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Implementation of Total Quality Management in Construction Company

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ABSTRACT
*This paper describes the course in TQM, Implementation in Construction industries for an engineering student.**TQM is the art of managing the entire to achieve excellence**.The success of TQM and TPM is the support of highest level of management. Total quality management and total productive maintenance are often used interchangeably. TQM and TPM can both result in an increase of quality. TPM is an innovative Japanese concept.*
*Total Quality Management means that the organization's environment is defined by and **supports the fixed attainment of customer satisfaction** through an integrated system of tools, techniques, and training. The areas of interest in this thesis are-TQM, TPM, the steps involved by the implementation of TPM in an organization, Productivity and TQM,Continuous improvement, Quality Through, TQM Pioneers, TQM Framework, Definition of quality, Obstacle, Benefits of quality*
Key words……TQM, TPOM, Quality

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I. TOTAL QUALITY MANAGEMENT AND TOTAL PRODUCTIVE MAINTENANCE

Why TQM?
Construction company had operating losses of $5.3 billion between 1980 and 1992.share dropped from 92% in 1971 to 42% in 1985.(01)
Attention to quality was seen as a way to combat the competition.

TQM: A "Buzzword" Losing Popularity
- For many companies, the term TQM is associated with corporate programs (mid 1975s ~ early 1995s) aimed at implementing employee teams and statistical process control.
- Unfortunately, many companies were dissatisfied with the perceived results of these programs, concluding TQM does not work.

Question: Why were they dissatisfied? Were they justified?(02)

TQM
- **Total** - made up of the whole
- **Quality** - degree of excellence a product or service provides
- **Management -** act, art or manner of planning, controlling, directing,.(03)

Therefore, TQM is the art of managing the whole to achieve excellence.

What does TQM mean?

Total Quality Management means that the organization's culture is defined by and **supports the constant attainment of customer satisfaction** through an integrated system of tools, techniques, and training. This involves the **continuous improvement of organizational processes,** resulting in high quality products and services.(03)

What does TPM mean?

TPM is to increase the productivity of plant and equipment with a modest investment in maintenance. Total Productive Maintenance (TPM) is a maintenance program which involves a newly defined concept for maintaining plants and equipment. The function of Fire & Safety department is to reduce losses in terms of Machine, Men, Material and Environment because of fire, accident, near miss incident, dangerous occurrence and disaster by assisting in development of safe/ suitable working environment, adopting established procedure for critical and emergency operation, giving necessary guidance to PLANT and contractor employees and tackling the emergency situations in shortest possible time.One of the main objectives of TPM is to increase the productivity of plant and equipment with a modest investment in maintenance. Total quality management (TQM) and total productive maintenance (TPM) are considered as the key operational activities of the quality management system. In order for TPM to be effective, the full support of the total workforce is required. This should result in accomplishing the goal of TPM: "Enhance the volume of the production, employee morale and job satisfaction. TPM is an effective tool for the minimization of downtime of machines, production losses and material scraps.(04)

The steps involved by the implementation of TPM in an organization

- Initial evaluation of TPM level,
- Introductory Education and Propaganda (IEP) for TPM,
- Formation of TPM committee,
- Development of master plan for TPM implementation,
- Stage by stage training to the employees and stakeholders on all eight pillars of TPM, Implementation preparation process,
- Establishing the TPM policies and goals and
- Development of a road map for TPM implementation…….(04)

II. METHODOLOGY

What's the goal of TQM?

Do the right things **right** the first time, every time……..(05)

Another way to put it

(1) **total client satisfaction** through quality products and services; and

(2) **continuous improvements** to processes, systems, people, suppliers, partners, products, and services……..(06)

Productivity and TQM

- **Traditional view:**
- Quality cannot be improved without significant losses in productivity.
- **TQM view:**
- Improved quality leads to improved productivity……..(06)

Basic Approach of TQM

- Focus on customer(internal as well as external) who ultimate determine quality.
- A committed and involved management to provide long-term top-to bottom support for all quality initiatives.
- Effective involvement and utilization of the entire work-force.
- Continuous improvement of the business and production processes.
- Treating suppliers as business partners.
- Establishment of effective performance metrics for all the involved processes.

THESE ARE SIX BASIC CONCEPTS IN TQM……..(03)

The three aspects of TQM

1. **Counting**
2. **Customers**
3. **Culture**

1. Tools, techniques, and training in their use for analyzing, understanding, and solving quality problems
2. Quality for the customer as a driving force and central concern
3. Shared values and beliefs, expressed by leaders, that define and support quality……(03)

Total Quality Management and Continuous Improvement

- TQM is the management process used to make continuous improvements to all functions.
- TQM represents an ongoing, conti-nuous commitment to improvement.
- The foundation of total quality is a management philosophy that supp-orts meeting customer requirements through continuous improvement……(07)

Continuous Improvement versus Traditional Approach

Traditional Approach

- Market-share focus
- Individuals
- Focus on 'who" and "why"
- Short-term focus
- Status quo focus
- Product focus
- Innovation
- Fire fighting……..(03)

Continuous Improvement

- Customer focus
- Cross-functional teams
- Focus on "what" and "how"
- Long-term focus
- Continuous improvement
- Process improvement focus
- Incremental improvements
- Problem solving……..(03)

Quality Throughout

- "**A Customer's impression of quality begins with the initial contact with the company and continues through the life of the product."**
- Customers look to the total package - sales, service during the sale, packaging, deliver, and service after the sale.
- Quality extends to how the receptionist answers the phone, how managers treat subordinates, how courteous sales and repair people are, and how the product is serviced after the sale.
- "All departments of the company must strive to improve the quality of their operations."……..(08)

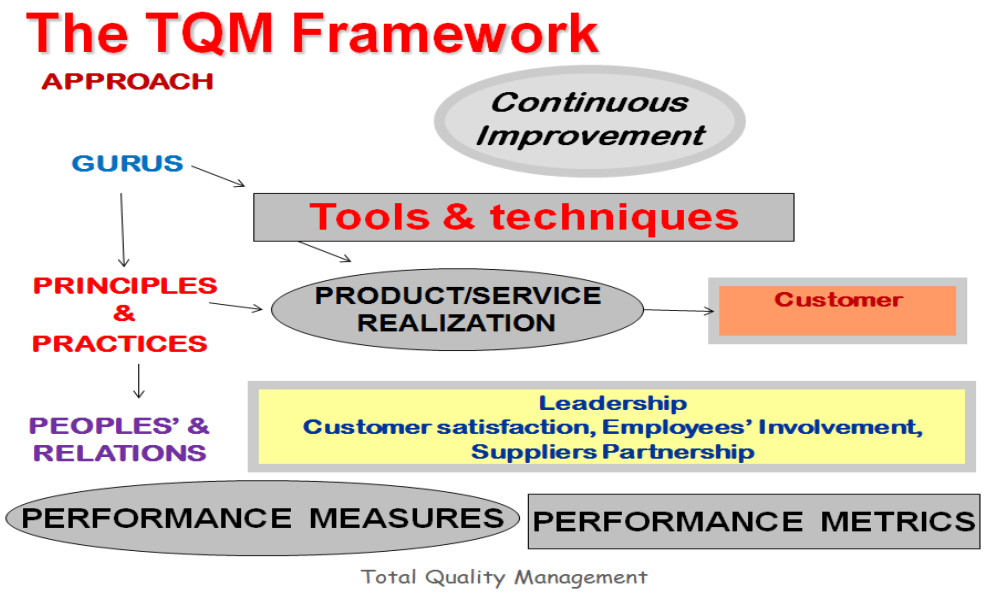
TQM POINEERS : THE GURUS

1. **SHEWHART**
2. **FISHER**
3. **DEMING**
4. **JURAN**
5. **FEIGENBAUM**
6. **ISHIKAWWA**
7. **CROSBY**
8. **TAGUCHI**

1. Developed control chart theory & control limits, assignable and random causes of variations.
2. DOE (design of expt) & ANOVA (analysis of variance).
3. Taught SPC to Japanese CEOs. Developed 14-POINTS for quality, productivity & competitive postion
4. Juran TRILOGY (Planning, control and improvement). Published QC HANDBOOK in 1951

5. Introduced the word TOTAL and published TOTAL QUALITY CONTROL in 1951,his principle: TQC is necessary to achieve productivity, market penetration and competitive advantage
6. Cause & Effect Diagram, QUALITY CIRCLE in Japan.
7. "Doing it right FIRST TIME is less expensive". Wrote 'Quality is Free' & 'Quality without Tears',(1984)Cost of non-conformance measures Quality.Developed 'Loss Function' concept.
8. Taught SPC to Japformanceanese CEOs. Developed 14-POINTS for quality, productivity & competitive postion…….(03)

III. THE TQM FRAMEWORK



IV. DEFINITION OF QUALITY:

Quality(Q) = [PERFORMANCE / EXPECTATIONS]

DIMENSIONS OF QUALITY:

1. PERFORMANCE
2. FEATURES and CONFORMANCE
3. RELIABILITY and DURABILITY
4. SERVICE
5. RESPONSE and AESTHETICS
6. REPUTATION……..(02)

OBSTACLES

1. Lack of management commitment
2. Inability to change organizational structure(OS)
3. Improper planning
4. Lack of continuous training and education
5. Incompatible OS and isolated individuals/depts
6. Ineffective measurement techniques
7. Lack of access to data and results
8. Paying inadequate attention to customers(int/ext)
9. Inadequate use of empowerment & team work
10. Failure to continual improvement…..(03)

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.(09)

V. RESULTS AND CONCLUSION

1. Construction company (like Technip india limited), 99000 workers in 53 countries globally, in 1975 launched as a pulse Technology forQuality movement. It succeeded with company's Q-goal as "Zero defects in everything we work" in Anwesha Engineering and Project Limited, contractor of Technip India limited at IOCL Begusarai QA/QC Engineer .
2. It regularly visited its customers' business..It applied TQM"Six-sigma Quality" & "Reduced total cycle time" for 3.5 defects/million of products & examination of total system: design, manufacturing, marketing, quality& administration.

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