

What's Holding Back Lean?

By Lauren Gibbons Paul

Toyota Motor Manufacturing Kentucky Inc.'s (Georgetown, KY) commitment to lean thinking goes far beyond manufacturing processes. Take the cafeteria, for example. The day's offerings are displayed in a glass case at the front so you can immediately see what looks good. The checkout lines are unusually speedy with few bottlenecks. After you eat, photos posted above recycling bins show exactly what type of waste goes where. If you hesitate, one of the 7,800 employees at the 7.5 million sq. ft. facility is sure to step in and help you get it right.

This cafeteria functions better than most because Toyota workers and managers have mapped out all the food-related processes, identifying and eliminating the ones that do not add value. This continuous refinement of a value stream is called kaizen in lean parlance. "I've seen them doing kaizens in the cafeteria," says Parker Shannon, project manager for manufacturing at Toyota's Georgetown location. "It's just part of our philosophy. We apply lean thinking to everything."

Toyota Motor Corp. (Toyota City, Japan) pioneered modern lean manufacturing beginning in the 1940s. "Toyota introduced a much more sophisticated way of thinking about processes," says Jim Womack, founder and president of the Lean Enterprise Institute, a lean-oriented nonprofit training, publishing and research center. "They believe the number one job of management is not to sustain a process, but to improve it." Womack is the author of numerous books on lean thinking.

Dating back to the 1970s, the famed Toyota Production System (TPS) specifies the way Toyota produces vehicles to provide the best quality, lowest cost, shortest lead time and least waste. Though \$163 billion Toyota is ranked fourth in U.S. car and truck sales, it is by far the most profitable auto maker, with 2004 net earnings more than double the combined net earnings of General Motors, Ford Motor Co., DaimlerChrysler and Honda.

Toyota clearly enjoys the benefits of employing lean practices in every aspect of its operations. Running lean helps it withstand the pressures that nearly every manufacturer labors under -- namely, intense global competition and the need to do more with less. But lean has been slow to catch on in manufacturing in general. Companies start lean initiatives only to abandon them once another paradigm or strategy comes on the scene. Public companies face pressure for short-term cost reductions. Staying the lean course requires more intestinal fortitude than most companies can muster.

"Few companies attempt lean, and those that do struggle to make any significant improvement," says Art Smalley, an advisor to the Lean Enterprise Institute and one of the first Americans to work at Toyota in Japan. A variety of factors are holding back lean's progress in manufacturing, particularly among U.S. companies.

1. Lack of top-management commitment

Aligning practices around lean thinking requires massive cultural change. As such, it must be led and driven from the top of the corporation. "Senior management has to drive the adoption of lean. You don't become lean just by applying a bunch of techniques. You adopt it as a way of thinking. Part of good leadership is evolving a universally adopted lean value system. Without it, the real potential of lean will never be realized," says Mike Donovan, president and CEO of R. Michael Donovan & Co., a lean consulting firm.

The lack of commitment is not just the fault of short-sighted managers. Public companies are under such pressure to produce financial results that it is nearly impossible to get the breathing room necessary to nurture a lean environment. "There's so much pressure for profits on a quarterly basis. CEOs keep looking for quick fixes, and lean isn't a quick fix," says Pam Lopker, president of ERP software vendor [QAD Inc.](#) (Carpinteria, CA).

Anne Mulcahy, CEO of Xerox Corp. (Stamford, CT), by contrast, has been leading the lean charge at the \$15.7 billion office technology maker for several years now. "When leadership drives it, everyone aligns around lean," says Bill Steenburgh, senior vice president of Xerox Services.

Xerox combines lean with Six Sigma, a one-two punch in which employees first refine processes and then work to reduce process variability. Like Toyota, Xerox has begun to propagate lean practices out from the factory floor into other areas of the business -- even reaching out to help customers benefit from lean practices in their operations. Steenburgh's service organization, for example, consists of 16,000 U.S.-based customer service engineers and technicians who help their customers map out document production processes to identify areas that could be tightened up.

One Xerox customer was the long-time owner of several Sir Speedy Inc. (Mission Viejo, CA) print shops in North Carolina. "We went in and mapped the job flow in his shop. We determined where all his non-value-add stuff was and we took it all out. We were able to show him how inefficient his shop was. We didn't do that to sell more Xerox models," says Steenburgh. In fact, that customer's spending with Xerox went down for a period before it began to go back up again. "He called me at home to tell me he just finished his books and it was his most profitable month ever," adds Steenburgh.

Xerox has experienced the same financial pressures plaguing manufacturers of all sizes. Without Mulcahy's unwavering support, "we would not have stuck with it. But when the CEO stands up and says we're going to make this investment, it gets everyone's attention," says Steenburgh.

2. A short-sighted focus on cost reduction

Responding to profit imperatives, many companies are concentrating only on reducing costs rather than looking to lean as a source of greater efficiencies (and, therefore, profits). "Manufacturers in North America are looking to outsource to China to reduce labor costs. They haven't focused much on process improvement in recent years," says Lopker. "We're letting our companies be run by finance too much. The CFO says: "I can cut that cost by outsourcing to China." That bypasses the discussion. That seems like less risk or less work than really looking at continuous process improvement. But they're missing out on significant long-term benefits."

The automotive sector embraced lean ahead of other industries, in part, because sending manufacturing offshore in that industry is impractical. It's too expensive to ship heavy car parts around the globe. Most car manufacturers make their vehicles in the market where they intend to sell them. Other reasons are increased competition and unrelenting cost pressures. "They need to reduce costs year after year after year or they can't compete," says Judy Sweeney, director of enterprise application research for AMR Research Inc.

A focus on cost reduction at all costs can have undesired effects. In their frenzy to increase factory floor equipment utilization to avoid downtime costs, many manufacturers miss that they're rushing to make product that will just sit in warehouses since customer demand often does not match forecasts.

A razor blade company, for example, measures its plants on how many blades it manufactures. "They want to maximize the output of the expensive equipment," says Lopker. But if the new men's triple-blade edition is a bust, pushing for more production only increases costs. "They think their razor blade only costs a quarter of a cent because they got a million out of the machine that day, but that says nothing about whether it meets the customer or market's needs," she adds. "Lean means using the equipment as sensibly as possible."

Lean involves moving to a pull paradigm, where customer demand drives the production process. "Ideally, you don't even begin production unless the customer demand is there," says Sweeney. It is well-suited to customers' ever-increasing appetite for make-to-order or even engineer-to-order goods. The BMW Mini Cooper, for example, is available in over 1,000 different combinations of colors and interiors. It would be impossible to ship customer orders from inventory. A pull model is the only way to meet customer expectations.

3. Emphasis on imagery rather than real work

Compared to their Japanese peers, U.S. management is too focused on the trappings of a lean initiative, such as slogans, launch parties and classes, rather than rolling up their sleeves and figuring out how to improve actual processes, says Womack. When it comes to lean, "I give U.S. companies an A for image and a D for reality. Managers [love] certificates. But the exams don't matter. The only thing that matters is being able to make the process go faster and make what customers want."

U.S. managers keep themselves at arm's length from the production floor, in Womack's view. "They go to the conference room and write on whiteboards for a while and then they go back to their desks and do e-mail. Japanese managers go to the point of value, the gemba. They constantly walk the factory floor."

Indeed, one of the core principles of the TPS is the "go and see." Toyota has successfully transplanted that practice, as well as the rest of the TPS, to its U.S. operations. "You can't truly understand a problem without going and seeing it for yourself, no matter what level you are ... so you can ask the right questions and drill down to the root cause," says Shannon.

When it comes to lean training, U.S. lean practitioners are full of "40-hour wonders," people who have taken a course in lean practices, have read lots of books and can talk the lingo. "They get their certificates and they go off to apply lean and they don't have a clue where to start," says Donovan. His firm offers a "lean masters" program in which people have 120 hours of classroom training followed by taking a leadership role on two real-world projects. The minimum savings realized from each lean project must be \$200,000 or more.

As with any major corporate initiative, there is a tendency with lean to get wrapped up in hoopla. Launch parties can yield employee skepticism about the project being just the latest in a series of useless management schemes. Manufacturers should follow the lead of lean Japanese companies and work on particular process areas rather than wasting time trying to make a splash, says Womack. "Lean teams build themselves. You take a group of people who touch a process and you say, 'We have to do this better.' You figure out how to do it."

4. Reluctance to empower workers

With its unshakeable focus on factory floor processes, lean elevates the role of the workers who live inside production. No one knows more about what is broken and how it can be fixed than the people who oversee the work on a daily basis. But some companies are unable due to union issues or are simply unwilling to empower their workers.

"[In the U.S.], the operator has no incentive to work with management. But he can probably tell you 15 ways to improve the process," says Dennis Cocco, president and CEO of Activplant Corp. (London, Ontario, Canada). And some workers are unable or unwilling to step up to an increased role in making change. Toyota and Ford, among others, use Activplant's shop floor performance management system.

Cocco likes to put factory performance data such as scrap rates and spare parts availability in the hands of the shop floor operators, instead of managers, who can use it to make better decisions in real time. "I want the guy who runs the line to have this information. I want him to use this tool to drive continuous improvement. I want him to own the change," says Cocco. This involves a major cultural shift at most manufacturers, which are accustomed to a traditional hierarchical management style.

Data gathered from Activplant feeds Ford Motor Co.'s (Dearborn, MI) factory information system. "We monitor the machines to understand where breakdowns occur. The goal is to reduce the breakdowns by changing our preventive maintenance and figuring out where we need to spend to increase the performance of that line," says Greg Fell, IT manager, North American manufacturing, for Ford. "We use this data to empower the hourly folks who have the most knowledge so they can make better decisions."

This represents a significant change from the way Ford did things 10 or 15 years ago, according to Fell, who has been with the auto giant for 12 years. "The culture of Ford is vastly different from what it was in terms of how people are treated, how management listens," he says. "It took a lot of coaching to move away from the command-and-control model to trusting people to make a difference."

Toyota views its hierarchy as an inverted pyramid where the few support the needs of the many. "Everything we do as managers is to enable the team members to do their jobs," says Shannon. "It is our role to coach and facilitate." Most companies will be unable to meet the rigors of a lean undertaking. But that is no reason not to begin, as lean can yield sustainable profit. Says Lopker: "Lean is hard work, but the benefits are better than anything else."