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Total Quality Management

Sub Code- MBEIV - 13

Unit – I

Prepared by- Dr. Pallawi Sangode

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.

For Academic Purpose Only

Unit I

Introduction to Quality Concepts

- Definition of Quality
- Dimensions of Quality
- Basic concepts of Total Quality Management
- Contribution of Taguchi, Deming & Crosby
- Continuous Process Improvement –Juran Trilogy, PDCA Cycle
- 5S
- Kaizen

Unit Objectives

1. To understand the concept, importance and principles of TQM.
2. To understand the basic concept of Quality.
3. To understand the different dimensions of quality.
4. To make the students understand what are different costs associated with quality. (Cost of Quality).
5. To know the quality gurus and their contributions in the field of Quality.
6. To understand what is 5S methodology.
7. To understand the basic concept of KAIZEN.

What is Quality

- Quality is *excellence that is better than a minimum standard.*
- *It is conformance to standards and 'fitness of purpose'*
- *It is the degree to which a set of inherent characteristics fulfills requirements.*
- *Quality is 'fitness for use'.*

DIMENSIONS OF QUALITY

1. Performance
2. Features
3. Reliability
4. Serviceability
5. Durability
6. Appearance
7. Customer service
8. Safety

Types of quality

- Indifferent quality
- Expected quality
- One dimensional quality
- Exciting quality

QUALITY COSTS

- *Quality costs are the costs associated with preventing, finding, and correcting defective work.*
 - *Cost of preventing poor quality*
 - *Cost of curing poor quality*
 - *Range from 20-305 of gross sales for a defective or unsatisfactory products.*
1. *Prevention costs*
 2. *Appraisal costs*
 3. *Internal failure costs*
 4. *External failure costs*

QUALITY COSTS types:

1. Prevention Costs:

Costs of activities that are specifically designed to prevent poor quality.

Quality planning cost

Training cost

Process planning costs

Improvement projects

New product review

2. Appraisal Costs:

Costs of activities designed to find quality problems, such as code inspections and any type of testing.

- Incoming material inspection
- Process inspection
- Final goods inspection
- Quality laboratories

3. Failure Costs:

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

Internal Failure Costs:

Failure costs that arise before your company supplies its product to the customer.

- *Scrap*
- *Rework*
- *Downgrading*
- *Retest*
- *Downtime*

External Failure Costs:

Failure costs that arise after your company supplies the product to the customer, such as customer service costs, or the cost of patching a released product and distributing the patch.

- Warranty
- Refund
- Return
- Complaints
- Allowances.

BASIC CONCEPT OF TQM

1. A committed and involved management to provide long term top-to bottom organizational support
2. An unwavering focus on the customer , both internally and externally
3. Effective involvement and utilization of the entire workforce
4. Continuous improvement of the business and production process
5. Treating Suppliers As Partners
6. Establish performance measures for the processes

TQM Leaders

- ◎ At that time, Japan's industrial system was virtually destroyed, and it had a reputation for cheap imitation products and an illiterate workforce.
- ◎ The Japanese recognised these problems and set about solving them with the help of some notable quality gurus – Juran, Deming and Feigenbaum.

TQM Leaders

- ◎ W. E. Deming
- ◎ J. M. Juran
- ◎ K. Ishikawa
- ◎ A. V. Feigenbaum
- ◎ P. B. Crosby



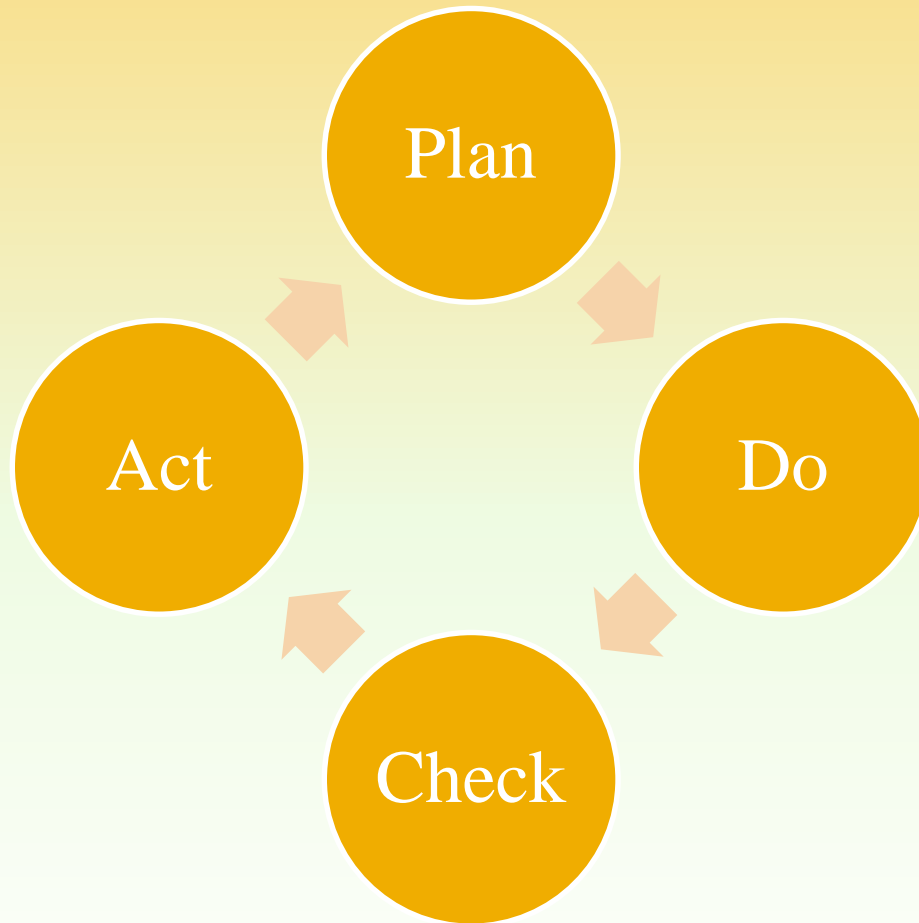
QUALITY MANAGEMENT GURUS

W. Edwards Deming

Dr. W. Edwards Deming is known as the father of the Japanese post-war industrial revival and was regarded by many as the leading quality guru in the United States. He passed on in 1993.

His expertise was used during World War II to assist the United States in its effort to improve the quality of war materials

PDCA CYCLE

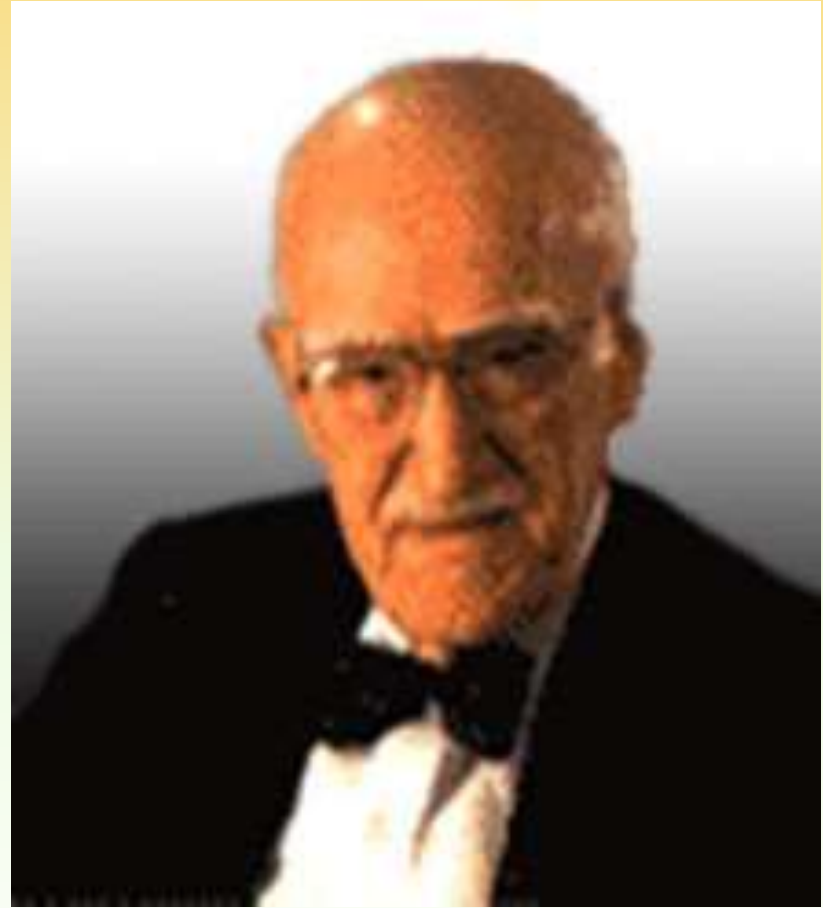


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Joseph Juran

Juran Ideas are :

1. Quality definition
2. Breakthrough concept
3. Internal customer
4. Quality Trilogy
5. Pareto analysis
6. Cost of quality
7. Quality council



Philip Crosby's four absolutes are :

1. The definition of quality is conformance to requirements, it is not appropriate to say good or bad quality as quality can't be measured but conformance can be
2. The system of the quality is prevention : make a prevention strategy and it should be supported by SPC in order to understand the process and discover the default before occurring

Crosby four absolutes are :

3. The performance is zero defects: make the requirement right from the first time , and make the quality accepted by a number of standard items .
4. The measurements of quality is the price of NON-conformance : because cost quality is the prime motivation for management .

Gen'ichi Taguchi

Gen'ichi Taguchi is an engineer and statistician.

Taguchi developed a methodology for applying statistics to improve the quality of manufactured goods. Taguchi methods have been controversial among some conventional Western statisticians, but others have accepted many of the concepts introduced by him as valid extensions to the body of knowledge.

Taguchi's Quality loss Function

Effects of poor Quality

1. Low customer satisfaction
2. Low productivity, sales & profit
3. Low morale of workforce
4. More re-work, material & labour costs
5. High inspection costs
6. Delay in shipping
7. High repair costs
8. Higher inventory costs
9. Greater waste of material

Benefits of Quality

1. Higher customer satisfaction
2. Reliable products/services
3. Better efficiency of operations
4. More productivity & profit
5. Better morale of work force
6. Less wastage costs
7. Less Inspection costs
8. Improved process
9. More market share
10. Spread of happiness & prosperity
11. Better quality of life for all.

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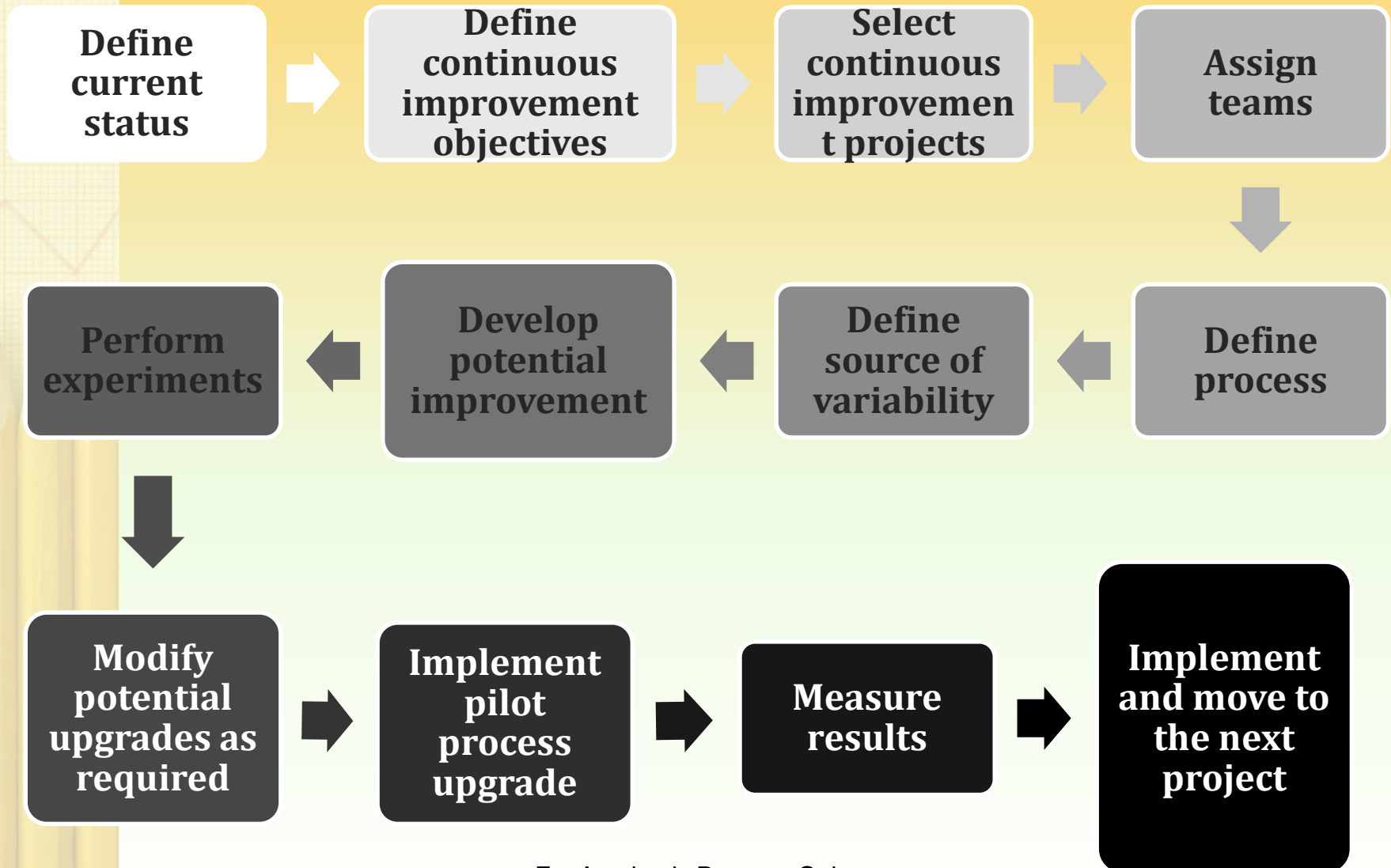
KAIZEN

- KAI- CHANGE
 - ZEN- FOR GOOD
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- ✓ A philosophy of Continual Improvement.
 - ✓ Identifying the benchmarks of excellent practices.
 - ✓ Instilling the sense of employee ownership.
 - ✓ Focus on reducing time.
 - ✓ Reducing scrap in manufacturing processes.

The Nine types of waste

- Overproduction
- Delays (waiting time)
 - Transportation
 - Process
 - Inventories
 - Motions
 - Defective products
- Untapped resources
- Misused resources

Continual Improvement steps



The Five S's

1. Sorting – separating the needed from the not-needed
2. Simplifying – a place for everything and everything in its place, clean and ready to use
3. Systematic Cleaning or Sweeping – cleaning for inspection
4. Standardizing – developing common methods for consistency
5. Sustaining – holding the gains and improving

Assessment Questions

Question: What are the dimensions of quality a customer look for while purchasing a Mobile Phone?

Answer:

1. Android Version in terms of Features
2. Reliability- proper voice and video calling
3. Serviceability- maintenance given to it in terms of servicing
4. Durability- physical aspects, handset body
5. Appearance- Weight, dimensions, sleek handset
6. Battery charging and overheating in terms of Safety

References

TOTAL QUALITY MANAGEMENT-Text and Cases

By: K. Shridhara Bhat

Himalaya Publishing House