



ROHINI COLLEGE OF ENGINEERING AND TECHNOLOGY

AUTONOMOUS INSTITUTION

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24MG208 – TOTAL QUALITY MANAGEMENT

SYLLABUS

UNIT I:

INTRODUCTION TO TOTAL QUALITY MANAGEMENT

TQM definition, Framework, Benefits, awareness and obstacles, Quality – vision, mission and policy statements. Customer Focus – customer perception of quality, Translating needs into requirements, customer retention. Dimensions of product and service quality. Cost of quality.

UNIT I: NOTES

QUALITY CONCEPT

Quality Meaning:

Quality though familiar to everyone, is one of the most important issues that all sectors have focused on in the last 20-30 years. As markets have become much more competitive, quality has become a key ingredient for success in today's business. Quality has become a prime focus of business attention because of the impact it has been growing throughout the world for many years now. Thus, quality is the need of the hour, crux of the time, and the present Dharma of all.

Quality is a relative term. It is generally used with reference to the end of the product. Thus, quality is defined as the fitness for use or purpose at the most economical level. Quality is a judgement by customers or users of a product or service. That is quality is a customer's determination not an engineer's determination or a manager's determination. Quality is the extent to which the customers or users believe the product or service surpasses their needs and expectations.

Definition of quality:

Quality refers to certain standards and the ways and means by which those standards are achieved, maintained and improved. Quality is not just confined to products and services. It is a homogeneous element of any aspect of doing things with high degree of perfection. For example, Business success depends on the quality decision making.

Quality is the totality of features and characteristics of a product or service, that bear on its ability

to satisfy stated and implied needs of the customer. (ISO)

Quality can be quantified as follows:

$$Q = P / E$$

P = Performance E = Expectations Q =Quality

If Q is greater than 1.0, then the customer has a good feeling about the product or service. The determination of P and E will most likely be based on perception with the organization determining performance and the customer determining expectations.

QUALITY – VISION, MISSION, QUALITY POLICY STATEMENTS

- ❖ The quality statements include the vision statement, mission statement, and quality policy statement.
- ❖ Once developed, they are only occasionally reviewed and updated. They are part of the strategic planning process.
- ❖ There may be considerable overlap among the three statements.

Vision statement:

- ❖ A short declaration of what an organization aspires to be in the future. It is an ideal state that an organization continually strives to achieve. It is timeless, inspirational, and becomes deeply shared within the organization.
- ❖ It describes where the organization is headed and what it intends to be. It should be brief, focused, clear, and inspire the organization's employees.
- ❖ Successful vision – a concise statement of the desired end – provides a succinct guideline for sound decision making.
- ❖ Although mission and vision are often used as synonymous, sometimes a distinction is made in which case mission evolves from the vision.

Example: *“We will be the provider of safe, reliable, cost-effective products and services that satisfy the electric-related needs of all customer segments.” [Florida Power & Light Company].*

Example:

"To be the most trusted provider of world-class healthcare solutions."(Apollo Hospitals Group)

* **Mission Statement:**

The mission statement answers the following questions: who we are, who are our customers, what we do, and how we do it. It might include a definition of the products and services the organization provides, types of markets, important customer needs, and distinctive competencies and expertise that sets the firm apart from others.

This statement is usually one paragraph or less in length, is easy to understand, and describes the function of the organization. A firm's mission guides the development of strategies. It establishes the context within which daily operating decisions are made. It can inspire employees to focus their efforts towards the overall purpose of the organization.

Example: *"Our mission is to improve continually our products and services to meet our customers' needs, allowing us to prosper as a business and provide a reasonable return to our shareholders."* [Ford Motor Company].

If the vision deals with 'what', the mission deals with 'why' and 'how'. It identifies the roles or activities to which an organization is committed and provides overall direction for achieving the mission.

The mission provides the guide map, milestones for achieving the vision.

Example: *"To be the leading manufacturer and supplier of measurement and computing solutions whilst achieving the highest levels of customer satisfaction, quality, and business ethics and contributing to India's technological, economic and social needs."* [Hewlett-Packard India].

Example:

"To deliver high-quality, affordable, and accessible healthcare through innovation and excellence." (Aster DM Healthcare)

Quality policy statement:

➤ The quality policy is a guide for everyone in the organization as to how they should provide products/service to the customers. It is written after obtaining feedback from the workforce and is approved by the quality council.

➤ A quality policy is a requirement of ISO9000.

➤ Some common characteristics are: 'Quality is first priority'; 'Continually improve the quality'; 'Equal or exceed the competition'; 'Meet the needs of internal and external customers', etc.

1. **Example:** *"Xerox is a quality company. Quality is the basic business principle of Xerox. Quality means providing our external and internal customers with innovative products and services that fully satisfy their requirements. Quality is the job of every employee."*

Customer Focus

Customer Focus is a business strategy that prioritizes understanding, meeting, or even exceeding the needs and expectations of customers. It involves actively listening to customer feedback, tailoring products and services to address their preferences, and breeding solid relationships built on trust and satisfaction. Businesses that adopt a customer-focused approach aim to consistently deliver value and exceed customer expectations to drive loyalty and growth.



A customer-focused strategy leads to increased customer satisfaction, loyalty, and differentiation from competitors. However, it has higher costs associated with personalized service. It also poses potential difficulty in scaling personalized interactions, and challenges in balancing individual customer needs with overall business objectives. Despite limitations, the benefits of customer focus often outweigh the challenges.

- Customer focus is a strategy adopted by businesses where their decision-making process is based on giving their customers the best possible experiences.
- Such an approach promotes customer loyalty and repeat business from them. Moreover, there is a significant chance of increased sales due to word-of-mouth advertising.
- It is a time-consuming and costly process. However, the benefits in terms of customer satisfaction and increased sales outweigh the expenses in this regard.
- Continuous improvement in terms of employee skills, company strategies, and products is a crucial factor that leads to the best possible experience for customers, both existing and potential ones

Key metrics and methods for measuring customer focus are:

Customer Satisfaction Surveys: Conduct regular surveys to gather feedback from customers about their experiences with the business, products, and services.

Net Promoter Score (NPS): Calculating the NPS based on answers to the question regarding the likelihood of a brand being recommended to a friend or family member helps gauge customer loyalty and advocacy.

Customer Retention Rate: Tracking the percentage of customers who continue to do business with or purchase from the company over time. This metric indicates the strength of customer relationships.

Customer Lifetime Value (CLV): Analyzing the total revenue generated by individual customers over their entire relationship with the company to assess their long-term value.

Customer Complaint Resolution Time: Closely monitoring the time taken to address and resolve customer complaints and issues. The time taken reflects the company's responsiveness and commitment to customer satisfaction.

Customer Engagement Metrics: Tracking metrics such as website visits, email open rates, and social media interactions to measure customer engagement and interest in the company's offerings. In today's internet era, these metrics are gaining more popularity by the day.

Market Share: Assessing the company's market share relative to competitors to understand its position and appeal in the market.

CUSTOMER PERCEPTION OF QUALITY

- One of the basic concepts of TQM – continuous improvement – implies that there is no acceptable quality level because customers' needs, values, expectations are constantly changing and becoming more demanding.
- An American Society for Quality (ASQ) survey on end user perceptions of important factors that influenced purchases showed the following ranking:
 1. Performance,
 2. Features,

3. Service,
4. Warranty,
5. Price, and
6. Reputation.

- The first four factors are part of product/service quality. Hence it is evident that product/service quality is considered more important than price.
- Other factors felt important by customers are: Availability, Reliability, Maintainability, Care in handling (of products as well as customers), Response time.
- The way to assess customers' perception of quality is by measuring customer satisfaction (by carrying out customer satisfaction surveys).

CUSTOMER COMPLAINTS

- Although complaints are reactive in nature, they are vital in gearing data on customer perceptions. A dissatisfied customer can easily become a lost customer. Many organizations use customer dissatisfaction as the primary measure to assess their process improvement efforts.
- A survey by American Society for Quality (ASQ) showed that only about 1% of customers bothered to complain to management, around 20% took the trouble to complain to front-line personnel, and almost 80% did nothing.
- Frequently, dissatisfied customers switch to a competitor and don't say anything. The average organization takes its customer base for granted, assuming that no complaints is good news. Every single complaint should be accepted, analyzed, and acted upon, for it represents the tip of the iceberg.
- Another study indicated more than 50% of dissatisfied customers will buy again if their complaint is heard and resolved. Only 20% will buy again if their complaint is heard but not resolved. Less than 10% will be repeat buyers when a complaint is not heard. Such complaints do reach other potential customers, thereby damaging the company's reputation and business prospects.

➤ An organization can save both money and customers by training and empowering front-line employees (those who directly deal with customers) to solve problems directly with customers. Customers want problems solved quickly and efficiently. Management should encourage employees to take risks, make decisions, and not be afraid of making a mistake.

➤ Studies have shown that the better the service at the point of sale, the fewer the complaints and the greater the sales volume. Unmotivated, dissatisfied employees are as noticeable as dissatisfied customers. It's just as important to focus on employee satisfaction as customer satisfaction.

Some actions organizations can take to handle customer complaints:

1. Investigate customers' experiences by actively seeking feedback, both positive and negative, and act on it promptly.
2. Develop procedures for resolving complaints that include empowering front-line personnel.
3. Analyse complaints to go into their root cause.
4. Identify process and material variations and then eliminate the root cause. "More inspection" is not corrective action.
5. Establish customer measures and constantly monitor them.
6. Communicate complaint information, as well as the results of all investigations and solutions, to all people in the organization.
7. Provide a monthly complaint report to the Quality Council for their evaluation and, if needed, the setting up of process improvement teams.
8. Identify customers' expectations beforehand rather than afterward through complaint analysis.

CUSTOMER RETENTION

❖ It is essential to achieve a balance between acquiring new customers and retaining existing customers. Often, existing customers do not receive sufficient attention.

❖ It costs a company six times more to sell a product to a new customer than it does to sell to an existing one. Hence the importance of customer retention, especially in this era of hyper-competition in most sectors.

❖ Across a variety of industries, profits climb steeply when a company reduces its customer defection rate. Firms could improve profits from 25% to 85% by reducing customer defections by just 5%. Loyal customers generate more revenue, and are also cheaper to maintain.

❖ In many instances, customers themselves prefer to obtain their needs for products/services from the same provider unless the quality is particularly unsatisfactory, e.g. medical, banking, hairstyling, cosmetics, car repairs, etc. Customers are interested in capable, dependable suppliers. Most customers remain loyal not because of promotions or marketing programs, but because of the value that they receive.

* **Customer loyalty ladder:** The relationship with a customer can be viewed as steps on a ladder as follows:

Partner
Advocate
Supporter
Client
Customer
Prospect

Prospect: a potential customer

Customer: one who has had at least one direct dealing with the organization.

Client: one who has had repeated dealings, but is neutral or negative towards the organization.

Supporter: one who has positive commitment to the relationship with the organization.

Advocate: one who actively promotes the company through positive word-of-mouth.

Partner: a customer who is linked to the supplier through mutually beneficial exchanges.

- ❖ A firm should seek to move its customers rapidly through the stages of the loyalty ladder.
- ❖ The most loyal customers who constitute around 20%, bring in 80% of a firm's sales/profits.
- ❖ It should be noted that repeat purchases may occur not due to any loyalty but because of convenience, price, availability, or inertia due to habit. For true brand loyalty to exist, there should be a favorable attitude, preference, commitment expressed over time.

❖ “Churn rate” is the rate at which new customers try a new product/service and then stop using it. A high churn rate indicates poor quality, and hence low loyalty.

❖ Customer loyalty facilitates cross-selling/up-selling of a company’s other products/services, and also acts as an effective barrier to the entry of competition. It also reduces expenditure on advertising and other promotional programs.

The concept of ‘customer lifetime value’ attempts to quantify the benefits accruing to a company in the long run due to customer retention.

Dimensions of quality

Quality has different dimensions. These dimensions are somewhat independent and therefore, a product can be excellent in one dimension and average or poor in another.

Dimensions of product quality:

1. **Performance:** primary product characteristics, e.g. picture brightness in TV.
2. **Features:** secondary characteristics, added features, e.g. remote control, picture-in-picture.
3. **Usability:** ease of use with minimum training.
4. **Conformance:** meeting specifications, industry standards,. (E.g. ISI specs., emission norms).
5. **Reliability:** consistency of performance over a specified time period under specified conditions.
6. **Durability:** extent of useful life, sturdiness.
7. **Maintainability/Serviceability:** ease of attending to maintenance, repairs.
8. **Efficiency:** ratio of output to input. E.g. mileage, braking distance, processing time.
9. **Aesthetics:** sensory characteristics, e.g. appearance, exterior finish, texture, color, shape, etc.
10. **Reputation:** subjective assessment based of past performance, brand image, industry ranking.
11. **Safety:** in items like pressure cookers, electrical items, toys, cranes, etc.

Dimensions of service quality:

1. **Time:** how much time a customer must wait / undergo service.
2. **Timeliness:** whether service will be performed when promised.
3. **Completeness:** whether all items in the order are included.
4. **Consistency:** consistent service every time, and for every customer. Reliability of service.

5. **Accessibility/Convenience:** ease of obtaining the service.

6. **Accuracy:** absence of mistakes.

7. **Responsiveness:** quick response, resolution of unexpected problems.

8. **Courtesy:** cheerful, friendly service.

9. **Competency/Expertise:** In professions like doctors, lawyers, mechanics, etc.

Major differences between products and services

1. Products are tangible; they can be touched, felt, smelled. Services are intangible, perishable.
2. Products can be stored and made available from inventory. Services cannot be stored and have to be created when demanded.
3. When a service is created, the customer becomes a part and parcel of the productive system. Products can be produced without the involvement and intervention of the customer.
4. The units manufacturing products will be large to take advantage of economies of scale; they are located near raw material sources/labor sources/markets depending on cost economies. They can serve regional, national, or international markets. Service systems generally concentrate on local markets, e.g. hospitals, restaurants, etc.
5. Demand for products may vary on a weekly/monthly/seasonal/annual/long-term basis. In case of services, demand variation is high – on an hourly/day-to-day/weekly basis. Hence service systems have to be designed to meet peak load and carry some excess capacity to serve all potential customers.
6. Manufacturing industry is generally capital-intensive to gain from productivity improvements and cost benefits. Service industry is generally labor-intensive, and hence has limited scope for productivity improvements, cost benefits.

Cost of Quality

Costs of Quality are the costs associated with preventing, finding, and correcting defective work.

- (1) These costs are huge, running at 20% - 40% of sales.
- (2) Many of these costs can be significantly reduced or completely avoided.
- (3) One of the key functions of a Quality Engineer is the reduction of the total cost of quality associated with a product.

Prevention Costs / Cost of Conformance:

Cost incurred in preventing a quality problem from arising

- Cost of quality planning
- Process control cost
- Cost of training
- Cost of quality awareness programs.

Appraisal Costs: Cost incurred in assessing that the products/services conform to the requirements

- Cost of test and inspection
- Cost of maintenance of testing and inspecting equipment's
- Cost of test equipment depreciation
- Cost of line quality engineering

Failure Costs: Costs that result from poor quality, such as the cost of fixing defects and the cost of dealing with customer complaints.

- Internal
- External

Internal Failure Costs: Failure costs that arise before the company supplies its product to the customer.

- Cost associated with scrap and rejects
- Cost of repair and rework
- Cost of design changes
- Cost of trouble shooting
- Cost of re-inspection and re-testing

External Failure Costs: Failure costs that arise after the company supplies the product to the customer

- Cost of processing complaints
- Cost of commissioning failures
- Cost of servicing/replacing defective items
- Cost of guarantee/warranty claims
- External failure costs are huge. It is much cheaper to fix problems before shipping the defective product to customers.