

Why Last Century Lean Transformation Fails in the New Millennium

Recognizing and Remediating Root Causes Pave Way for Success

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“At Toyota we get brilliant results from average people managing a brilliant process. Others get average results from brilliant people managing broken processes.”

-The Toyota Motor Company

For all those North American companies that attempted a Lean transformation and abandoned it, or those in the middle of a Lean implementation that seems to be dragging on without producing results, there is hope.

I. Background

These companies may not realize that the root cause of their implementation problem lies in the very methods that made companies successful 20 years ago. Basing their Lean transformation journey on reference material derived from Lean's 1950s heritage, specifically Toyota and the Toyota Production System¹, ignores the necessity for collaboration in a world of enterprise-wide value streams that can stretch from China to Chicago. The problem is there are radical differences between how North American companies operate today and how the Toyota Production System was developed over 50 years ago. These differences

present a specific set of challenges, which, if not recognized, will inevitably inhibit a successful Lean transformation in today's fast paced, real-time-information-driven world.

The challenges North American companies face in Lean transformation are frequently attributed to cultural issues, and, to a degree, this is accurate; but it is important to note that the differences are not cultural at the employee level, but at the **business** level. North American companies with very clear procedures achieve superior results and are extremely competitive in the global market -- despite the perceived high-cost issues of labor unions, long supply chains, and even some government interference. These companies are “overachievers” because they have very innovative, highly educated, creative employees. Even North American companies with poor procedures and poor management leadership continue to survive, thanks to their employees.

The key differences between implementing Lean in North America today versus what the Japanese started decades ago center around four main points:

- tenure of senior leadership;
- age of facility and current processes;
- stock market expectations; and
- applicability of old training and execution methods across a non-vertical/non-integrated enterprise.

These challenges, if not addressed and overcome as part of the Lean transformation, manifest as “false starts,” low ROI², slow implementations, and a variety of failed projects mixed among a few local successes. To fully understand the different approaches to a successful Lean implementation, it’s important to understand the history of Toyota and the genesis of its Lean production techniques.

a. The History of Lean: Toyota vs. Ford

Ironically, Lean began with Henry Ford, whose approach to manufacturing was Lean in the truest sense of the word. Lean guru James P. Womack has described him as “history’s most ferocious enemy of waste...who focused on the value creation process rather than assets and organizations. He was the first to see...the flow of value from start to finish, from concept to launch and from raw material to customer.” Ford devised the most logical way to assemble parts, placed the parts on the production line where they were needed, impressed on his employees the need for quality throughout the process, and maximized the number of automobiles produced daily.

In the 1950s, when Eiji Toyoda, CEO of Japan’s Toyota Motor Company, visited the Ford Motor Company to observe Ford’s automobile production techniques, he took away many of the Lean methodologies used on the assembly line and in vertical integration. The philosophical components of visibility management, management/leadership on the production floor, listening to employees, and continual training of the entire workforce also came from Ford³, and those were the tenets upon which Toyota built its Lean approach.

b. Taking Ford’s Ideas to Japan

Mr. Toyoda realized the philosophical components were worth taking home, yet recognized that Japan’s market demand required slightly different thinking than what was required by Ford’s model of low mix-high volume production.

Instead of ignoring these differences, the Toyota leadership team was challenged to innovate and resolve these issues, and the result was what is now termed “The Toyota Production System.”⁴

Had Toyota’s leaders tried to rigidly apply the systems and techniques used in the Ford factories, they surely would have failed. Yet it is exactly this kind of rigidity many companies attempt when starting their Lean journey.

Just as Eiji Toyoda recognized the differences in the Japanese and American market demands were a critical barrier to success, which required his company to focus on a high mix of products produced frequently in low volumes, it is important for senior leadership to recognize there are several key differences in implementing Lean in the 21st century which were not present when the Toyota Production System was first coined “Lean.”

II. The Critical Barriers to Success

a. Senior Leadership Tenure and Tenacity

During Toyota’s critical growth years (1950-1994), Eiji Toyoda was the sole CEO and president. He was committed to Lean management throughout his tenure and this leadership longevity and continuity has been an important factor in Toyota’s success, much as leadership stability has been for many other Japanese companies.

The leadership situation is much different today in North America, where the average tenure of senior management, specifically at the CEO and COO levels, is three to five years⁵. This is hardly long enough to shepherd organizational change through the first phases of Lean transformation, which, according to

The Toyota Way, requires six years, let alone bridge the entire change curve, which could run as long as 15 years.

b. Age of Facility and Current Processes (Green Field vs. Brown Field⁶)

Toyota and, consequently, most Japanese businesses initiated their Lean transformations (albeit under different names) at the rebirth of their companies (green fields) after World War II. The low volume-high mix market and low capital investment requirements for making changes allowed these organizations to survive and thrive. The plants were built from the ground up with a manufacturing model designed to optimize the marketing model, which made it much easier to implement Lean processes and concepts.

North American companies are an entirely different story. These are manufacturing plants designed in the 1970s or '80s and based on a high volume-low mix marketing/customer demand model. As such, all of the existing business processes, metrics, personnel, and, perhaps most significantly, equipment (including technology) were set up to optimize the high volume-low mix model. In addition, most of these companies measured success using strictly financial metrics. Operational metrics, or execution-level metrics, were not installed, nor were the necessary resources to capture, collate, and measure at the operational level. Injecting Lean into these long-established companies (brown fields) presents a serious challenge.

Many consultants (internal and external) blame brown field failures on senior leadership not “buying into Lean.” However, the real challenge is not that brown field leadership is unable to see Lean as a powerful means to improve financial performance; the challenge is recognizing that the methodologies for converting a non-Lean organization to a Lean team must be adjusted to take advantage of the organization’s strengths and to ensure senior leadership and their consultants develop strategies for addressing the obstacles created by the differences.

c. Stock Market Expectations

The Toyota Way focuses on Lean measurements and operates on the philosophy that, over time, improved processes will render an improved bottom line.

On the other hand, in today’s world of near daily visibility into company performance, online investments, and 24-hour financial news, publicly held companies must recognize the pressure to show improvement every quarter and a high ROI to justify money spent, even on improvement initiatives that present significant long-term results. It’s not that stockholders reject a solid long-term improvement strategy; the point is, they expect to see incremental quarterly improvement in key business indicators.

Lean training was modeled very heavily on training the organization before expecting results, a model that makes it very difficult for North American senior leaders to justify Lean programs to their stockholders/market. It is imperative in today’s continuous improvement culture that improvement is measured not in activity, but in visible results in the financial metrics. Thus the project plan must be designed to allow the organization to experience measurable wins early in the transformation cycle.

It is estimated that visible results (positive cash flow) are necessary within the first year of initiating an improvement project in this environment.⁷ This requires a wholly different approach to Lean transformation. Rather than starting at one end of an enterprise and working toward the other, as is traditionally taught in many of the Lean transformation publications, leadership must focus the starting point at a place on the continuum that will drive improvement at the highest level earliest in the project, then move to the next best opportunity, and so on.

d. Last Century Lean Training

Last Century Lean is focused heavily on change management, process and manual repetition of methodologies, and asking employees to “trust us, improvement will come.” Emphasizing training activities and rewarding process over results may be an adequate way to manage a

start-up organization with high margins, but it is NOT the ideal way to manage improvement in an existing organization with average margins. This approach fails to address two important catalysts for sustained and continuous improvement – early success and enabling technologies. These catalysts allow, motivate, and drive total employee involvement and collaboration in the improvement effort.

i.) Creating and Measuring Subject Matter Experts

Many Lean training consultants measure success based on creating subject matter experts in Lean principles and methodologies for an organization with the expectation that these individuals will then “infect” the organization and help cause real change. Some companies realize the error in creating these “internal consultants” and instead hire a trained Lean “sensei”⁸ to help internal leadership drive the required change, but then repeat the mistake by measuring the sensei’s effectiveness based on activities instead of results.

In both of these organizational “training” models, the burden for producing results is maintained at the operational leadership level. If the appropriate collaboration and scorecarding tools are not in place, this level does not have visibility into the entire value stream, cannot see how proposed improvement events will improve the business drivers, and are not able to measure improvements using execution-level metrics. As a result, they often fail to take ownership for the process changes recommended by the Lean practitioner assigned to his/her area. These operational leaders continue to be measured using traditional metrics, while the “Lean Team” celebrates completion of “activities.” This disparity in measurements not only fails to create excitement at the grass roots level, it creates a vacuum in expertise when the inevitable occurs - the subject matter expert leaves, either through transfer or promotion.

ii.) Manual Methods Stressed

Many of the methods in Last Century Lean are themselves not very efficient. *Learning to See*, written in

1980, stressed manual creation because it will “help you be a better Value Stream Map creator.” The authors likely stressed this point because, at the time, the available technology had proved to be a distraction and a burden to maintain. They may have feared that more time would be spent on digitizing the value stream than actually observing it. This philosophy has evolved into a belief that Lean cannot be achieved if automation is introduced. Unfortunately, in many organizations this has led to bottlenecks in the application of the very tools they hope will improve the business. Now we have technology which maintains the critical “floor level involvement” without burdening the team, and which often accelerates application of Lean methodologies. Bottom line, for companies with multiple sites and suppliers located over a vast geographic area, a level of collaboration is required that is not achievable with butcher paper and sticky notes. The ability to digitize the process is critical to a successful Lean transformation and sustaining it.

To give due credit to companies which have successfully transformed using manual methods in the last century, it is possible; and, at the time they started their journey, technology, even if available, most likely did not drive a strong return on investment of dollars or time.⁹ However, to ignore the advances in technology and tools, and the necessity to collaborate across an extended supply chain is tantamount to malpractice today.

Just as business managers form an organization’s personnel infrastructure, technology provides an infrastructure for optimizing a Lean operation.

III. The Roadmap for Successful North American Lean Implementation

There Is Hope: 21st Century Lean

Despite the differences between Japanese and North American organizations, green fields vs. brown fields, and yesterday’s business world versus today’s, it is very possible to execute a successful Lean transformation project and drive continuous improvement. The first critical step toward developing or enhancing

a Lean transformation project is to design a roadmap that recognizes that Last Century Lean reference and training methods must be modified to address the challenges specific to modern day realities.

a. Start with Key Business Drivers and Focus on Results

Just as all Lean training material purports, understanding key business drivers is paramount. First, make certain to measure the right things. Then add a step to fully understand how far each one percent (1%) improvement will drive bottom line results. As goals are set for the Lean transformation team (be it an internal team or an external consulting group), measure success against those key business drivers, NOT against how many Lean gurus/blackbelts/senseis/practitioners have been certified or the number of Lean events. Focus on how the bottom line has improved.

This may require the organization to enhance its existing business scorecard management process. If process metrics are to be measured, versus P/L metrics, an important parallel activity may be to enhance available business intelligence. Additionally, ensuring the timeliness of execution-level metrics is appropriate. This does not mean real-time data is required, however; first line supervisors should be able to view performance every two hours, department managers every shift, and plant managers every day, all at the product family and SKU¹⁰ level. Without this level of visibility, the improvement curve will be extended significantly, and more than likely remain flat, because the execution team will be reacting instead of acting.

i.) Measure Dollars, Not Diplomas

It is all about money and it should be. If the organization is not realizing significant improvement in such areas as cost of goods sold, unit costs, and inventory value (especially work in process), the right projects are not being selected and/or implemented. One of the main reasons companies have failed in this area is because the “systems” are not in place to produce timely reports at the execution level. So, instead of measuring nothing, there is an over-reliance on what “can be measured,” i.e., team activity. Amazingly, most compa-

nies have masses of data stored in their ERP¹¹ systems; however, ERP and like databases are not designed to provide near real-time analysis.

Bottom line, to improve the bottom line, successful organizations must add necessary execution-level reporting and analysis technology, such as downtime Paretos¹², shift operating reports, and trend analysis. And unlike last century, these technologies are readily available in the market with rapid deployment curves, so companies are better able to have actual reports, which can measure hourly, shift, daily, and weekly metrics, within two to four weeks of getting the technologies on site.

A plant manager, who experienced several Lean “restarts” before finally seeing sustained results, attributed success to implementing operational metrics. Measuring the organization on results versus activities was the difference between success and failure. “The greatest benefit the... reporting system delivers is detailed visibility.”

ii.) Know Each Project’s Impact on the Bottom Line

Implementing a specific Lean methodology, for example 5S (a place for everything and everything in its place), in one part of the organization may produce valuable results. But this does not necessarily indicate that implementing 5S across the organization will produce similar results. This is a common mistake made by Lean implementation teams. Success in one area using one type of Lean process or tool is not indicative of its value to the entire enterprise.

Having the ability to determine the value of each Lean project¹³ *before* implementation ensures the best return on investment, short- and long-term. Such enabling technologies as electronic value stream mapping tools, simple simulation, and process flow analysis tools allow the business team to create “what-if” scenarios with insignificant incremental effort in order to prioritize the value of each project in advance. As one division vice president of a major consumer packaged-goods company remarked, “I know that there are more savings out there; I can see it in the reports.”

b. Accelerate the Implementation Cycle

Toyota had the luxury of taking six years to see the first solid results from their Lean implementation. Companies no longer have this luxury of time. This means leaders must use the 80/20 rule to accelerate results. This does not necessarily mean the Lean transformation will be less than a six-year journey; this methodology simply “front loads” the results by developing a roadmap that achieves 80% of the potential savings in the first 20% of the Lean transformation life cycle. This can be achieved several ways without ignoring the cultural change, which also must take place.

i.) Use Enabling Technology

Do not accept Last Century Lean’s manual methods. Only a person hard set in the past uses a slide rule to balance his checkbook, yet many Lean trainers continue to resist using technology to enhance Lean implementations. The era of implementing Lean manufacturing without a software infrastructure is over.¹⁴

Lean technology tools help build an infrastructure that can accelerate and sustain results. Examples include electronically capturing value stream maps; e-learning/computer-based training (CBT) modules for baseline education; statistical packages for process analysis and statistical controls; enterprise business scorecards for monitoring results; electronic *kanban*¹⁵ systems for optimizing pull systems; and Lean enterprise portals.

ii.) Laser-Focus Lean Tools Applications (vs. Shotgun Approach)

When determining which tools to use across value streams, it is important to maximize the return for the effort. A common mistake organizations make is they learn a tool like 5S and immediately see using the application in their organization. So for the next six months they execute many 5S projects, which may dramatically change the way the organization looks, but do not necessarily drive a good return on invested time. This same example can be applied to any Lean tools (SMED, TPM, Line Balancing, Flow Cells, etc.). A more effective method is to analyze the value stream (using enterprise-connected value stream

maps) and focus Lean efforts using the appropriate Lean tool/methodology only where there will be significant change to the business metrics. With the tools for analyzing the enterprise value stream, an organization can use the resulting analysis to apply the Pareto principle when deploying Lean tools. In other words, find the 20% of work stations/lines where 5S will drive 80% of the total 5S opportunity in the facility. Once implemented and proven sustainable, the project team deploys the next tool. Again, determine where a focused effort will change results and deploy appropriately.

c. Build an Infrastructure to Outlast Normal Leadership Turnover

To address the relatively high (compared to early Japanese Lean implementations) senior leadership turnover in North American companies, it is imperative to establish an infrastructure that does not depend on a single leader.¹⁶ In addition, in a non-vertical enterprise, collaboration and team communication tools are imperative for ensuring that artificial time constraints created by poor information sharing and miscommunication do not slow implementation.

i.) Collaboration and Team Communication Tools

Collaboration across multiple sites across thousands of miles and collaboration with suppliers and customers with multiple customers and suppliers require special communication tools. It is impossible to analyze the impact that an improvement effort implemented in a single department will have on the extended supply chain using butcher block paper and sticky notes.

In the same vein, it is impossible to communicate the priority, status, and return on investment to all of the employees required for a successful and *sustained* Lean transformation with a flip chart. Just as business organizations have realized an Enterprise Resource Planning (ERP) tool is necessary to effectively manage materials and resources, New Millennium Lean thought leaders realize enterprise-wide Lean analysis, reporting, and collaboration technologies are needed to enable successful transformation.

Fortunately, unlike last century, when technology was costly and a burden to maintain, today's technology, deployed correctly, can accelerate savings and provide deeper insight so increased financial gains are visible sooner in the transformation cycle. In many cases, much of the required infrastructure may already be installed, just not deployed and adapted.

ii.) *Establish a Central Steering Team as Part of Business Oversight*

Finally, to ensure the company infrastructure can survive normal turnover, the expected results of the Lean transformation must be part of the normal daily, weekly, and monthly business review, not a separate event. Lean team members and plant/site/facility leadership must work collaboratively when reporting results and driving action. In order to provide the right amount of detail, the scorecard technology and system must provide SKU-level detail, as well as enterprise roll-up of key operational, financial, and process metrics. "When everyone can see what needs to be addressed, everyone goes after it."¹⁷

This was proven, in one case, when a Sara Lee Bakery team successfully implemented Lean improvements in less than 24 months, across 40 facilities, a feat that could not have been achieved without steering team focus and operational level metrics. A properly defined steering team, concentrated on the total business in conjunction with improvement efforts, ensures focused resolve to move forward.

Recognizing and Remediating the Root Causes

In summary, Lean transformation is an attainable goal – with significant bottom line results visible in the first quarter of implementation. However, failure to recognize the necessity for laser-focused business improvement; near-real-time measurements; enterprise-level visibility; and total team involvement, analysis, and collaboration will slow progress, likely result in "re-starts" and improvement slippage, and unnecessarily expend time and money on low value projects.

Those leaders who embrace technology, measure results not activities, and integrate Lean projects as part of the business reporting cycle will positively "infect" the organization and experience accelerated and sustained results.

FOOTNOTES

- ¹ Liker, Jeffrey, *The Toyota Way* (New York: McGraw Hill, 2004); Womack, J., Jones, D. & Roos, D., *The Machine That Changed the World* (New York: Simon & Schuster, 1990)
- ² Return on investment
- ³ Graves, Ralph, *The Triumph of an Idea* (Garden City, NY: Doubleday, Doran & Co., Inc., 1934)
- ⁴ Liker, Jeffrey, *The Toyota Way*, (New York: McGraw Hill, 2004)
- ⁵ Aberdeen Group, *The Lean Benchmark Report* (Redmond, WA: Microsoft Corporation, 2006)
- ⁶ Existing industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contaminations.
- ⁷ Ken Staresinic, vice president and senior operations manager, USC Consulting Group, LLC, has managed over 70 successful Lean implementations.
- ⁸ Someone who can provide expert coaching on how to achieve organizational effectiveness. Lean sensei has since become a common word for describing an expert who can provide advice on operational and organizational strategy.
- ⁹ If one is focusing on improving only a single line, in a single site organization not particularly reliant on suppliers, the cost of last century technology was most likely not worth the cost or training effort to implement it.
- ¹⁰ Stock Keeping Unit – typically on the product as it is sold to the customer and maintained/tracked in inventory
- ¹¹ Enterprise Resource Planning
- ¹² A Pareto chart is a special type of bar chart where the values being plotted are arranged in descending order.
- ¹³ Sometimes inappropriately termed "kaizens" or "kaizen events." The closer definition of kaizen is continuous improvement through daily/incremental activities.
- ¹⁴ ARC Whitepaper: Gorbach & Rio, 3/14/2005
- ¹⁵ A signaling system, frequently known as a "pull" system.
- ¹⁶ Author Jim Collins provides a compelling case that great companies have an infrastructure that can survive the departure of a single strong leader in his book *Good to Great-Why Some Companies Make the Leap...and Others Don't* (New York: HarperCollins Publishers, 2001)
- ¹⁷ Ken Staresinic, USCCG vice president and senior operations manager, 2006 LINCSTM Users Conference

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