

# Maintain your focus: Sustaining the Lean transformation on the shop floor

# Table of contents

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Introduction .....	3
Assumptions of the initial state .....	5
Elements for sustaining Lean .....	6
Summary .....	10
About Infor .....	11

# Introduction

From its origins in the Japanese automotive industry several decades ago, Lean has become the proven approach companies have used in industry after industry to transform into – and maintain position as – leading, dominant, world-class competitors. Not only do these companies define the high bar of industry performance, but month after month, year after year, they constantly raise that performance bar.

As the proven benefits of Lean have become apparent, and as market pressures drive companies to improve customer response to survive and prosper, Lean has become the chosen avenue to success for tens of thousands of companies.

Yet, many companies that begin the Lean transformation process with energy and resolve fail to sustain and complete the transformation to a Lean organization. They begin with a flourish: senior management makes announcements, there is a highprofile “kick-off,” perhaps Lean gurus are brought in, employees are trained in Lean approaches and the methodologies of improvement techniques, pilot areas are selected, and so on.

In truth, initial results may be impressive. Perhaps manufacturing lead times and inventories are reduced significantly and on-time performance improves dramatically. Customers are happy. Management is happy. Employees have overcome initial reservations and now feel invigorated and eager to continue. Life seems good, the future wide open.

Then, for no one apparent reason, it starts to fade. The relentless focus on eliminating waste from the system seems more like lip service. The self-sustaining fire has cooled and the on-going improvement effort falters and seems about to stop. There are fitful attempts to continue or to restart the initiative, but these actions have no sustainable effect.

For example, many companies begin their Lean initiatives with the 5S program, yet only a very small percentage ever achieves the fifth S, “Sustain”. 5S becomes no more than a glorified housekeeping exercise and the value it can deliver to improved workflow and productivity remain unmined.

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Further, less than 20% of companies that begin Lean grade themselves well as Lean enterprises years after they kicked off their Lean transformation.

Sadly, in the end, for many companies that begin down the road to Lean, the truth is that the transformation to a Lean enterprise has stalled or, in the worst case, failed altogether (though none in the company will likely admit it). The initial results are indisputable, the words may still be there, but despite everyone's best intentions, there are no actions or results to back up those words. The path to failure is paved with good intentions.

In order for Lean to succeed, to reach that point of self-sustaining criticality, each company must have the proper methods directing, measuring, forcing and reinforcing Lean activities on a daily basis at the most granular level of activities. This paper considers strategies and tactics that are effective in fostering the progression of a company from Lean novice to Lean enterprise at the shop floor level.

## Assumptions of the initial state

There are certain principles of Lean that guide the effort. The fundamentals will be the same in every company, although the details of the implementation and the use and timing of so-called Lean tools may vary widely depending on the company strategy and needs.

There are five principles of Lean:

### **Specify value**

Value is always defined from the customer point-of-view.

### **Identify the value stream**

Once value is specified, then the value stream to deliver it should be detailed or mapped. In the simplest sense, there should be a current state value stream, i.e. today's process, and there should be a future value stream that proposes a significantly improved future state. Note that there are three types of activities associated with the value stream and that the value stream map should at the very least include information management and transformation:

- Problem solving – for example, the design of product and manufacturing processes
- Information management – for example, the flow of execution signals from customer through manufacturing and material acquisition
- Transformation – the manufacturing process or the flow of activities that produce the product or service that the customer values.

### **Flow**

Begin the production transition from batch run and move to flow of work, especially with regard to the recognition that queuing of work is a waste that can be quickly attacked and reduced.

### **Pull**

Whether a make-to-order or make-to-stock operation or a hybrid combination of both, design and implement pull systems such that permission to produce is granted only when a downstream consumption of product signals an upstream replenishment demand.

### **Perfection**

The constant pursuit of excellence and elimination of waste from the enterprise, whether by daily, incremental steps or by rapid overhaul of current operations. For a company that has formally undertaken a Lean transformation it is assumed that value has been specified, for there is no other way the organization can focus on the correct strategy and improvements necessary to support that strategy, or to create the current and future value stream.

## Elements for sustaining Lean

For success in Lean transformation processes, management commitment and the appropriate education and training are a given. In this regard, management commitment goes beyond just being involved or supportive.

The distinction between being involved and being committed is stark. There is also a difference between education and training, each being appropriate in its own context. Education explains the concepts and training provides instruction on the accomplishment of specific tasks and activities.

But beyond these given elements there are three key aspects of sustainability at the shop floor level:

- Clearly defined operational goals driven by company strategy
- Appropriate operational measurements
- Organizational strategy

### Goals Driven by Company Strategy

Shop leadership may come by many titles but, ultimately, they need clear operational goals so that they may identify the appropriate activities that will move the operation in the direction of the strategy. A fundamental assumption in this is that there are limited resources to use for improvement initiatives. Shop leadership needs sufficient direction in order to correctly allocate these limited resources.

For example, at any point in time there are a number of alternative improvement processes available to operations. Depending on the needs of the company at that time, a certain initiative or a certain complimentary set of initiatives would be the most appropriate. Without adequate information and clear goals it is possible to choose the wrong improvement(s), investing limited human and company resources in education, training and implementation that would have little or no immediate effect on the competitive advantage or profitability of the company.

For example, if a choice must be made in a particular time frame, is it better to drive for greater production than reduced costs? Both are undeniably desirable, but staffing realities may force a decision and a choice must be made. With clearly communicated and correctly prioritized goals, shop personnel will usually make the correct decision.

### Appropriate Operational Measurements

The focus of Lean is to reduce waste from the entire system, which is the value stream in Lean terminology. As wasteful activities and tasks are identified and eliminated, the entire system becomes more productive. That is, with the same or fewer resources significantly more product can be processed through the value stream and delivered to market.

Many view Lean as a cost savings or labor reduction initiative, but Lean presents the most value when viewed and managed as a growth enabler. With the same resources, Lean companies use systemic value stream productivity as they continue to build market share or successfully enter new markets.

But in order to transform the company, the traditional use of costing measurements to drive operational decisions fails. Cost alone does not provide sufficient information to make competitive operational decisions. For example, the economic order quantity algorithm has been used for decades to calculate the ideal manufacturing lot or batch size.

$EOQ = \sqrt{2(AS)/(CC*PP)}$  wherein,

A = Annual Usage

S = Cost per Setup

CC = Carrying Cost of Material

PP = Piece Price or Unit Cost

The formula describes the intersection of two curves along an X, Y graph. The first is a cost-of-setup curve that begins high on the X axis and gets closer to the Y axis as batch size increases and setup costs are amortized. The second curve plots the cost of carrying larger amounts of inventory caused by larger batches and it begins low on the X axis, climbing as batch size increases. The value at the intersection of these two curves is the EOQ.

However, nowhere in the EOQ calculation are delivery requirements or resource contention or capability considered. EOQ is a financial construct based on values assigned to setup, carrying costs and unit cost, and an estimate of annual usage. It is no longer relevant and could be downright dangerous when used to compete in a highly competitive Buyer's Market. Lean companies have gone beyond measurements driven by cost.

The Lean transformation requires that new operational measurements be developed and implemented. These measurements must be valid and global.

In order for measurements to be valid, they must meet three criteria in that they must provide the company the operational tools to:

- Communicate clearly and simply the desired behaviors and performance to everyone in the organization and in the value stream. The old axiom expresses it best: “How you measure me will determine how I will act.”
- Evaluate the performance of the operation against strategy-driven expectations. If the processes that I am using and the behaviors that I have communicated do not provide the results I expect, then I have an opportunity for improvement. In this sense, if measurements always look good, where do I focus my improvements?
- Anticipate the effect of current decisions on the future performance of the company. Will purchasing a new machine really contribute to profitability and competitive position? Should a new market be entered? What will I gain from Lean in the next six months?

Valid global operational measurements must provide insight into the effect of operations and operational decisions on the whole company. It does little good to reduce setup from four hours to nine minutes on a resource that runs only four days a month and feeds work to a constrained or bottlenecked resource, although costing measurements may indicate otherwise. Global operational measurements, at the very least, must answer whether or not a change in operations will increase productivity and profitability, i.e., the ability to sell more product more quickly with the same resources and, thus, increase company profits.

Shop leadership needs these operational measurements to insure that the operational tactics they choose drive in the correct direction and with sufficient amplitude (what to do and what are the results expected?).

Once company goals are set and valid measurements are aligned to those goals, operations has the clear direction and expectations they need to drive the necessary continuous improvement that will sustain a Lean transformation. As goals are achieved, new goals must be established and measurements realigned such that the pressure to continue is unabated.

### **Organizational Strategy**

An inclusive team is the ultimate organizational goal of Lean transformation, with each employee educated, trained and completely knowledgeable of roles and responsibilities. In short, they are each involved in making the company better. Rather than by supervisors, as in a traditional organization, most day-to-day operational decisions are made by those who actually manage the processes that produce the product. Supervisors are freed from everyday detail management and are able to dedicate much more time to using their knowledge and expertise to keep the productivity improvement flywheel spinning.

Realistically, this is the long-term goal – but it is not something that can be accomplished overnight. In fact, it is in the breakdown of organizational deployment that the seeds of failure are most often sown. Even if the provision of tools and training is wanting, a mobilized and energized workforce will find ways to make improvements happen. But how does this self-sufficient, proactive organization evolve? What is the mechanism that identifies the leaders of change? Assuming the aforementioned management commitment and the energy of transformation that must come top down, line operational leadership must be identified and nurtured.



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Besides providing clear goals and the proper operational measurements, management must do one more thing: it must let go of the traditional hierarchical, detail-management command structure. If the desired end result is an organization that is flexible, responsive and engaged, then management must drive decision-making down to the basic operating levels of the organization.

Since this step, a basic building block of the new organization, requires a restatement of habitual roles and responsibilities, it is by necessity a learning process — and learning means learning from mistakes. It will require a firm and consistent guidance, leadership and firm reinforcement to overcome natural resistance to the acceptance of new responsibilities at one level and the relinquishment of authority at another. Some will resist strongly, others will accept the challenge and thrive in the new environment.

Thus, with clear goals, correct measurements and the deployment of decision-making to the operations level of the organization, natural leaders will begin to blossom. It is often surprising when this natural leadership arises from unexpected sources, such as a once complaining operator or previously passive supervisor.

Once the top-down regimentation begins to dissolve, the leaders that may be used as templates for the future leadership structure can be quickly educated, trained and reinforced. It will not be necessary to educate and train everyone before there is a significant transformation of organization. The leaders that identify themselves by action and results can be “seeded” throughout the organization to lead by example and identify the next set of leaders.

In the long run, this is exactly the type of behavior that is needed to sustain a Lean transformation at the operations level.

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## Summary

The Lean transformation has been proven to support superior performance, productivity, responsiveness and flexibility in manufacturing organizations. Yet, most of the companies that begin the process falter and fall short of becoming Lean. Lean is begun with a flourish and then withers because goals have not been clearly defined, appropriate global operational measurements have not been adequately constituted or deployed and, finally, management has not properly relinquished the traditional detailed decision-making and shifted it to the most basic operations level.

## About Infor

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