

Six Sigma in the Supply Chain

Six Sigma companies don't have three- or four-sigma suppliers.

by Praveen Gupta

After launching a corporatwide Six Sigma initiative, leadership must consider how to get Six Sigma institutionalized in the supply chain. After implementing Six Sigma at an organization, its managers must think about continuing the improvement rate through implementing Six Sigma in its supply chain.

Motorola started implementing Six Sigma in 1987. After about 18 months, the company recognized the completion of projects and improvement of processes to almost a five Sigma level (i.e., about 230 parts per million). But, to get to Six Sigma performance level, companies can't work with three or four Sigma suppliers. Growing problems had a root cause related to the incoming material. Sometimes the process problem was related to the customer requirements, with either too tight tolerances or the wrong requirements. To better understand customer requirements, companies need to keep in mind that errors are reduced if they focus on taking customer requirements to the Six Sigma level. Bob Galvin, former CEO of Motorola, asked IBM, which is a larger company, to implement Six Sigma. Six Sigma success at IBM is a different story.

But what does it really mean to implement Six Sigma in a supply chain? SIPOC (Supplier, Input, Process, Output and Customer) can be used to identify players in the supply chain at the corporate and process levels. At the corporate level, SIPOC could be used to identify processes, external suppliers and customers based on the criticality of issues associated with the suppliers and customers. The objective is to deliver Six Sigma quality product or service without suffering from a poor understanding of customer requirements and delivery performance of the suppliers.

To launch Six Sigma in a supply chain network, management must clearly identify potential effects of the initiative on corporate performance and on supply chain members. Suppliers must also see value in collaborating with the organization. One way to demonstrate value to the suppliers is to develop a strategy to build relationship with the suppliers who commit to implement Six Sigma initiatives and align with the corporate objectives, and reduce the number of suppliers who aren't enthusiastic about having great improvement in a short period of time. To launch the initiative, managers must prepare a commitment document, mutual performance targets, commitment to training and progress review schedule.

Since the early '90s, corporations have been working on reducing number of suppliers. As the corporations improved their design and manufacturing processes, dependency on improvement by suppliers increased to achieve continually demanding business objectives. Similarly, when implementing Six Sigma, Motorola asked its suppliers to join its Six Sigma journey. To get the suppliers excited, quite a few activities were conducted to educate suppliers for the dramatic improvement and the benefits it offered them.

After winning the Malcolm Baldrige National Quality Award, Motorola felt privileged to share its success story with its suppliers and customers. Regular supplier briefings were held to communicate the Motorola process, its suppliers' expectation and available resources. To some point, suppliers were mandated to participate in Motorola's Six Sigma process to deliver continually improving products and services. To improve suppliers' understanding of the Six Sigma process, they were required to attend four core courses, which were as follows:

- Understanding Six Sigma—An overview of the Six Sigma methodology and terminology
- Process Quality Improvement—An overview of process improvement methods explaining applicability of various tools
- Design for Manufacturability—The process of integrating product and process development for producing defect-free products
- Cycle Time Reduction—Straightening out material flows to practice lean principles

Motorola University was then formed to institutionalize corporate strategies and manage the change process. It offered services to uplift Motorola's suppliers' capabilities and strengthen the relationship with them. The university also had a consulting arm to support its clients in practicing various methods.

In addition to educating and guiding suppliers, Motorola's purchasing policy was changed and procedures were modified to reflect Motorola's true expectations of its suppliers. The new procedures reflected intent and verification to minimize product inspection and

verification activities, and promote process control and improvement activities. Suppliers' scorecard would be given periodically recognizing success and identifying areas for improvement.

Besides purchasing policies, a process for suppliers' involvement in the product development stage was implemented. This allowed Motorola to leverage its suppliers' expertise and resources and collaborate with its suppliers in developing new products. This early involvement of suppliers enabled Motorola engineers to produce designs that its suppliers could produce at low defect rates.

Implementing Six Sigma in supply chain requires a strategic thinking, proper planning and significant commitment to optimize the performance of the supplier team. Furthermore, involving customers allows an organization to specify products that are acceptable to customers and liked by suppliers for maintaining the product margin.

Currently, there are several companies, such as Caterpillar, that have involved their suppliers in the Six Sigma initiative to ensure continual commitment to the corporate performance improvement. Six Sigma in the supply chain is critical to achieve higher sigma levels. If a company is implementing Six Sigma, it can't be working with three- or four-sigma suppliers or customers with unrealistic expectations, and expect to achieve its Six Sigma quality goals.

About the author

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