

## Summary of Key Points and Terminology – Module 8

- **Measurement** is the act of quantifying the performance dimensions of products, services, processes, and other business activities. **Measures and indicators** refer to the numerical information that results from measurement. Organizations need performance measures to drive strategies and organizational change, to manage resources, and to operate processes effectively and continuously improve.
- **Data** are simply representations of facts that come from some type of measurement process. **Information** is data in context of a business or organization. Data and information support control, diagnosis, and planning at the three levels of quality. Benefits include better knowledge of product and service quality, worker feedback, a basis for reward and recognition, means of assessing progress, and reduced costs through better planning.
- Leading practices for information management include developing a set of performance indicators that reflect customer requirements and key business drivers, using comparative information and data to improve performance, refining information sources and uses, using sound analytical methods that support strategic planning and daily decision making, involving everyone in measurement activities and ensuring that information is widely visible throughout the organization, ensuring that data are accurate, reliable, timely, secure and confidential, ensuring that hardware and software systems are reliable and user-friendly, and provide access to all who need them, and systematically managing organizational knowledge through identification and sharing of best practices.
- The **balanced scorecard** consists of four perspectives: financial, internal, customer, and innovation and learning perspectives. A good balanced scorecard contains both **leading** and **lagging measures** and links them through logical cause-and-effect relationships.
- The Baldrige criteria provides a slightly different view of a balanced scorecard, and focuses on six categories of performance measurements and indicators: customer, product and service, financial and market, human resource,

organizational effectiveness, and governance and social responsibility measures. Although many specific measures and indicators can be defined in each category, the ones an organization chooses should be tied to those factors that make it competitive in its industry.

- Comparative and benchmark data on which to evaluate performance results are needed to gain an accurate assessment of performance. Such data can be acquired through third parties and benchmarking leading organizations, such as Baldrige winners.
- Performance measures and indicators are typically used by senior leaders for high-level performance reviews, and should be aligned with an organization's vision and strategy. They should be driven by factors – called **key business drivers** or **key success factors** – that determine what is important to the success of the organization.
- Process-level measures are derived through close examination of the processes that create products and services. They should be **actionable** – providing the basis for decisions at the level at which they are applied.
- Common types of process level measurements include **nonconformities per unit**, **defects per unit**, **errors per opportunity**, and **dpmo--defects per million opportunities**. Many organizations use **dashboards**, which typically consist of a small set of measures (five or six) that provide a quick summary of process performance.
- Strategic and process measures should be aligned in order to drive strategic goals through the organization. **ERP – Enterprise Resource Planning** – systems provide an infrastructure for managing information across the enterprise.
- **Analysis** refers to an examination of facts and data to provide a basis for effective decisions. Effective analysis capabilities ensure that managers can understand the meaning of data, particularly cause and effect linkages between external lagging results and internal leading indicators. Simple or sophisticated tools may be used effectively to analyze data and provide information for managers. As one moves up the organization, information needs to be transformed and integrated into forms that are meaningful to different levels of managers. One powerful method

of analysis is **interlinking** – the quantitative modeling of cause-and-effect relationships between external and internal performance measures. **Data mining** also provides a means of understanding relationships and patterns in data.

- The **cost of quality (COQ)** is a way to translate quality problems into the language of upper management--money. Through the use of quality cost information, management identifies opportunities for quality improvement. Quality cost information also aids in budgeting and cost control and serves as a scoreboard to evaluate an organization's success.
- Quality costs generally are categorized into **prevention, appraisal, internal failure, and external failure** costs. In manufacturing, such costs are typically product-oriented, while in services they are labor dependent.
- **Activity-based costing** allocates overhead cost to the products and services that use them. This practice can capture many quality costs that traditional accounting systems are unable to capture, and provides more useful information for quality improvement.
- Some organizations measure the **return on quality (ROQ)** as a means of justifying quality expenditures and demonstrating their value to senior management. This approach requires statistical techniques to measure the effects of changes in customer satisfaction, loyalty, and other factors on profitability.
- Organizations must ensure that data are **valid** and reliable; that is, they measure what they are supposed to consistently, and that employees have access to the data they need to do their jobs. Confidentiality and security are important factors today, particularly with the increased use of electronic data transfer.
- **Knowledge assets** refers to the accumulated intellectual resources that an organization possesses. **Explicit knowledge** includes information that is stored in documents or other forms of media. **Tacit knowledge** is information that is formed around intangible factors resulting from an individual's experience, and is personal and content-specific. **Knowledge management** is the process of identifying, capturing, organizing, and using knowledge assets to create and sustain competitive advantage.

- The ability to identify and transfer best practices within the organization is sometimes called **internal benchmarking**. Internal benchmarking requires identifying and collecting internal knowledge and best practices; sharing and understanding those practices; and adapting and applying them to new situations and bringing them up to best practice performance levels.
- The Baldrige criteria address how an organization selects, gathers, analyzes, manages, and improves its data, information, and knowledge assets. ISO 9000:2000 provides a basic framework for managing data and information regarding product and process characteristics. Six Sigma emphasizes fact-based decisions, requiring measuring and reporting performance goals, and using performance indicators to control and sustain improvements.