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# Quality

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In the vernacular, **quality** can mean a high degree of excellence (“a quality product”), a degree of excellence or the lack of it (“work of average quality”), or a property of something (“the addictive quality of alcohol”).<sup>[1]</sup> Distinct from the vernacular, the subject of this article is the business interpretation of quality.

## Contents

- 1 Variations of a business definition
- 2 Improvement of quality
- 3 Market sector perspectives
- 4 Citations and notes
- 5 References
- 6 See also
- 7 Finding related topics

## Variations of a business definition

Business has tried to define quality in a producer-consumer context, with the following variations:

1. ISO 9000: "Degree to which a set of inherent characteristic fulfills requirements."<sup>[2]</sup> The standard defines *requirement* as need or expectation.
2. Six Sigma: "Number of defects per million opportunities."<sup>[3]</sup> The metric is tied in with a methodology and a management system.
3. Philip B. Crosby: "Conformance to requirements."<sup>[4][5]</sup> The difficulty with this is that the requirements may not fully represent customer expectations; Crosby treats this as a separate problem.
4. Joseph M. Juran: "Fitness for use."<sup>[5]</sup> Fitness is defined by the customer.
5. Noriaki Kano and others, presenting a two-dimensional model of quality: "must-be quality" and "attractive quality."<sup>[6]</sup> The former is near to the "fitness for use" and the latter is what the customer would love, but has not yet thought about. Supporters characterize this model more succinctly as: "Products and services that meet or exceed customers' expectations."
6. Robert Pirsig: "The result of care."<sup>[7]</sup>
7. Genichi Taguchi, with two definitions:
  - a. "Uniformity around a target value."<sup>[8]</sup> The idea is to lower the standard deviation in outcomes, and to keep the range of outcomes to a certain number of standard deviations, with rare exceptions.
  - b. "The loss a product imposes on society after it is shipped."<sup>[9]</sup> This definition of quality is based on a more comprehensive view of the production system.
8. American Society for Quality: "a subjective term for which each person has his or her own definition. In technical usage, quality can have two meanings:
  - a. the characteristics of a product or service that bear on its ability to satisfy stated or implied needs;
  - b. a product or service free of deficiencies."<sup>[5]</sup>
9. Peter Drucker: "Quality in a product or service is not what the supplier puts in. It is what the customer gets out and is willing to pay for."<sup>[10]</sup>

The common element of the business definitions is that the quality of a product or service refers to the perception of the degree to which the product or service meets the customer's expectations. Quality has no specific meaning unless related

to a specific function and/or object. Quality is a perceptual, conditional and somewhat subjective attribute.

## Improvement of quality

Many techniques and concepts, often overlapping, have evolved to improve product or service quality, including:

- statistical process control (SPC)
- Zero Defects
- Six Sigma
- Malcolm Baldrige National Quality Award
- quality circles
- requirements analysis
- total quality management (TQM)
- theory of constraints (TOC)
- quality management systems
- business process management (BPM)
- capability maturity models
- verification and validation
- business process reengineering
- life cycle management
- standardization (ISO 9000 and others)
- continuous improvement.

W. Edwards Deming, concentrating on "the efficient production of the quality that the market expects,"<sup>[11]</sup> linked quality and management: "Costs go down and productivity goes up as improvement of quality is accomplished by better management of design, engineering, testing and by improvement of processes."<sup>[12]</sup>

## Market sector perspectives

In the manufacturing industry it is commonly stated that "Quality drives productivity." Improved productivity is a source of greater revenues, employment opportunities and technological advances. However, this has not been the case historically, and in the early 19th century it was recognised that some markets, such as those in Asia, preferred cheaper products to those of quality.<sup>[13]</sup> Most discussions of quality refer to a finished part, wherever it is in the process. Inspection, which is what quality insurance usually means, is historical, since the work is done. The best way to think about quality is in process control. If the process is under control, inspection is not necessary.

However, there is one characteristic of modern quality that is universal. In the past, when we tried to improve quality, typically defined as producing fewer defective parts, we did so at the expense of increased cost, increased task time, longer cycle time, etc. We could not get fewer defective parts and lower cost and shorter cycle times, and so on. However, when modern quality techniques are applied correctly to business, engineering, manufacturing or assembly processes, all aspects of quality - customer satisfaction *and* fewer defects/errors *and* cycle time *and* task time/productivity *and* total cost, etc.- must all improve or, if one of these aspects does not improve, it must at least stay stable and not decline. So modern quality has the characteristic that it creates AND-based benefits, not OR-based benefits.

The most progressive view of quality is that it is defined entirely by the customer or end user and is based upon that person's evaluation of his or her entire customer experience. The customer experience is the aggregate of all the touch points that customers have with the company's product and services, and is by definition a combination of these. For example, any time one buys a product one forms an impression based on how it was sold, how it was delivered, how it performed, how well it was supported etc.

## Citations and notes

- <sup>1</sup> ^ The third meaning echoes Aristotle, who defined quality as that by virtue of which a thing is such and such. Cited by: Reese, William L. (1996). *Dictionary of Philosophy and Religion*. Prometheus Books. ISBN 9781573926218.
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- <sup>4</sup> ^ Crosby, Philip (1979). *Quality is Free*. New York: McGraw-Hill. ISBN 0070145121.
- <sup>5</sup> ^ <sup>a</sup> <sup>b</sup> <sup>c</sup> American Society for Quality, *Glossary - Entry: Quality*, <http://www.asq.org/glossary/q.html>. Retrieved on 20 July 2008
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  12. ^ Walton, Mary; W. Edwards Deming (1988). *The Deming management method*. Perigee, 88. ISBN 0399550003.
  13. ^ p.169, Rochfort Scott, Hamerton

## References

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- Rochfort Scott, Charles & Hamerton, Robert Jacob, *Rambles in Egypt and Candia: With Details of the Military Power and Resources of Those Countries, and Observations on the Government, Policy, and Commercial System of Mohammed Ali*, Volume I, H. Colburn, London, 1837

## See also

- |                          |                      |                            |
|--------------------------|----------------------|----------------------------|
| ■ ISO 9000               | ■ Quality Management | ■ Theory of Constraints    |
| ■ Metaphysics of Quality | ■ Quality of Life    | ■ Total Quality Management |
| ■ Qualitative            | ■ Six Sigma          | ■ Video quality            |
| ■ Quality control        | ■ Software quality   | ■ W. Edwards Deming        |
| ■ Quality investing      |                      |                            |

## Finding related topics

- List of economics topics
- List of information technology management topics
- List of production topics

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