



MANAGEMENT OF QUALITY

Reference Text

- Chapter 9: Management of Quality
 - William Stevenson, ***Operations Management*** — 13th ed., McGraw Hill Education, NY

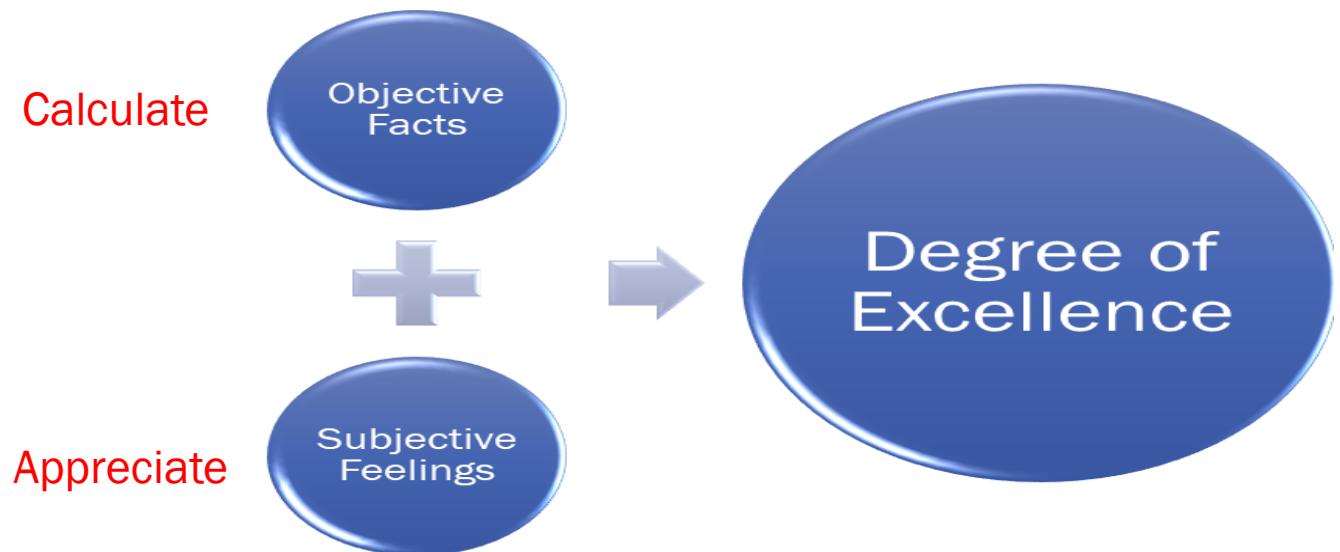
Understanding Quality

- Perfection
- Satisfaction
- Reliable
- Speed of delivery
- Consistency
- Usability
- Durability
- Distinctive characteristics
- Brand Image
- Cost
- Etc.

Quality means “**fitness for use;**” -- Joseph Juran,

Quality means “**conformance to requirements**” -- Philip Crosby

“Degree to which a set of inherent characteristics fulfils requirements -- ISO 9000



Quality Perspectives

Manufacturer's Perspective

The product should meet its specifications

Customer's Perspective

The product should meet or exceed the customer's expectations

Why quality is important ?

■ Demanding customers

- *Looking for more than just satisfaction*
- *More knowledgeable*
- *Risk of negative reviews*
- *Liability*

■ Business advantages

- *High Customer Loyalty*
- *Positive Recommendation*
- *High Social Reputation*
- *Lower Marketing Cost*
- *Competitive advantage*
- *Quality is a source of differentiation*

Modern Quality Management Gurus

GURUS	Key Contributions
Walter Shewhart	Control Charts, Shewhart Cycle
W. Edwards Deming	Causes of Variation - special cause vs common causes; 14 Points in Quality Management
Joseph M. Juran	Quality Trilogy, Application of Pareto Principles
Philip Crosby	'Do it right the first time'; zero defects, 'quality is free'
Genichi Taguchi	Loss function
Kaoru Ishikawa	Cause-and-effect diagrams
Ohno and Shingo	Continuous improvement

Dimensions of Quality

Product Quality

- Performance (e.g., Long battery life, HD pictures, should not heat up, etc.)
- Aesthetics (e.g., design)
- Features (e.g., additional functions, GPS, compass, Apps, etc.)
- Conformance (e.g., adequate storage space, etc.)
- Reliability (e.g., no sudden reboots/shut down, less numbers of repair etc.)
- Durability (e.g., it should last for x years without any loss of performance)
- Perceived Quality or Reputation (e.g., brand, purchased by many, etc.)
- Serviceability (e.g., easy to repair)
- Consistency (quality claims doesn't vary from product to product)

Dimensions of Quality

Service Quality

- **Tangibles**—the physical appearance of facilities, equipment, personnel, and communication
- **Convenience**—availability and accessibility
- **Reliability**—the ability to perform a service dependably, consistently, and accurately
- **Responsiveness**—the willingness of service providers to help customers in unusual situations
- **Time**—the speed with which service is delivered
- **Assurance**—the knowledge exhibited by personnel who come into contact with a customer and their ability to convey trust and confidence
- **Empathy**—the way customers are treated by employees who come into contact with them
- **Consistency**—the ability to provide the same level of good quality repeatedly
- **Expectations**—meet (or exceed) customer expectations

Cost of Quality

- **Appraisal costs:** Cost of inspection & testing of defective units.
 - *cost of inspectors, testing, test equipment, labs, quality audits, and field testing.*
- **Prevention costs :** Cost of running quality improvement programs
- **Failure costs:**
 - ***Internal failures :** Occur **during the production process**; costs include rework costs, problem solving, material and product losses, scrap, and downtime*
 - ***External failures:** Occur **after delivery**; costs include cost of returned goods, warranty costs, loss of goodwill, liability claims and penalties.*