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Total Quality Management

Sub Code- MBEIV - 13

Unit – IV

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Program Objectives

PO1: Apply knowledge of management theories and practices to solve business problems.

PO2: Foster Analytical and critical thinking abilities for data-based decision making.

PO3: Ability to develop value based leadership ability.

PO4: Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.

PO5: Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to team environment.

Program Objectives

PO6: Ability to evaluate a business idea and formulate a feasible business plan.

PO7: Recognize the need for and have the orientation and ability to engage in an independent & lifelong learning in a dynamic business environment.

PO8: Ability to appraise and explain societal and environmental aspects of business.

Course Objectives- TQM

CO1: Utilize/ design the basic tools of quality for quality related issues in the organization/ workplace.

CO2: Select appropriate TQM tool for troubleshooting issues related to quality in organization.

CO3: Implement Six Sigma for process improvement at workplace.

CO4: Identify the causes of variation in a manufacturing set up and implement Statistical Process Control to support data based problem solving.

CO5: Identify benchmark for himself/ herself and/ or organization

CO6: Implement KAIZEN at workplace for identifying areas for improvement.

Unit IV: TQM Tools

- Benchmarking, Reasons to Benchmark, Benchmarking Process
- Quality Function Deployment (QFD) – House of Quality, QFD Process, Benefits
- Taguchi Quality Loss Function,
- Total Productive Maintenance (TPM) – Concept, Improvement Needs,
- FMEA – Stages of FMEA.
- Concept of six sigma - Introduction, Design for six sigma, key analytical tools for implementing six sigma, advantages of six sigma, six sigma DMAIC process.

Unit Objectives

- To understand the concept of Benchmarking and the Benchmarking Process
- To understand Quality Function Deployment, House of Quality, QFD Process and its Benefits
- To understand the concept Taguchi Quality Loss Function
- To understand the concept Total Productive Maintenance (TPM).
- To understand the concept FMEA and its Stages of FMEA.

Benchmarking

- Benchmarking is the process of continually searching for the best methods, practices and processes, and either adopting or adapting their good features and implementing them to become the “best of the best.”
- Measuring your performance against that of the best-in-class companies, determining how the best-in-class achieve those performance levels, and using the information as a basis for your own company’s targets, strategies, and implementation.
  - Compare performance of an existing process against other companies’ best-in-class practices
  - Determine how those companies achieve their performance levels
  - Improve internal performance levels

Why Benchmark?

- To Obtain an External Perspective of What Is Possible
- To Assist in Setting Strategic Targets
- To Promote Improvements in Performance
- To Establish a Competitive Edge
- To Enhance Customer Satisfaction
- To Reduce Costs
- To Improve Employee Morale
- To Achieve Quality Awards
- To Survive

Benchmarking in the Context of TQM

TQM Key principles include:

- Comparisons with best practice
- A Strong emphasis on meeting the needs of the customer (internal and external)
- The importance of efficient, effective business processes
- The need for continuous improvement
- Enhances a TQM program

QUALITY FUNCTION DEPOLYMENT

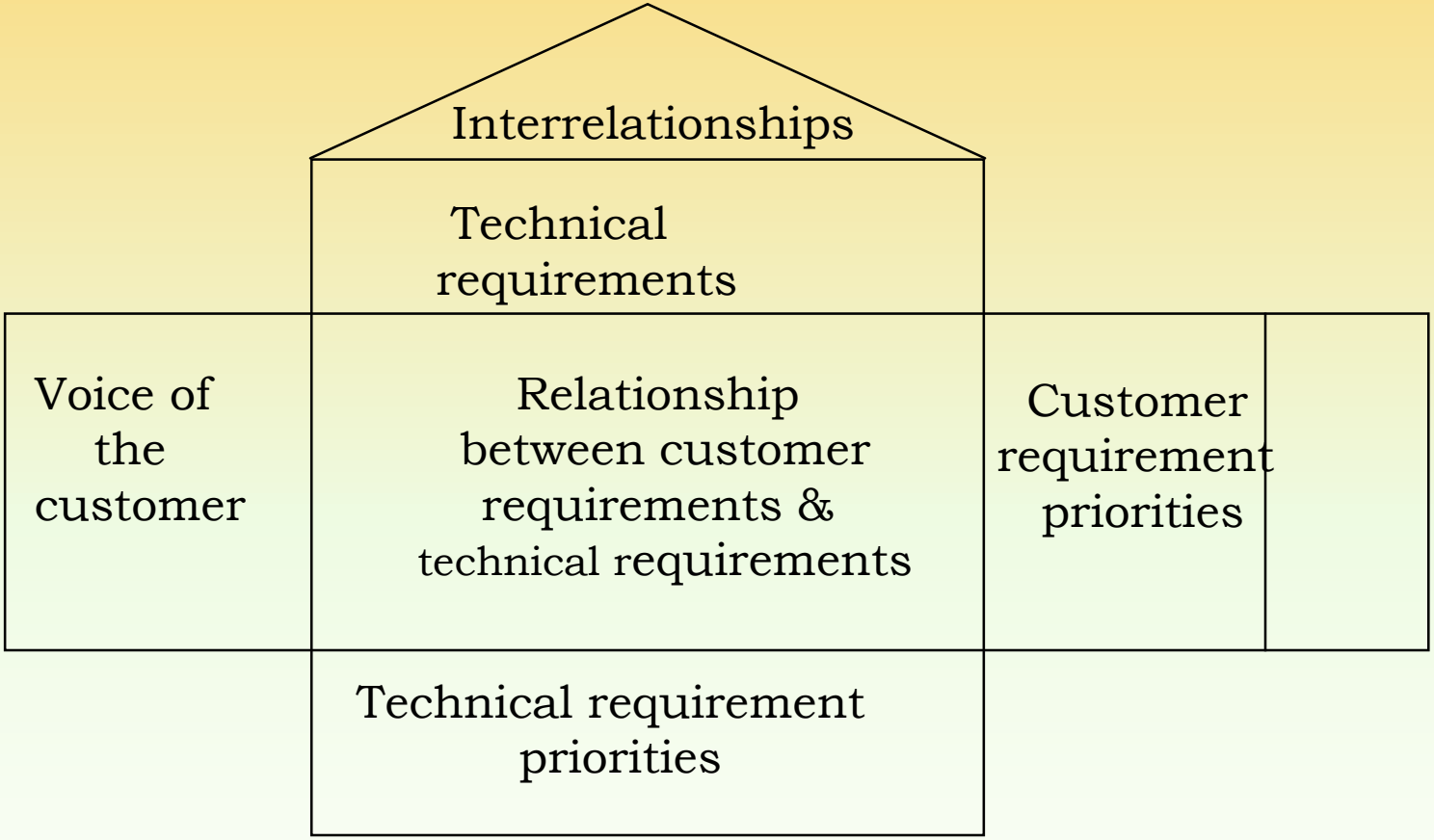
QFD deploys **“The Voice of the Customer”** throughout the organization.

QFD uses planning matrices -- each called **“The House of Quality”.**

Six steps to construct house of quality

1. Identify customer requirements
2. Identify product (technical requirements)
3. Develop a relationship matrix between customer and technical requirement
4. Add market evaluation and key selling points
5. Evaluate technical req. of competitive products
6. Select the tech. req. to be put in the final product

The House of Quality



TAGUCHI LOSS FUNCTION

"Any deviation from the target value of a quality characteristics result in extra cost to some segment of the society."

- Loss: To Customer, To Company, To Society
- Product to be produced "as per specification"
- Taguchi loss function, used to measure financial loss to society resulting from poor quality;

Failure Modes And Effects Analysis (FMEA)

Failure Modes and Effects Analysis (FMEA) is methodology for analyzing potential problems early in the development cycle where it is easier to take actions to overcome these issues, thereby enhancing reliability through design.

THE FMEA PROCESS

Identify Potential
Failure Mode

Identify Potential Effect (S)
Of the Failure Mode

Identify Potential Cause (S)
Of the Failure Mode

Determine Severity (S),
Probability (P) and
Detect ability (D)

Determine
Risk Priority Number
RPN=P*S*D

Develop actions to
improve process

Recommend
Outcome Measures

TOTAL PRODUCTIVE MAINTENANCE

Total Productive Maintenance refers to a the process of maximizing equipment effectiveness throughout the lifetime of that equipment.

It is a management system for optimizing the productivity of manufacturing equipment through systematic equipment maintenance.

- Minimization of sudden breakdowns of equipment
- Production costs kept to a minimum
- Quality of products and services unaffected
- Life of facility and equipment increases

ASSESSMENT

Fill in the blanks:

1. _____is a maintenance program which involves a newly defined concept for maintaining plants and equipment.
2. There are four primary types of benchmarking: internal, competitive, functional, and _____.
3. Quality function deployment is a quality management

   Technique that translates the needs of the customer into _____.

4. The time elapsed from the point the machine fails to perform its function to the point it is repaired and brought into operating condition is known as _____.

Answers:

1. TPM
2. Generic
3. Technical requirements
4. Downtime

References

TOTAL QUALITY MANAGEMENT-Text and Cases

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