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Taking lean off the manufacturing floor

By Paul Golden

Executive Summary

Although lean manufacturing has yielded solid improvements on the shop floor, its true value comes when its benefits are replicated throughout an organization. Using lean as an enterprise management system in all areas can transform your company's culture, drive innovation and capture market share.

A dozen years ago, I was appointed to my first general management role as president of a heavy equipment manufacturing company. It hadn't launched a new product in eight years, and it was losing market share to its two primary competitors. Three years later, we had launched six new products, doubled revenues and nearly tripled earnings. We also nearly put one of our competitors out of business. How did we do it? We took lean off the shop floor and made it our cultural underpinning.

The first thing that comes to mind when one hears the word lean in a business context is typically "manufacturing" or "cost reduction." While its roots are in manufacturing, lean's greatest impact is when it is used as the foundation of a business system and culture. Companies that have embraced lean as their foundation have a culture that drives customer satisfaction by eliminating the wastes that prevent the delivery of value to customers. This leads to superior profitability and enables innovation to compound those results in the form of greater organic and acquisition-based growth.

The legacy of lean

To understand the concept of lean as a business system and culture, it helps to look at its history. Most people associate lean with manufacturing and Toyota. In reality, its roots are in the innovations of Henry Ford. Ford relentlessly looked for ways to standardize production and increase output while driving out costs. He succeeded in dramatic fashion with the invention of the production line. What isn't as well-discussed was his ability to see across his organization and focus the entire company on delivering the highest quality, lowest cost vehicle possible. From engineering to finance to the production floor, the entire culture was driven by the goal to make the best cars at the lowest cost.

What Ford failed to include was flexibility as a part of his culture.

That's where Toyota joins the story. After World War II, Toyota found itself as one of the few vehicle companies still standing in Japan. They needed to address how to produce a variety of vehicles with limited capacity. They studied Ford's ways and those of General Motors, but neither production technique was flexible enough to enable Toyota to create a mixed-model type production system. The Toyota Production System was born from this pursuit of flexible production, coupled with the same goal of best quality at lowest cost that Ford pioneered.

Toyota has spent the last 60 years attempting to perfect the delivery of the highest quality, lowest cost, best designed vehicles on the market. What few companies have recognized is that this mission is their culture, not just a set of tools. Toyota is famous for opening its doors to competitors. They even formed a joint venture with General Motors in the 1990s to share their systems and practices. But their competitors didn't understand that copying Toyota's techniques and tools would do little to transform their companies.

It's essential to embrace a new culture that is focused on the principles of the voice-of-the-customer strategy. This means understanding the needs of customers and how products and services can help customers achieve their business goals. By combining the voice-of-the-customer strategy with a culture that refuses to accept that anything is "good enough," a company will be better able to deliver the greatest value to the customer.

A culture of the "least waste way"

Regardless of whether a manager is involved in production or is part of the C-suite, he or she can embrace this culture of delivering value in the least waste way. How to begin?

Step 1: Define who the customer is. This may seem simple, but it is often complex when defining the customer and even when defining the "paying" customer. For instance, most building products businesses work with distributors. Does this mean the distributor is the customer? Or is the professional installer the customer? Or is the end consumer the customer? A simple way to determine the customer is to ask who pays the company, although that won't yield the answer all the time. For instance, in building products, generally

speaking, the distributor is the one who “pays” for the product. A company can look to the other key constituents of its channel and determine that another player in that channel is the “real” customer. For instance, the company may decide strategically that trade professionals are the key to their future and define them as their customer. In this scenario the distributor becomes a partner instead of the customer.

Step 2: Define the customer need. Again, this may appear simple, but it normally is quite difficult. In the case above, the needs of a distributor admittedly will have some degree of overlap with the needs of a trade professional, but for the most part, the needs are quite different for the two groups. The distributor needs product availability and price. Professionals need those, but they also have needs well beyond that. They require technical support, ease of installation, high-quality products and a design aesthetic that pleases the end customer. Which of these needs is greatest, which is least important and what does that mean to an organization? How does it deliver on those needs? The more restrictive and focused a business is on the core need, the greater it will be able to view all activities through the lens of what is adding value, what isn’t adding value and how to deliver the customer’s need.

Step 3: Define value. Defining value as the satisfaction of the customer need is the crucible to creating a business focused on the customer and delivering value in the “least waste way.” That definition of value drives decision making, capital allocation, hiring and other critical operational matters. If the organization regularly asks, “Would this be defined as value-added?” the transformation of the company’s culture has begun.

There are three elements to this notion: value-adding, non-value-adding and non-value-added but necessary.

Value adding is defined as anything that directly results in the satisfaction of the customer’s need. Note the use of directly. This is where managers must be rigorous in their assessment. If it is a grey area, it falls into one of the other two categories. For instance, in a hospital setting, the value is defined as the patient is “cured.” Everything else is non-value-adding in some form. Diagnostic blood tests, MRIs and the like are non-value-added but necessary to get to the “cure.”

Non-value-adding elements are divided into seven elemental wastes

- 1. Transportation: Moving product from point A to point B is not something that adds value to the customer, particularly if the product is moved internally**
- 2. Overprocessing: Poor product design that requires extra work, finishing a part beyond customer need, or poor equipment requiring extra work is wasteful.**
- 3. Defects: Obviously, customers don’t want poor quality, and inspecting it or fixing internal problems adds no value.**
- 4. Inventory: Any component or material not being consumed by the actual creation of the end product is wasted inventory.**
- 5. Motion: Any person or equipment moving more than is required to create the product is wasted motion. Hunting for parts, tools or walking to a printer are all examples of wasted motion.**
- 6. Waiting: Time spent waiting for product, engineering signoffs, maintenance or the printer are all forms of waste.**
- 7. Overproduction: Producing product ahead of demand is waste. The customer doesn’t need it, and it means the company expended cash, energy and delayed delivery of a product the customer needed first.**

There is a natural struggle when determining what is non-value-added, but necessary, especially in nonmanufacturing environments. Do customers pay for a company to run payroll? Do they pay to develop new products? Do they pay for employee training?

At first glance, the answer might appear to be yes to most of these. But managers who are disciplined and rigorous in defining what value-added truly is define these activities as non-value-added, but necessary. In most cases, the customer is paying for today’s generation of products, not for the creation of the future. It’s true, in order to survive companies must innovate to the next generation of product, but customers are only paying for today’s technology. Ultimately, customers may pay for the new generation, but that’s not what they’re paying for today. Likewise, customers don’t concern themselves with a company’s payroll or employees. In order to attract the best talent, however, organizations must pay employees and need to invest in their development. But the customer isn’t paying for that. Those are non-value-added but necessary decisions for an organization to build a better business.

Why is it important to define these activities? To become truly lean, which is delivering what the customer needs in the least waste way, defining what is “waste” is fundamental. Anything that is value-added needs to be improved continuously and added to. Anything that is non-value-added must be reduced continuously and ultimately eliminated. Activities that are non-value-added but necessary must be made faster and more efficient so that more resources can be applied to value-added activities.

Step 4: Identify waste and improve processes. Once an organization defines value, it’s time to look at the work done in the company through that lens. Every business is an amalgamation of processes. These processes generally are linked at some stage, but can be analyzed discretely for waste and improved upon. The lean lexicon includes value streams, which are essentially the processes embedded in a business. As the name suggests, the goal is to focus on maximizing value and minimizing or eliminating waste.

Every value stream has both an information flow and a physical flow. In product development, the physical flow may be initial design concepts, followed by prototypes, leading to first articles and ultimately a deliverable product. The information flow involves the idea generation and selection, design approvals and engineering handoffs between engineers and into production. This information flow is less visible but crucial to analyze, as it typically is where the most waste resides. Waiting for approvals, filling out design review documentation and loading data into the ERP system are all forms of waste, either pure non-value-added, such as waiting, or non-valued added but necessary, such as design testing. Each step of the process can be mapped and then evaluated for its value.

The most difficult work is executing the elimination and reduction of the waste once identified. It requires understanding why certain actions happen and the implications of eliminating them. Some are obvious solutions, like eliminating a report that no one uses any more, or one that no one even remembers why it was created. Others are far more complex, such as eliminating the wait on design approvals and handoffs from engineering to production.

Taking a higher level view is a powerful tool to begin evaluating how information and materials flow across the business. Looking at a value stream for an entire facility or operation by a cross-functional team not only will create a plan for eliminating waste, it will become an education tool for the team to learn and understand more of what other groups in the company do and where they are challenged most by waste in the process. This also provides a forum where fresh eyes can view work processes and ask the important question “why?” thereby helping uncover waste and challenging the status quo.

Putting lean into action and seeing results

Putting lean into action and seeing results

In the case of the heavy equipment company referenced above, the key was in defining the customer need and forcing the organization to think about nothing else. Company officials did not simply meet with customers – they joined them in their jobs. The company delved into what worked and what didn't from its offerings and that of the competition. The business transformed the sales group into solution seekers instead of order seekers. They were taught how to ask the right questions to discover the need. Instead of just listening to customers, they heard them.

Then the company mapped the process on how the customer need was communicated and used by the product development and marketing teams. They discovered that a key reason products hadn't been launched was that no one knew which sales input was the right one to act upon. The result was a lot of stalled projects as priorities shifted based on who yelled the loudest for their idea. The company created a product planning group comprising the senior executive team and a rotating group of midlevel associates. The group was responsible for prioritizing projects as well as communicating why projects were added, delayed or eliminated. The company also created the discipline that idea generators had to create a one-page business case on how their idea would address a particular and well-explored customer need. This eliminated delays, made the process transparent and forced the senior team to focus on the needs of customers in a solutions-oriented way.

Finally, the company created a cross-functional design team. By having team members from each major discipline in the organization, the company eliminated the vast majority of the delays due to approvals and handoffs. Each team had a dedicated project manager who was assigned on a rotating basis, so a finance person would be the project lead for a product development, followed by an engineer, followed by a manufacturing lead. Walking in the product development team's shoes created a sense of urgency on resolving conflicts and building a cooperative culture. It also greatly improved employee development and morale.

A few companies have recognized that lean is an enterprise management system and that the true need is to create a lean culture that goes beyond the shop floor. They have demonstrated phenomenal growth and results in mundane industries such as hand tools, testing and measuring equipment and dental diagnostic equipment. They understand that value is defined by the customer, and that anything that does not directly deliver value is by definition "waste."

Removing the notion that lean is about manufacturing is the first step down the path of transformation. The second step is ensuring that everyone is focused on the customer's needs and is capable of clearly defining those needs. Finally, relentlessly assessing what is value-added, what is non-value-added and what is non-value-added but necessary, and then using those assessments to eliminate waste, is fundamental. Once those cultural aspects are embedded into an organization, using well-developed tools that are available becomes second nature to the company. Then, that business will see great financial and cultural benefits.

Paul Golden is the founder and managing partner of Schilling Ventures. He provides strategic counsel on lean to both private equity firms and their portfolio companies. Throughout his career, Golden has held management and executive positions at Westinghouse Electric Corp., Federal-Mogul and Danaher and was group president at Wabtec and CEO at MAAX. He also founded FMG Capital Partners, which later merged with J.W. Childs Associates. He is a graduate of Harvard Business School.



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