

The word itself has varying definitions:

- In technical usage:
 - (1) the characteristics of a product or service that bear on its ability to satisfy stated or implied needs
 - (2) a product or service free of deficiencies
- The degree to which a set of inherent characteristics fulfills requirements
- Conformance to requirements
- Fitness for use
- Meeting customer expectations
- Exceeding customer expectations
- Superiority to competitors
- “I’ll know it when I see it”

In addition to these various meanings, quality may also be viewed from several dimensions:

- Characteristics such as reliability, maintainability, and availability
- Drivers of quality, such as standards
- Quality of design versus quality of conformance
- Quality planning, control, and improvement

The two quality management system models most frequently used by quality professionals today are the ISO 9000 family of quality management system standards and Lean-Six Sigma. These quality models provide an insight into the components of a quality management system and define quality as it is

practiced today. See “Quality Models and Systems” for further information.

Quality is critical for an organization’s long-term sustainability, the individuals employed by the organization, and society as a whole. If that sounds unrealistic or naive, visit the ASQ Knowledge Center (<http://www.asq.org/knowledge-center>) where for free you can read hundreds of case studies proving that these principles work (when done correctly!) and describing how they continue to grow and evolve in their implementation worldwide. This guide also highlights various case studies and/or articles where you can see quality and its tools applied effectively in real-world situations.

HISTORY OF QUALITY

Although the history of quality goes back to ancient times, the modern quality movement had its beginning in the 1920s. It began when Walter Shewhart of Bell Laboratories developed a system known as statistical process control (SPC) for measuring variance in manufacturing production systems. SPC is still used today to monitor consistency and diagnose problems in processes.

Shewhart also created the Plan-Do-Check-Act (PDCA) cycle, which applies a systematic approach to improving work processes. When the PDCA cycle is applied consistently, it results in continuous process improvement. Dr. W. Edwards Deming later referred to this as the Plan-Do-Study-Act improvement cycle.

During World War II, the U.S. War Department hired Deming, a physicist and U.S. Census Bureau researcher,