



WHY LEAN WORKS: A THREE-LOOP VIEW OF THE FIRM

BY MICHAEL BALLÉ



A few years ago, *Industry Week* published a survey showing that although nearly 70 percent of all plants used lean manufacturing as an improvement methodology, only 2 percent of the companies that responded to the survey felt they had fully achieved their objectives. Less than a quarter of all companies reported achieving significant results from their lean efforts (“Everybody’s Jumping on the Lean Bandwagon, But Many Are Being Taken for a Ride,” by Rick Pay, *Industry Week*, May 1, 2008). On the other hand, I work every day with companies of all sizes that have achieved steady growth over several years, with visible bottom-line results, whose CEOs unhesitatingly attribute their success to adopting lean as an overall learning strategy. “Many try and fail, but those who succeed do so spectacularly” sums up the research question I’ve been puzzling about for the past decade, since a discussion with Jim Womack and Dan Jones, the founders of the lean movement, during a plant visit in Turkey many years ago.

When I first studied lean in the mid-nineties, I assumed, like many others, that *performance improvement* stemmed from *process improvement*. The idea at the time was that repeated “kaizen” (“change for the better”) workshops would lead to the elimination of waste and better-performing processes at lower costs. To someone with my systems thinking background, it made perfect sense to fix broken processes. It took me a while to accept the evidence that although most workshops were successful in the moment, the results rarely showed at the P&L level, and improvements were almost never sustained.

By studying how Toyota taught its suppliers to do kaizen and working with Toyota veterans, I came to accept that the lean challenge was not to apply lean tools to every

process, but to develop the kaizen spirit in every person (for more details, see “The Thinking Production System,” by Michael Ballé, Godefroy Beauvallet, Art Smalley, and Durward Sobek, *Reflections*, Volume 7 Number 2). It turned out that kaizen was a methodology to teach employees on-the-job problem solving. Somehow, systematically developing each person’s problem-spotting and problem-solving capability led to significant overall results. This was consistent with what I’d been told by Toyota veterans about their golden rule of “making people before making parts.”

“Lean is a business strategy, not a manufacturing tactic.”

—Orest Fiume

A Leap of Faith

I was taught repeatedly that lean is a practice, not a theory, or in the words of Taiichi Ohno, one of the founders of lean

thinking, “practice over theory.” The general idea is to practice and practice and not worry about theory—and results will come. As a systems thinker, I was uneasy with this leap of faith, but I was forced to admit that managers who adopted this posture had better and more sustainable results than those with staff-driven process improvement programs.

As I continued to puzzle over this conundrum, I was shown a second part of the answer by Orest Fiume, of Wiremold fame. Wiremold’s value grew from \$30 million in 1990 to a staggering \$770 million in 2000 in a mature industry without any major technological disruption. As its CFO, Orry Fiume had been a key architect of the company’s growth, along with CEO Art Byrne. As Orry expressed in a personal communication, their *leitmotiv* was that “lean is a business strategy, not a manufacturing tactic.” From many discussions with Orry, it dawned on me that the leader’s role in kaizen step-by-step improvement was the key to overall results. In effect, leaders who use lean as a business strategy learn to

1. visualize processes,
2. so that employees can practice “problems first” and formulate their problems, and
3. learn to solve them one by one,

TEAM TIP

Outline what your team can do every day to learn about your customers’ needs, build teamwork, and develop win-win relationships with suppliers.



4. so that senior executives can study proposed solutions and progressively improve the company's overall policies.

With this framework in mind, I could see a few typical learning areas that are central to lean success:

- **Products:** Toyota did not come to dominate its industry by reducing costs, but by designing and building cars that people bought—mainly through “built-in” superior quality.
- **People:** Toyota has a fundamental commitment to developing mutual trust by involving employees in improving their own workplaces, and teaching problem solving at every opportunity by stopping and solving problems rather than working around issues.
- **Lead Time:** Systematically accelerating workflows leads to better customer service and surfaces all wasteful operations in processes. Thus, along with product quality, it serves as a natural compass for identifying waste.
- **True Cost:** Costs can be separated into the unavoidable cost of doing anything (price of materials, labor, equipment, and so on) and the added cost resulting from the chosen method of operation.

Furthermore, Toyota veterans kept insisting on “teamwork,” by which they meant individual responsibility to solve problems with colleagues across hierarchical and functional barriers. Indeed, according to Toyota’s own history, “just-in-time” was born from its founder’s belief that “the ideal conditions for making things are created when machines, facilities, and people work together to add value without generating any waste.” Kiichiro Toyoda then conceived methodologies and techniques for eliminating waste between operations, both lines and processes, which led to his just-in-time concept.

Three Loops

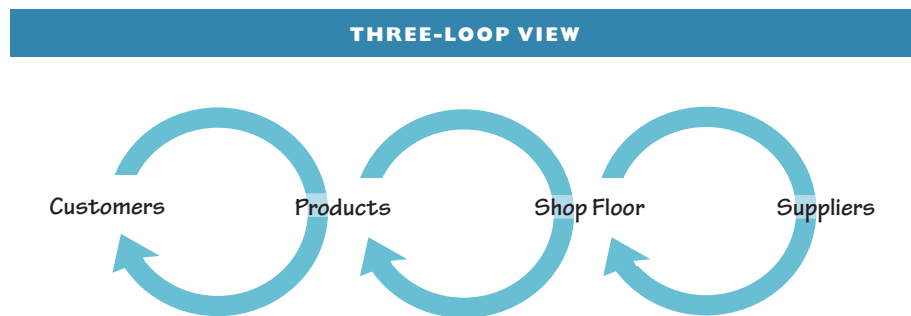
Discussing these elements with Jacques Chaize, with whom I coauthored “The Lean Leap” (*Reflections*, Volume 10 Number 3), I finally grasped the system-level explanation for why a relentless focus on individual development leads to overall performance improvement. Firms that do well in lean are those where the CEO gets engineers to do their utmost to really understand customer preferences (“seeking the customer’s smile,” in Toyota parlance), where engineering and manufacturing are taught to work together and come up with workable solutions to technical problems, and where win-win relationships are developed with suppliers. These firms see suppliers as a source of innovation and ideas for higher productivity, not just a resource to be squeezed.

In this sense, the firm can be described as three fundamental feedback loops (see “Three-Loop View”).

The feedback loop between customers and products is essential so that organizations design products that people like and want. The sales growth engine is based on market share and reputation (e.g., what existing customers say about the product). As long as the product is kept in constant synch with customers’ tastes, the top line grows. The second loop is about creating value streams that will consistently deliver good products at an acceptable cost to satisfy both market price and profitability objectives. The key to this second loop is getting engineering and manufacturing to work together to create easy-to-build designs that still fit customers’ preferences. The final loop, the manufacturing/supply chain loop, consists of involving suppliers as partners in order to improve the product’s quality and costs.

In systems thinking terms, we’re filling four stocks:

- **Customer Satisfaction:** This is the stock of goodwill from customers that will ensure sales, as



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customers replace their existing products with the newer version and encourage their friends and family to do the same. Customer satisfaction can be increased through better product fit or decreased through poor design, quality defects, slow service, cost of ownership, and so on.

- **Engineering Expertise:** This stock represents the capability of engineers to understand customer preferences and translate them in design parameters. Again, we can either “get” the customers or miss what they want, and we can either come up with designs that deliver this value or not.
- **Shop-Floor Craftsmanship:** This stock represents the hands-on know how to build the product safely with minimal waste. This skill grows out of a mixture of engineering astuteness and operator practice through kaizen in order to define working standards.
- **Supplier Relationships:** This is the stock of relationships that leads to cost-efficient supply chains. This stock is increased when the relationship is strengthened and decreased when it is broken.

Three Implications

There are three broad implications of such a model on our understanding of business management. First, this way of looking at firms goes beyond Toyota’s “lean” model; it also applies to the “German” product culture/family-owned business model, as exemplified by the equally successful Volkswagen, where strong product leadership is the main growth engine. The model also applies to technology-driven companies such as Apple and Google that capitalize on a transformative technology to create “killer apps.” Conversely, the model explains why cost-focused companies constantly lose ground by squandering customer confidence, which leads to lower sales, further cost reductions, lower margins, less investment capacity, lower customer satisfaction, and so on.

Second, this model makes it clear that continuous improvement is a “one mind at a time” problem. All four critical stocks in this framework have to be increased at the individual level: every customer matters, every engineer counts, every operator has to be involved, and every supplier needs to be developed. On the management front, this fact argues against sweeping motions and across-the-board policies, and for a deeper case-by-case management

style where the leader’s role is to point toward ideal conditions and support every person on his or her way there.

Finally, the overall conclusion of this three-loop view of the firm is that a leader’s role is not to manage performance directly, but to create the right conditions for performance. Although the “I say-you do” style is more reassuring, a teaching approach

turns out to be both quicker and more effective. By distinguishing conditions from day-to-day events, one can determine the broader challenges and then get the full benefit of small-step kaizen. Rather than set task-level objectives, business leaders can thus determine overall dimensions and support their personnel in progressing by repeated practice—putting learn-

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The Three Knowledge Wheels

One of the enduring mysteries of lean is that when companies practice it effectively, their costs go down—although they never directly address expenses. The lean CEO safeguards her people and protects her customer, controls and reduces lead time, and relentlessly teaches problem solving—and costs go down! Actually, sales go up, costs go down, and profitability increases. Yet, despite this inevitable truth, it’s difficult to articulate a system-level story to argue against the standard cost logic of financiers and accountants.

This problem is as true now as it was in Taiichi Ohno’s times, as he railed about the real-world costs of narrow-sighted cost-based logic. The Three Loop view proposes a framework to help business leaders base their long-term perspective on the experience of, each and every day, turning the three knowledge wheels of *following customers, building teamwork between engineering and manufacturing, and developing win-win relationships across the supply chain.* ■

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