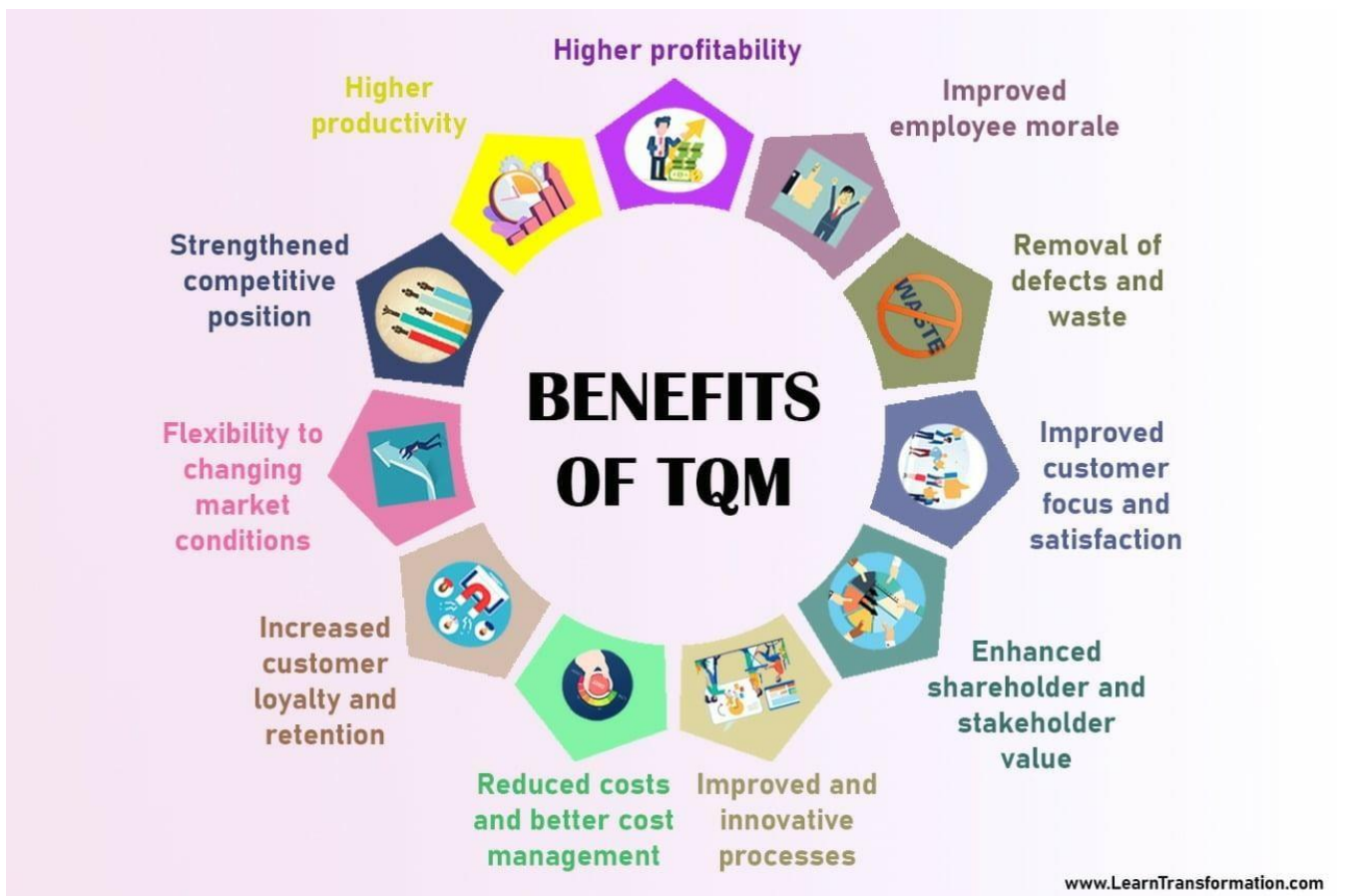
TQM can have an important and beneficial effect on employee and organizational development. By having all employees focus on quality management and continuous improvement, companies can establish and uphold cultural values that create long-term success to both customers and the organization itself. TQM's focus on quality helps identify skills deficiencies in employees, along with the necessary training, education or mentoring to address those deficiencies. With a focus on teamwork, TQM leads to the creation of cross-functional teams and knowledge sharing. The increased communication and coordination across disparate groups deepens institutional knowledge and gives companies more flexibility in deploying personnel.



8. • Drive out fear.
9. • Break down barriers between staff areas
10. • Eliminate slogans, exhortations and targets for the workforce
11. • Eliminate numerical quotas for the workforce and numerical goals for management
12. • Remove barriers that rob people of pride of workmanship, and eliminate the annual rating or merit system
13. • Institute a vigorous program of education and self-improvement for everyone.
14. • Put everybody in the company to work accomplishing the transformation

W. Edwards Deming further developed Shewhart's ideas in post-World War II Japan, where the U.S. government had positioned him to advise Japanese leaders on the rebuilding efforts taking place there in the late 1940s and 1950s. Working with the Union of Japanese Scientists and Engineers, Deming taught and lectured on statistical quality control, while adding his own ideas about quality control in the process. Among these teachings was Deming's belief that ordinary workers had a role to play in quality control. Juran also lectured in Japan during the 1950s. The method that evolved during the 1950s and 1960s eventually became known as Total Quality Management. Many credit the Japanese application of TQM as a significant contributor to the country's economic recovery following World War II, as well as its midcentury industrial successes. Organizations worldwide took note of Japan's successes using TQM. United States producers throughout the 1970s and 1980s adopted quality and productivity methods, including TQM, to better compete in the increasingly global marketplace.

Although Deming, Juran, Shewhart and others published numerous papers and books on TQM, many organizations adopted only parts of the TQM principles, and evolved some of TQM's ideas to meet their own needs. Moreover, as business needs for efficiency, productivity and quality have further evolved, many organizations have adopted other, more modern management techniques. So, although TQM is still influential, other management techniques, such as Six Sigma and lean manufacturing, which better address organizational goals for the 21<sup>st</sup> century, have replaced it in many businesses.



**Dealing with the Barriers of TQM Implementation** There are certain barriers which make the implementation of TQM difficult, there are some ways to deal with these. These are as follows:

1. Commitment of top management and visionary leadership Many a times leaders are more profit oriented and not the quality oriented. Thus it becomes a tuff deal to maintain the higher quality. So better commitment of management is the way to give the highest quality of services.
2. Human Resource Management managing the people in the most efficient way is the key to achieve higher quality of the services. The way in which the employees behave against the consumers is very important for the domain of Human Resource Management.
3. Technical systems (service process design and process management) Decreasing the queues and the time for the processing of the particular order of the customer on time can give a very good quality to the organization as a whole.
4. Information and analysis system Getting feedback and more information regarding the customers can help the organization to maintain and improve better quality of the management.
5. Benchmarking the standard set by the organization regarding various qualities given to the customers can keep the employees motivated for the better quality work.

### # 3.1 Steps in TQM Implementation:

Total Quality Management (TQM) is a management concept of achieving the best possible results from business inputs and operations. Most companies use TQM to improve customer value and to increase the sales and profitability from goods and services.



**Implementation of TQM involves the following steps:**

1. Obtain Management Commitment.
2. Employee Involvement.
3. Create Steering Committee.
4. Documentation.
5. Outline the Vision Statement, Mission Statement, and Guiding Principles.
6. Preparation of a Flow Diagram of Company Processes.
7. Focus on the Customer Concerns and Surveys.
8. Training of Employees.
9. Use of Quality Tools.

**1. Obtain Management Commitments:**

The first step in implementing TQM is to obtain the total commitment, involvement, and leadership of upper-level management.

**2. Employee Involvement:**

The second step in TPM implementation is involvement of all, from worker to top executive.

**3. Create Steering Committee:**

A steering committee must be created to guide the company through the process of implementing TQM. The role of the steering committee is to review and evaluate customer surveys, to determine processes to be improved, based on customer and employee recommendations, to monitor process improvement and to communicate successes and progress.

**4. Documentation:**

This step involves documentation of what to do i.e., quality manual and then to do what had been documented i.e., follows the quality manual.

**5. Outline the Vision Statement, Mission Statement, and Guiding Principles:**

Mission and vision statement must be written and displayed every-where. These must be the guiding rules to all employees.

**6. Preparation of a Flow Diagram of Company Processes:**

A TQM flow diagram should be made to implement quality processes within the company.

**7. Focus on the Customer Concerns and Surveys:**

Quality improvement can be accomplished by focusing on customers' concerns, and by learning what those concerns are through owner/customer surveys.

**8. Training of Employees:**

Training regarding quality should be given at all levels of management.

**9. Use of Quality Tools:**

Quality control tools and techniques should be used for TQM implementation.

**Applicability of TQM in Service Marketing:** In the present scenario, providing high quality services to the customer has become strategic imperative for the companies. The techniques of TQM are found to be the most effective quality improvement techniques for the manufacturing sectors as well as service sector. Nowadays, most of the companies are seeking to gain competitive advantage with the help of TQM and it is accepted by many companies around the world as management philosophy which includes a set of generic core principles. The eight building blocks are as following: The notions of



TQM can be applied to service marketing on the basis of various similarity of 7 Ps of service marketing and 5 Pillar of TQM. The seven Ps of service marketing covers all 4Ps of marketing mix and extends it with three more Ps. The seven Ps of service marketing are: · Product · Price · Place · Promotion · People · Process · Physical Evidence Service marketing takes all 4Ps of marketing mix and use an additional extended marketing mix with it to make it complete for service marketing. In addition to this, the five pillars of TQM also include two Ps of extended marketing mix, which are Process and People. Each of above factor shown here is having the scope of higher and higher quality management. There is always a scope of research and development for different service marketing companies.

### **#3.2: The relationship between TQM and HRM and their effects on KM activities**

From few past decades (since the 1980s), TQM has become a globally implemented management technique. A lot of organizations and businesses have dedicated substantial attention to the implementation of TQM in manufacturing and services on account of creating better efficiency and quality for products and services, growing customer satisfaction, promoting business competitiveness, raising production performance, and reducing costs(Youssef, 1996). The quality award (such as The Malcolm Baldrige National Quality Award) receivers have revealed superior financial consequences in comparison with typical companies(Hansson & Eriksson, 2002). Anyhow, it is possible to be a high failure rate in the implementation of TQM(Hubiak & O'Donnell, 1996). Admittedly, one of the reasons is that dedicating little attention to HRM and considerations of personal relations by companies.

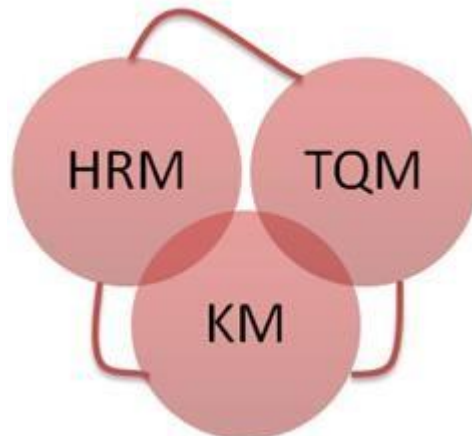
HRM is able to strengthen human relationships and group awareness, advance employee capability and aptitude, and achieve culture change. Thus, HRM acts as the catalyst for the implementation of TQM(Palo & Padhi, 2005). Total Quality Management depends upon the effective management of human resources completely.(Hoogervorst, Koopman, & Van der Flier, 2005).

In recent decades, total quality management (TQM) and human-resource management (HRM) have been significant topics in management and business research because of their potential to affect a range of organizational and individual performances(Boon, Arumugam, Safa, & Bakar, 2007). The majority of the research on HRM and TQM concentrate on the impacts of these approaches at the organizational level (Boselie & Van der Wiele, 2002).

In spite of numerous existing articles on HRM and TQM, quite little attention has been concentrated on the effect of these perspectives towards knowledge management (KM). Properly, running HRM and TQM in the direction of attaining KM value chain activities are tactically significant to obtain a competitive advantage(Molina, Montes, & Fuentes, 2004) and to serve as resources to sustain development(Gloet, 2006). From theoretical and practical point of view, their significance is emphasized by the fact that organizations' merits over markets and other organizations when clarifying the existence of the organization (Ju, Lin, Lin, & Kuo, 2006; Molina et al., 2004).

The present paper tries to indicate the underlying issues:

- Determining the relationship between HRM activities and TQM activities, the effect of HRM practices on implementation of TQM, and upon quality performance.
- The influence of HRM and TQM practices on Knowledge Management (KM) activities.



There is not a unique definition of Total Quality Management. Some researchers assert that TQM has two sides, hard and soft in which the “soft” side highlights the human resource management (Wilkinson, 1992) and also total quality system is encompassed of two different systems, the management system and the technical system, in which the management system is relevant to HRM’s issues (Evans & Lindsay, 1999). In addition, Yang (2004) stated, “TQM is an integrated management philosophy and a set of practices that emphasizes, among other things, continuous improvement, meeting customers’ requirements, reducing rework, long-range thinking, increased employee involvement and team-work, process redesign, competitive benchmarking, team-based problem-solving, constant measurement of results, and closer relationships with suppliers.”

According to Hansson and Klefsjo (2003), it defined as “a management system in continuous change, which is constituted of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources.” All of the mentioned definitions demonstrate a general consensus about the crucial values, and practices of Total Quality Management (Yang, 2003).

Due to the fact that the effect of HRM on TQM implementation is difficult to evaluate and measure in statistical terms, the level of implementation of TQM and HRM practice, and the connection between them, there is little empirical evidence to support the influence of HRM on TQM implementation. In order to overcome the difficulty of measurement, as a case study a survey was issued among HR managers and senior managers in high-tech companies of Taiwan. There are two reasons to opt this survey target:

- HR managers and upper management have more objective insights of the implementation level of HRM and TQM, and also, the effect of HRM on TQM (Hares).
- In comparison with typical companies, high-tech businesses have higher levels of implementation of HRM and TQM practices (Yang, 2006).

The levels of implementation of TQM and HRM hinge on what practices are adopted and how implement these practices (Yang, 2006). Figure 2 highlights the key HRM practices and also, 16 key activities in TQM in terms of the interview with HR managers and senior managers of high-tech companies, respectively. Furthermore, it shows three criteria of EQA, including customer satisfaction, employee satisfaction, and impact on society (that because of difficulty to assess the impact of a

company on society, the company’s image has exploited instead of this criterion) and also, employees’ quality awareness as the fourth one.

The impact of different HRM practices on implementation of TQM

The consequences show that the highest effect on the implementation of TQM is listed as follows:

- **“Training and education”**: which is an essential basis for implementing many TQM programs
- **“Incentive compensation”**: which stresses on worker involvement and teamwork
- **“Employee development”**: which confirms that each worker has a fair opportunity to achieve his or her highest potential professionally and individually
- **“Recruiting and selection”**: which if it do well, the company hire staffs with good qualifications and necessary skills.

The following Table indicates that the impact of different HRM activities on implementation of TQM.

HRM Practices	Degree of Impact
Human resource planning	0.0919
<b>Recruiting and selection</b>	<b>0.0949</b>
Work design and analysis	0.0881
<b>Training and education</b>	<b>0.1073</b>
<b>Job rotation</b>	<b>0.0530</b>
Leadership development	0.0889
Performance appraisal	0.0899
<b>Incentive compensation</b>	<b>0.1011</b>
Benefit and profit sharing	0.0854
<b>Employee development</b>	<b>0.0980</b>
<b>Employee security and health</b>	<b>0.0638</b>
<b>Employee relation</b>	<b>0.0372</b>
<b>Total</b>	<b>1.0000</b>

### The impact of implementation of HRM upon different TQM practices

The consequences illustrate that the following TQM practices considerably affected by HRM implementation:

- “Culture change and development”
- “Customer satisfaction managing”

- “Statistical Quality Control”: it means to avoid defects and not scrutinize work defects.
- “Leadership”: which leads to managers develop leadership and perform well on their dependents.

Employees are able to change the worker’s behaviours, which lead to change of culture through performing well HRM practices such as training, incentives compensation, and leadership. The implementation of HRM leads to customer satisfaction managing by employees’ development. The following Table indicates that the impact of implementation of HRM upon different TQM

TQM Practices	Degree of Impact
Training of quality tools	0.061
QCC activity	0.071
Project team of improvement	0.056
Daily management	0.063
Cross functional management	0.075
Usage of SQC	0.064
Customer service system	0.076
Customer Satisfaction managing	0.074
Leadership	0.064
Suppliers cooperation	0.051
Quality management system	0.060
Business process reengineering	0.027
Quality goal setting, measurement and management	0.042
Hoshin management	0.067
Empowerment	0.082
Culture change and development	0.060
<b>Total</b>	<b>1.000</b>

The impact of implementation of HRM and TQM on quality performance

- Doing HRM activities have special effects on “employee satisfaction” and “customer satisfaction”. Due to “customer satisfaction” can create profit for companies, it called vital business goal. Thus, companies must offer a “customer satisfaction managing” system, and employees are responsible to implement and maintain this system.
- HRM has significantly a positive impact on “employees’ quality awareness” and “company image”.
- The implementation of TQM caused greatest influence on “customer satisfaction”. Furthermore, it boosts “company’s image” and enriches “employee satisfaction” and “quality awareness”
- As a result, the implementations of HRM and TQM improved performances of companies, and HRM activities have positive effects on the performance of TQM. Therefore, implementing HRM is an essential strategy for increasing a firm’s competitiveness.

#### **CHAPTER 4 :- Role of Quality control in TQM**

Role of Quality control in TQM: Role of quality control depends on user oriented and production oriented expression. The key to improving quality is to improve processes that define, produce and support our products. Get processes "in control". Work with other employees and managers to identify process problems and eliminate them, Provide training and tool resources, Measure and review process

performance (metrics), and Improve process performance with the help of those who use the process



The ever-evolving and competitive global market makes it difficult for a business to dominate the market. Also, the availability of the same types of products from different brands provides customers with multiple options. Therefore, consumers rely on some parameters, including cost, brand popularity, after-service, etc., to decide which product they should buy. Of these, quality always remains the deciding factor. A quality product, in short, equals customer acquisition and retention. Since every organization adopts a customer-focused approach, quality assurance becomes essential in delivering the best product or service. American statistician Dr. W. Edwards Deming, who proposed sampling-based quality inspection through his Statistical Quality Control theory, first conceptualized the TQM strategy. He also contributed toward introducing quality control in the quality management measures of the Japanese manufacturers in the 1950s post-World War Second. It became popularized as a total quality management concept in the later years. TQM and Service Marketing Total Quality Management is a management approach which is used for continuous improvement of quality and production processes. The very fast growth of Indian service sector and the level of competition in this sector are pushing the companies to use various quality improvement measures in order to increase consumer satisfaction.

The foundation of service marketing is service quality since when the companies provide high quality services to the customers; it makes them loyal towards the company. The companies with poor quality find themselves unable to attract and retain their customers, irrespective of heavy advertising and promotional activities. According to Stanton, the service system has to integrate all the elements involving employees working for satisfying the varying needs of customers since services are intangible things that provide want satisfaction and need not be tied to the sale of any product or another service. Service marketing differs from traditional marketing of products on the basis of its unique features described as under:

**Intangibility:** This is one of the very important features of the services for any company working as a part of the services. Even though many services have various tangible part such as airline seat, restaurant table and food, etc., the service performance is intangible. Teaching is also a kind of intangible services. Pure services such as baby-sitting, consultancy services, legal advice, etc. are intangible and there is no way to inventory them or to display them. Due to such intangible qualities, customers find it complicated in analysing and comparing the services. Thus, it requires a quality service to be given to all the customers and not only to the potential customers.

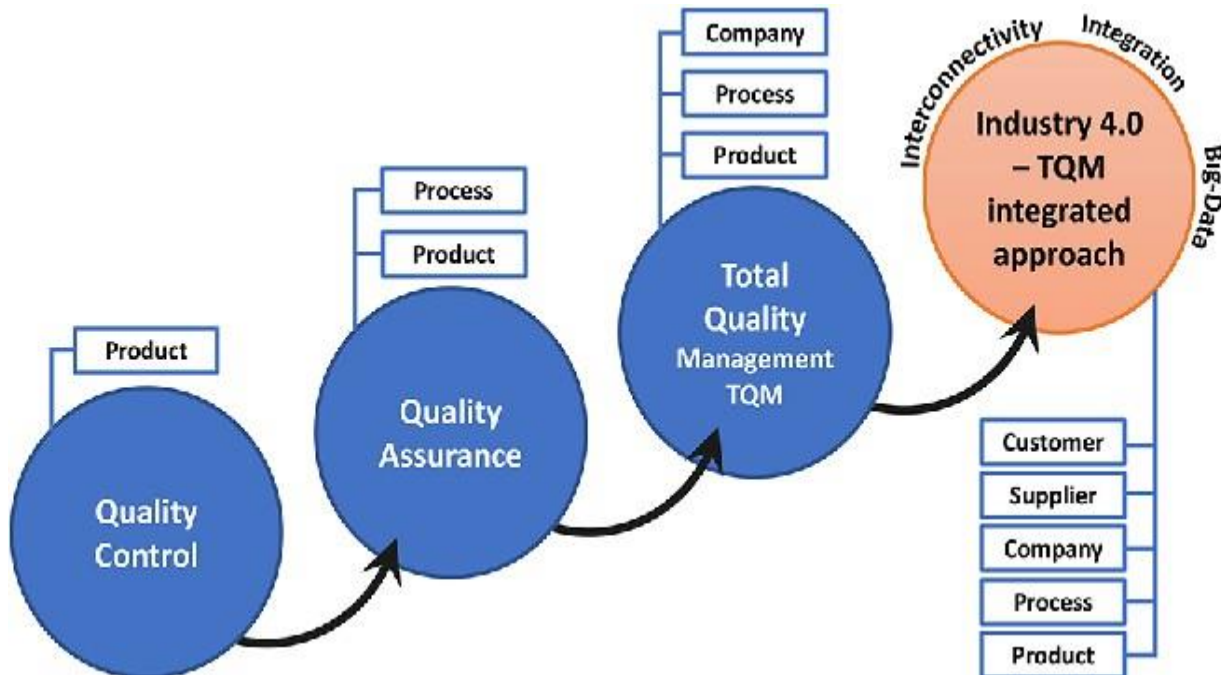
**Inseparability:** In the act of service delivery, both the seller and the buyer need to be at the same place when the service occurs. For instance, at the time of haircut, the customer and the barber both need to be



present at the same time. Thus the service indicates inseparability. A teacher need to remain present whenever and wherever the teacher is teaching the student. Thus it is one of the very common features of the services for any company working as a part of the services.

**Perish ability:** This is also a very important feature of the services for any organization working as a part of the services in any country. There is no scope for inventorying, warehousing or re-using the services due to their perishable nature. For instance, a teacher cannot store his knowledge on holiday and use than on various other days. Hence, the availability of service delivery at relevant time is very important. The knowledge always needs to be updated as far as the production is concerned and it is not perishable but here in case of services it is altogether different. Services are perishable so that once people buy a movie ticket and see the movie for three hours, the services finish after three hours.

**Heterogeneity:** Services are heterogeneous and in such case the service delivery and customer satisfaction depend on employee and customer action. The evaluation depends on the attitude, opinions and expectations of the customers. This is one of the very general and common characteristics of the services for any company working as a part of the services. Different customers have different needs and wants in the market, thus it is very important for a service provider to have the heterogeneity.



TQM enables organizations to align their workforce with the manufacturing processes to find and eliminate errors to improve the overall quality of their outputs. In doing so, the top management, middle management, and executives assess the end products from every aspect and devise quality production plans accordingly. To prevent or eliminate errors caused by human mistake or faulty system, they take various measures, such as: Detect the issue and prevent it from occurring. , Pass it onto the value-added chain for further quality inspection. , Stop the production if the errors recur at any stage. , Deploy the technological support.

**Quality Development Through Total Quality Management (1<sup>st</sup> Era).  
Pre-scientific Management**

At this stage were individuals with a “craft” producing items by hand. There was an individualistic approach rather than team based as is required under TQM. There was a vague idea of the concept of a specification. Inspections took place at every stage in the manufacture of a product. Low volume production – sold what could produce rather than market demand. There was a low level of technology application. There tended to be a resistance towards the introduction of new technology. In such an environment, the concept of product and process “standardization”.

### **Scientific Management**

With increased production demand standardization became the norm and craftsmanship was replaced. Mass production brought pressure to produce consistent quality goods. An effective strategy for quality inspection was needed. Each job was broken down to the smallest manageable number of tasks. This enabled any individual who received a small amount of training to do the task. Inspection of finished products became the norm. The result was a power shift to end of line inspection staff. The key disadvantage was that defects were not accounted for until end of line. Economies changed due to competition pressure. In response, processes were automated and technology advances were made. A key advantage was improved process control and standardization.

- Cpk and Ppk Analysis
- Bottleneck Analysis
- Benchmarking
- FMEA
- FTA
- Pareto Analysis
- HAZOP
- PDCA/DMAIC/DMADV
- SIPOC

### **Quality Development Through Total Quality Management(2<sup>nd</sup> Era).**

Quality management by controlling the manufacturing process through managing data. Walter Shewhart developed the concepts of Statistical Quality Control. Recognized that principles and practices of probability analysis and statistics could be applied to quality problems in manufacturing. Also recognized that any manufacturing process was variable throughout the process and time. Products could not be totally standardized but could consistently be produced within a given tolerance. Management needed to determine what variation was acceptable and what was not, this led to the promotion and development of product specifications. By managing variation in a manufacturing process, control is established over the consistency of the product. The major difference between Inspection and Control eras was the focus:

- Inspection on Product,
- Control on Process.

### **Quality Development Through Total Quality Management(3<sup>rd</sup> Era).**

Quality is no longer seen as a specialist concern. Improvements in quality could not happen without commitment from employees. Management determined that quality could be ‘assured’ at the place of manufacture. The quality assurance era focuses on systems across the organization – no longer just focused on the production process. ISO 9000 states that quality assurance is all those planned and

systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality. Quality assurance requires quality audits to provide real evidence of the integrity of the production system through an independent examination. In summary, quality assurance is about developing an internal system that develops data over time, which demonstrates that all products produced complied to specifications and that any errors were detected and removed from the system.

### **Quality Development Through Total Quality Management(4<sup>th</sup> Era).**

The implementation of TQM means the empowerment of staff through increased communication, education and training. Successful implementation of TQM requires the use of specialist knowledge. Experts are used to set up quality standards, procedures, work practices, to effect the culture change of the organization. Initial investment high but is seen as paying dividends in the longer run. There is a focus on delivering employee expectations. Customer loyalty and satisfaction are seen as vital to organizational success. TQM is a business approach to quality, empowering and educating staff to enable continuous business improvement. This enables an organization through a coordinated strategy of teamwork and innovation to satisfy customer expectations, needs and requirements. TQM requires an emphasis on understanding variation, the importance of measurement and diagnosis, the role of the customer and the involvement of employees, at all levels of an organization, in the pursuit of continuous improvement.

### **Quality Improvement Techniques By Information and Training**

- Continuous improvement utilizing Analytical Techniques.
- Brainstorming
- 5 why's analysis
- Process Flow Diagrams/Flowcharts/Process Mapping
- Check sheets /Check Lists
- Run charts
- Histograms
- Scatter Diagrams/Scatter Plot
- Cause and Effect/Fishbone/Ishikawa Diagrams
- Identifying sources & causes of variation
- Control/Shewart Charts/DPU Charts
- Cpk and Ppk Analysis
- Pareto Analysis
- Bottleneck Analysis
- Benchmarking
- FMEA, HAZOP,
- FTA /PDCA/DMAIC/DMADV



**CHAPTER 5:- Comparison between TQM and Traditional Management**

**Comparison between TQM and Traditional Management:** Comparison based on various dimension /attribute/character/categories which shows the clear analysis of traditional approach and management with respect to Total Quality Management (TQM).

SR.NO	ASPECT	TRADITIONAL	TQM
1.	Quality definition	Product meet specification	Product fit for customer us
		Focus on post production inspection	Focus on building quality into the work process
2.	Customer	Ambiguous understanding of customer requirement	Systematic approach to seek understanding and satisfy internal and external customer.
3.	errors	A certain margin of error waste and rework is tolerable	No tolerance for error, do it right the first time and every approach
4.	Improvement emphasis	Technological breakthrough such as automation	Gradual but continuous improvement of each function.
5.	Problem solving	Instructed problem solving and decision making by individual manager and specialists.	Participative and disciplined problem solving and decision making based on hard work.

**Benefits of TQM**

The benefits of TQM include:

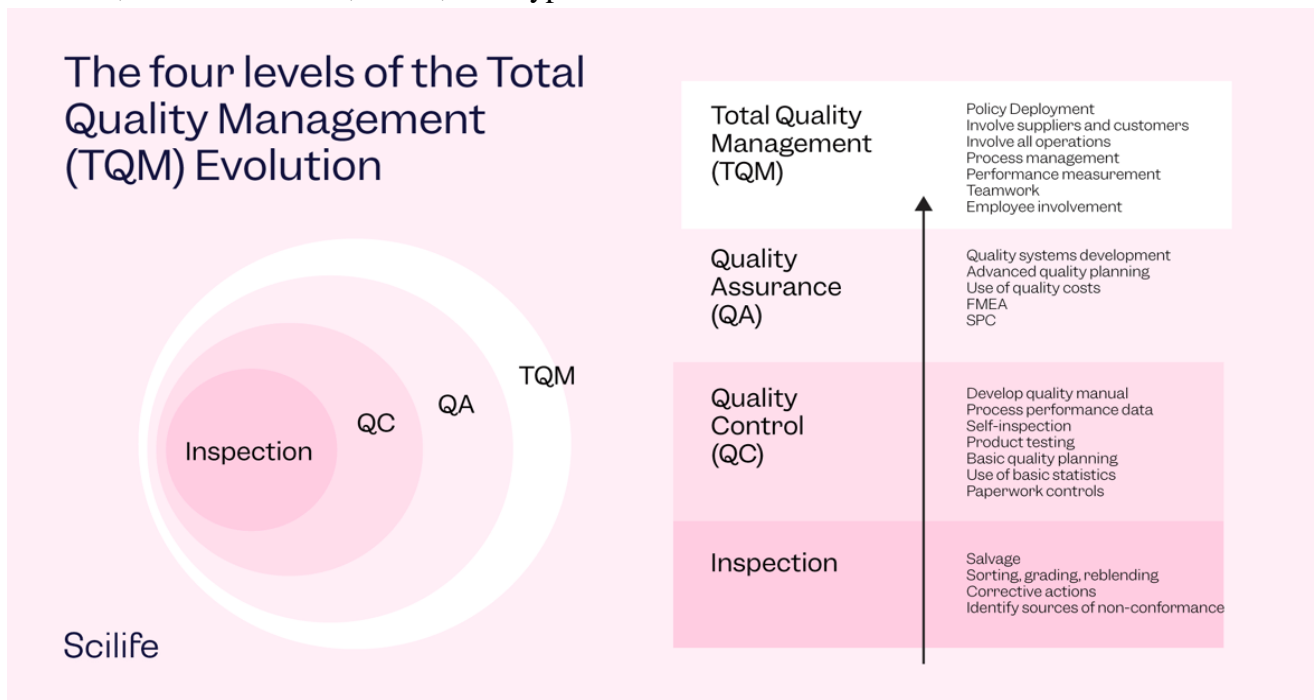
- Less product defects.** One of the principles of TQM is that creation of products and services is done right the first time. This means that products ship with fewer defects, which reduce product recalls, future customer support overhead and product fixes.
- Satisfied customers.** High-quality products that meet customers’ need results in higher customer satisfaction. High customer satisfaction, in turn, can lead to increased market share, revenue growth via up sell and word-of-mouth marketing initiated by customers.
- Lower costs.** As a result of less product defects, companies save cost in customer support, product replacements, field service and the creation of product fixes. The cost savings flow to the bottom line, creating higher profit margins.
- Well-defined cultural values.** Organizations that practice TQM develop and nurture core values around quality management and continuous improvement. The TQM mindset pervades across all

aspects of an organization, from hiring to internal processes to product development.

**PLAN OF RESEARCH AND METHODS:**

The study falls under the category of descriptive and exploratory research as its central point is on concept of TQM practice which helps to identify the various engagement practices followed by the sector. The foundation of the study is completely relying on the primary data. The primary data is collected through the help of structured questionnaire, sampling, sampling area, tool used, hypothesis, data analysis and Interpretation.

The quantitative analysis technique was applied to analyse the relevant correlations among the variables in this study to test the suggested theoretical framework. A questionnaire survey was used to collect data from the manufacturing sector of study for this purpose. The design of this research defines a genuine image of quality in manufacturing companies in Karachi and Hyderabad. The questionnaire survey was utilized as a research instrument for collecting the responses from manufacturing enterprises. The main part of questionnaire incorporates the demographics information (Age, Gender, Position, Education, ISO certification, Firms, and Types of industries).



**Comparison Between TQM and TPM**

TPM is a subset of TQM. TPM is a method that deals with the maintenance of equipment. It helps in reaching perfect production with no breakdowns, no defects, no small stops and no mishaps. It focuses on proactive and preventive maintenance. This will magnify the operational efficiency of the equipment. But, TQM is a proven approach that assures the survival of the organization even in cut-throat competition. It is a philosophy derived from ideas introduced by quality Gurus, over the years. It calls for everyone in the organization in a constant attempt to enhance the quality and increase customer satisfaction.




BASIS FOR COMPARISON	TQM	TPM
<b>Meaning</b>	TQM is a system of management that stands on the principle that all the employees should wholeheartedly work to maintain high standards, in all the aspects of the company's operations.	TPM is a maintenance initiative involving novel ideas for maintaining plant and equipment to remarkably increase production levels and simultaneously boosting employee morale and job satisfaction.
<b>Focuses on</b>	Quality (Output and Effect)	Equipment (Input and cause)
<b>Objective</b>	Reach incredible quality levels, defects can arise parts per million	Complete elimination of wastes and losses (Zero Defect Approach)
<b>Participation</b>	Voluntary and at the discretion of the management.	Active participation from all employees.
<b>Training</b>	Classroom oriented	Workplace oriented
<b>Emphasizes on</b>	Customer Satisfaction, employee involvement and continuous improvement	equipment downtime, and its efficiency.
<b>Steps to achieve the goal</b>	Systematize the management.	Employee Participation
<b>Orientation</b>	Software Oriented	Hardware Oriented

### Key Differences between TQM and TPM

1. TPM is the process of making the best possible use of equipment, through the active involvement of various departments. On the other hand, TQM is a method of management which aims at improving quality and productivity in a business organization.
2. While Total Quality Management is all about improvement in the quality of the offerings. Total Productive Maintenance focuses on maintaining the equipment in good condition all the time.
3. TPM strives for the full-fledged elimination of losses and wastes. It follows a zero-defect approach. In contrast, TQM works for reaching incredible quality levels.
4. In TQM the participation of employees is voluntary and is at the decision of the management. As against, TPM requires effective participation from every member of the organization.
5. In TQM, training is classroom-oriented. Whereas in TPM, training is workplace oriented.
6. The primary emphasis of TQM is on customer satisfaction, employee involvement and continuous improvement. As against, TPM lays emphasis on machine and equipment downtime, and its efficiency.
7. To achieve the TQM goal, it is necessary to systematize the management. Conversely, to meet the TPM goal, employee participation is a must.
8. While TQM is software-oriented, TPM is hardware-oriented.

### Similarities

- There is a need for full-fledged commitment toward the program by the top-level management.
- Empowerment of employees for initiating corrective action and
- A long-range outlook has to be accepted because TPM may take a long time for implementation usually a year. Also, it is a continuous process.

## Conclusion

Above all, TQM is a comprehensive concept which is nothing but an uninterrupted quest for excellence. This is possible by developing the right skills and attitudes in the employees to prevent defects and satisfy customers completely.

## CHAPTER 6 :-Case study of various organizationwith different domain

**Case study of various organizations with different domain:** Sustainability and organizational performance are the dualistic significant aspects and they need to be considered in current years. A study was conducted to identify the main learning components and recognize learning performance, support effective sustainability and the results are presented in the form of a sustainability learning performance framework (Ofei-Manu & Didham, 2018). The relationship between corporate financial performance and corporate social performance has been heavily discussed, with varied outcomes (Cantele & Zardini, 2018).

### Case description and analysis for TQM success companies

**A. Motorola:** Motorola's generic strategy can be classified as cost leadership in combination with differentiation through innovative features and high product quality. Motorola has experienced strong growth during the 1980s, and they wished to carry on that momentum of continuous quality improvement in 1990s, therefore embarked on the quality path known as “six sigma”. One can say Motorola is the company which is originator of ‘Six Sigma Concept’. By 1999, Motorola had eliminated 99.7% of all in process defects. The cost of poor quality was reduced by more than 84% on a per unit basis.

**B. British Airways** In 1946, British Engineering was formed which looked after domestic operations as a different entity. Due to overstaffing and merger between 1981 and 1983 there was a downsizing of 40% of its staff. BA had a reactive style of operational and personnel management till 1984. In the late 1987, the senior management of BA’s technical workshops formed a view that the TQM program will assist them to improve and contribute to the success of the organization. Thus, during this period British Airways became a highly competitive global company respected worldwide for its performance. In order to practice TQM the main focus of the management involved transforming BA from engineering to a marketdriven organization. It implemented a program for its employees: “speak up” to fetch critical feedbacks. British Airways conducted several programs for employees to know their workplace better like “customer first” team program, ineffective attitude of employees, employees treated as internal customers; “we fly to serve” motto, “a day in the life”, “gold in the hole, ‘engineering excellence’, ‘money matters’ etc.

**C. McDonald’s :** The McDonald's Corporation is the world's largest chain of hamburger fast food restaurants, serving around 68 million customers daily in 119 countries across 35,000 outlets. Every restaurant has responsibility for quality; power and responsibility need to be given for their employees who are doing the work in the organization. Total quality management in McDonalds’ requires continuous product improvement and the quality customer service where the needs and wants of the customers are constantly met together. Therefore, to ensure that everyone is responsible for quality in their restaurants.

**D. TVS Motor Company :** The company began with TQM journey in the year 1987. During

2002 the company won the internationally coveted Deming Application Prize; it was the first two wheeler company in the world to get that prize. TVS understanding of TQM with wide effort of continuous quality improvement of all processes, products and services through total employee involvement that results in increasing customer satisfaction and loyalty and improved business results. Staff and workers would be more involved in 'retainment' part through good daily . management practices and through participation in the Quality Control Circles (QCCs).

**E. Toyota production system :** Currently, Toyota is now the largest auto manufacturer in the world and is known to be a producer of high quality vehicles. The company has gained success since its adoption of the TQM model. Faced with deep economic problems after World War II and low consumer satisfaction ratings, the Japanese company adopted the Deming model of management strategy . Toyota formulated the lean system to optimize production and eliminate waste . The levels of peaks and troughs in production are minimized so that capacity utilization is optimized and the overall cycle time is kept to a minimum. Due to the lean manufacturing system, Toyota is able to produce high quality vehicles without the need for quality inspectors to check the products before delivery to the market. Thus the company was able to eliminate unnecessary expenses while producing cars and satisfy the requirements of its consumers. At the same time, the company caters to its workers' needs as well. Automobile manufacturer Toyota is one example of TQM. The adoption of TQM and kaizen at Toyota led to higher product and work quality at all levels of the organization. Toyota adopted a related practice called statistical quality control (SQC) in 1949. In 1951, Toyota launched the Creative Idea Suggestion System, which was based on a suggestion system used at Ford. In 1965, Toyota was awarded the Deming Application Prize for major advances in quality improvement. In 1994, the "Toyota Group Executive TQM Training Course" was established, providing TQM training for new executives. Toyota's TQM initiatives continue to the current day. In 2011, Toyota announced that more than 40 million suggestions (to date) were generated by the Creative Idea Suggestion System.

**F. Ford Motors Company :** In Ford Motor Company, TQM practices started in the 1980s and "Quality Is Job 1" was their slogan. Similar to the success of NUMMI is Ford's effort to transform its corporate culture from a traditional hierarchical, economic model to a TQM model in the 1980s and also told that Ford focused on service to customer satisfaction and quality. It has illustrated how a successful American auto manufacturer operationalizes an ongoing transformation of its organization from an economic model to a TQM model of the firm . By the 1990s, "Quality is Job 1" has change to "Quality People, Quality Products".

**G. FedEx:** Federal Express Corporation is an American global courier delivery services company which is doing export/import. FedEx' vision and goal is "satisfying worldwide demand for fast, time-definite, reliable distribution". This vision inherently requires that the company operates under a customer- focused approach. This is what FedEx has been doing since it was found the company has emphasized putting customers first and has continuously updated and upgraded to meet this goal and fulfil its vision. FedEx focuses to increase the production in high volume and believes to decrease rates of their products that if it continually raises their service standards and revenue, it will accomplish two things: it will satisfy every customer and it will make jobs more rewarding and fulfilling.

**H. Tata Steel:** A steel-making company based in India and a subsidiary of the Tata Group. Tata Steel adopted TQM in the 1980s. The company was awarded the Deming Application Prize in 2008. Tata Steel used TQM methodologies to gain a deep understanding of customers. They sought to ensure value creation in a system that covered customers and suppliers. In 2008, Tata Steel created the

Performance Improvement Committee (PIC) to drive continuous performance improvement. Performance Improvement (PI) Groups were established for iron making, steel making, flat rolling, long rolling, maintenance and more. As part of their 2008-2009 annual report, Tata Steel reported that their TQM initiatives resulted in a \$150MM bottom line impact on their business.

**I. Plasto Toys** manufactures plastic toys for kids. The brand managed to acquire a good reputation in the market, and parents relied on it for quality products. However, the regular environmental campaigns on plastic pollution affected the sale of the toys to a great extent, causing the company to incur huge losses. As a response to this, the company management and executives agreed to implement the TQM approach for manufacturing toys using biodegradable plastics. The marketing department started advertising and promoting how their toys are harmless to the environment. In just a couple of months, Plasto Toys regained its original position in the market. This **work** talks about the “plan-do-check-act” cycle adopted by Atlanti Care, a healthcare provider in New Jersey. It helps one understand TQM at a deeper level. With 5,000 employees spread across 25 locations, the firm implemented the TQM approach. It involved each individual from every level to provide vital feedback about the healthcare products manufactured. It led to the top-to-bottom improvement of the products as the concerned human resources took part in the quality assurance process. They observed each product from all perspectives, including customer service, people, process, workplace, etc. As soon as they implemented the TQM strategy, the healthcare unit initiated its orientation and training program for the new employees. Also, it introduced a crash course to ensure that they understand the company strategy to maintaining quality standards.

**J.**

## **CHAPTER 7:- Conclusion**

### **What is Total Quality Management or TQM?**

TQM is a business management approach that entails every employee at every level of the organization feeling accountable for removing the production errors and ensuring the quality of the products and services per customer needs. The error-free production process reduces product and service costs.

### **What are the eight principles of TQM?**

The eight principles of TQM are customer focus, employee involvement, integrated system, process-centric approach, systematic flow, continual efforts, fact-based decision-making, and relationship management. An organization must understand them to achieve excellence in manufacturing processes.

### **What is the main focus of TQM?**

TQM aims to assist organizations in understanding that quality assurance is everybody's responsibility and is not limited to any one segment. Its main aim is to develop quality products and services, retain customers in the competitive market, increase sales revenue, and boost profitability.

### **Where to Implement Total Quality Management?**

TQM works best in an environment where it is strongly supported by management, it is implemented by employee teams, and there is a continual focus on process improvement that prevents errors from occurring. TQM can be implemented successfully in any part of a business, such as accounting, field servicing, finance, legal and administration, maintenance, manufacturing, materials management, research and development, and sales and marketing.

### **SOME AWARDS AND RECONGNITION EARNED ON SUCCESSFUL IMPLEMENTATION OF TQM BY INDIAN ORGANISATION**

**Instance of Indian Service Sector Firm with TQM Taj Group of Hotels** has implemented the notions of Total Quality Management in their Business operations. Hotel Taj West End, Bangalore also performs TQM to get **Malcolm Balridge Award** established by the National Quality Council of UK. It has achieved **JRD Quality Award in 1996** According to Murad Ali and Rajesh Kumar Shastri, TQM can be implemented in higher education also so that they can develop and provide more innovative and quality educational programs at lower cost. One of the biggest examples of the **service marketing awards** is the one won by **Mumbai dabbawala** i.e. **six sigma award**. No other large scale corporate organizations in India have ever won the highest quality award of six sigma.

#### **Key Takeaways**

- Total quality management meaning refers to an approach wherein each employee at every level in a business is accountable for evaluating products and services per quality standards and customer needs.
- TQM emphasizes that quality assurance is a shared responsibility that affects all aspects of a company or organization.
- Customer focus, employee involvement, integrated system, process-centric approach, systematic flow, continual efforts, fact-based decision-making, and relationship management are the eight principles of TQM.
- Guaranteed customer retention, increased productivity, enhanced stakeholder relationships, improved organizational culture, etc., are some of the benefits of adopting and implementing TQM.

**Conceptual/Theory Building** The concept of quality management (QM) is quite old and originated in Japan after the Second World War in late 1940s; then, the emphasis was on improving quality and using quality control tools in the manufacturing sector . Later, the QM concept moved to USA, UK, and other countries and was applied in different manufacturing and service sectors. It is concerned with the management of quality principle in all the facets of a business including customers and suppliers . From the past few decades, TQM has been extensively discussed in the literature. It has been emphasis on critical factors: leadership, process management and strategic planning; and approach-specific factors like equipment management and focus on customer satisfaction when industries implement TQM and TPM together . Even though, major barriers of TQM implementation are lack of customer orientation, lack of planning for quality, lack of total involvement, lack of management commitment, and lack of resources .

**Case Based Research Analysis** The literature review reveals various frameworks for TQM implementation. From the past literature we find that different QM researchers give a lot of emphasis on models for success of TQM. Most of the researches in this area have adopted study of different cases in different organizations with emphasis on different specifics. Manufacturing organizations focus on the process and product quality, while service organizations focus more on customer satisfaction. The criterion used to select the company and all the factors for case study was that each of the companies implemented TQM vigorously. The methodology adopted was a literature review of published research papers & reports (case), and articles, online web pages on practices of TQM adopted in different organizations. Successful TQM implementation requires a significant training for the employees involved in it. Since the training program can take employees away from their day to day work, this eventually can have a negative short-term impact. Also, since Total Quality Management tends to result



in a consistent series of incremental changes, it can lead to creating an unpleasant response from those employees who prefer the existing system, or employees who are afraid of losing their jobs because of it. Total Quality Management works best in an environment where there is strong support and commitment from the management.

### **Benefits of TQM**

- Error prevention and elimination
- Guaranteed customer retention
- Reduced service costs and increased profits
- Feedback from all stakeholders
- Involvement and empowerment of employees at every production level
- Improved market image
- Customers becoming the main focus
- Meeting consumer expectations leads to increased customer satisfaction
- Improved organizational culture
- Enhanced stakeholder relationships
- Boost in employee morale
- Continuous efforts to meet the quality standards
- Increased stakeholder value
- Innovative strategies and creative ideas

### **Advantages of Total Quality Management**

**Cost Reduction :** When applied consistently over time, TQM can reduce costs throughout an organization, especially in the areas of scrap, rework, field service, and warranty cost reduction. Since these cost reductions flow straight through to bottom-line profits without any additional costs being incurred, there can be a startling increase in profitability.

**Productivity Improvement :** Productivity increases significantly, since employees are spending much less of their time chasing down and correcting errors. Increased productivity means more output per employee, which typically results in increased profits.

**Customer Satisfaction :** Since the company has better products and services, and its interactions with customers are relatively error-free, there should be fewer customer complaints. Fewer complaints may also mean that the resources devoted to customer service can be reduced. A higher level of customer satisfaction may also lead to increased market share, as existing customers act on the company's behalf to bring in more customers.

**Defect Reduction :** TQM has a strong emphasis on improving quality within a process, rather than inspecting quality into a process. This not only reduces the time needed to fix errors, but makes it less necessary to employ a team of quality assurance personnel.

**Morale :** The ongoing and proven success of TQM, and in particular the participation of employees in that success can lead to a noticeable improvement in employee morale, which in turn reduces employee turnover, and therefore reduces the cost of hiring and training new employees.

### **Disadvantages of Total Quality Management**

However, TQM also requires a significant training period for those employees involved in it. Since the

training can take people away from their regular work, this can actually have a negative short-term effect on costs. Also, since TQM tends to result in a continuing series of incremental changes, it can generate an adverse reaction from those employees who prefer the current system, or who feel that they may lose their jobs because of it.

TQM and HRM both of which are relatively new approaches have sparked a lot of attention among practitioners. According to the findings, adopting and enabling TQM necessitates a matching HR strategy, which would comprise HRM. This study gave a useful data of TQM and sustainability practices and organisational performance. According to this study, TQM has a positive impact on sustainability and performance. In this study, the relationship among TQM and sustainability as well as sustainability and performance was examined. According to this findings, manufacturing business should pay greater attention to TQM aspects and sustainable culture. TQM practices have a direct impact on sustainability and OP, according to this study. The findings highlight the importance of TQM and sustainability practices in manufacturing organisations as well as their implementation. This research also establishes a framework that helps in the financial performances of the industries. Findings revealed that the leadership, customer satisfaction, continuous improvement, training and education and customer relation are the high impact practices and must have concentrated on these practices to achieve success. Similarly, research and development, social image, cost management and waste reduction are the important practices of sustainability that organisations must follow with TQM to achieve corporate success.

#### PRELIMINARY BIBLIOGRAPHY:

1. Antunes, M.G., Quirós, J.T., & Justino, M. do R.F. (2017). The relationship between innovation and total quality management and the innovation effects on organizational performance. *International Journal of Quality & Reliability Management*, 34(9), 1474–1492. <https://doi.org/10.1108/IJQRM-02-2016-0025>
2. Anu, P.A., & Satish, K.P. (2019). TQM practices and their performance effects – an integrated model. *International Journal of Quality and Reliability Management*, 36(8), 1318–1344. <https://doi.org/10.1108/IJQRM-10-2018-0266>
3. Cetindere, A., Duran, C., & Yetisen, M.S. (2015). The effects of total quality management on the business performance: An application in the province of Kütahya. *Procedia Economics and Finance*, 23(October 2014), 1376–1382. [https://doi.org/10.1016/S2212-5671\(15\)00366-4](https://doi.org/10.1016/S2212-5671(15)00366-4)
4. Dhamasanti, J.F., & Sudaryati, E. (2020). The effect of good corporate governance and financial performance on corporate value. *International Journal of Research in Commerce and Management Studies*, 2(5), 09–24.
5. Eccles, R.G., Ioannou, I., & Serafeim, G. (2014). The Impact of Corporate Sustainability on Organizational Processes and Performance. *Management Science*, 60(11), 2835–2857. <https://doi.org/10.1287/mnsc.2014.1984>
6. <https://www.accountingtools.com/articles/what-are-the-benefits-of-total-quality-management> tqm.ht
7. <https://reqtest.com/testing-blog/total-quality-management/>
8. [https://www.researchgate.net/publication/282204345\\_Total\\_quality\\_management\\_practices\\_and\\_performance\\_outcomes\\_in\\_Spanish\\_service\\_companies](https://www.researchgate.net/publication/282204345_Total_quality_management_practices_and_performance_outcomes_in_Spanish_service_companies)
9. <https://www.investopedia.com/terms/t/total-quality-management-tqm.asp> <https://asq.org/quality-resources/total-quality-management/tqm-gets->

results#:~:text=Reduced%20costs%20and%20better%20cost,Increased%20customer%20loyalty%20and%20retention

10. <https://www.magonlinejournal.com/doi/abs/10.12968/bjhc.2021.0082>

11. <https://brieflands.com/articles/jamm-20808.html>

12. <https://www.anadolu.edu.tr/en/academics/vocational-schools/course/99107/total-quality-management/learning-outcomes>

13. [https://www.techtarget.com/searchcio/definition/Total-Quality-Management#:~:text=Examples%20of%20TQM,control%20\(SQC\)%20in%201949.](https://www.techtarget.com/searchcio/definition/Total-Quality-Management#:~:text=Examples%20of%20TQM,control%20(SQC)%20in%201949.)

14. <https://koreascience.kr/article/JAKO202109554061346.page>

15. <https://teamhood.com/project-management-resources/total-quality-management/>

16. <https://www.inc.com/encyclopedia/total-quality-management-tqm.html>

17. <https://www.questionpro.com/blog/total-quality-management/>

**ABBREVIATION INDEX:**

ABB	DESCRIPTION
CPK	PROCESS CAPABILITY
DMADV	DEFINE MEASURE ANALYZE DESIGN VERIFY
DMAIC	DEFINE MEASURE ANALYZE IMPROVE CONTROL
DPU CHART	DEFECT PER UNIT
FMEA	FAILURE MODE & EFFECTS ANALYSIS
FTA	FREE TRADE AGREEMENT
HAZOP	HAZARD AND OPERABILITY
HRM	HUMAN RESOURCE MANAGEMENT
IOD	INSTITUTE OF DIRECTORS
ISO	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
JIT	JUST IN TIME
KM	KNOWLEDGE MANAGEMENT
PDCA	PLAN DO CHECK ACT
PIC	PERFORMANCE IMPROVEMENT COMMITTEE
PIG	PERFORMANCE IMPROVEMENT GROUP
PPK	PROCESS PERFORMANCE
QA	QUALITY ASSURANCE
QC	QUALITY CONTROL
QCC	QUALITY CONTROL CIRCLE
QCI	QUALITY COUNCIL OF INDIA
QFD	QUALITY FUNCTIONAL DEVELOPMENT
QRA	QUANTITATIVE RISK ASSESSMENT
SIPOC	SUPPLIERS INPUT OUTPUT CUSTOMER
SPM	SUSTAINABLE PERFORMANCE MODEL
SQC	STATISTICAL QUALITY CONTROL
TPM	TOTAL PRODUCTIVE MANAGEMENT
TQM	TOTAL QUALITY MANAGEMENT