

Six Sigma, ISO 9001 and Baldrige

Many organizations ask “How Do these programs, processes and standards support each other?” These initiatives are not mutually exclusive, in fact, understanding and applying all, some or part can greatly improve your business performance. The following is an overview of how they work together.

What is Six Sigma?

Six Sigma is a statistically-based process that strengthens organizational capacity for ongoing process improvement. “Six Sigma” or “six standards of deviation” aims to reduce defects to a rate of 3.4 defects per million defect opportunities by identifying and eliminating causes of variation in business processes. In defining defects or errors, Six Sigma focuses on developing a clear understanding of customer requirements and is therefore very customer focused.

The DMAIC Methodology. The Six Sigma process is based on a concept called DMAIC:

- **Define** – clearly identify the problem, the requirements of the project and objectives of the project
- **Measure** – to fully understand the current performance
- **Analyze** – the measurements collected to determine and validate the root cause(s)
- **Improve** – developing ideas to remove the root causes of variation and implement the solutions
- **Control** – to establish standard measures to maintain performance and to correct problems as needed

Motorola invented this approach in 1986 and it has been effectively deployed by organizations worldwide, across business operations ranging from highly industrial or high-tech manufacturing to service and financial companies. Six Sigma is not a quality management system, such as ISO 9001. Thinking that it is equivalent would be a strategic error. Instead, it is a methodology for reducing defects based on process improvement. For many companies this means that rather than focusing quality initiatives primarily on inspecting and checking products for defects, the focus shifts to prevention, by improving the production process so that defects don't occur.

Key themes in Six Sigma. Some of the key themes of Six Sigma can be summarized as follows:

- Continuous focus on the customer's requirements;
- Extensive use of measurements and statistics to identify and measure variation in the production process and other business processes;
- Identifying the root cause(s) of problems or variation;
- Emphasis on changing the process to remove variation from the production process or other business processes and therefore lower defects and improve customer satisfaction;
- Pro-active management focusing on problem prevention, continuous improvement and constant striving for perfection;
- Cross-functional collaboration within the organization; and
- Setting very high targets.

Six Sigma vs. Other Quality Systems

Six Sigma builds upon many of the successful elements of previous quality improvement strategies and incorporates unique methods of its own. Compared to other quality management and improvement systems, Six Sigma stands out as a methodology for identifying the causes of specific quality problems and solving those problems. Six Sigma can often be used to complement other quality management or improvement systems.

ISO 9001 objectives

ISO 9001 is a Quality Management System Standard. A Quality Management System is a system of clearly defined organizational structures, processes, responsibilities and resources used to assure and build on minimum standards of quality. It can be used to gauge an organization's overall quality management efforts.

An ISO 9001 certification should assure a company's customers that minimum acceptable systems, processes and procedures are in place to ensure product and service quality can be met.

ISO 9001 provides the basis for documenting the knowledge of your processes and thus serves as a fundamental training mechanism. As continual improvement is undertaken the new or revised approach is standardized through revision of your procedures and instructions.

Comparison with Six Sigma

ISO 9001 and Six Sigma serve two different purposes. ISO 9001 is a quality management system, while Six Sigma is a strategy and methodology for business performance improvement. ISO 9001, with guidelines for problem solving and decision making, requires a continual improvement process in place but does not indicate what the process should look like. Six Sigma can provide the needed improvement process. However, it does not provide a template for evaluating an organization's overall quality management efforts whereas ISO 9001 does.

Combining Six Sigma with ISO

Six Sigma provides a methodology for delivering certain quality objectives set by ISO 9001 such as:

- prevention of defects at all stages from design through servicing;
- statistical techniques required for establishing, controlling and verifying process capability and product characterization;
- investigation of the cause of defects relating to product, process and the quality system;
- continual improvement of the quality of products and services. Six Sigma supports ISO and helps an organization satisfying the ISO requirements. Further, ISO is an excellent vehicle for documenting and maintaining the process management system involving Six Sigma. Extensive training is required by both systems for successful deployment.

Baldrige Criteria for Performance Excellence

This national quality program is a Total Quality Management (TQM) structured system that aims for quality management principles to be applied broadly throughout the organization. It changes the culture of the organization because the criteria help you think and act strategically to become a high-performing, high-integrity and ethical organization. The criteria help you align resources with approaches such as ISO 9001, Lean Manufacturing and Six Sigma:

- Focus on improving performance excellence for the entire organization in an overall management framework.

- Identify and track all-important organizational results: customer, product/service, financial, human resource, and organizational effectiveness.

You will need an overall organizational approach if you are looking for guidance in how to link the product approach with such organization functions as strategic planning, customer satisfaction, and staff and supplier satisfaction.

Baldrige includes the following seven criteria:

- Leadership
- Strategic Planning
- Customer and Market Focus
- Information and Analysis
- Workforce Focus
- Process Management
- Business Results

Conclusion

Organizations agree that Baldrige, Six Sigma, and ISO 9001 are different, but can be compatible. Each may have a place in the management system of a successful organization. All certainly have a place in organizations that want to significantly raise the bar.

To ensure the overall future development and success of an organization, you need a systems approach. Where you begin often depends on what your organization needs now. Although all three are quality “measurement” systems, the Baldrige Criteria, ISO 9001:2000, and Six Sigma each offer a different emphasis in helping organizations improve performance and increase customer satisfaction.

- The *Baldrige Criteria for Performance Excellence* focuses on performance excellence for the entire organization in an overall management framework and identify and track all important organizational results: customer, product/service, financial, human resource and organizational effectiveness. The criteria pose questions to the organization that requires a consideration of how you are doing in a broad range of TQM topics but, no specific “shall” requirements are prescribed. Then the organization can be proactive and choose areas for improvement against the criteria.

- Six Sigma concentrates on measuring product quality and improving process engineering and drives process improvement and cost savings. The prescriptive methodology is an excellent statistical tool for both corrective action and continual improvement initiatives that ISO 9001 requires but does not specify the methodology.
- ISO 9001:2000 is a system for managing quality. It really serves as the foundation of your QMS, from where, you can elect to apply the TQM philosophies espoused in Baldrige and utilize the tool of Six Sigma.

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