The R[E]volution of Lean

By

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Lean Works! For some…

Lean has taken the manufacturing industry by storm, and companies around the globe have adopted "lean" methods in many forms and by many names. Large enterprise companies like Toyota, Dell Computer, Pratt & Whitney have achieved dramatic reductions in delivery time and lowered inventory levels, while increasing responsiveness to customer demand and improving cash flow.

As evidenced in thousands of organizations, in many different industries, "lean enterprise" is one of the most competitive business models in use today. Published case studies provide one example after another of companies that have substantially reduced waste and associated costs. There are countless testimonials describing how various companies rose to leaders in their industries by becoming "world class" in lean. There are documented results of compressing order lead-times by more than 80%, reducing work-in-process inventories by 90%, improving quality to a Six Sigma level, and freeing up 60% of resources. Many of these case studies are from very large and well-known organizations, but there are also many small-company success stories.

The good news is that these "lean" concepts and tools are not highly complex, and can be easily learned by people of all levels of education and job responsibility. Lean "tools" include 5S, Value Stream Mapping and concepts like kaizens and kanbans. Search the Internet or advertising section of almost any business magazine and you will find references to hundreds of individuals and consulting firms who tout successful lean facilitations and who offer education courses and consulting services to help companies adopt a lean strategy.

Yet, even as the trend of Lean adoption continues, the success rate is low – less than 20% of companies are successful with Lean.

Why do so many companies fail in their "lean" initiatives? If the results are so obvious, and best practices available in the form of published success stories, what's the problem? With thousands of consulting experts and just as many training courses available to get the required understanding, why aren't the majority of companies successful with lean, and why isn't everyone using this incredibly profitable management strategy?

Good question.

This "missing link" between Lean goals and successful projects that produce the intended result is the approach to Lean. The "who, what, where and how" approaches are unlikely to provide optimal return on investment without a foundation of agreed-upon principles. If you want to reach your desired destination, you must first plan the journey. The first step of embarking on a Lean journey is to establish a powerful plan, including a roadmap for change that provides guidance for all involved.

A strategic foundation has many components, including principles of development and rules of communication. Development of this roadmap is a dynamic and iterative process, since, like the world around you, a business strategy must change, and a framework for Lean must be as agile as your customers, suppliers, and outside influences demand. The journey of Lean is an exciting and potentially very profitable one, yet potentially dangerous without a roadmap. The Breakthrough Lean Framework™ is that roadmap.

Starting Incorrectly – the First Mistake

The fact is that people often struggle with the most basic of problems when implementing Lean – where to begin. Where and how people start a lean initiative is critical to the success of the first lean project. If the first project isn't successful, there is a good chance that there won't even be a second effort, and the first project won't be successful if there is no measurable impact to the bottom line or to strategic objectives.

Many organizations focus on "how" to start, applying a specific technique (such as, 5S) or perhaps with "what" to start first (identifying "kaizens"). Others may focus on "whom" and provide training to selected individuals or teams, while some begin with "where" and begin by creating Value Stream Maps.

These are the common approaches to Lean – let's explore them further, and see why a different starting point is required.

5S

Many companies begin lean by employing a technique called *5S*, or Workplace Organization. The "5" and "S" come from the five Japanese words; seiri, seiton, seiso, seiketsu, and shitsuke. The English equivalents (keeping the "5S" theme in mind) are: sort, set, shine, standardize, and sustain. Essentially, this is a process to organize a work area, focused on improving efficiency, safety, layout, and flow.

5S efforts produce some immediate benefits and visible results. Workplaces are indeed better organized. Tools and materials are maintained in well defined locations, and are easier to find and more quickly accessible for use. Operators notice that their jobs become somewhat easier. Supervisors find that it's simpler to visually identify problems—inefficiencies, excess inventory, misplaced equipment, etc. There may be a marginal increase in productivity, even if 5S is used in isolation from other lean strategies or tools.

But the bottom-line benefits of a standalone 5S program are difficult to measure directly, and even so, the improvements tend to be isolated. Improved value in the overall system and the impact on throughput is difficult to quantify.

Kanbans

The word *kanban* means *visible record* in Japanese. In lean lexicon, it is essentially a signal to produce something, move product, or deliver a service. A kanban may be an electronic signal, an empty bin, a card, a pallet, or a defined area to hold inventory. Kanbans are used to manage inventory – quantity, timing, and direction.

In the ideal lean world, product is "pulled" towards the customer, through the factory, from the supplier in quantities of ONE – hence the term *one-piece-flow*. However, in many circumstances, it's impractical to produce and move product one piece at a time. So kanbans serve as a temporarily-agreed-upon compromise; allowing the company to move small, controlled batches of material in a "pull" environment, until such time that we determine exactly how to accomplish one-piece-flow.

The use of kanbans can dramatically reduce total inventory. Since lead-time is almost directly proportional to work-in-process inventory (WIP), well-defined kanbans can provide a significant improvement in lead-time.

But there can be problems. Using kanbans without other coordinated improvements (such as reducing equipment changeover times) can backfire, resulting in degradation in equipment utilization and even problems with on-time delivery. Also note that since kanbans are a compromise to true one-piece-flow, companies that have effective kanban systems sometimes become complacent and do not address the root causes that created the need to maintain inventory, such as long changeover times, imbalanced processes, long distances between work centers, quality problems, lack of operator cross-training, etc. In other words, the organization becomes satisfied with partial success and never achieves its true potential.

Kaizens

Also known as *kaizen blitz*. This may be the most common starting point for a lean initiative in US manufacturing companies. *Kaizen* is the Japanese word for *continuous improvement*. This approach involves empowering work teams to rapidly (hence, the word *blitz*) improve specific problems within their areas of responsibility.

On the surface, this seems like a very good idea, and it can generate immediate and measurable benefits. The use of kaizens, especially if championed by management, finally proves to the workforce that the company is interested in listening to and supporting their improvement suggestions. Some of the more common targets for kaizens include; solving an equipment downtime problem, combining two or more machines into a work cell, setting up a kanban, reducing equipment changeover time, implementing point-of-use storage for supplies (maintaining storage where the supplies are actually used), etc.

But this program can fall prey to a phenomenon known as "drive-by kaizens"— improvements are implemented stand-alone, without prioritization, and without understanding how changes in one part of the facility might negatively impact other functions or resources.

Other critical problems with this approach are that; (1) it tends to overlook consensus, and (2) there is little time taken to actually identify and eliminate root causes—there is more focus on speed and execution than there is on planning.

Value-Stream Mapping (VSM)

A value stream is defined as all activities and events (both value-added and non-value-added) that a product or service passes through on its way from supplier to customer. In a manufacturing facility, this includes shipping, waiting (in inventory, in a queue to be processed, or even in an oven waiting for adhesives to cure), packaging, inspection, rework, and both manual and automated processing. A VSM includes both the product and information flows.

The primary purpose of a VSM, specifically a "current state map," is to highlight areas where one-piece-flow breaks down—these points suggest opportunities for improvement (i.e., kaizens). Other purposes of mapping include; measuring the total cycle time, identifying inventory locations, and determining points in the process where signals to produce arise.

Once a current state map is created, one or more "future state maps" are developed from it, showing where various kaizen events might eliminate root causes for stoppages in flow. The two reasons for creating alternative future state maps are; (1) certain improvements might be logistically, technologically, or cost prohibitive, and (2) there is no single correct future state. The VSM approach is significantly more effective than the aforementioned approaches because it prioritizes the improvement efforts.

This tool, like the others, has its drawbacks. One issue is that it involves those who will be impacted by the change much later in the improvement cycle than the 5S and Kaizen techniques—this late involvement of stakeholders tends to create resistance to change.

Perhaps the most important point in this section is that of "competing value streams" and the impacted support functions. In most organizations there exists more than one value stream—more than one product line, or one product line that produces two or more different items. These different value streams frequently compete for resources; equipment, people, materials, etc.

Additionally, all organizations have departments that support the operations or production department—accounting, purchasing, quality, maintenance, engineering, etc. If the value stream changes without understanding how it impacts a competing value stream or a support function, this may negatively impact the overall organization.

Lean works, but not for most …

Each of the above approaches is effective to some extent. Unfortunately, there are even more stories about how lean ***doesn't*** work. According to many estimates, less than 20% of lean initiatives accomplish the desired goal and result in a lean-centric organization. The pragmatic and honest articles and books on "lean" talk about project pitfalls, resistance to change, and the lack of return on the investment. Many lean consultants begin their sales presentations with warnings about how complex lean is. Managers who resist adoption talk about how lean doesn't fit their business model or apply to their industry.

Specifically, the following are some of the more common reasons cited for lean failures:

- Lack of management support
- Poor metrics
- Not enough training
- Resistance to change
- Ineffective communications
- Not able to sustain or expand initial efforts
- No buy-in from supervision
- Not expanding improvement from the initial efforts to other departments
- Improvements in one area seemed to have negative impacts in others
- No buy-in from workforce

This seems to be a paradox. Lean is an effective strategy and there are many lean "experts" and books available to help guide your journey, yet most companies fail in the effort.

As stated earlier, there are many approaches to Lean, some more successful than others. Organizations may choose to begin with a tool/technique approach to Lean, applying 5S to a broad cross-section of the business or identifying a specific problem area for a "kaizen" event as an attempt in "do it yourself" Lean.

Organizations and instructional companies who offer Lean training and certification programs insist (no surprise) that you must learn all about Lean before you start, and that training is the way to best leverage Lean. Consultants with specific subject-matter expertise or experience in other similar industries advise that you begin with the creation of a "current state" Value Stream Map on a selected product line or business area and then circle back to apply specific techniques in areas of weakness to define incremental improvements. Other consultants advise that a "clean slate" approach be used to envision the future "perfect world" and ideal business model without being encumbered by analysis of the existing value streams.

How do business leaders resolve this contradictory information? Do the companies and individuals who have been successful know something others don't know? Is there a skill set that's only available to a select few? Does lean really only apply to certain types of industries, organizations, or even more narrowly to very specific process or product families within manufacturing facilities? And, even if a manager has evidence (or, faith) that lean is worth trying, how can he or she avoid being one of the many failed case studies?

A Business Value System

Seldom are "big" problems (such as the ones being tackled by Lean) limited to only one business area, department, or product line – multiple departments, dozens or even hundreds of business processes are linked together in value streams, and there are a myriad of dependencies and interactions across and between all of these. If these are not understood the impacts are discovered too late, and proposed or implemented changes suffer, as do the people involved.

The typical approaches to Lean are for the most part too narrow in their focus, and result in sub-optimal improvement that either has too small of an impact on the bottom line, or takes much longer than it should to have the impacted required in order to achieve the original purpose of adopting Lean.

Over the past several years, we've witnessed many effective and ineffective lean initiatives. In the book, "The Machine that Changed the World," Womack, et. al., made the case for a lean enterprise—employing principles created by Toyota. And, US companies, primarily the manufacturing sector, accepted the challenge. However, organizations weren't prepared for the aforementioned obstacles. In order to address the paradox that lean works, but not for most businesses, we decided to focus our research not on lean failures, and not even solely on lean successes. Instead, we chose to study best practices in strategic initiatives and try to relate them to the common threads among the various lean success stories.

Our first observation is that the issues noted above appear to be pervasive conditions and not explicit reasons or root causes. Rather than explaining why the lean enterprise failed, these tend to simply be part of the existing company culture. In other words, these circumstances are not specific to lean, but would be stumbling blocks to any strategic implementation that the company might undertake. Conversely, those organizations that have been successful with lean will likely be successful with another other major initiative.

Our second observation probably parallels that of many of you reading this article—there's nothing unusual here. Some organizations and leaders seem to understand how to define and execute a strategy, while others do not.

Becoming a lean enterprise is no different or more difficult than implementing a total quality management system or conducting a business process re-engineering initiative (not that those are easy things to do).

Our third observation is that there are some missing tools in the strategic arsenal for Lean—tools for strategic planning and tactical selection of value streams or process areas for the application of lean. One tool, which fills a gap in a "lean" toolkit, is the Business Value System Framework™. This framework provides a foundation for a more successful (and profitable) starting point for Lean.

Begin by Asking Different Questions

From over 40 years of research into effective leadership and optimal problem-solving, it was determined that intuitive leaders approach a problem, issue, or assignment in a specific way, asking specific questions that help them create breakthrough solutions and strategies. In starting a Lean journey, it's crucial to consider the following "smart questions" in sequence[1]:

1. Who should get involved to help assure we are working on the right problem?
   Then
2. What's the purpose we're trying to achieve?
   Then,
3. What's the purpose of that – and the purpose of that – and that, etc.?
   Then
4. What's the best future solution for achieving the group of defined purposes?
   Then
5. What's the interim, transition solution that contains continual changes to achieve the future solution?

Effective leaders consider these questions, intuitively or by plan, since they continually envision solutions in larger and larger contexts, and because they recognize that **every solution has unique and ever-expanding contextual and systemic implications throughout the business.**

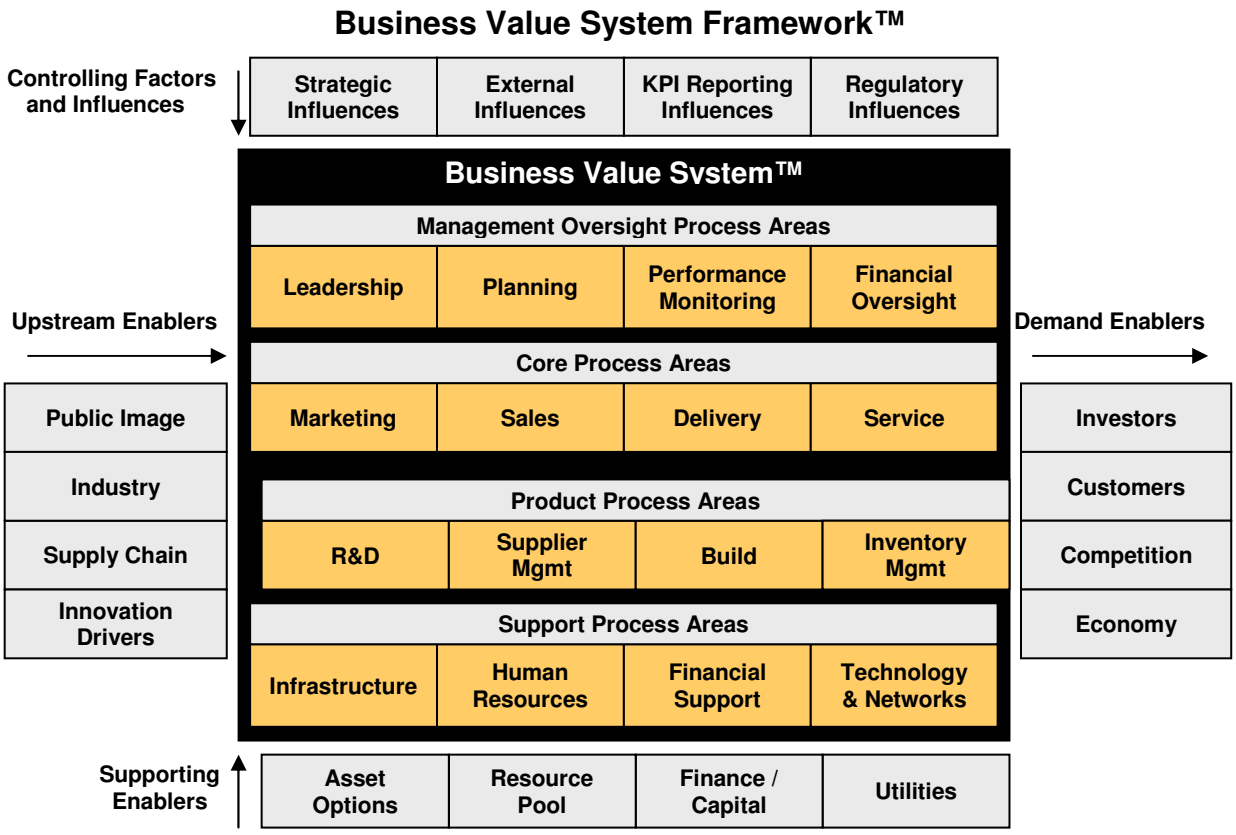

Figure 1: Business Value System Framework

[1] The Center for Breakthrough Thinking, http://www.breakthroughthinking.com/ProductsAndServices.html, 2006

As pointed out earlier, the typical approaches for Lean are not the optimal approach to Lean or any other type of company-wide improvement. By applying the principles of Breakthrough Thinking[2], we can ask some unique questions to help us start from a completely different perspective and as a result create a more appropriate foundation for an effective use of Lean.

The Business Value System Framework™ provides a visual guide and reference for asking the referenced "smart questions". For the "people" question, consider the role that each of the Process Areas plays in the product or process under consideration. In considering "purposes" consider the goals and objectives of each process owner and stakeholder team. When considering "solutions", consider the proposed change across all of the involved Process Areas to ensure that the breadth of the solution reaches outside the organization to impact customers in a positive way.

More Information

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