



EBU5608 Product Development and Management

Topic 16 – Quality Management and Continuous Improvement

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Today Agenda

- Key concepts
- Total Quality Management (TQM)
- Total Quality Management and Continuous Improvement
- Origin of ISO 9000



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Concepts

- What is **quality**?
Dictionary has many definitions: "Essential characteristic," "Superior," etc.
- Five ways of looking at quality definitions
 - I. **Transcendent Definition:**
"Quality is neither mind nor matter, but a third entity independent of the two...even through Quality cannot be defined, you know what it is."
 - II. **Product-Based Definition:**
"Quality refers to the amounts of the unpriced attributes contained in each unit of the priced attribute."

Concepts

III. User-Based Definition:

"Quality is fitness for use." (J.M. Juran, ed., Quality Control Handbook, p2).

IV. Manufacturing-Based Definition:

"Quality [means] conformance to requirements."
"Quality is the degree to which a specific product conforms to a design or specification."

V. Value-Based Definition:

"Quality means best for certain customer conditions. These conditions are (a) the actual use and (b) the selling price of the product."

Concepts

- How is **customer satisfaction** achieved?
 - **Product features** – Refers to *quality of design*.

Examples in manufacturing industry:

Performance, Reliability, Durability, Ease of use, Esthetics etc.

Examples in service industry: Accuracy, Timeliness, Friendliness and courtesy, Knowledge of server etc.

- **Freedom from deficiencies** – Refers to *quality of conformance*.

Higher conformance means fewer complaints and increased customer satisfaction. (This is related to free from defects.)

Why Quality?

Reasons for quality becoming a cardinal priority for most organizations:

- **Competition** – Today's market demand high quality products at low cost. Having 'high quality' reputation is not enough! Internal cost of maintaining the reputation should be less.
- **Changing customer** – The new customer is not only commanding priority based on volume but is more demanding about the "quality system."
- **Changing product mix** – The shift from low volume, high price to high volume, low price have resulted in a need to reduce the internal cost of poor quality.

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Why Quality?

- **Product complexity** – As systems have become more complex, the reliability requirements for suppliers of components have become more stringent.
- **Higher levels of customer satisfaction** – Higher customers expectations are getting spawned by increasing competition.

Relatively simpler approaches to quality viz. product inspection for quality control and incorporation of internal cost of poor quality into the selling price, might not work for today's complex market environment.

Quality perspectives

Everyone defines Quality based on their own perspective of it. Typical responses about the definition of quality would include:

1. Perfection
2. Consistency
3. Eliminating waste
4. Speed of delivery
5. Compliance with policies and procedures
6. Doing it right the first time
7. Delighting or pleasing customers
8. Total customer satisfaction and service.



What does **Total Quality Management (TQM)** mean?

- **Total:** The responsibility for achieving Quality rests with everyone a business no matter what their function. It recognizes the necessity to develop processes across the business, that together lead to the reliable delivery of exact, agreed customer requirements. This will achieve the most competitive cost position and a higher return on investment.

What does **Total Quality Management (TQM)** mean?

- **Quality:** The prime task of any business is to understand the needs of the customer, then deliver the product or service at the agreed time, place and price, on every occasion. This will retain current customers, assist in acquiring new ones and lead to a subsequent increase in market share.

What does **Total Quality Management (TQM)** mean?

- **Management:** Top management lead the drive to achieve quality for customers, by communicating the business vision and values to all employees; ensuring the right business processes are in place; introducing and maintaining a continuous improvement culture.

What does **Total Quality Management (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.

What is the goal of TQM?



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Another way to put it?

At it's simplest, TQM is all managers leading and facilitating all contributors in everyone's two main objectives:

- 1) **total client satisfaction** through quality products and services; and
- 2) **continuous improvements** to *processes, systems, people, suppliers, partners, products, and services.*

Productivity and TQM

- Traditional view:
 - Quality cannot be improved without significant losses in productivity.
- TQM view:
 - Improved quality leads to improved productivity.

Basic Tenets of TQM

- 1) The customer makes the ultimate determination of quality.
- 2) Top Management must provide leadership and support for all quality initiatives.
- 3) Preventing variability is the key to producing high quality.
- 4) Quality goals are a moving target, thereby requiring a commitment toward continuous improvement.
- 5) Improving quality requires the establishment of effective metrics. We must speak with data and facts not just opinions.

The three aspects of TQM

Counting

Tools, techniques, and training in their use for analyzing, understanding, and solving quality problems

Customers

Quality for the customer as a driving force and central concern.

Culture

Shared values and beliefs, expressed by leaders, that define and support quality.



Total Quality Management and Continuous Improvement

- TQM is the management process used to make continuous improvements to all functions.
- TQM represents an ongoing, continuous commitment to improvement.
- The foundation of total quality is a management philosophy that supports meeting customer requirements through continuous improvement.

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

Continues Improvements

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

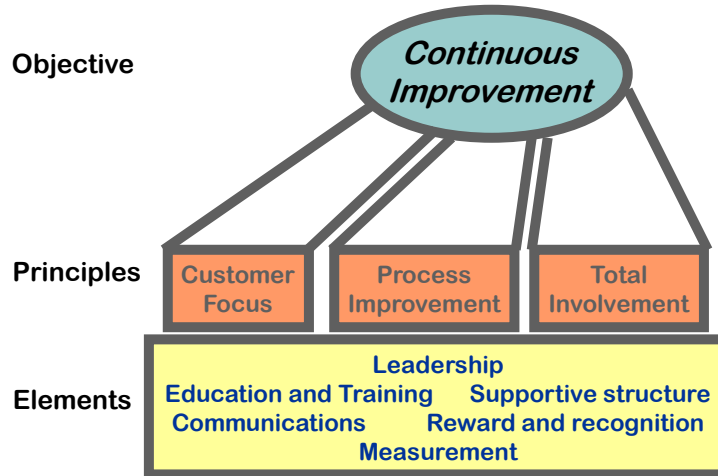
Quality Throughout

- "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."

Value-based Approach

- Manufacturing Dimensions
 - Performance
 - Features
 - Reliability
 - Conformance
 - Durability
 - Serviceability
 - Aesthetics
 - Perceived quality
- Service Dimensions
 - Reliability
 - Responsiveness
 - Assurance
 - Empathy
 - Tangibles

The TQM System



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Origin of ISO 9000

- ISO the world wide federation developed to harmonize national and international standards.
- Developed by American National Standards Institute (ANSI) and American Society for Quality (ASQ) in 1987 after 35 years

ISO 9000 – International Standard

ISO 9000 – International Standard is a family of standards and guidelines, that sets the requirements, for the **assurance of quality** and **management's involvement** in an organization. To ensure **products** and **services** are consistent with their intended purpose.

- Achieve customer satisfaction,
- Continual improvement of performance and competitiveness,
- Continual improvement of processes, products and services,
- Comply with regulatory requirements.

ISO 9000 – International Standard

- ◉ How ISO 9000 is applied
 - Not required by government, up to management to follow
 - May require suppliers to be compliant to standards
 - Apply QMS to the operation
 - Continually assess the effectiveness
 - Make changes for improvement
 - Conduct audits
 - Submit to third party audits
 - Submit to a new registration every 3 years

ISO 9000 – International Standard

- Authority of registration
 - Awarded by a registrar or certification bodies
 - Accredited by accreditations bodies
 - International Accreditation Forum (IAF)
 - IAF takes authority from Article 6 of the WTO's 1994 Agreement on Technical Barriers to Trade

ISO 9000 – International Standard

- ◉ Organizational Registration steps:
 - ◉ Develop a quality manual that gives assurance of quality products and services
 - ◉ Document procedures of how everything will be operated
 - ◉ Secure top management's commitment to the QMS and continual improvement
 - ◉ Customer requirements determined and met
 - ◉ If registering they must hire an accredited registrar
 - ◉ Conduct its own internal audits
 - ◉ External audits from accredited registrar

ISO 9000 – International Standard

- Organizational Benefits
 - Provides confidence to the customer and the organization that it can provide products and services consistently
 - Cost risk-management
 - Improved competitiveness



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ISO 9000 – International Standard

- Customer Benefits
 - Meet requirements
 - Competitive prices
 - Increased confidence in products
- Expectation of quality



Comparative Scope of ISO 9000 and Total Quality Management

- ISO 9000 and TQM not interchangeable
- ISO 9000 is compatible with , and is viewed as a subset of TQM
- ISO 9000 can be implemented in a non-TQM environment
- ISO 9000 can improve operations of traditional environment
- ISO 9000 may be redundant in a mature TQM system
- ISO 9000 and TQM are not in competition

Management Motivation for Registration to ISO 9000

- Merely to obtain marketing advantage – inappropriate
- Appropriate for adopting ISO 9000
 - To improve operations by implementing a QMS
 - To create/improve a QMS that is recognized by the customers
 - To improve product and service quality and consistency
 - To improve customer satisfaction
 - To improve competitive posture
 - To conform to major customer requirements

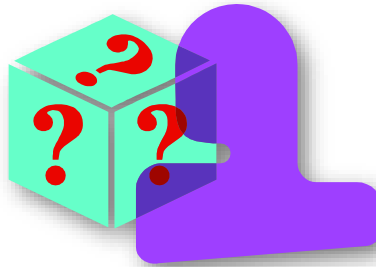
ISO and Total Quality Management Working Together

- TQM requires everything required by ISO 9000 registration
- No international certification for TQM but may seek ISO 9000 certification to meet customer demands
- ISO 9001 registration can be a good first step to TQM
- A organization that has documented processes and is involved in total quality management should find it easy to prepare for ISO 9000 certification
- Likewise an organization registered under ISO 9001 will have a head start in implementing total quality

Summary

- **TQM** is the **management process** used to make **continuous improvements** to all functions.
- The foundation of total quality is a management philosophy that **supports meeting customer requirements** through continuous improvement.
- The aim of **ISO 9000** is to enable organizations to **better serve their customers** and be **more competitive in the marketplace** by adhering to quality management principles

Questions?



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Reading

1. Quality Management for Organizational Excellence – Introduction to Total Quality –
D.Groetsch, S. Davis, 7th Edition, 2014

- Chapter 1. The Total Quality Approach to Quality Management: Achieving organizational excellence.
- Chapter 14. ISO 9000 and total quality: The relationship



References

1. Quality Management for Organizational Excellence – Introduction to Total Quality – D.Groetsch, S. Davis, 7th Edition, 2014
2. Total Quality Management by L.Suganthi and Anand A.Samuel, 2nd edition, 2005.
3. Total Quality Management by R.S Nagarajan, A.A.Arivalangar, new age international publishers, 1st edition, 2009.

