

Summary of Key Points and Terminology– Module 3

- W. Edwards Deming, Joseph Juran, and Philip Crosby are recognized as the top three international leaders of modern quality thinking. A. V. Feigenbaum, Kaoru Ishikawa, and Genichi Taguchi have also made significant contributions to modern quality management practices.
- Deming’s philosophy is based on improving products and services by reducing uncertainty and variation in design, manufacturing, and service processes, driven by the leadership of top management. The Deming Chain Reaction suggests that quality improvement leads to long term business and economic prosperity.
- Systems thinking, statistical understanding of variation, the theory of knowledge, and psychology are the foundation of his philosophy. Deming advocated a radical cultural change in organizations, which is embodied in his 14 Points. Although somewhat dated and a reaction to the old style of management prevalent in the early-to-mid 20th century, the 14 Points still have considerable relevance today.
- Systems thinking provides the basis for understand the interactions among business functions and departments, and for managing people. Every system (e.g., business organization) should have a purpose, and the system should be optimized toward achieving that purpose.
- Variation is natural in any system or process, but excessive variation results in product failures and inconsistent service that fails to meet customer expectations. Statistical methods provide the tools for understanding and dealing with variation.
- The theory of knowledge suggests that managers need to understand why things work and why decisions that impact the future should be effective. This forms the basis for modern concepts of organizational learning for improving organizations and management practices.
- Psychology is important to understand people and their behavior within organizations, and to focus on appropriate methods of motivation and design of the work environment.
- Joseph Juran’s philosophy seeks to provide change within the current American management system. Quality is defined as fitness for use. The Quality Trilogy—

planning, control, and improvement—provides a direction for quality assurance in organizations.

- Philip Crosby's approach to quality is summarized in his *Absolutes of Quality Management and Basic Elements of Improvement*. He places more emphasis on behavioral change rather than on the use of statistical techniques as advocated by Deming and Juran.
- A. V. Feigenbaum views quality as a strategic business tool and coined the phrase "total quality control." He promoted the importance of shifting quality responsibility to everyone in an organization and developing cost of quality approaches.
- Kaoru Ishikawa was instrumental in the Japanese quality movement, particularly in advocating a company-wide quality control approach, the use of employee teams, and the use of problem-solving tools for quality improvement.
- Genichi Taguchi explained the economic value of reducing variation around a target value in production and proposed new engineering approaches for product design focused on quality improvement.
- Managers need to understand the differences and similarities in the leading quality philosophies and develop or adopt a quality management approach tailored to their organizations. Many of the philosophical concepts underlying Deming, Juran, Crosby and other quality leaders are embodied in the Baldrige Criteria, ISO 9000, and Six Sigma.
- The Malcolm Baldrige National Quality Award recognizes U.S. companies that excel in quality management practices and business results that achieve the highest levels of customer satisfaction. The Baldrige Award criteria define key practices in categories of leadership; customer and market focus; strategic planning; human resource focus; measurement, analysis and knowledge management; process management; and business results. The Baldrige Award has generated a phenomenal amount of interest, and many companies use its criteria as a basis for internal assessment of their quality systems. Many state and international award programs are patterned after or are similar to the Baldrige Award, such as the

European Quality Award, Canadian Awards for Business Excellence, and the Australian Business Excellence Award.

- The Deming Prize was established in 1951 to recognize companies that have achieved distinction through the application of company-wide quality control approaches, supported by statistical methods and continuous improvement efforts.
- **ISO 9000:2000** defines quality system standards, based on the premise that certain generic characteristics of management practices can be standardized, and that a well-designed, well-implemented, and carefully managed quality system provides confidence that the outputs will meet customer expectations and requirements. The eight principles that underlie the 2000 revision of the standards aligns the standards closer to the spirit of Baldrige and other international quality award frameworks that focus on performance excellence.
- **Six Sigma** is a business improvement approach that focuses on outputs that are critical to customers and a clear financial return to the organization. Although it was developed in the 1980's at Motorola, it has come into prominence and extensive use in many organizations because of its successful implementation at General Electric and its appeal to senior managers as a means of achieving key strategic objectives.
- **Defects per million opportunities (dpmo)** is a standard metric used in Six Sigma improvement projects. Six sigma capability is equivalent to at most 3.4 dpmo in a process.
- Six Sigma is a quality system framework that integrates human and process elements of improvement, and in many ways, reflects the spirit of "total quality management." Six Sigma complements the Baldrige philosophy and ISO performance standards, and can provide a vehicle for implementation of an organization-wide quality process.