



# Products, people, profits

*In France, the drive for happy  
customers starts with putting smiles  
on the faces of employees*

BY MICHAEL BALLÉ

THE CEO WALKED THROUGH AN IMMENSE HALL WITH stacks of metal sheets on racks everywhere, forklifts carrying door panels driving to-and-fro, operators walking here and there, to the finishing area where, after the edges have been welded, a team of several operators grind down the edge welds and finish the seams. The executives at this site in France, which produces steel garden gates, wanted to show a kaizen workshop that improved productivity by rearranging the jigs so operators would walk less – they had gained one workstation out of seven. This meant a 15 percent productivity improvement with real ergonomics improvements, as operators now carried heavy portal frames less.

They were quite pleased. Their idea was to replicate the same approach across all operations to improve profitability, as the company was under tough price pressure from its distribution and sales channels.

This is what most people think of when they hear about “lean.” I remained noncommittal and asked to see some finished gates. Examining the finished products in greater detail revealed here and there badly folded metal with poor edge adjustment, poorly polished weld points that showed under the paint, open edges that would invite corrosion, and so on. This host of minor quality issues never would appear at a quick glance, but we know that they impact customers disproportionately (and unconsciously) when they’re about to purchase or when they use the product.

I told them that lean was first and foremost about seeking the customer’s smile – not dissatisfied customers who, even if they don’t actually complain, won’t buy again or promote your products. And to seek customer smiles, we need to seek employees’ smiles. Were the operators in the “leaned” area smiling? Had they been involved with the “improvements,” or had experts walked in and rearranged the process for them, taking away a member of their team?

This conversation did not go well.

## Learning to change behavior

What makes a company lean? As Jim Womack and Dan Jones defined it 20 years ago, the first principle of lean is improv-

ing value. It’s the commitment to please customers through constantly seeking to understand their preferences and (often unspoken) expectations about the products. It’s the parallel commitment to reduce the cost structure to stay below market price and deliver more pleasing products at a more reasonable price. A company is lean because:

- It does less rework and makes less defective products, which in many companies adds up to percentage points of turnover taken directly out of the profits.
- Work flows better and processes are more flexible, so the company carries less inventory and burns less cash to operate, increasing its cash conversion ratio.
- Better flow also radically reduces the cost structure of holding inventory, moving things and people around, owning forklifts and so on.

- Overall, this reduces the need for capital expenditure as smaller, more flexible machines operate in smaller halls, which increases sales by square meter.

- It constantly improves its social capital because none of the previous profitability goals can be reached without constantly developing all employees’ competence and confidence in themselves, one another and the fairness and competence of their bosses.

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There was nothing wrong with improving the product flow at the finishing area if the CEO had used the experiment to learn how to improve welds so they needed less polish (and how to polish better before paint), how to reduce the stacks of welded components before finishing and before paint, how to reduce the area and invent systems to take away the need for forklifts, and how to do all of this with operators themselves so they feel like they own the process and are responsible for their output, so that management, engineers and workers learn to work better together.

Concluding that the 15 percent productivity improvement

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could be generalized to the entire factory and would find its way to the bottom line was just plain wrong. Besides, direct labor is rarely less than 10-to-20 percent of the total cost.

What could they have done? A Toyota veteran recently told me about his induction year as an engineer in Japan. For the first three months, he worked as an operator on the line to understand what detailed work at standards was like. For the next three months he was a salesman at a dealership to understand what customer expectations were like. Where he finally joined his group, his boss had him work six months at solving a specific problem, mentoring him and essentially asking him to rethink his analysis and test his conclusions about 10 times.

This induction process illustrates the core values of lean thinking: Understand how our product (or service) delivers to expectations; understand how every step of the technical process contributes to these expectations; and develop people by problem-based mentoring.

The rest of the lean tools are necessary to create the thinking space to play out these three basic intentions. In the tension between delivering the right product in the quantity needed at the time needed, but also never accepting, making or passing on a defect, employees find a space where their attention is engaged and where kaizen becomes part of the job. For example, if we go back to the polishing area, let's imagine that the outcome of the previous kaizen effort would have been:

- A steady visual pace at which each gate had to be picked up by paint
- A detailed “finishing touch” operation (in this case, finishing to finishing) so that every operator polishing the doors could tell with confidence whether the part was OK or not OK
- A stable team and team leader structure so that operators have someone expert to talk to whenever they have a doubt, and that this team leader gets quick frontline management support whenever there is a problem

Such setup would be the start of a lean thinking work space. On the one hand the need to deliver just in time would lead the

team to coordinate and work together, and on the other hand the imperative to stop at every defect would lead to on-the-spot training of individual operators. The main lean trick is to create a tension between continuous flow, continuous flow and then stop for quality alerts – continuous flow, stop, continuous flow, stop.

Unfortunately, lean mavens tend to get so involved with their bag of tricks that they can focus so much on the tool that they forget the goal, like looking at the finger that points at the moon and not the moon it points to. In this situation, as every quality alert is examined, problems would appear progressively. As countermeasures would be implemented and further questions asked, they would progressively explore:

- Operator issues: Unless operators are trained continuously on the job by their management line, they always will make mistakes in either losing sight of what it means to do a good

job or a bad job for customers, getting muddled in the preferred way to move from one task to the next, or losing track of the precise criteria that make each task OK or not OK. By constant training and asking for suggestions and initiatives, management needs to build the confidence of operators in their work in order to eradicate operator-created quality issues.

- Manufacturing engineering issues: As operator training issues are resolved progressively, it will appear that many problems come from the equipment itself, which is never quite as precise, reliable or flexible as needed.
- Product design issues: This leads back to the fact that products often are not designed to be built confidently on the means specified.

The secret to reaching the high-level lean goals of leaning the company is not in production but in engineering, or, to be more specific, in the interaction between production and engineers. As Taichi Ohno, a key founder of the lean approach, understood half a century ago, most people are competent and do their job well, but one or two deep misconceptions can ruin all their good work by creating a disproportionate amount of waste down the line.

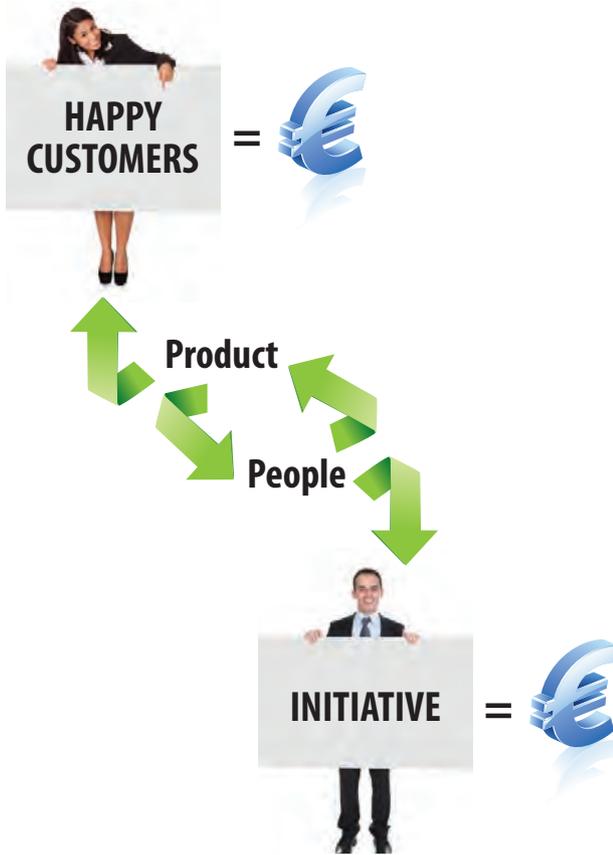
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# HAPPY PROFITS

Figure 1. Companies that pay attention to both products and people during lean initiatives can generate smiles on the faces of their customers – along with more euros and dollars.



The engineer who purchases an overcapacity, overly complex, unwieldy welding robot for the gates doesn't know that he's creating a massive flow issue and generating inventory and cash drain on the company. (Yes, in lean we sometimes bypass the robot and go back to jig-assisted hand welding.) This engineer is solving one design problem by creating a mess further down the line. Furthermore, he will understand if explained but never learn until he has to do something about it.

## Fueling improvements

For example, a French fuel dispenser manufacturer doubled the yearly number of machines sold over a 10-year period in a tough, competitive, saturated market, significantly increasing its market share in the process. In the latter half of this 10-year period it increased productivity in terms of assembly per head by 30 percent by improving the flow on the assembly line but, more importantly, reducing the work content needed to make a machine by 30 percent.

This steady 6 percent a year improvement is classic lean as I first witnessed when researching Toyota's work at one of

the car company's suppliers, a French automotive technology company, 20 years ago. Toyota then taught the practice of the Toyota Production System to the supplier by supporting the kaizen on the cell producing the part. In four to five years, cell productivity improved by 30 percent. But more importantly, the work led to a 30 percent total cost reduction at the moment of part renewal, which Toyota split in half with the supplier. This is, in essence, "real lean," as the structural cost of the product is leaned out while quality is improved.

The dispenser company succeeded because, first, it focused on how customers perceived quality. The industrial director was an old hand at lean transformation, and his first priority was to create a robust system to capture all complaints about the machines – not easy for a medium-sized company selling all over the world in all markets. He worked with the quality department to create a website to capture every complaint. He then worked with engineering to start addressing the most obvious customer issues, such as rust, mechanical failures and so on, using tools such as A3 reports to investigate issues.

At the same time, he tasked the production site to improve its flow, which turned out to be a steep uphill climb because of the assembly's complexity and the bewildering number of options, made more complicated by large, somewhat random, variations in the volume of orders. Flow improvement went hand in hand with quality improvement, and the final test benchmark went from counting defects per dispensers to defects per 100 dispensers and aiming for defects per 1,000. To achieve this, quality gates were introduced within the process in finer and finer detail. This was coupled with frequent operator training.

Having "cleaned the window," about four years into the lean transformation the industrial director challenged his engineering team to build quality into the machine itself. In this industry, technology and machine designs change slowly, although a constant demand for local modifications and market problem-solving swamps engineering with work.

The engineering teams took a step back and concluded that the dispenser itself was essentially a meter and a pump. The meter is a high-tech object, very sensitive to fuel quality and local conditions, and it tends to drift over time. This distresses real customers, as a gas station's largest function is to charge for the actual amount of fuel dispensed.

After four more years of hardship, and in the process rebuilding a hydraulics department from scratch, the engineering team came up with a "no drift" meter. The market quickly recognized a superior product with dominant sales. Over this 10-year period, the company's attention to products and people, as illustrated in Figure 1, led to profits, doubling earnings before interest and taxes (EBIT) from its industrial operations.

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## Finding true value

Leaning a company, with large objectives such as significantly growing market share, profitability and cash, starts with learning to see at the “gemba,” the real place – both in the customer’s hand or in the operator’s work. But that must be followed by asking “why” until the answers are found in the engineer’s mind.

People often ask how “root” a root cause analysis should be. Experience has shown that until we’ve reached the calculation algorithm that the engineer used to support her decision, we haven’t found the root cause of the problem. The fundamental question is: What reasoning led her to think of the product/

process in this or that way? While the promise of lean starts with the voice of the customer and work begins on the shop floor, lean really lives in engineering. The aim of lean is to offer better products by developing better people. In practice, this means a three-pronged approach.

First, focus intensely on customer complaints to investigate them one by one and resolve them progressively from operator motion to equipment improvement to engineering changes. This process is essential to find out what customers really care about and which aspects of the product or service they really use, which usually is different from what they say they want and what the engineering department wants to build.

Relentless pursuit of eliminating customer complaints also leads to regular experiments to deliver new features to customers to find out whether they use them. Both efforts make sure the company stays close to its customers and follows their changing tastes.

Second, visualize processes on the shop floor so that problems appear, and work with engineers to solve specific problems in products in production (value analysis) to introduce improvements in products at the design stage (value engineering). The lean way to profitability balances value analysis and value engineering and understands that real innovation requires complete process mastery and discipline.

The management drive to value analysis and value engineering will lead to fundamental architecture discussions about what should be fixed in the current product and what should evolve, as well as a deeper look at the improvement of engineering knowledge. This helps us distinguish more clearly what we know from what we don’t know.

Third, start small and solve trivial problems before tackling the greater ones. The aim is not to solve problems to put out fires, but to use problem-solving as a teaching device. This is similar to how doctors are trained by problem-based teaching. Small problems are easier to manage and more likely to be pursued to deeper causes than large, urgent burning fires,

which also tend to be emotionally fraught and politically complex.

What is more, we often find that as we solve small problems continuously, the frame through which we look at large problems often shifts, and we look for different types of solutions as some avenues close and others open. Learning from trial and error on small problems is essential to tackling larger issues without making wild gambles.

To a large extent, from a lean perspective, the product and the process shouldn’t be distinguished. The success of lean products comes precisely from the understanding of the profound intermesh between

the product’s design and how it’s built every day – which is where the value to customers lies and where profits stem from.

From a leadership point of view this requires balancing the focus between today (solve problems now or you won’t have a tomorrow) and tomorrow (worry about the next product or you won’t have a tomorrow either). This never is simple and, again, can be learned only through experience.

## Lean springs from the internal

In the end, the success or failure of any serious lean effort hinges on the willingness of leadership to adopt the revolutionary change in management attitude that lean implies. To make lean work, leaders have to change their notions of being the boss from being the one who tells others what to do to

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# THE TRUE LEAN GOAL

Figure 2. Lean thinking, appropriately applied, helps your employees grow along with your business.

## WHAT WE SEEK WITH LEAN:



being the person who will grow every one of her employees in terms of technical autonomy and scope for initiative.

In true lean thinking, the “continuous improvement” pillar is balanced by its “respect-for-people” counterpart. True lean leaders must commit to guaranteeing people’s physical and mental safety (free from injuries, harassment and uncertainty about their job). True lean leaders also must respect people’s experience and intelligence, challenge them to grow in competence and desire to use every person’s full abilities.

In this view, people are not tools to compensate for the fact that the all-deciding boss doesn’t have enough pairs of hands, but trees that need to be placed in the right soil and situations to grow and expand. The external lean revolution first needs an internal attitudinal lean revolution.

As an engineering leader, this means making sure that three learning cycles occur permanently in the company, day in, day out, regardless of the many crises the business environment will throw at you:

- 1. Offered value:** The customer/product learning loop, or how does the company learn from its customers’ reactions to products, and how does the company propose new products to customers to test their evolving tastes
- 2. Created value:** The product/process learning loop, where leaders must learn about the real costs of operations and the impact of operational constraints on products in order to reduce costs and adapt operations to new product offerings
- 3. Captured value:** Innovation most often happens outside the company, with suppliers, research partners, startups, etc. Leaders must learn to foster tighter relationships with partners to capture more value in the supply chain, along with innovative solutions.

Like many of his counterparts, the CEO of the gate company was obsessed with his systems. He felt that if he got every

system right – the sales system, the engineering workflow, the production system, the MRP system and so on – his company would perform.

Unfortunately, he is not alone, as this has become a dominant view regardless of all evidence to the contrary. The truth is that companies thrive when people buy their products. Profitability is a result of market share, which is a consequence of perceived quality.

Growth comes from customer satisfaction, which requires employee satisfaction.

When systems-fixated executives hear about a lean system, they believe they can add a “continuous improvement” system to their collection and make the company even more ... systematic. This is a profound misunderstanding, as the lean system always has been thought of as a learning system, not an execution one.

Indeed, lean experts are at pains to explain that the fabled Toyota Production System, the system to learn to improve quality, lead-time and productivity, is different from Toyota’s system of production, which is the sum of Toyota’s current production practices. The former has changed very little over the years, where the latter is evolving constantly. As Toyota’s business has grown, its humans have continued to learn, a synergy illustrated by Figure 2 that you should wish to emulate.

As the visit drew to a close, I tried to convince the CEO that lean was less about clarity of purpose, organization of value streams and discipline of process, but more about a passion for products, people and, therefore, profits. However, I doubt I ever convinced him and his team. After all, applying kaizen workshops across the production area to get a 15 percent productivity increase is a known, practical way to move forward, whereas involving engineering in rethinking products sounds dicey and scary.

And yet, the secret to the spectacular lean results some CEOs obtain resides in their ability to lead from the ground up – and to get all their people in engineering, production and the supply chain working better together to offer improved value to customers. ~

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