

Lean Manufacturing Thought Leaders Discussion

Lean Offers Great Benefits, but for Most Companies, Operational Realities Means Lean Needs Technology to Scale

SCDigest Editorial Staff

As part of our recent **Supply Chain Digest Letter on Lean Manufacturing**, SCDigest editor Dan Gilmore recently sat down with **Aamer Rehman**, Vice President of Manufacturing Solutions at **i2**, to discuss several issues around Lean strategies and technology enablement. An electronic copy of that Letter and a wealth of other resources are available at our [Lean Manufacturing Resources page](#).

Gilmore: What, in your view, is the essence of Lean Manufacturing?

Rehman: In my view, Lean manufacturing principles can be categorized in three areas, all focused on improving agility and reducing waste.

First, there is a transformational aspect. The core idea is to simplify material flow and eliminate all non-value added activities, which serves to reduce lead-times. This is generally achieved through a value stream mapping exercise followed by physical rearrangement of the material flow. The key is to make the flow visible, which in turn brings visibility to shop floor issues and waste.

Second, there is an operational aspect. The core idea is to achieve mix and volume leveling and a repeatable schedule at pacemaker operations. Another core principle is to tie inventory and production to the rate of demand through intelligent inventory management combined with signaling and visibility techniques.

Third, there is a continuous improvement or kaizen aspect. The core idea is to use the actual shop floor information to achieve step-change process improvement.

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However, my belief is that among those three, the real essence of Lean is in the operational principles, especially the concept of Level Plan and "Heijunka," which acts as a shock absorber between the order assignment and supply processes. If done right, this can help manage supply chain risk and reduce lead-times, critical results in today's volatile supply chain environment.

Gilmore: Are there any important misconceptions that exist in terms of how companies or individuals think about Lean?

Rehman: In my opinion, Lean manufacturing principles have wide applicability across different manufacturing environments. However, the traditional practitioners have often over simplified Lean application to a point where it seems that the principles are impractical for today's high mix and volatile demand environment. For example, a common misconception is that Lean manufacturing doesn't require sophisticated technology.

This is based on the assumption that there is generally 10-15% variation in demand and 10-15% variability in supply operations. However, today's environment is often characterized by even greater

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volatility in demand, product mix and supply. Without the help of appropriate technology, it is practically impossible to apply Lean operational principles effectively.

The second limitation of the common Lean practice is driven by the transition of the shop floor, where production has extended beyond the four walls internally to external value chain partners. In this environment, achieving visibility using paper and spreadsheets is not possible, and using material as a "proxy" for intelligent information is impractical.

The third example is that most of the companies have spent significant effort on the transformational phase of Lean, where armies of practitioners and consultants have developed hundreds of value stream maps, but have done very little in some cases to deploy Lean operational principles that can actually production or supply chains in practice.

The final example is that Lean manufacturing programs have always operated in isolation and very few companies have used Lean manufacturing as the underlying approach for supply chain improvement initiatives. The necessary alignment between corporate Lean programs and supply chain transformation programs is missing in most of the companies.

Gilmore: Are you seeing any trends in terms of how companies are considering the role of technology in a Lean environment?

Rehman: There has been a growing awareness that Lean manufacturing is probably the only proven methodology to promote event or demand-driven operations through visibility and streamlined material flow. We are also observing that companies are interested in creating leveled plans with the given demand and mix volatility.

However, the manual methods of the past have

proven to be inconsistent and inadequate, and companies are looking for sophisticated but non-complex solutions to support key operational aspects of Lean.

The second trend is towards improving visibility and collaboration with their supply partners, which has been a challenge without the use of technology.

So, the net-net is that comprehensive solutions that support Lean principles are increasingly being adopted across the discrete manufacturing world.

Gilmore: Is it possible to approach this - Lean and supporting technology - in phases?

Rehman: My viewpoint is that technology solutions should be used as an enabler for implementing Lean. Lean programs have always resulted in project overload, and by the time key material flow transformational activities are completed, there is little energy left to focus on the operational side of Lean. This is one of the reasons why the majority of the Lean programs fail to stick and provide less than satisfactory operational benefits. By combining process and supporting technology in each phase, companies can achieve tangible benefits.

Gilmore: Are you able to discuss the level of benefits Lean technology support can bring to companies?

Rehman: The technology available to support Lean manufacturing principles can accelerate an organization's ability to address supply chain risks and operational issues, such as inventory liability, order fulfillment performance, manufacturing overhead, and schedule stability. It can also synchronize material and information flow across a multi-tiered supply chain and help achieve improved operational and financial performance.

I would say tangible benefits generally include reduction in finished goods, WIP and procured material inventories; lead time reduction and thus improved agility; a reduction in expedited freight costs; increased planner/



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scheduler productivity; reduction in the cost of quality; reduction in the cost of obsolescence; and increased labor productivity.

There are also a number of more intangible benefits that include better integration of plan-

ning and execution throughout the supply chain; achieving more forward-looking analytic capabilities and therefore becoming more proactive; developing exception-based notification and resolution capabilities; and extending more robust inventory awareness and analysis across the supply chain.
