# UNIT 11 TOTAL QUALITY MANAGEMENT*

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## 11.0 OBJECTIVES

After reading this Unit, you should be able to:

- Discuss the concept and emergence of Total Quality Management (TQM);
- Describe the principles of total quality management;
- Explain the forms of its application;
- Analyse the implementation processes and tools of total quality management; and
- Appraise its strengths and challenges.

## 11.1 INTRODUCTION

The growth of human society is an ongoing process. The evolution of quality management from the industrial revolution to present day has been interpreted in several different ways. In recent times, reliance is placed on total quality management in public systems and governance. The concept of Total Quality Management (TQM) and its practice is increasingly being applied in industrial and service sector. Quality management practices are both people -oriented and processed-oriented and providing quality service is the principal criterion that measures the competitiveness of a service organisation (Ping Lu *et.al*, 2019).

The industrial revolution, in the early 19th century witnessed the application of inspection and control in quality processes to ensure results. Frederick Winslow Taylor developed the management system to improve productivity. By 1940s, during the post-world war II era, Japanese companies emphasised on quality of life and products. In the


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early 1950s, with the work of certain proponents of quality namely, Juran, Deming and Feigenbaum, gaining prominence, Japanese plants rapidly developed quality management practices and by 1960, quality control and management became a national agenda. Gradually the concept of total quality management has gained importance and is being applied across sectors in organisations.

In India, imbibing the spirit of quality and to measure qualitative outcomes, the National Institution for Transforming India (NITI Aayog), has put measurable incremental annual outcomes in critical sectors like health, education, water, and Sustainable Development Goals (SDGs).

In this Unit, we shall discuss the conceptual framework of total quality management and how this phenomenon is impacting the services in every sector of India. An attempt is also made to examine the principles and tools for application of TQM.

## 11.2 CONCEPT OF TOTAL QUALITY MANAGEMENT

Till mid-eighties, the use of quality related terminologies and acronyms were not much in practice. Although TQM has no universally accepted definition, quality is both a user-oriented and production-oriented expression. From the user's point of view, quality is an expression of the products' or services' usefulness in meeting the needs and expectations and its reliability, safety and durability. Thus, although its concept is studied by many scholars, the concepts of quality and total quality management are defined in different ways.

A significant component of F.W. Taylor's philosophy still finds place in the field of quality management, such as standardisation, management by facts, motion efficiency, and emerging customer focus. Perhaps, the main reason for the origin of the term TQM could be a substitution in the previously used term of Total Quality Control (TQC), the word "control" by "management" with the reasoning that quality is not just a matter of control, it must be managed. In a paper by Feigenbaum (1991), the term "total quality" was used for the first time, and referred to wider issues such as planning, organisation and management responsibility. Further, together with the impact of the writings of Crosby, Deming, Feigenbaum, Juran and Ishikawa; their integrating approaches with quality management, gave rise to the concept of TQM.

With Japan producing quality results and improving its condition post war, led to the rise of quality era. Their results motivated USA in the West to the extent that they officially recognised the importance of quality with establishment of its Malcolm Baldridge National Quality Award in 1987 to reward performance excellence in organisations.

Britain, which was facing the declining global share also could not resist the benefits of quality philosophy and in 1979, established the British Standard (BS) 5750 for quality systems. Moving a step forward, with an objective of bringing the attention of industry towards the importance of quality for competitiveness and survival in the world marketplace, it launched the National Quality Campaign in 1983, using BS5750 as its main theme.

The International Organisation for Standardisation (ISO) published the globally renowned ISO 9000 standards in 1987. It details out the fundamentals of quality management systems and assists organisations to ensure that they meet the requirements

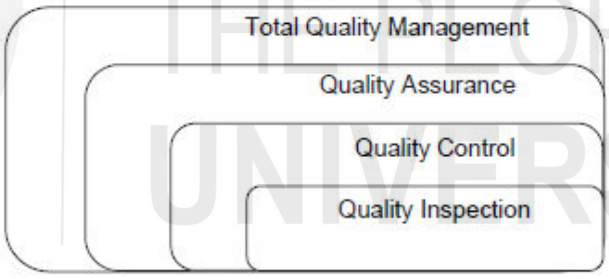
of customers and other stakeholders while complying with the statutory and regulatory requirements related to a product or service. The aim is to provide a universal framework for quality assurance — primarily through a system of internal and external audits. Later, ISO also published its series of standards for use. Indeed, TQM percolated from manufacturing to the commercial services sector and eventually to public services.

To meet the challenges of this global revolution, many businesses have invested substantial resources in adapting and implementing total quality management strategies. The role of total quality management is widely recognised as being a critical determinant in the success and survival of a service or product in today's competitive environment.

Ho (1997) defines the expanded term of TQM where reference to "Total" is made when everyone associated with the organisation is involved in continuous improvement (including its customers and suppliers if feasible), "Quality" refers to the customers when their expressed and implied requirements are fully met, and "Management" refers to executives who are fully committed.

The role of total quality management is widely recognised as being a critical determinant in the success and survival of an organisation in today's competitive environment. Any decline in customer satisfaction owing to poor service quality, would be a matter of concern. Consumers are becoming increasingly aware of rising standards in service quality, prompted by competitive trends which have developed higher expectations (Yavas & Shemwell, 2001).

*Figure 1. Illustration of the concepts of quality inspection, quality control, quality assurance and total quality management. The figure shows one common description of the evolution of quality management. [From Bergman & Klefsjö 2003].*




As we have discussed in the preceding section, the quality movement has a long and complex history, and not surprisingly its evolution from the industrial revolution to present day has been interpreted in several different ways. Perhaps, the most common description of the way in which quality and quality improvements have been evolved into "Total Quality Management (TQM)", is that which identifies the **four phases or stages** illustrated in Figure 1: Quality Inspection, Quality Control, Quality Assurance, and TQM (Dale, 1999).

The first stage of quality i.e., **Quality inspection stage** started around 1910 when the Ford Motor Company, then one of the world's largest manufacturers, employed teams of inspectors to check the quality of the T-model car (Ford car). The idea behind quality inspection was that poor quality products could be found by inspection and then either scrapped, reworked, or sold as lower quality products.

By 1930s, Statistical **Quality Control** was being embraced by Ford and several other manufacturing companies to find problems initially and control the manufacturing process, instead of rejecting or repairing it post-production. The origin of quality management

based on inspection and control is firmly rooted in the school of management of Taylor, whereby he demonstrated ways to inspect and control the manufacturing process to minimise errors and maximise profits.

The **Quality Assurance stage** concentrates on pre-production activities and relies on quality standards to assist with the reducing failures and mistakes in the processes of output or services.

The **fourth and current stage, Total Quality Management**, involves understanding and implementing quality management principles and concepts in every aspect of an organisation, including its customers and suppliers.

In simple terms, total quality management is a management approach to the long-term success of an organisation through customer satisfaction. It encompasses efforts to institute an organisational climate where employees continuously put in their best efforts to provide products and services that are of value to the customer. It is a participative and systematic approach to planning and implementing a constant organisational improvement process that focuses on meeting customers' expectations, identifying problems, building commitment, and promoting open decision-making among employees.

**Check Your Progress 1**

**Note:** i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the Unit.

1) What do you understand by the term 'Total Quality Management'?

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2) Describe the evolution of quality management from quality control.

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## 11.3 TOTAL QUALITY MANAGEMENT IN PUBLIC ADMINISTRATION

Public administration, since the inception of human society, has led its way towards infallible continuous improvement. This was evident through the works of Taylor, who thrived for minimising the defects and improving the work output by applying principles of management. His paper titled "The Principles of Scientific Management", way back in 1911, laid the foundation of the concepts of analysing and reducing defects to enhance productivity. Relatively, quality has always been obliquely related to public administration

concept since the creation of the modern administrative state. Then, it was more linked with the observance of regulations and procedures, abidance of formal correctness and absence of arbitrary decisions (Engel, 2003).

Nevertheless, the meaning of quality in the public sector changed in the late 1960s, when Management by Objectives (MBO) gained popularity in public administration. The dire need of improved concept of management in all spheres, led to the emergence of New Public Management (NPM) during 1980s, and this paradigm shift laid the foundation of total quality management with wider vision of management techniques. Total quality management was an important example for organic and humanistic styles and approaches amongst others. The NPM, having its base as rational choices and public choices contains elements of TQM, seeks to offer more efficient mechanisms for delivering goods and services and for raising governmental performance levels (Kelly, 1998).

A considerable overlap between TQM and NPM can be found. "TQM provides a systematic and quantified rationale for the NPM idea of government that both work better and cost less" (Mathiasen, 1999). Hood (1991) has seen NPM as a reorganised idea that is adopted for enhanced quality services. In sum, the major components of the NPM paradigm, namely customer orientation, increased managerial freedom in resource and personnel management, performance measurement, investment in human and technological resources and receptiveness to competition are represented in one or another version of TQM.

## 11.4 EVOLUTION OF TOTAL QUALITY MANAGEMENT IN INDIA

In India, the concept of quality emerged through statistical processes and need for evaluation of services and programmes. The need for formulation of national standards led to the setting of "Indian Standards Institution (ISI)", which came into being on the 06 January 1947 and legitimised by law on 21 March 1952, with Parliament enacting the Indian Standards Institution (Certification Marks) Act to certify standards.

**The Bureau of Indian Standards**

To broaden its scope and more powers, through an Act of parliament dated 26 November 1986, the Bureau of Indian Standards (BIS) came into existence on 1 April 1987, taking over the staff, assets, liabilities, and functions of erstwhile ISI. Since then, Bureau of Indian Standards is acting as a National Standards Body of India and has so far formulated over 19000 standards in various technology areas. The reformed BIS Act came into force on 21 March 2016, adding more new laws.

The BIS Product Certification Scheme is one of the largest in the world, with over 26500 licensees covering more than 900 products. It also carries out operation of Product Certification Scheme, Management Systems Certification Schemes and Training.

With a view to encouraging Indian manufacturing and service organisations to strive for excellence, and to recognise the efforts made towards quality, the BIS institutes awards for organisations which have excelled in the field of "quality", either in manufacturing sector or in-service sector. Such awards are also prevalent in other countries, like USA, Japan, and Europe.

## The Quality Council of India

The Government of India, to realise the objective of improving quality competitiveness of Indian products and services, and administering the National Quality Campaign, laid the foundation of Quality Council of India (QCI) in 1997. Under the Department of Industrial Policy & Promotion, Ministry of Commerce & Industry, QCI operates the National Accreditation Structure for conformity assessment bodies. QCI was set up jointly with the Indian Industry represented by the three premier industry associations i.e., Associated Chambers of Commerce and Industry of India (ASSOCHAM), Confederation of Indian Industry (CII) and Federation of Indian Chambers of Commerce and Industry (FICCI); with the aim of establishing and operating national accreditation structure and promote quality through National Quality Campaign.

QCI has announced its mission as "Quality for National Well Being", wherein it envisions to support the country achieve and sustain total quality and reliability, in all areas of life, work, environment, products and services, at individual, organisational, community and societal levels. It includes vast services, namely education, healthcare, environment protection, governance, social sectors, infrastructure sector and such other areas of organised activities that have significant bearing in improving the quality of life and wellbeing of the citizens of India.

The Council formulates strategy, general policy, constitution, and monitoring of various components of QCI including the accreditation boards with the objective of ensuring transparent and credible accreditation system. In addition to having an exclusive Board for promotion of quality, the accreditation is done through the executive boards in the specific areas:

I. Conformity Assessment Bodies

II. Healthcare Establishments

III. Education & Vocational Training Providers.

Although, theoretically, the use of TQM practices is an important part of improvements in business performance, a considerable number of organisations have fallen short in implementing their quality programmes (Rad, 2006).

The erstwhile Planning Commission of India, in its report of "Faster, Sustainable and more Inclusive Growth, An Approach to the Twelfth Five Year Plan", emphasised upon the qualitative aspect of the services. The need for total quality management was further recognised by the erstwhile Planning Commission of India, in its Twelfth Five Year Plan (2012–2017), in which it reiterated the distinction between creating yet another 'organisation' and stimulating a 'movement 'towards ensuring quality.

While accreditation of health institutions was voluntary during the 11$^{th}$ Five-year plan (2007-2011), currently, the accreditation status is essential for empanelment benefits in healthcare establishments. Taking the quality parameter on a serious inclination, the 13$^{th}$ Five Year Plan emphasised the importance of qualitative services.

NITI Aayog, in present times industriously supports application of quality management aspects amongst all spheres and services, and henceforth aims to measure services as per set indices, indicating the application of TQM in real time. In the direction of emphasising qualitative goals and to measure progress, Niti Aayog also developed Health Index and Composite Water Management Index by June 2018; and is currently

under process in developing School Education Quality Index, SDG India Index and Digital Transformation Index (state- wise). In June 2021, the Niti Aayog released SDG India Index.

## 11.5 PRINCIPLES OF TOTAL QUALITY MANAGEMENT

The government's interest in TQM translated into an increase of TQM initiatives in areas such as road maintenance, welfare, police protection and emergency services. Local administration finds TQM an interesting concept, in the sense that it helps in understanding the community's needs, as well as assists administration in curbing the costs and improve services. Local administration may benefit from TQM as it may become a means to enhance responsibilities, increasing revenues and decreasing public's cynicism regarding civil servants' skills (Berman and West, 1995). Thus the presence of quality processes will not only be able to increase customer satisfaction in public services but also build trust through transparent processes, accountability, and democratic dialogue.

Quality management is applicable through its principles of management. Since these are essential elements to implement TQM, these are also called factors, steps, or functions to achieve total quality, and being proposed by many eminent scholars and experts in the field of quality. These principles came into existence with the work of Gulick in 1937, who introduced the concept of POSDCORB, which stands for seven managerial functions as Planning, Organising, Staffing, Directing, Coordinating, Reporting and Budgeting. These functions are proposed to be performed by all managerial staff to achieve quality in the services offered by an organisation.

Crosby (*ibid*) defined quality as "conformance to requirements or specifications". According to him, requirements are based on customer needs. Crosby identified 14 steps for a zero-defect quality improvement plan to achieve performance improvement [Figure 1]. Crosby's main idea to achieve quality was to prevent defects and conform to requirements. At the same time, the product or the service must be deficiency free.

*Figure 1. Crosby's 14 steps, (Crosby, 1987)*

| Crosby's 14 steps | |
|---|---|
| 1. Management Commitment | 8. Quality Education |
| 2. The Quality Improvement Team | 9. Zero Defects Day |
| 3. Quality Measurement | 10. Goal Setting |
| 4. The Cost of Quality | 11. Error-cause removal |
| 5. Quality Awareness | 12. Recognition |
| 6. Corrective Action | 13. Quality councils |
| 7. Zero defect Planning | 14. Do it over again |

Juran (1995) believed that main quality problems are due to management rather than workers. He emphasises on team and project work, which can promote quality improvement, improve communication between management and employees, and bring about coordination between employees. He considered quality management as

comprising three basic processes, also famously known as The Juran Trilogy. This trilogy includes quality control, quality improvement, and quality planning.

The ISO 9000 series, as we have discussed in the earlier section, are based on seven quality management principles (QMP). The seven quality management principles are:

I. **Customer focus:** Organisations depend on their customers and therefore should understand current and future customer needs, meet customer requirements, and strive to exceed customer expectations.

II. **Leadership:** Leaders establish unity of purpose and direction of the organisation. They should create and maintain the internal environment in which people can become fully involved in achieving the organisation's objectives.

III. **Engagement of people:** People at all levels are the essence of an organisation and their full involvement enables their abilities to be used for the organisation's benefit.

IV. **Process approach:** A desired result is achieved more efficiently when activities and related resources are managed as a process.

V. **Improvement:** The improvement of the organisation's overall performance should be a permanent objective of the organisation.

VI. **Evidence-based decision making:** Effective decisions are based on the analysis of data and information.

VII. **Relationship management:** An organisation and its external providers (suppliers, contractors, and service providers) are interdependent, and a mutually beneficial relationship enhances the ability of both to create value.

The TQM applications are multiple and varied with different contextual realities, from reducing costs in public administration to reorientation strategies intended to meet people's needs as effectively as possible. The implementation strategies and the intensity of the implementation process differ from one country to another and are clearly influenced by several contextual factors such as the degree of executive decentralisation and the administrative and judicial traditions in each separate country.

Indeed, the reform strategies of public administration promote identification of measures for ensuring its modernisation. This was based on reorganising the State institutions for optimising decisional process, improving human resources and public finance management.

Having discussed the principles of quality management for its successful implementation in the services and processes, let us discuss about the methods of its application in the subsequent section.

## 11.6 TOTAL QUALITY MANAGEMENT TOOLS

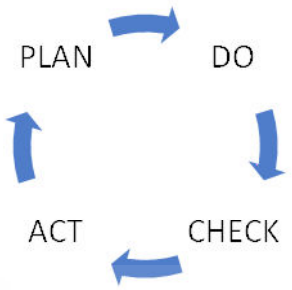
The application of principles of quality requires use of systematic processes and tools to identify, measure, prioritise and improve the current processes or yield desired results. Often, these are referred to as techniques, methods, or procedures. The absence of a well-defined process results in an arbitrary mode of execution with unpredictable

performance. To "do it right the first time" as well as "do the right things right," processes must be efficiently managed. Let us discuss some prevalent processes and tools of TQM in this section.

**Plan-Do-Check-Act (PDCA)**

Deming introduced "PDCA Cycle" in 1950s as an effective quality process. It is also famously known as Shewhart Cycle or Deming Wheel. PDCA stands for Plan, Do, Check and Act.

*Figure 2. Illustration of PDCA cycle*




*Planning* is to identify and evaluate a procedure for problem or defect. Points should be made about problems, resources, current processes, and possible better options. Define the modified procedure. Second step is to *Do,* i.e., implementing the planned procedure or potential solution and measure the results. Then, *Check* or evaluate the result, measure effectiveness, and examine the improvement. Lastly, if the output is satisfactory and improved, *Act* on it by implementing. Use of the PDCA cycle represents continuously looking for better methods of improvement. It is effective in both doing a job and managing a programme.

**SWOT Analysis**

SWOT Analysis refers to **S**trengths, **W**eaknesses, **O**pportunities and **T**hreats and is used to evaluate the quality aspect by identifying its positive and negative factors. It helps in identifying the internal strengths and weaknesses and opportunities and threats in its external environment. The knowledge and insight of these is helpful in strategic planning and decision-making activities. Thus, SWOT analysis presents a four-way look of a service/ department.

*Figure 3. Illustration of SWOT Analysis*

| | | |
|---|---|---|
| **Internal Factors** | **S**trengths | **W**eaknesses |
| **External Factors** | **O**pportunities | **T**hreats |

**Bench Marking**

Benchmarking is defined as a process of comparing performance to that of the best that either exists outside or based on the performance arising out of the competition. It improves performance by identifying and applying best demonstrated practices into own policies through redesigning of internal processes. Benchmarking goes beyond competitive analysis to understanding the competitor's output and process of obtaining

the output. The advantages of benchmarking include enabling organisations to outperform competitors, opening minds to new ideas, and placing organisations in a continuous improvement mode.

Benchmarking helps in performance improvement and in identifying methods for improving operational efficiency and organisational process. It also helps in managing budget and focus is on capabilities vital to building strategic policies. It promotes organisational learning and facilitates brainstorming on new techniques or initiatives an organisation can adopt for improving its output or services.

## 11.7 TOTAL QUALITY MANAGEMENT: STRENGTHS AND CHALLENGES

The following are the strengths and challenges of TQM:

**Strengths of TQM**

1. TQM ensures fulfilment of customer's expectation and meets the set output criteria.
2. There is a clear involvement of employees and staff in the management of enterprise and thus in the improvement process.
3. TQM assists organisations to develop a robust and organised structured and documented system, to ensure system driven culture and continuous output.
4. It potentially reduces the probability of errors in the process of the service or operational procedures, resulting in saving resources, time, and efforts.
5. TQM absorbed in the organisational culture, leads to an automatic qualitative results and services. Thereby, making the quality output as a default result.

**Challenges of TQM**

1. Leadership guides the level of quality philosophy adopted by the organisations. Lack of management commitment towards TQM, is a major roadblock for implementation of quality at the ground level.
2. Application of TQM processes vary from one service to another. Every organisation has its own strengths and weaknesses. Adoption of processes of another enterprise without thoughtful evaluation yields no benefits.
3. Closed bureaucratic system deters collective decision making and fails to involve opinions of employees, suppliers, and customers. This impacts the success of the TQM programme.
4. Focus on the short-term objectives and neglecting long-term goals is not consistent with spirit of quality philosophy.
5. Laxity in adopting the TQM in the initial stages of the process. The culture of reliance on corrective actions rather than preventive is hindrance towards TQM implementation.
6. Dearth of appropriate training and motivation of the staff.
7. Insufficiency of resources often results in postponing of the quality measures, even if measures are defined.

**Check Your Progress 2**

**Note:** i) Use the space given below for your answers.

ii) Check your answers with those given at the end of the Unit.

1) State the basic principles of TQM as laid down by ISO 9000.

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3) Explain the tools of quality management.

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3) List some strengths and challenges in adopting total quality management.

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## 11.8 CONCLUSION

The rapidly changing world is witnessing the change of expectations in the kind of services we need and in the current progressive governance, quality management has emerged as a tool to provide the best results. With the concept acquiring global connotation, the advantage of TQM phenomenon is being enjoyed by both industrial and service sectors and has rightly become a need to measure its services. An obvious expectation today, however, is that the implementation strategies of TQM are greatly influenced by the resources, economic structure, societal need, and willingness to achieve excellence.

## 11.9 GLOSSARY

**Accreditation** : It is a voluntary process where issuing organisation is a recognised national body or non-governmental organisation. Accreditation evaluates organisation for compliance with published standards, on-site evaluation. Here standards are set at a maximum achievable level to stimulate improvement over time.

**Certification** : Certification is a formal attestation or a document issued by an authorised body, either government or NGO

evaluates both individual or organisation or one of its components. Certification evaluates pre-determined requirements, additional education/ training demonstrated competence in a specialty area or additional services, technology, or capacity the organisation has and so on. The standards are set by national professional or specialty boards. Industry standards (e.g., ISO 9000 standards) evaluate conformance to design specifications.

**Management by Objectives (MBO)** : It was first outlined by Peter Drucker in 1954. It aims to improve the performance of an organisation by clearly defining objectives that are agreed to both by management and employees.

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## 11.11 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

**Check your Progress 1**

1) Your answer should include the following points:

- Total quality management is management approach to the long-term success of an organisation emphasising on quality to gain customer satisfaction.
- It encompasses efforts to institute an organisation climate where employees put in their best efforts to provide products and services that are of value to the customer.
- It is a participative and systematic approach to planning and implementing an organisational improvement process that focuses on meeting customer's expectations, identifying problems, building commitment, and promoting open decision-making among employees.

2) Your answer should include the following points:

- The first stage i.e., quality inspection stage started around 1910 wherein poor-quality products found by inspection can either be scrapped, reworked or sold as lower quality products.
- The second stage is quality control stage wherein efforts were made by industries to inspect and control the manufacturing process to minimise errors and maximise profits.
- The third stage i.e., quality assurance stage concentrates on pre- production activities and relies on quality standards to reduce failures.
- The fourth stage is total quality management involves understanding and implementing quality management principles and concepts to all aspects of organisation.

**Check your Progress 2**

1) Your answer should include the following points:

- Customer focus

- Leadership
- Engagement of people
- Process approach
- Improvement
- Evidence-based decision making
- Relationship management

2) Your answer should include the following points:

Description of the processes of

- Plan-Do-Check-Act
- SWOT analysis
- Benchmarking

3) Your answer should include the following points:

The strengths of TQM include:

- Fulfilment of customer's expectations.
- Developing a robust and organised structured system to ensure continuous output.
- Reduces probability of errors resulting in saving of resources, time and efforts.
- Brings in qualitative results and services.

The challenges in implementation of TQM are:

- Lack of management commitment.
- Closed bureaucratic system.
- Laxity in adopting TQM in the initial stages of any process.
- Dearth of appropriate training and motivation of staff.
- Insufficiency of resources.

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