Unit -1 (Concept of quality)

Definition of quality:

Quality has different connotations to different people at different time. People expect some performance from a product or service. When the performance meets the expectation, people feel they have achieved quality. Higher end car buyers are looking for much more luxury and control than the lower end car buyer whose main requirement could be mobility, negotiability, less initial cost and fuel efficiency. Through the features are different, both cars are of good quality**.**

Quality is fitness for use or purpose. - Joseph M Juran

Quality is conformance to requirement- Philip B. Crosby

A predictable degree of uniformity and dependability at the low cost and suited – W. Edwards Deming

But Clark has differentiated the definition of Quality in two contexts: product development and manufacturing:
a) Quality for product Development is "Fitness for Use"
b) Quality for Manufacturing "Conformance to Specification

In other words Quality can be understood by the below Formula

Q = P/E

Where P is Actual Performance and E is Expectation of the Customer

A Futuristic Definition:

"Quality is a state in which value entitlement is realized for the customer and provider in every aspect of the business relationship without adversely affecting the environment and society".

Importance of Quality

- Lower costs (less labor, rework, scrap)
- Motivated employees
- Market Share
- Reputation
- International competitiveness
- Revenues generation increased

Attributes of quality

Quality means the product has, preferably, all or most of the undermentioned characteristics as detailed below:

♦ It has the right quality.

♦ Is safe, reliable, and long lasting.

- ♦ It's economical to the customer to use it till it lasts.
- ♦ It's delivered on time.
- ♦ Its price is right.
- ♦ Its customer support is good, polite, quick and responsive.
- ♦ Its after-sales service is polite and competent with availability of genuine spare-parts and repair cost is affordable.
- ♦ Disposal of product/service presents no problem and is environmentally friendly.
- ♦ 'Buy-back' schemes of used items for new are user-friendly.
- ♦ The total life-cycle cost to the customer (the 'cradle-to-grave' cost) is optimum.
- ♦ Conforms to norms of ethics and does not infringe on any trademark or patent laws and is genuine. Its potential for pollution is within acceptable limits.
- ♦ No unethical practices like underhand dealings, employment of child labour, exploiting the employees/workers are used as business practices.

Approaches to define quality

Transcendent Approach

- Quality is absolute and universally recognisable.
- It is common notion used by laymen
- There is no subjective judgement and is estimated by looking at the product

Product Based Approach

- Attributes of a particular product in a specific category
- These attributes are accepted as bench of quality by the industry
- Others in the same industry try to produce close to this quality

User Based Approach

- Defined as "Fitness for use"
- Viewed from user's perspective and is dependent on how well does the product meet needs of the consumer.
- Also known as Customer Oriented Approach

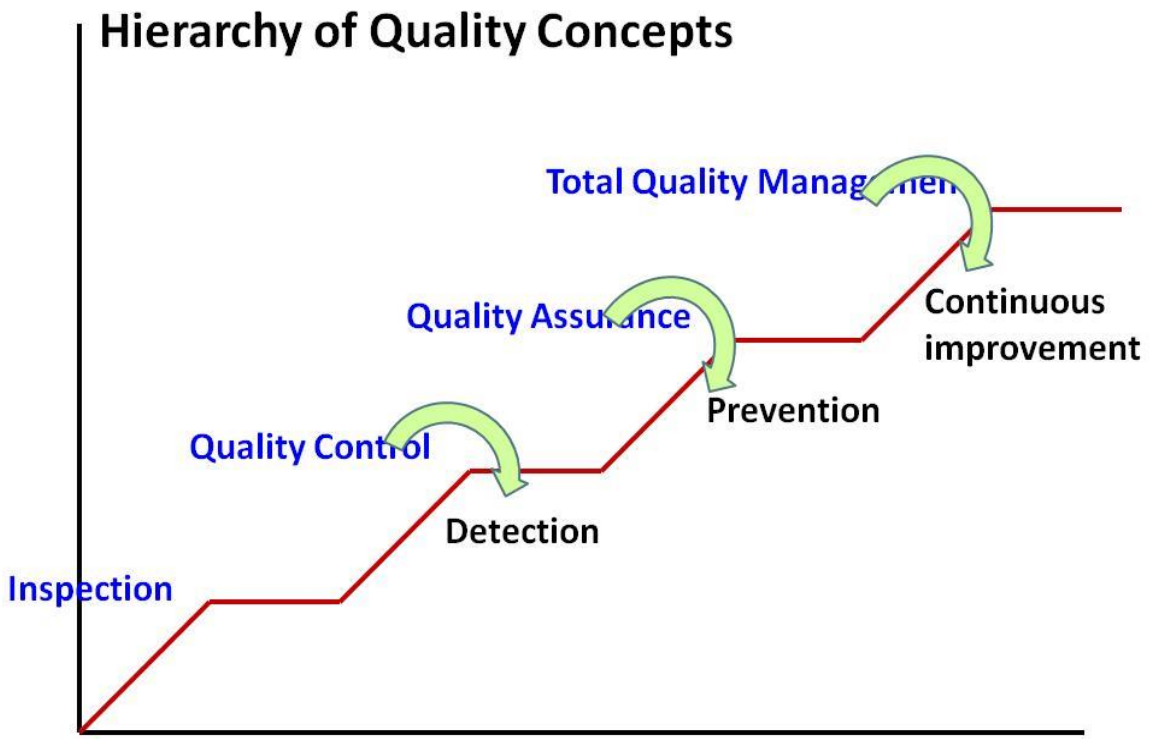
Production Based Approach

- An outcome of engineering or operational excellence and is measured in terms of quality of conformance
- The producer has specifications and produces the product as per the specifications

Value Based Approach

- Quality is viewed in context of price
- Quality is satisfactory, if it provides desired performance at an acceptable price
- Customer looks at the total value proposition and not the price alone
- Value = Benefits/ Price

Hierarchy of Quality Management



Salvage, sorting, grading, blending, corrective actions, identify sources of non-conformance

Develop quality manual, process performance data, self-inspection, product testing, basic quality planning, use of basic statistics, paperwork control.

Quality systems development, advanced quality planning, comprehensive quality manuals, use of quality costs, involvement of non-production operations, failure mode and effects analysis, SPC.

Policy deployment, involve supplier & customers, involve all operations, process management, performance measurement, teamwork, employee involvement.

Cost of Quality = Cost of Nonconformance + Cost Prevention

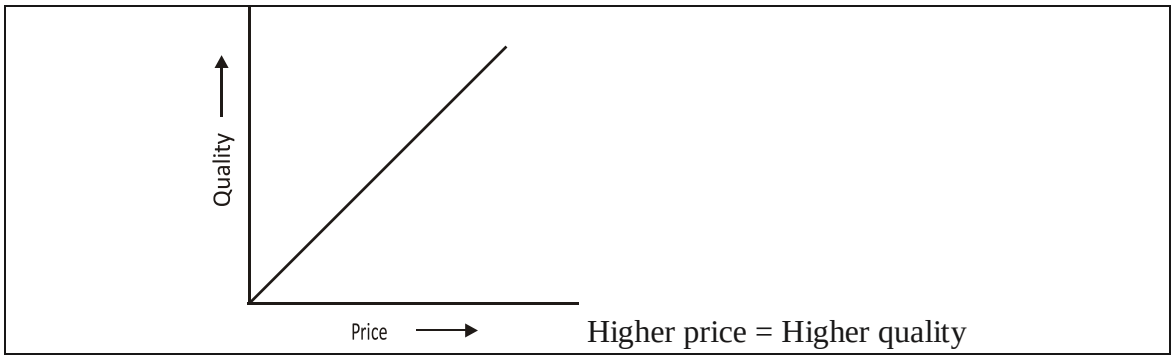
Cost of Non conformance includes rework, recalls, expediting, time extensions, Increased insurance cost etc.

Types of Quality Cost

- **Prevention cost**: All costs associated with error prevention in a product, process or service.
- **Appraisal cost:** All costs associated with the assurance to conformance of quality standards/requirements, inspection, testing, observation, etc.
- **Internal failure cost**: All costs associated with the evaluation and correction of the design before it I s released for construction, and all costs for rework on a project before it is turned over to the owner.
- **External failure cost:** Similar to internal failure costs except that they occur after the "output" has been turned over to the next processor or user. External failure costs often include significant intangible costs of lost reputation

CUSTOMER AND QUALITY

Quality is what a customer expects in the product/service he/she is buying. If a customer expects 'excellence' in everything he/she purchases, then his/her expectations are high. However, this could prove to be elusive to a customer when he actually gets a product/service that he has paid for. For instance, a passenger travelling in an economy class on a flight cannot expect service like a passenger who is travelling in the first class. We should appreciate the fact that a first class passenger has paid two to three times more for the fancy first class and that person has every right to be pampered on the flight. The relation between quality and price might be seen from Fig



Difference between Quality control and Control Assurance

1. Definition:

Quality control is a set of activities for ensuring quality in products. The activities focus on identifying defects in the actual products produced

Quality Assurance is a set of activities for ensuring quality in the processes by which products are developed.

2. Focus

Quality Assurance aims to prevent defects with a focus on the process used to make the product. It is a proactive quality process.

Quality control aims to identify and correct defects in the finished product. Quality control, therefore is a reactive process.

3. Goals

The goal of QA is to improve development and test processes to that defects do not arise when the product is being developed.

The goal of QC is to identify defects after a product is developed and before its released.

4. How

QA establishes a good quality management system and the assessment of its adequacy. Periodic conformance audits of the operating system

QC helps to finds and eliminates source of quality problems through tools and equipment so that customers requirements are continually met.

5. What

QA is prevention of quality problems through planned and systematic activities including documentation.

QC: The activities or techniques used to achieve and maintain the product quality, process or services.

6. Responsibility

QA: Everyone on the team involved developing the product is responsible for quality assurance

QC: Quality control is usually the responsibility of a specific team that test the product for defects.

7. Example

QA: Verfication is an example of QA

QC: Validation / software testing is an example of QC

8. As a tool

QA: is a managerial tool

QC is a corrective tool