



White Paper

Taking Lean Manufacturing Beyond the Shop Floor

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By Karl Kelton

Consistent Value Creation Should be the Goal

Manufacturers tend to spend a great deal of time looking at the concepts of lean manufacturing and Six Sigma and how they can apply on the shop floor. But on the whole, they've given far less thought to how they can benefit by applying lean principles in corporate "white spaces" — their business process environments, which include such functions as engineering, product development, order to cash, procure to pay, and sales.

According to Karl Kelton, a consultant who specializes in the manufacturing industry, organizations need to educate themselves on how to apply lean in non-traditional areas. "The traditional thinking out there is, 'I'm familiar with lean. It's the Toyota Production System, and it applies to the shop floor and discrete manufacturing processes,'" says Kelton. Taking lean principles into organizations' business process environments can help in myriad ways, Kelton stresses, but only if those organizations stop looking at lean as simply cost or waste reduction, and start looking at it as a way to create value.

Lean Manufacturing is More than Cost-cutting

"Lean thinking is really about defining value from a customer's perspective, to the extent that you can free up capacity and convert that capacity into additional top-line growth, or reductions in working capital or improvements in material expense," explains Kelton. "You can use lean to create additional value for your business and for your customers."

For example, after implementing lean, a sales team can increase its face time with customers, gaining a better understanding of client needs as well as increased sales. A finance department that is able to streamline its work processes will see fewer errors and, with lower receivables, will start to see improvements in cash flow. A leaner procurement department can free up capacity to develop its strategic sourcing capabilities and lower the total cost of ownership of the goods and services it procures.

Applying Lean Principles Beyond the Shop Floor

Karl recently completed a lean assignment with a leading Canadian firm. Originally, the job was focused on the client's supply chain and production environment. But its order book was growing rapidly and, according to Kelton, the company couldn't build and ship its products fast

enough. “They asked us, ‘Do you think lean principles could be used to shorten our design and development time, improve the effectiveness of our processes, and drive additional value for us and our customers?’”

This engineering department works on several thousand projects a year. At the time, the manufacturer was working on half of its projects, and the other half were on hold. Of the active jobs, more than half were past their planned completion dates, and more than a third hadn’t been touched in the last six months. Too many design jobs were being cancelled or put on hold, too many others were significantly over budget and, often, those were subsequently killed.

Kelton and his team applied some simple lean principles and techniques; instituting a process where engineers work on no more than two projects at a time. They implemented input filters that facilitated the “pull” of projects into engineering, rather than a “push” system. This forced the engineers to sort out problems on the job, rather than putting them aside for later. “Otherwise you would start to re-institutionalize all the old behaviours of managers who would say, ‘If I can give him two projects, maybe I need to give him three, or maybe four.’”

Thinking of Lean as a Way to Create Value

Most companies have multiple improvement programs going on. The trouble starts when they are perceived as just the flavour of the month. “Plus, the real issue for employees eventually becomes ‘Why should I play, when I’m going to work myself out of a job?’” says Kelton. “This is a fear many organizations have about adopting an operating philosophy like lean or Six Sigma. You’ve got to provide some level of amnesty for employees.”

That amnesty is related to ensuring that individuals who adopt and participate in process improvements are not let go as a result. In this case, it was demonstrated that the manufacturer could free up the equivalent of between 15 and 25 percent of its engineering capacity. And its order book was growing, so the excess capacity was moved to where it could be more useful — other areas of engineering. The company also re-deployed these resources in support of manufacturing efforts such as manufacturing engineering and technical support.

“The key is, ‘How do you convert peoples’ thinking away from simply equating lean with waste reduction to thinking of lean as value creation?’” says Kelton. “That’s one of the hurdles you’ve got to get past.”

Six Ways to Implement Lean Throughout Your Operations

A company’s organizational culture is but one dimension that must be addressed when implementing lean. Different organizations will require different methods of bringing lean principles into their business process environments. Kelton offers six other methods of facilitating change, though he stresses not all will be applicable in each situation:

1. **Flow** — Part of having good flow throughout your business processes is being able to add value continuously by producing what is desired in the shortest time possible, with the least resources. A company must physically and visually link all operations, eliminate delays in value-adding processes, simplify processes and consolidate operations.
2. **Pull** — The idea is to produce everything at the rate of “production” of the final product, rather than whenever a production step gets completed. This is known as “pull production control.”
3. **Integrate sourcing and suppliers** — Build “shared destiny” relationships with suppliers. A lean organization works with and through suppliers to apply lean practices throughout the value chain.
4. **Employ lean work methods** — A concentration on standardized specifications (for engineering or product development departments, for example) to eliminate re-work and mix-ups between departments; good housekeeping, to make looking for company information easier; better foolproofing of company processes; and more visual control so that when a problem does occur, its roots are quickly uncovered and the problem is permanently resolved.
5. **Focus on organization and culture** — Flexibility is key in lean organizations. Those with decentralized management, good internal education and development programs, and multi-skilled staff are able to re-deploy resources or staff when it’s time to take advantage of changing market conditions or company strengths.
6. **Pursue perfection** — A lean organization must ensure that employees have a continuous improvement attitude that brings empowerment and a feeling of ownership of the processes.

All of these operating techniques require significant changes to operating policies, workflow and supporting business rules, says Kelton, as well as new behaviours.

Management Expectations

When senior executives are looking at adopting a lean or Six Sigma operating philosophy, says Kelton, they expect three things. First, what they implement has to fit and facilitate their business strategy. Second, they’re looking to improve their external relationships with customers, suppliers and partners. Finally, the philosophy must provide for sustainable operational and financial improvement. “Companies that focus on value creation — and not simply on eliminating waste to reduce cost — will be able to achieve these goals,” says Kelton.



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