



Management of Quality

What does the term quality mean?

- Quality is the ability of a product or service to consistently meet or exceed customer expectations.
- Prior to 1980s, in North America, the focus was on: quantity, cost, productivity
- It was not that quality was unimportant, it just was not very important

B. Evolution of Quality Management

- Craftsmanship: quality control was the responsibility of each craftsman.
- Division of labour: quality control shifted to full time quality inspectors
- Taylor: father of scientific management
- Shewhart: introduced statistical process control charts
- After the Second World War: American Society for Quality (ASQ)
- 1950s: quality assurance
 - Joseph Juran: cost of quality approach
 - Armand Feigenbaum: total quality control (more management involvement)
- 1960s: zero defects
- 1980s: strategic management approach to quality

- Today: TQM, Six Sigma, Black Belts

C. Quality: The Basics

1. Dimensions of Quality
2. Determinants of Quality
3. Consequences of Poor Quality
4. Costs of Quality

C1. Dimensions of Quality

- Product quality
- Performance, Aesthetics, Special Features, Safety, Reliability, Durability, Perceived quality, Service after Sale
- Service quality
- Tangibles, Convenience, Reliability, Responsiveness Time Assurance Courtesy

C1. Examples of Quality Dimensions for Products: Car

Dimension	Example
1. Performance	Everything works; ride handling, leg room
2. Aesthetics	Interior design, soft touch, fit and finish, grade of material used
3. Special features Convenience High tech	Placement of gauges and controls GPS, DVD player
4. Safety	Antilock brakes, airbags
5. Reliability	Infrequency of breakdowns
6. Durability	Long life, resistance to rust and corrosion
7. Perceived quality	Top rated car, e.g. Cadillac
8. Service after sale	Warranties, handling of complaints, maintenance

C1. Examples of Quality Dimensions for Services: Car Repair

Dimension	Example
1. Tangibles	Were the facilities clean? Were personnel neat?
2. Convenience	Was the service centre conveniently located?
3. Reliability	Was the problem fixed?
4. Responsiveness	Were customer service personnel willing and able to answer the questions?
5. Time	How long did the customer have to wait?
6. Assurance	Did the customer service personnel seem knowledgeable about the repair?
7. Courtesy	Were customer service personnel and the cashier friendly and courteous?

C2. Determinants of Quality

- Design

- Quality of Design: Characteristics designers specify for a product or service

- Conformity

- Quality of Conformance: The degree to which goods or services conform to the specifications of the designers

- Ease of use

Good instructions and labels

- • Service after delivery

- Recall, repair, replacement, refund

C3. The Consequences of Poor Quality

A recent study showed that, while a satisfied customer will tell a few people about his or her experience, a dissatisfied person will tell an average of 19 others

- Loss of business

- Liability

- Productivity
- Costs

Costs of Quality

- A failure to satisfy a customer is considered a defect
- Prevention costs
- Appraisal costs
- Internal failure costs
- External failure costs
- Ethics and quality

C4. Costs of Quality

- Internal Failure Costs
 - Costs incurred to fix problems that are detected before the product/service is delivered to the customer.
- External Failure Costs
 - All costs incurred to fix problems that are detected after the product/service is delivered to the customer.
- Appraisal Costs
 - All product and/or service inspection costs.
- Prevention Costs
 - All TQ training, TQ planning, customer assessment, process control, and quality improvement costs to prevent defects from occurring

D. Quality Gurus

Contributor

Deming

Known for

14 points; special & common causes of

variation

Juran

Feigenbaum

Crosby

a ato

Quality is fitness for use; quality trilogy

(planning, control, improvement)

Quality is a total field; the customer defines

quality (GE)

Q lit i f d f t(ti)

Ishikawa

Taguchi

Quality is free; zero defects (prevention)

Cause-and effect diagrams; quality circles;

internal customer (Lotek)

Taguchi loss function

Quality Engineering

- Quality engineering is an approach originated by Genichi Taguchi that involves combining engineering and statistical methods to reduce costs and improve quality by optimizing product design and manufacturing processes.
- The quality loss function is based on the concept that a service or product that barely conforms to the specifications is more like a defective service or product than a perfect one.