

Lean

LEAN APPLICATIONS OFTEN FAIL TO DELIVER THE EXPECTED BENEFITS BUT COULD THE MISSING LINK FOR SUCCESSFUL IMPLEMENTATIONS BE ATTITUDE?

By Michael Ballé

One of the most vexing and enduring puzzles of lean is that, although many plants try to go lean, few succeed. This fact has been noted by many but, beyond the obvious need for management commitment, the reasons why lean proves so hard to implement are still largely mysterious. Indeed, most of the key concepts of lean have been known and around for more than 20 years. Automotive suppliers have had documents detailing Just-In-Time systems since the mid-1980s, numerous consultants explain the ins and outs of lean concepts and conduct endless workshops and still only a handful of plants, services or offices can now be truly considered lean.

In their seminal book, 'Lean Thinking', Jim Womack and Dan Jones shrewdly note that there is much more to lean than a JIT toolbox. As Womack points out in the foreword to 'Becoming Lean': "Why is lean thinking and lean manufacturing so challenging to implement? It is not – as many early commentators believed – a set of isolated techniques, but a complete business system" (Liker, 1998). →

Attitude



For these authors, lean is a perspective, a way to look at operational systems through the special lenses of value, flow, pull and perfection (Womack & Jones, 1996, 2003).

Fundamentally there is general agreement with this point of view, and, in fact, the few companies that have successfully implemented lean in some of their operations have approached it as a system, rather than just a toolbox. I would argue that successful lean implementation requires a slightly different understanding of lean, not only as a perspective, but as an attitude.

WHAT IS AN ATTITUDE?

Why split hairs? Certainly, attitudes can broadly be defined as ways of thinking or behaving, but a more specific definition would be “tendencies to evaluate an entity with some degree of favour or disfavour ordinarily expressed in cognitive, affective and behavioural responses.” (Eagly & Chaiken, 1993)

To understand the puzzle of lean implementation, I would argue that it is not enough to focus on the cognitive dimension of lean – lean thinking in effect – without also considering its affective and behavioural dimensions. To be sure, in the vivid descriptions of lean implementations in ‘Lean Thinking’, the authors repeatedly describe very emotional scenes, such as Taiichi Ohno’s demanding the immediate dismissal of a plant manager after a glimpse of the factory, and other instances of unexpected behaviour from the lean experts; who can forget the description of how a lean sensei handed the Porsche plant manager a circular saw and told him to go down an aisle and saw off every rack of shelving at 1.3 metres in order to cut inventory and to enable everyone in the shop floor to see every one else?

Indeed, lean specialists in Toyota often cherish fond memories of the worst dressing downs they received from Ohno himself as their most precious learning experiences and cathartic moments. These varied accounts show that the affective and behavioural aspects of lean are largely as important as its cognitive

dimension when it comes to implementing it on the shop floor: Lockheed Martin’s Michael Joyce says he’s learned that 20% of lean is intellectual, and 80% is emotional (McCormack, 2002).

LEAN IMPLEMENTATION EXPERIENCES

With this attitudinal outlook in mind, I have reviewed the successful lean implementation cases I have personally witnessed in industry, but also in services and hospitals. It turns out that, in terms of lean progress, most cases do follow a broadly ‘value, flow, pull, perfection’ process, as outlined by Womack and Jones. However, from an experiential point of view, a complementary process emerges: ‘aha!’, system, challenges, problem-solving, and finally operator involvement.

In every single case, the lean projects started in earnest with the area’s manager experiencing an ‘aha!’ moment – a moment of sudden and profound insight. The odd thing here is that I have not found two managers experiencing this revelation on the same topic. One site manager in a French assembly plant suddenly clicked on the notion of takt time, and in the following month improved his dismal delivery performance (around 50%) to 95%.

A UK plastic injection production manager used the tool changeover gains he had slowly achieved to suddenly produce ‘every part every day’ on his presses, and ended up transforming the entire logistics of his plant, and cutting his inventory in half in a couple of months.

The Nursing Director of a large French hospital realised that she could find out of date prescription drugs in any ward cupboard if she fished out the packs from the bottom of the cupboard, and started a transforming 5S drive, which then led to detailed problem solving and significant care improvements.

The managers of an administrative office realised that, although the files their staff handled took about two hours to complete, delivering the service could take up to eight months, and consequently reduced the lead time by half.

On the strength of such experiences, these managers then tend to dive into the lean system and explore its various dimensions. As they do so the various wastes, such as muda (wasteful operations), muri (unreasonable burden on operators) and mura (variations in the process) become apparent, and they enter in a rewarding period of gathering all low-hanging fruits, often simply by focusing on the issues.

Unfortunately, this honeymoon period is often drawn to a close when deeper problems surface. For instance, a plant manager who’s had his ‘aha!’ experience on using red bins to track non-quality at shift level and react immediately, obtains short-term quality gains, which then slow down as more fundamental quality problems are reached. At this stage, it’s no longer a matter of training the operators to

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differentiate good parts from bad parts, but of understanding the technical issues – and the analysis is fully far more complex.

One problem can be that the plants lack competent technical experts to conduct such investigations, and the quality problems can remain at a frustrating plateau without obvious improvement, regardless of the effort expended on resolving them. Such challenges are common and, again, do not appear in any one area, but are often linked to the specificities of the process and the site, with its unique mix of competences and equipment.

Ultimately, the only way to break through this challenge wall is rigorous problem solving. At this stage, of all the enthusiastic lean implementers, few manage to overcome the fundamental issues and enter this new phase. Whereas, the early system phase requires an emphasis on quick action, largely because of the learning impact of immediate experimentation, the challenge phase can only be resolved by more structured investigation, starting with the ubiquitous ‘5 Why?’ to SPC tracking and analysis, or DOE. In practice, managers who break through into the problem-solving phase are those who learn to move away from simply tracking the generic indicators produced by the ERP system, and to focus on local, ad hoc data studies to resolve highly specific problems.

Finally, and only a handful of site managers achieve this phase, lean leaders realise that it is not up to them to resolve the problems – or narrowly drive their functional reports to do so – but to involve the operators in problem resolution. For example, one of the best lean plant managers in a Spanish automotive supplier plant says that the only indicator he tracks daily is the number of operator suggestions. This final phase is consistent with the training experience of an American Toyota plant manager described by Steven Spear in his HBR article *Learning to Lead at Toyota*, where after being taught to do kaizen in US production cells, the plant manager is taken to Japan to see how team leaders get improvement suggestions from the operators themselves (Spear, 2004).

AN OBSESSION WITH LEAN

So what is the effective dimension to this lean attitude that underpins the progress through this lean learning cycle? It appears to be lean obsession. Managers who manage to progress from one step to the next simply seem to get obsessed with lean. They continually talk about lean. They explain every day occurrences in lean terms of muda, flow, takt and so on. In their jobs, they spend far more time on the shop floor driving lean than they do dealing with corporate demands of reporting and the ensuing politics. Their results notwithstanding, many of them aren't well regarded in their companies, and often leave to start lean efforts elsewhere. →

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“**To understand and succeed at lean transformation it is necessary to face and embrace the various attitudinal aspects of lean**”

This obsessive link to lean is closely tied to an emotional interest in the continuous learning process. In fact, the lean system provides the perfect balance of increased challenge and increased competence from learning and experience that place the worker in the state of psychological ‘flow’ in Mihaly Csikszentmihalyi’s ‘The Psychology of Optimal Experience’ (Csikszentmihalyi, 1990). Indeed, in previous research, I have shown that obsessiveness was a key aspect of most innovators’ character (Ballé, 2001). In this respect, the affective response to work situations is a constant irritation at wasteful operations, and a relentless drive to eliminate them.

CHALLENGE, PROBLEM SOLVING AND JUST DO IT

Lean behaviour turns out to be equally distinctive. As described in detail by Jeff Liker in *The Toyota Way*, the first striking aspect of lean behaviour is genchi genbutsu: go see for yourself to thoroughly understand the situation (Liker, 2004). Unlike most managerial practices, discussions in lean happen on the shop floor, at the real place, in front of the real situation, with the people really involved. This anti-meeting room bias is emotional as well as practical, as it usually takes ongoing drive and leadership to pull executives or support functions away from their desk and down to the shop floor or service counter where value is actually added.

Another feature of lean behaviour would be challenge, or, to put it more bluntly, criticism. I have yet to meet a lean sensei satisfied with the results of improvement activity. The three usual questions are: “why didn’t you go further down this line of thinking?”; “where are you going to duplicate this finding?”; and, “when are you coming back to this area to further improve it?”.

For instance, Steven Spear and H. Kent Bowen in their 1999 article ‘Decoding the DNA of the Toyota Production System’ highlight a typical case where the lean sensei would not be satisfied by a reduction of 50% in time for tool change, when they intended to reduce by two-thirds. Why this unrealistic expectation? Why not be satisfied by the achieved 50% improvement? Because the sensei felt that by being satisfied with less than they had planned the resolution team captured low-hanging fruits and never challenged core aspects of the process which would have

taught them far more about reducing tool-change over time (Spear & Bowen, 1999).

Lean leaders are also far more focused on problem solving than is usually the case; trying to “fix the problem, not fix the blame”. This behaviour is rapidly apparent on their reaction to the endless crises of operational sites. Their first reaction tends to be an, on the spot ‘5 why?’ analysis, followed by an assertion that more detailed problem solving is necessary. This verbal behaviour is actually strikingly different from the ‘one why?’ approach of most managers that inevitably results in repeating the fundamental error of attributing the cause of the problem to an individual’s behaviour or character, rather than more systemic causes.

Last but not least, lean implementers have a rapid bias to action, preferring to test imperfect solutions, and learn, rather than wait to be in a perfect situation and postpone action indefinitely. A pupil of Ohno recalls how Ohno himself would never suggest directly how to resolve problems. He would ask what people intended to do, encourage them to try it and then discuss in great detail the outcomes of their experiments. Indeed, Jim Womack suggests that Ohno came up with the slogan ‘Just Do It’ years before that famous footwear company. The behavioural response to wasteful situations is to constantly challenge the status quo and experiment with alternative solutions.

RIGOROUS PROBLEM SOLVING AND HYPOTHESIS TESTING

In practice, the cognitive, affective and behavioural dimensions of attitude are not separate, but intervene concurrently. This is particularly evident in the context of problem-solving. As Spear and Bowen have shown, problem-solving is at the core of the TPS. Yet, in this respect, most people are satisfiers rather than maximisers: confronted with a practical problem they will tend to implement the first ‘solution’ that comes to mind, rather than explore the issues methodically and rigorously – and, consequently, can get disheartened when they obtain little results for their efforts. In the first phases of low-hanging fruit, this strategy pays, but at the challenge stage it becomes necessary to test hypotheses rather than pursue every possibility. Such rigorous analysis rarely comes naturally. Most of us have to fight what I have termed elsewhere “the law of least mental effort”: the psychological and social cost of pursuing detailed ad hoc analysis (Ballé, 2002). In this respect, only the peculiar blend of



methodology (cognitive), obsessiveness (affective) and shop floor practicality (behavioural), which constitutes the lean attitude, can carry practitioners over the numerous social and psychological barriers to lean problem-solving – which also explains why many try but few succeed.

ATTITUDE CHANGE

What then would be the practical consequences of considering lean as an attitude more than a perspective? I believe that many failures in the attempts to implement lean start with a fundamental misunderstanding of how to ‘acquire’ lean. Clearly, the cognitive dimension is key, and the concepts and tools must be learned, but they’re not enough by far. Many companies have invested considerably in lean training programmes without ever seeing sustainable shop floor benefits.

Whereas perspective change is largely a matter of education and training, attitude change is a far more complex endeavour, and indeed there is no great consensus in the psychological literature on how this can be achieved – if it can be achieved at all. Nevertheless some aspects of attitude change have been well documented and have lean implications. The first one would be the reward feedback that the environment gives to the individual, the second model behaviour, and thirdly, the power of social comparison (Aiken, 2002).

Overall, individuals are very sensitive to conditioning from their environment. Constant reinforcement of verbal expression or behaviour does generally lead to attitude change, particularly when the person is aware of which behaviour is targeted. In the context of lean implementation, one has to wonder whether the local organisational culture reinforces lean attitudes, or undermines them. The affective aspect of obsessiveness and constant, outspoken criticism is usually strongly frowned upon in the workplace. In the same vein, the lean behaviour of go and see, challenging and expecting rapid action, runs contrary to how most organisations behave. The *jidoka* aspects of lean, in particular, which imply that no operator is ever left alone facing a problem and that support functions have to respond quickly to operator concerns – Pierre Vareille, Wagon Automotive’s new chief executive, has a rule of thumb: answer within the shift, and action within the week – is often far away from current practices. If such general behaviours are not addressed, lean is likely to remain a lot of talk and little walk.

In this respect, modelling is a strong lever for attitude change. Much learning occurs through following a model, particularly if he or she is considered to be competent, is

part of a group of like-minded people, and has the power to reward the observer. Furthermore, repeated contact with the role model, until the observer perceives some shared characteristic with the model, will reinforce the effect (Bandura, 1977).

In the lean context, this explains the indispensable influence of lean senseis on the success of a programme. Such programme masters should not be programme administrators, but recognised lean practitioners who can conduct shop floor activities themselves, and are widely knowledgeable on how to apply lean concepts to a variety of local situations. One of the greatest difficulties of spreading lean quickly is the relative rarity of such senseis, a problem that affects Toyota itself as it pursues its current high-speed global extension: a Wall Street journal article claims that “by far the biggest headache in Georgetown now stems from the scarcity of TPS coordinators from Japan” (Shirouzu & Moppet, 2004).

Finally, social comparison can be a strong factor of attitude forming and change: the sheer number of people around a person who hold and share similar attitudes will have a strong influence on the latter’s own. In this sense, an isolated lean pilot is very unlikely to change the attitudes of those around him, which would suggest that, to have a chance of succeeding, a lean programme should start all the way from the top, and involve all sites and departments outright, rather than conduct pilot after pilot and, in effect, this is what, according to Orest J. Fiume, former Finance and Administration VP at Wiremold, allowed his company to be one of those rare organisations to have succeeded in its lean transformation. In particular, he recommends that senior management should implement lean as a strategy, not a tactic, lead the culture change, mandate lean as a way of operating, and set stretch goals and create an environment that supports their achievements (Fiume, 2004) – which, overall, is an elegant summation of the three previous arguments: feedback (goals and environment), modelling (senior management attitude) and social comparison (through culture change and way of operating).

To understand and succeed at lean transformation, I believe it is necessary to face and embrace the various attitudinal aspects of lean, certainly, cognitive with lean thinking, but equally affective and behavioural. In many ways, I suspect that tackling exclusively the cognitive angle explains that so many lean programmes are disproportionately rich in lean information and theory, and equally poor in sustainable shop floor results, employee involvement and financial performance. To walk the talk, you have to feel it as well. ■

Michael Ballé is co-founder of the Projet Lean Enterprise (www.lean.enst.fr) at Télécom Paris, and associate professor at the American University of Paris

