

# THE NEW LEAN

## FROM THE PRODUCTION FLOOR TO THE SUPPLY CHAIN



Summarizing the information from the past five articles in this series was a difficult task, considering the wealth of expertise from both industry experts and experienced manufacturers. But a number of key themes ran throughout, and we've turned them into seven suggestions to companies considering an enterprise-wide lean implementation.

To summarize the summary, they are:

1. Have a plan
2. Start at the beginning
3. Create a lean culture
4. Don't forget the basics
5. Get rid of the sacred cows
6. Relationships are the key
7. Don't be afraid to ask for help

We then turn to lean guru Bill Swisher of JCIT International to try to answer the difficult question of the direction lean will take over the next several years.

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This series of articles is produced in conjunction with:

**Yale**

There's Nothing We Can't Handle.



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# the big win

**A strategic guide to transforming your company from a mediocre player into a driving force: the agile enterprise.**



**W**hen a methodology works in business, it's common sense to make the most of it. But what if the methodology is lean—how do you take something that works on the factory floor and make it work in other areas of the business?

The answer is to incorporate it as thoroughly as possible into the corporate culture. "Unless you really embrace it, and say this is going to become the culture of our company, it just doesn't happen," advised Warren Eck, vice president of Yale Fleet Management and Yale Financial Services. Yale has applied lean principles throughout its organization, and its fleet management program is based on helping manufacturers eliminate waste in their materials handling departments.

Although experts agree that any lean effort should begin on the factory floor, lean principles are successfully being applied in all other areas, from accounting and order management to design and engineering. Some areas are more difficult to make lean than others. For example, the supply chain area is a tough one because of the tenuous relationships between buyers and suppliers.

But the rewards can be tremendous. What evolves after implementing lean throughout an enterprise is not just an incredibly efficient operation, but an agile one. As Tom Gillen, managing principal of Oliver Wight, puts it, instead of a company that simply reacts to market forces, you've got a company that drives markets. Such an

organization would, by nature, be orders of magnitude more capable of attracting customers and delivering on promises than the competition. Being lean, it would practice continuous improvement in all areas. "Never stop improving," said Eck. "Look at the big picture, determine where you want to be, put a plan in place, then constantly check and adjust."

But how do you achieve this monumental transformation in the first place? The following is a roadmap of pitfalls to avoid and critical factors for success, combining advice from the previous articles in this series with additional expert information from those who have lived through many lean rollouts.

## 1. have a plan

The best method for rolling out lean throughout the enterprise is to start on the factory floor and move into other areas, one at a time, starting with areas that will benefit the most from the elimination of non value-added activities. Nevertheless, it's best to have an overall plan in place from the beginning, setting out the mission, the initial progression, and the measurements to be taken along the way.

Oliver Wight consultants call this the Agile Enterprise architecture. "The Agile Enterprise architecture produces companies that (1) reduce waste, variation, time, and cost, (2) make their customers' customers more successful, and (3) cause and benefit from change," said Gillen.

The architecture begins with identifying a company's top three competitive priorities. It proceeds to an exercise to rank improvement opportunities in order of their impact on achieving those competitive priorities. It then identifies key people to help with the project and the benefits to be achieved. "Typically, the benefits gained in the first 120 days pay for the entire program," said Gillen.

## 2. start at the beginning

"The sins of an organization manifest themselves in the factory," said Gillen, who advises manufacturers to begin a lean implementation on the production floor, as close to the customer as possible. "If I start at the point of delivery and work my way backward into the organization, eliminating waste as I go, I will do two things. One, I'll be working with the most stable piece I can get. Two, all benefits of the waste I eliminate are made available directly to the customer."

Once the production portion is running lean, survey other departments to find the largest pockets of waste. "Stuff builds up in our in-baskets," said Bob Bailey, an Oliver Wight consultant. "It's analogous to

material waiting in the manufacturing process," In fact, said Bailey, it's not unusual to analyze a business process and find that 85% or 99% of the process is waste. Many times, taking the waiting time out of the business process means restructuring to eliminate or reduce hand-offs between people. Whether it's order processing or picking and packing, the fewer times an order has to change hands, the quicker it will get through the system.

However, be aware that the difference between value-add and non-value add is not as clear in business as it is in production. Professor Jeff Liker, director of the University of Michigan's Japan Technology Management Program, said he finds it necessary to use three levels: value-added, non-value added required, and non-value added. "A lot of things business administrative service organizations do are required (for example, by the government), but they don't necessarily add value to their immediate customer," he said.

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## 3. create a lean culture

One of the biggest mistakes companies make in applying lean is not involving enough people, said Jeff Gadd of MCP-AMIS, Inc. "Too often, the processes contained in the lean organizational and technical strategies are understood by too few people in the organization, and there is thus little ownership among the majority of the workforce." This approach tends to produce fear, distrust, and apathy—or even

worse, resistance—in the very people who should be motivated to make the most important contribution to success, he added.

Yale's Eck, whose organization is lean and ISO certified both at the plant level and in the offices, agrees. "We practice ABM (activity based management), taking a look at each position, breaking the position down to the tasks they have to do, then looking at the time it takes to do each task, looking at which parts of that are value added and which are non-value added," he said.

This is done in all areas of the organization, and during performance reviews, employees are required to identify a certain amount of non-value added activities they've used ABM to identify and eliminate. "The only way you can make [lean] part of the company's culture is for it to come from the top; it's got to be put into people's written job descriptions, part of their performance review. If you just talk about it, it never happens," said Eck.

## 4. don't forget the basics

The first step in becoming an agile enterprise is to be excellent in all the fundamentals, including on-time production, reduced lead time, and cost target achievement, said Oliver Wight's Gillen. Excelling at fundamentals will result in reduced costs and inventory, improved customer satisfaction, more effective resource deployment, and improved response to market changes. ►

AMIS's Jeff Gadd is in complete agreement. "How much anguish have company executives undergone in search for the 'right' business strategies, while enormous opportunities exist in simply getting the basics right?" he asked. Gadd advises companies to institute the following before beginning any lean implementation:

- \* Make sure you know what best practices really are in each area of your organization
- \* Ensure that every person at every level is fully trained in the skills and work practices that are relevant to successful achievement of their goals
- \* Verify that these skills are used consistently at the highest possible performance level
- \* Delegate sufficient authority at each level to enable teams to act to achieve their goals
- \* Assign authority and accountability to the lowest appropriate level in the organization
- \* Hold people accountable using clearly defined metrics that measure the team's degree of success in achieving the objectives for which they are accountable

## 5. get rid of the sacred cows

"If you really want to streamline your company, there can be no sacred cows," said Eck.

It's essential to look at things as though you were starting all over today with a blank sheet of paper, trying to determine how you would do things the most efficient way. "You can't look at it and say, 'We've always done it this way,' or 'We really can't do that because that will upset this.' If you keep the goal of the company in mind, don't let anything else cloud your judgment, and then put the plan together and follow it, it will work," he advised.

That includes departments that say lean methods don't apply to them. "It's a mistake to disregard lean in [environments other than production]. The real skill in

applying these tools is to be able to look at the situation, understand it, and then figure out how to use the philosophy and the tools to improve it," said Liker.



## 6. realize relationships are the key

Expanding a lean implementation from the production floor is all about relationships, with both customers and employees. Building relationships with customers is something Yale's Eck knows about: "If we do our job properly and continually come back to a customer with recommendations that help them become more efficient, it makes them more competitive, helps them build their leadership in their industry, and they benefit. But so do we, because the bigger and more successful they get, we're right there with them. The relationship between your provider or partner and you as a manufacturer has to be a good, long-term relationship."

Reducing waste in supply and demand chains requires more give and take than other areas. A supplier asked to produce more efficiently may want to charge a premium for delivering on fast-changing orders. Likewise, a customer asked to share order plans to allow you to smooth out your demand is likely

to want something in return. In complex relationships like these, trust is obviously a significant factor.

Jeff Gadd and colleague John Scott, who's with the human resources version of AMIS, warn that lack of focus on people is one of the most common mistakes made in a lean rollout. "In implementing strategies such as lean manufacturing, managers should remember that performance and profit are produced by people. Development of their skills, trust, and commitment is essential and must be provided for in the implementation plan," said Scott.

## 7. don't be afraid to ask for help

Although it's certainly possible to facilitate a lean transformation from within, it's always good to recognize when you need expert advice. "I've never seen a really good transformation done strictly by somebody reading a book or going to a course," said Liker. He is referring to implementing a lean production program; an enterprise rollout is considerably more complex.

In some cases, the ultimate end to the quest for efficiency may be outsourcing. Although not the right move for all manufacturers, outsourcing non-core competencies (portions of production, benefits management, materials handling, distribution, etc.) can lead to terrific efficiencies. "If you look at the way we make things today versus the way we did things 10 years ago, it's totally different," said Eck of Yale's manufacturing function. "There was a lot more fabrication being done by our own people. Today, we outsource a lot of the fabrication."

With these seven tips for success, which we hope you can put to use, we now turn to the future of lean (page 48). Bill Swisher looks at how lean may evolve over the next several years and how manufacturing practitioners can play a role in its development. ◀ LM

# OPINION

## the lean future

**How can lean advocates help take it to the next level? Bill Swisher looks for answers.**

As I visit manufacturing facilities and participate in industry forums around the world, I am often asked what can be expected from lean manufacturing in the future. Many of the professionals who ask this question were early adopters of various lean manufacturing techniques in decades past. These same individuals have enjoyed great success and would like to position themselves to take lean manufacturing to the next level.

I believe there are two very different possible paths for lean manufacturing. One path is a slow journey to obscurity. Many successful manufacturing strategies similar to lean manufacturing, such as JIT, TQM, theory of constraints, and focused factories, seem to have a high visibility for a period of five to 10 years, then lose favor with the media and industry as new buzzwords become popular. A primary reason is that these different philosophies can often mean different things to different people. When a business system is not clearly defined, is limited to issues within the factory itself, or cannot be supported with business systems, it is too easy for people to pick and choose elements of the strategy and incorporate them into a new initiative that satisfies their criteria.

I believe lean manufacturing can avoid this fate, but lean manufacturing practitioners will need to address these challenges. In terms of a clearer definition of what lean manufacturing is, I believe a lot of progress has been made. Although lean originated as a series of techniques designed to eliminate waste, it has evolved into a strategy that includes line balance, setup reduction, material replenishment, in-process quality, fail safe design, and continuous improvement. As time passes, I believe a particular methodology to address each element of a lean implementation will surface as the best-of-breed solution. As this occurs, manufacturers will embrace the total solution to drive their initiative across their businesses.



The second challenge in extending lean manufacturing beyond the shop floor is the greater one. Although lean implementations typically include value stream mapping techniques that evaluate the opportunity to eliminate waste across the entire value stream, many lean manufacturing practitioners are challenged when attempting to accomplish this goal. In the future, I expect manufacturers will return to one of the basic tenets of lean manufacturing: keep it simple. By looking for simple solutions to provide visibility of demand to suppliers and using simple signaling techniques to replenish raw material stock, lean manufacturers will be able to solve this challenge.

Finally, we can expect significant advancements in software systems to support lean manufacturing over the next few years. As most manufacturing

professionals know, applications that market themselves as supporting lean manufacturing have been available for years, but most were very limited in terms of functionality. Those applications that did exist primarily supported cellular design, quality documentation, backflush inventory, and kanban management. The few applications that provide the systems capability to handle production management without work orders and schedules, capacity planning, product costing, demand management, and collaborative supplier replenishment are relatively unproven today, but I expect these applications to mature significantly in the next two years.

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