

Is "Lean Six Sigma" the Winning Approach to Manufacturing and Supply Chain Improvement?

Growing Number of Companies are Combining the Two Disciplines to Remove Waste and Increase Consistency of Processes

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Two of the most powerful forces in manufacturing and now the broader supply chain are "Lean" and "Six Sigma." Traditionally, many companies have adopted one or the other as their primary approach to operational improvement, or in some cases used both but as fairly independent tools.

Increasingly, however, companies are seeing the benefit of combining the two techniques into a more integrated strategy that uses the best of each approach, which can be highly complementary. Many believe this "Lean Six Sigma" strategy is the best way to improve overall supply chain results and tackle process improvement more holistically.

Lean, the name given to the Toyota Production System in the book **The Machine that Changed the World**, has traditionally been associated with the elimination of waste in business processes. Lean was originally focused on improvement on the factory floor, but has since been used in some cases to power broader supply chain improvements. European retailer Tesco, for example, used Lean principles to engineer improved store replenishment processes.

Six Sigma is a quality improvement methodology that in general seeks to reduce process and results variation. Originally focused on improving the quality of manufactured components, the approach has also been expanded for use in improving almost any business process. Drug wholesaler McKesson, for example, has used Six Sigma to improve a variety of supply chain processes, such as inbound trailer cycle times and pick face replenishment efficiency.

Bringing Lean and Six Sigma Together

Industrial giant Honeywell was among the first to

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recognize the power of combining Lean and Six Sigma disciplines. When Honeywell acquired Allied Signal in the late 1990s, under the leadership of legendary CEO **Larry Bossidy**, it created a mechanism for combining Lean and Six Sigma that it called "Six Sigma Plus." The company hoped to improve processes and results by using Lean to streamline processes and eliminate waste, then improve the consistency and reliability of those processes using Six Sigma.

3M is another pioneer in the application of Lean Six Sigma. When **Jim McNerney** took over as CEO of the company in 2001, the former GE executive quickly helped drive a Lean Six Sigma program throughout the company.

"Lean Six Sigma always starts by defining value from the supply chain from the eyes of the customer," says **Paul Husby**, a former VP of Supply Chain Services at 3M. "Every business has either an explicit or implicit strategy and needs the operational supply chain to provide specific performance to support that strategy. Lean Six Sigma has a primary goal of significantly improving operational excellence, and should also greatly improve a company's competitive advantage with key customers and markets."

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There are several principles that drive the strategy of bringing Lean and Six Sigma together:

- Lean cannot bring a process under statistical control
- Six Sigma alone cannot dramatically improve process speed or reduce invested capital
- Both enable the reduction of the cost of complexity, but in complementary ways

In the past, Lean and Six Sigma have at times been viewed almost as rival methodologies, with some companies choosing one or the other as their primary improvement vehicle. With Lean Six Sigma, that false conflict can be formally removed, and companies can benefit from the best of both approaches.

The two methodologies can interact and reinforce one another, and there is much evidence that total improvements in a process is larger if Lean and Six Sigma are implemented together.

"The opportunity is to reduce the variability in value-adding processes," said SCDigest Editor Dan Gilmore. "Lean should eliminate the non-value added process steps, and then Six Sigma can be applied to tighten up the execution of those processes."

So, from a Lean perspective, what Six Sigma adds is the ability to reduce process variability. From a Six Sigma perspective, what Lean adds is often greater process and cycle time velocity, as well as lower operating costs. It can also be said that Lean focuses on reducing Time variability, while Six Sigma focuses on reducing Process variability. Lean tends to generate more "Quick Fix" solutions, while Six Sigma takes a more "Root Cause" approach.

It is also possible to think of applying Six Sigma principles at the "pursue perfection" stage of one popular six-step Lean model.



Some companies are taking the concept even further, adding in **Eli Goldratt's** Theory of Constraints (TOC) methodology as another tool, usually front-ending TOC before both Lean and Six Sigma. This three-way combination is sometimes referred to as TLS (TOC, Lean, Six Sigma).

Companies that have focused on either Lean or Six Sigma as a primary strategy to the exclusion of the other, or that use both but as very separate tools, should consider whether there is opportunity to deliver better results from a Lean Six Sigma strategy.