

## Continuous Quality Improvement

Hyoungkwan Kim

Based on  
Aikens C.H. (2006). *Quality: A Corporate Force  
Managing for Excellence*

## Preface

- Quality?
  - Statistical tools
  - Team-based approach
  - Requirements
  - Standards
  - Tools and Techniques
  - VALUES & ATTITUDES
- TQM, Shewhart, Deming, Juran, Crosby, Ishikawa, Lean, Six Sigma, and QIM

## Ch.1 Quality Fundamentals

- Quality is never an accident – Willa A. Foster
- Koolewong Vineyards
  - Privately owned winery (1,5000 hectares)
  - Establishing a reputation for Shiraz
  - Destemming, fermentation, etc.
  - Striving to become a leader
  - Soil, pH level, alcohol, etc., however to customers?
  - Slogan, "Experience life, savor the moment"
  - What would you do to achieve the objective?

## Objectives and Key Outcomes

- Recognize the power of quality
- Quality from numerous perspectives
- Quality as a function vs. as a core value
- Your own working definition of quality
- History of quality
- Quality gurus

## Quality?

- QA, TQC, CDQ, CPI, ZD, TQM, and Six Sigma  
-> Centricity of quality as a corporate value
- Quality as a technical discipline of measurements, controls, mechanical processes, and probability theory
- On the management side, creating a culture, understanding their markets and capabilities
- QIM (quality-inspired management)
  - Corporate culture
  - Knowledge-driven leadership

## Quality? (Cont'd)

- Around 40 BC, a Roman engineer defined three dimensions of quality
  - Utilitas (commodity): how well a product fulfills its intended function (ex. The U.S. pavilion at the 1982 Knoxville World' Fair)
  - Firmitas (firmness): structural integrity of a building
  - Venustas (delight): a building's aesthetics ?
- Subjective perception overrules objective reality.

### Moment of Truth and Spontaneous Value Judgments

- Moment of truth: Any time a customer has a direct encounter with an employee, quality can be made or broken – CEO of SAS
- SAS case -> Empowerment
- Value Judgment: to what degree benefit exceeds sacrifice?

### Dynamic Quality Factors

- Principle of Neutral Awareness
  - Static quality factors
  - Dynamic quality factors
- In your case, define static and dynamic quality factors

### Four Dimensions of Quality

- Physical Product
- Service Product
- Service Environment
- Service Delivery
- After reading the following table, think about construction service with the 4D service quality

Table 1-1

### Big Q vs. Little q

Table 1-2

### The Value Stream and Its Customers

- Value Stream is a network of producer/customer subsystems linked together through technological process and material dependencies
- Internal customer
- External customer

## A Working Definition of Quality

- Quality is a gap measure that simultaneously considers two dimensions:
  - Gap 1: The difference between a consumer's expectations and perception of actual results
  - Gap 2: The difference between a consumer's perceived benefit and sacrifices
- These comparisons form the basis for making personal judgments as to whether an experience is worth repeating

## Quality through the Ages

- Craft system
  - Throughout the Middle Ages
  - Guild
  - Apprentice
  - Master
  - Pride
- Walter A. Shewhart
  - A physicist at Bell Telephone Laboratories
  - Statistical methods (control chart, 1931) -> QC
- Harold F. Dodge and Harry Romig
  - Shewhart's colleagues
  - Statistical methods for acceptance sampling (1940)

## Quality through the Ages (Cont'd)

- Ralph Wareham
  - Pioneered QC at GE
  - Article that bolstered QC as a profession (1949)
- American Society of Quality Control (ASQC) was formed in 1942
- W. Edwards Deming
  - A physicist-turned-statistician
  - Protégé of Shewhart
  - Helped the Japanese with postwar reconstruction (1950s)
  - Management principle and system
  - "Problems are the fault of management and are not the workers' responsibility"
  - The 14 points

## Deming's 14 Points

1. Create constancy of purpose
2. Adopt the new philosophy
3. Cease dependence on mass inspection
4. End the practice of awarding business on the basis of price tag alone
5. Continually improve systems
6. Institute modern methods of training
7. Institute leadership
8. Drive out fear
9. Break down barriers among departments
10. Eliminate numerical goals, targets, and slogans
11. Eliminate work standard and management by objectives (MBO)
12. Remove barriers that take away pride
13. Institute a vigorous program of education and self-improvement
14. Put everyone to work on the transformation

## Quality through the Ages (Cont'd)

- Joe Juran
  - A contemporary of Deming and a mechanical engineer
  - Actively involved with the Japanese
  - Quality is fitness for use -> Customer-driven
  - Unlike Deming, emphasis on top-down management and technical method rather than pride and satisfaction of employees
- Armand Feigenbaum
  - Pioneered the idea of total quality management
  - His book *Total quality control* (1951)

## Quality through the Ages (Cont'd)

- Philip Crosby
  - *Quality is Free: The Art of Making Quality Certain* (1979)
  - "Cost of (poor) quality"
  - Zero defects does not originate on the assembly line
  - ZD foreshadowed the Six Sigma
- Kaoru Ishikawa
  - Credited with creating a version of TQM for Japan (1980s)
  - Quality circles as the vehicle to draw on the talents and expertise
  - Top-down and bottom up both
  - Cause and effect diagram
- Masaaki Imai
  - *Kaizen: The Key to Japan's Competitive Success* (1986)

## Quality in the Modern Era

- First Generation (Pre-1980)
  - Focus on measurement, control, and detection
  - Inspection of output rather than on process
  - Frontline workers to be blamed
  - Incentives and control believed to improve quality
  - Japanese automobile industry's success
  - "If you continue to do what you've always done, you will continue to get what you've always gotten."
  - 1980, NBC, "If Japan Can, Why Can't We?"

## Quality in the Modern Era (Cont'd)

- Second Generation (Post-1980) (Cont'd)
  - Quality becoming a top management priority
  - Industry leaders beginning to understand that the root causes for poor quality were largely systemic
  - Notion that the problem is management
  - Control to self-management
  - Detection to prevention
  - Quality is a journey, not a destination
  - Bill Smith (engineer, Motorola), coined the term "Six Sigma"
    - Mikel Harry and Richard Schroeder produced a TQM spin-off philosophy – an integrated change management and data driven culture that won Motorola the Malcolm Baldrige National Quality Award (1988)
  - By the mid- to late 1990s, despite TQM efforts, many corporations had downturns in performance

## Quality in the Modern Era (Cont'd)

- Third Generation
  - Effort to be differentiated from the existing quality management theory
  - Six Sigma
  - Lean
  - Quality is not seen as a means to an end, but as a contributor to a strategic commitment to create sustained customer value

## The World Scene (March, 2009)

- World wide economic recession
  - Lehman Brothers filed for chapter 11 bankruptcy protection (Sep. 15, 2008)
    - 158 years old
    - 2007 Revenue: US \$59 billion
  - General Motors' own auditors stated that they are doubtful that GM will survive
    - 100 years old
    - 2008 Revenue: US \$149 billion
  - American International Group already received US \$150 billion from the US government, to no avail.
    - 90 years old
    - 2008 Revenue: US \$110 billion
  - Dow Jones Industrial Average hit 6,626 on Mar. 6, 2009
    - The Dow Jones Industrial Average was 14,164 on Oct. 9, 2007

## Human Relations

- Reengineering and TQM are not enough
- The spotlight should be on labor
- High-performance work practices
- Quality of working life
- Employment involvement
- High involvement organization
- Quality depends on the ability to build consensus and create relationships built on trust and respect -> requires a knowledge of systems

## Summary

- The power of quality
- Quality from numerous perspectives
- Q vs. q
- Your own working definition of quality
- History of quality
- Quality gurus