Quality Management

"*It costs a lot to produce a bad product.*"

Norman Augustine

Introduction

Everyone may have the experiences of poor quality when dealing with product or service. These experiences might involve

- an airline that has lost a passenger's luggage,
- a dry cleaner that has left clothes wrinkled or stained
- a product purchased does not work or broken or damaged, or rusty funky interiors
- a purchased milk that tastes or smells bad
- poor phone service

Definition of Quality

- Fitness to use • focuses on how well the product performs its intended function or use.

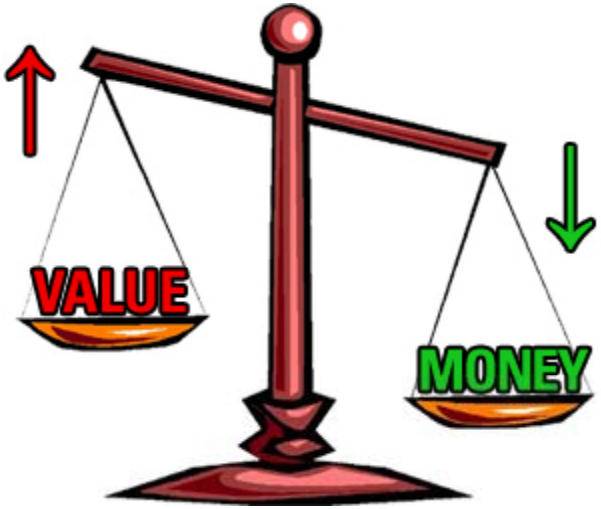
  Fitness for use is a user-based definition in that it is intended to meet the needs of a specific user group or location where it is used.

- Conformance to specification • measures how well the product or service meets the targets and tolerances determined by its designers.

A Nokia and Iphone are equally "fit for use," but with different specifications.

Definition of Quality

- Value for money • It is a definition of quality that consumers often use for product or service usefulness for the money they paid. This is the only definition that combines economics with consumer criteria: it assumes that the definition of quality is price sensitive.



Quality: Introduction

- In everyday usage, the word “quality” is usually related with **excellence or durability**.
- In quality management however, quality means those features of a product, i.e. goods or services, which meet customer needs and thereby provide customer satisfaction. This definition implies **freedom from deficiencies** – i.e. from errors that require doing work over again (rework) or otherwise result in customer dissatisfaction.
- Quality implies **“fitness for purpose”** - that the product works for the purpose for which it was intended.

Quality

- Quality is an **attribute of a product or service that fulfills or exceeds the human expectations.** These expectations are based on the intended use and selling / service price.

- It is somewhat of an intangible based on perception. ***That is why quality is a relative term and each person has his or her own definition.***

Other Definition of Quality

- Eminent Japanese Scientist **Armand V. Feigenbaum** defined: Quality is the total composite of product and services characteristics of marketing, engineering, manufacturing and maintenance through which the product and service in use will meet the expectations of the customer.
- Therefore, from its definitions we can assume what QUALITY stands for:
  - Q Quest for excellence
  - U Understanding customer's Needs
  - A Action to achieve Customer's appreciation
  - L Leadership – determination to be a leader
  - I Involving all People
  - T Team spirit to work for common goal and
  - Y Yardstick to measure Progress

- Quality can be quantified as follows: **Q=P/E** Where, Q = Quality, P = Performance and E = Expectations. If Q is greater than 1.0 then the customer has a good feeling about the product or service.

Other Definition of Quality

1. Quality is what is in the eye of the customer.
2. The ability of a product or service to meet customer needs.
3. Quality is a measure of how closely a good or service conforms to specified standards or specifications.
4. Quality is "a predictable degree of uniformity and dependability, at low cost and suited to the market".
5. Quality is a relative term, generally used with reference to the end-use of a product. Quality should be aimed at the needs of the consumer, present and future.
6. As per **ISO – 9000:2000:** Quality means "**The degree to which a set of inherent characteristics fulfills requirements"**. Here,

   Degree – quality such as poor, good, and excellent

   Inherent – Permanent attribute

   Requirement – need based or expectation.

Dimensions of Quality: Manufactured Products

Performance

Performance refers to a product's primary operating characteristics. A quality product will perform as expected by the user and as specified by the manufacturer.

Features

Features are additional characteristics that enhance the appeal of the product or service to the user. Some features will be present in all products but other features will only be found in "quality" products. For example all cars have wheels, steering, gears, windows and seats but only some cars have heated seats, back camera and blue tooth.

Dimensions of Quality: Manufactured Products

- **Reliability:**

  Reliability is the likelihood that a product will not fail within a specific time period. Is the product consistent? Will it perform well over its expected lifetime and perform consistently? Many brands have developed trust with customers because of their reputation for reliability.

- **Conformance:**

  Conformance is the precision with which the product or service meets the specified standards.

Dimensions of Quality: Manufactured Products

- **Durability:**

  Durability measures the length of a product's life. How durable is your product. How long it last with daily use?

- **Serviceability:**

  Serviceability is the speed with which the product can be put into service when it breaks down. Is the product easy to service? Does the organization offer enough service support?

Dimensions of Quality: Manufactured Products

- **Aesthetics:**

  Aesthetics is the subjective dimension indicating the kind of response a user has to a product. It represents the individual's personal preference. Is the product appealing to the eye?

- **Perceived Quality:**

  Past Performance (Perceived Quality). Will the price charged reflect the quality of the product? What brand name is going to be used and does this convey any perception of quality. Honda cars, Sony Walkman and Rolex watches are perceived to be high quality items by the consumers.

Dimensions of Quality: Service

- Time and Timeliness
  - How long must a customer wait for service, and is it completed on time?
  - Is an overnight package delivered overnight?
- Completeness:
  - Is everything customer asked for provided?
  - Is a mail order from a catalogue company complete when delivered?
- Courtesy:
  - How are customers treated by employees?
  - Are catalogue phone operators nice and are their voices pleasant?

Dimensions of Quality: Service (cont.)

- Consistency
  - Is the same level of service provided to each customer each time?
  - Is your newspaper delivered on time every morning?
- Accessibility and convenience
  - How easy is it to obtain service?
  - Does a service representative answer you calls quickly?
- Accuracy
  - Is the service performed right every time?
  - Is your bank or credit card statement correct every month?
- Responsiveness
  - How well does the company react to unusual situations?
  - How well is a telephone operator able to respond to a customer's questions?

Changing views of Quality

Past	Present
• Quality is the responsibility of blue-collar workers and direct labor employees working on the floor	• Quality is everyone's responsibility, including white-collar workers, the indirect labor force, and the overhead staff
• Quality defects should be hidden from the customers (and possibly management)	• Defects should be high-lighted and brought to the surface for corrective action
• Quality problems lead to blame, faulty justification, and excuses	• Quality problems lead to cooperative solutions
• Corrections-to-quality problems should be accomplished with minimum documentation	• Documentation is essential for "lessons learned" so that mistakes are not repeated
• Increased quality will increase project costs	• Improved quality saves money and increases business
• Quality is internally focused	• Quality is customer focused
• Quality will not occur without close supervision of people	• People want to produce quality products
• Quality occurs during project execution	• Quality occurs at project initiation and must be planned for within the project

Importance of Quality:

1. Good quality of goods and services can provide an organization with competitive edge.

2. Good quality reduces costs due to product returns, rework and scrap.

3. Good quality increases productivity, profits and other measures of success such as brand image, product image and company goodwill.

4. Most importantly, good quality generates satisfied customers today and tomorrow.

5. Good quality creates an atmosphere for high employee morale, which improves productivity.

Quality control and Quality Assurance

- **Quality control (QC)**

  Quality control (QC) is a procedure or set of procedures intended to ensure that a manufactured product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer.

- **Quality Assurance (QA)**

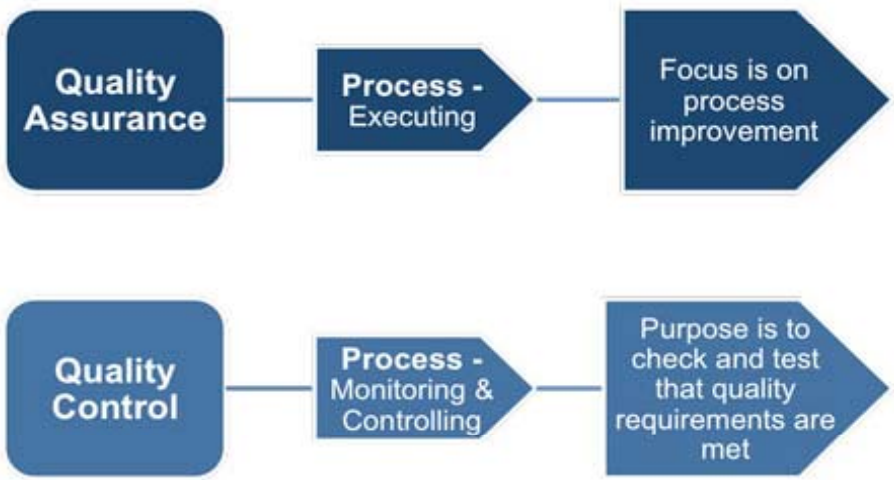
  - Quality Assurance (QA) is defined as a procedure or set of procedures intended to ensure that a product or service under development (before work is complete, as opposed to afterwards) meets specified requirements.

QC is used to verify the quality of the output;
QA is the process of managing for quality.

Quality control and Quality Assurance

	Quality Assurance	Quality Control
Definition	Quality assurance is when a company implements a list of systematic measures in order to produce a product that fulfills quality requirements.	Quality control is when a company implements inspections and checks in order to find any defected products and keep them from going to the client.
Focus on	QA focuses on prevent defects from happening.	QC focuses on identifying defects before the product is shipped to the clients.
Objective	The goal is to improve the development and test processes to eliminate defects from arising in products.	The goal is to identify defects in the final product before the product is sold in the market or given to the customer.
Tools used	Inspection, quality of raw materials, sampling charts, control charts, etc.	Control charts, inspection of finished products, product testing, etc.
Orientation	Process-oriented	Product-oriented
Order	QA takes place as it happens before the product has gone into production.	Happens after the product has finished production.
Type of measure/process	Preventive measure; proactive quality process.	Corrective measure; reactive process.

Quality control and Quality Assurance



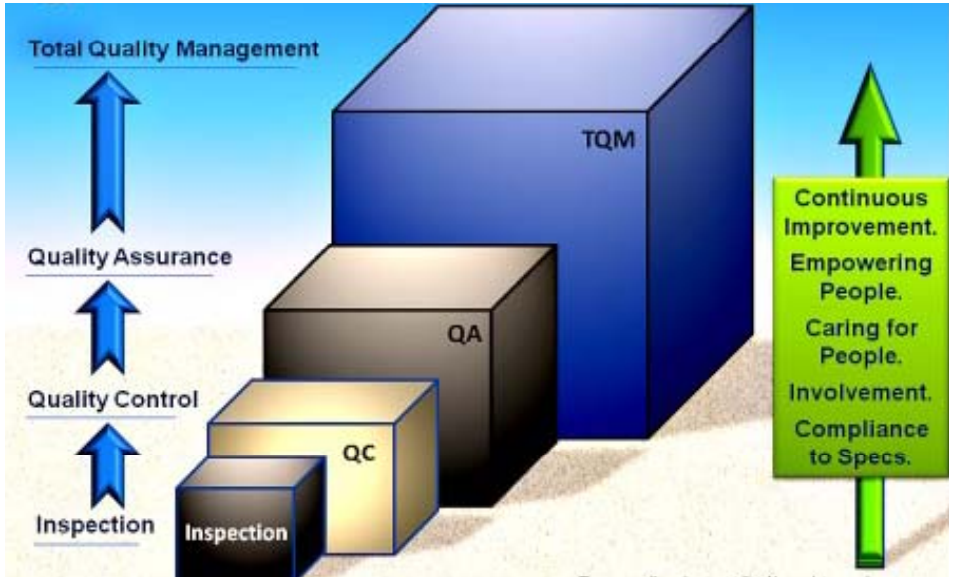
Difference between Quality Control and Quality Assurance

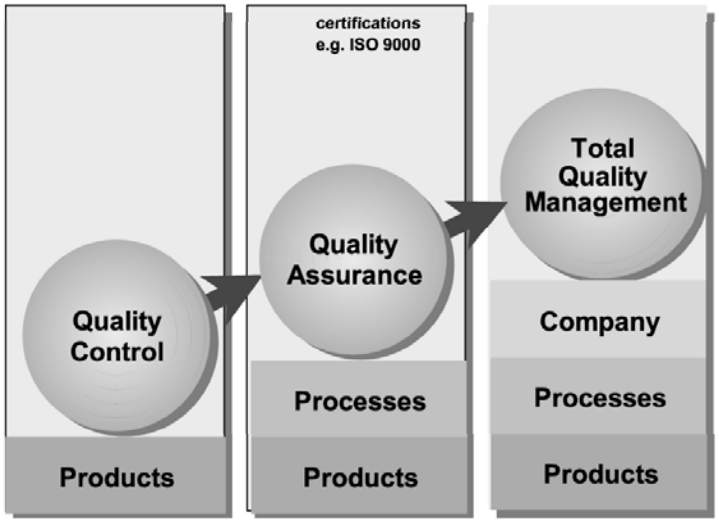
Management of quality normally involves three steps

1. Quality planning – determining the relevant quality standards
2. Quality assurance – planning the quality activities
1. Quality control – keeping errors out of the process

Quality Management System

- A Quality Management System is a set **of guidelines and instructions** aimed at achieving satisfactory and consistent levels of quality in products and/or services.





TQM - Total Quality Management

- TQM is a management philosophy that seeks to integrate all organizational functions (marketing, finance, design, engineering, production and customer service, etc.) to focus on meeting customer needs and organizational objectives.

- TQM is a strategic technique for continuous improvement in the quality of products and services.

- TQM is an approach to achieve long-term success through customer satisfaction.

- **TOTAL** Everyone and everything that we do
- **QUALITY** Giving the customer what they expect all the time
- **MANAGEMENT** The way we act and operate our policies and procedures, and our training and instruction to all of our employees

GOAL, OBJECTIVE, STRATEGY AND METHODS OF TQM

Goal: Total Customer Satisfaction

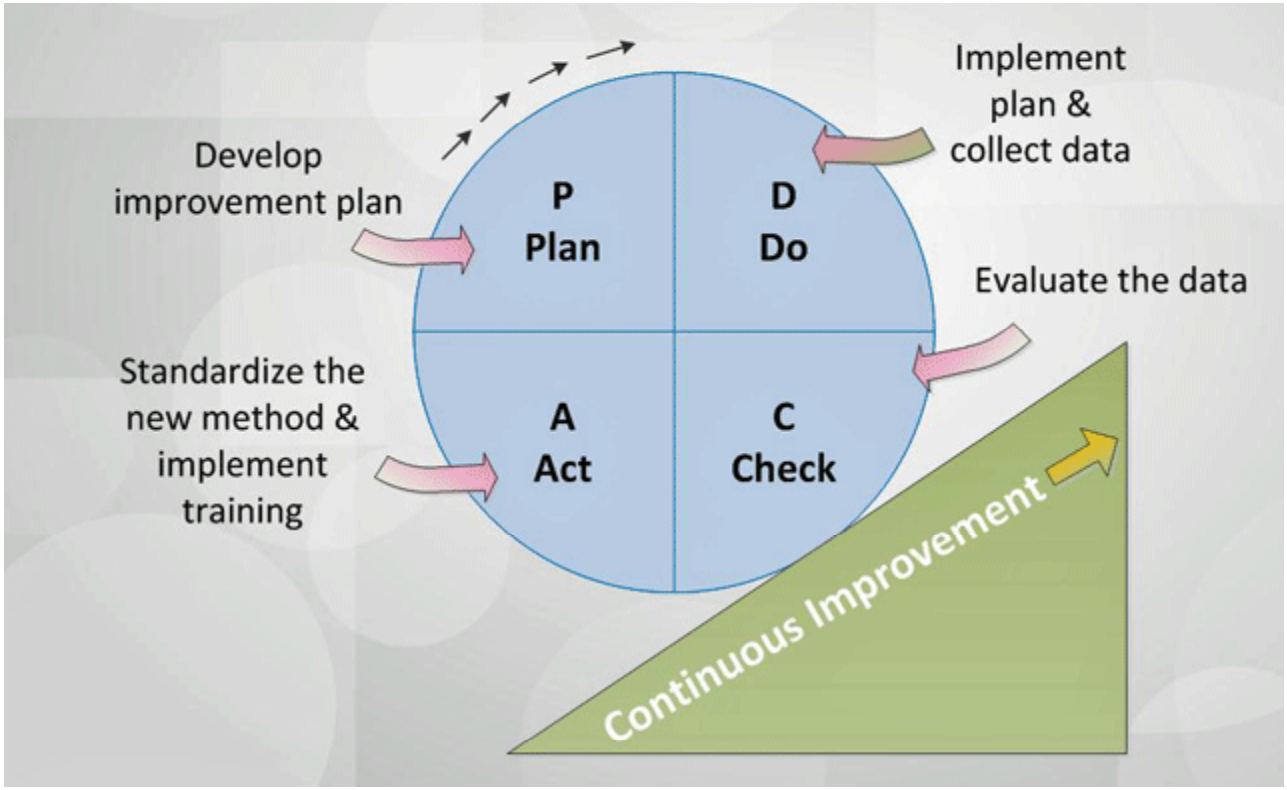
Objectives: To create a Culture of “Continuous Improvement” for zero defects, zero loss and zero accident.

Strategy: “Do the Right Things, right the first time, and every time.”

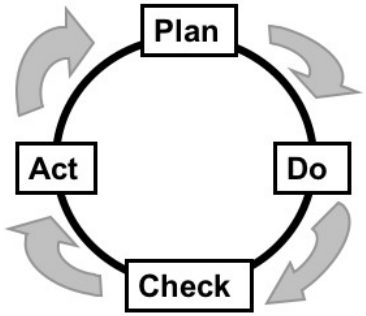
Methodology : Review, Plan, Train, Empower, Team, Learn from Document, Standardize the Process, Reduce Variation, Auditing the performance, Reward & Recognition

Deming Cycle, PDCA

The Deming Cycle, or PDCA Cycle is a continuous quality improvement model consisting out of a logical sequence of four repetitive steps for continuous improvement and learning: Plan, Do, Check and Act.



Deming Cycle, PDCA



The four phases in the Plan-Do-Check-Act Cycle involve:

Plan: Identifying and analyzing the problem.

Do: Developing and testing a potential solution.

Check: Measuring how effective the test solution is, and analyze whether it could be improved in any way.

Act: Implementing the improved solution fully

PRINCIPLES OF TQM

- Total quality means better access to global markets, greater customer loyalty, wider recognition as a quality brand, etc.

- TQM is broadly based on the following eight principles:

1. **Customer Centric Approach** – Consumers are the ultimate judge to determine whether products or services are of superior quality or not. No matter how many resources are pooled in training employees, upgrading machines and computers, incorporating quality design process and standards, bringing new technology, etc.; at the end of the day, it is the customers who have the final say in judging your company. Companies must remember to implement TQM across all fronts keeping in mind the customers.
2. **Leadership-** Leaders establish unity of purpose and direction. They should create and maintain the internal environment in which people can become fully involved in achieving the organization's objectives.

PRINCIPLES OF TQM

3. **Involvement of people** – Ensuring total employee involvement in achieving goals and business objectives will lead to employee empowerment and active participation from the employees in decision making and addressing quality related problems. Employee empowerment and involvement can be increased by making the workspace more open and free from fear.
4. **Continual Improvement** – A major component of TQM is continual improvement. Continual improvement will lead to improved and higher quality processes. Continual improvement will ensure companies will find new ways and techniques in producing better quality products, production, be more competitive, as well as exceed customer expectations.
5. **Process approach** – A desired result is achieved more efficiently when activities and related resources are managed as a process. A strategic plan is very necessary to ensure quality becomes the core aspect of all business processes.

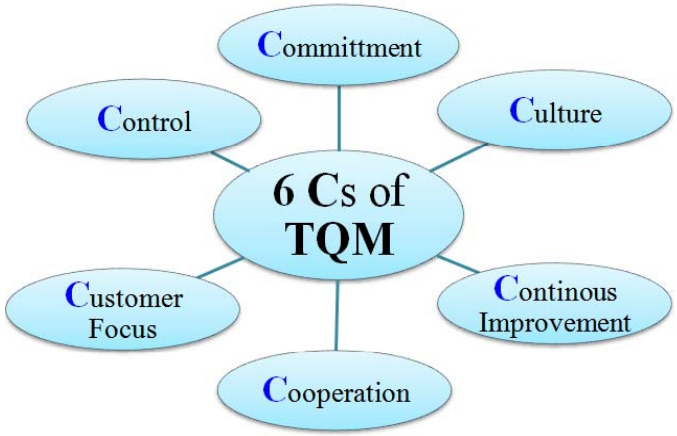
PRINCIPLES OF TQM

6. **System approach to management –** Identifying, understanding and managing a system of interrelated processes as a system contributes to the organization's effectiveness and efficiency in achieving its objectives.
7. **Factual approach to decision making** – Effective decisions are based on the analysis of data and information. For efficient TQM, companies must collect and analyze data to improve quality, decision making accuracy, and forecasts. The decision making must be statistically and situational based in order to avoid any room for emotional based decisions.
8. **Communications** – Communication plays a crucial role in TQM as it helps to motivate employees and improve their morale during routine daily operations. Employees need to be involved as much as possible in the day to day operations and decision making process to really give them a sense of empowerment. This creates the environment of success and unity and helps drive the results the TQM process can achieve.

How to Implement Total Quality Management TQM

How to Implement Total Quality Management?

1. Commitment from Employees
2. Quality Improvement Culture
3. Continuous Improvement in Process
4. Co-operation from Employees
5. Focus on Customer Requirements
6. Effective Control shall be laid down



How to Implement Total Quality Management TQM

- Six Cs of TQM that are very important and essential to successfully implement the Total Quality Management.

1. Commitment from Employees

- In an organization, the Total Quality Management (TQM) policies shall be developed. These policies shall be binding on all employees of the organization. Due to this, the quality improvement will become an essential part of everyone's work. Furthermore, this will ensure a Quality Improvement commitment from all the employees for the work deployed to them.

2. Quality Improvement Culture

- There shall be a Quality Improvement Culture in the organization. The culture followed needs to be modernized on a continuous basis to encourage employee's feedback. This will ensure employee comfort towards effective administration of allotted work.

How to Implement Total Quality Management TQM

3. Continuous Improvement in Process

- Total Quality Management (TQM) is a continuous process and not a program. This requires constant improvement in all the related policies, procedures and controls laid down by the management.
- There should be a continuous search of the proficiency to do the task better. This will always result in scope for improvement, although such improvement may be small.

4. Cooperation from Employees

- The application of Total Quality Management (TQM) is in direct relation with the Total Employee Involvement during and after the implementation of the same.
- The experience and cooperation of the employees are utilized in the development of improved strategies and performance measures.

How to Implement Total Quality Management TQM

5. Focus on Customer Requirements

- Total Quality Management (TQM) process shall be prepared by focusing on customers' requirements and their expectations from the products and services. In today's market, customer requires and expects perfect goods and services with zero defects.
- Focus on customer requirement is significant to survive in long-term and to build prominent relationship with the customers.

6. Effective Control shall be laid down

- The controls are to be laid down for monitoring and measuring the performance of the business. The controls also help to rectify the deficiencies, if any, in the business process. The checklist of control policies shall include all documents or manuals of the current best business practices.