



Ten Steps to Lean Transformation

Key Points

- Lean manufacturing increases productivity by 30%.
- Lean manufacturing reduces defects by 20%, and lead times by 70%.
- In order to be successful, the implementation of lean must be company-wide.

Lean manufacturing is a proven philosophy that drives a company to consciously and continuously eliminate waste. Waste, with respect to becoming lean, means any activity that does not add customer-perceived value to the product. The rewards of becoming lean are significant—productivity increases up to 30%, defects are reduced by 20%, lead times reduced by 70%, and more. Becoming a lean enterprise starts with a 10-step program.

1. Lean Enterprise Diagnostic

This top-level assessment reveals how your company's current processes compare to world class, lean manufacturing practices. It is the first step in determining how and where lean thinking can be applied to your operation. Sixteen functional areas must be evaluated against lean principles. The result is a comprehensive implementation plan for becoming a lean enterprise.

2. Preparing the Team

Successful lean implementation means involving your entire organization, top-management on down. Lean 101 is a hands-on training and simulation program designed to make believers out of the most resolute skeptics of lean manufacturing. By the close of the program, participants know what lean manufacturing is, why it works, and how to apply lean principles in their operation.

3. 5S Workplace Organization

5S organization—sort, store, shine, standardize, and sustain—maintains good housekeeping practices. The objectives are to remove the need to search for material and tooling and create an atmosphere that allows team members to perform as efficiently as possible with little distraction. After the work environment is organized, then standardized work methods and rules can be applied to keep every operation running smoothly.

4. Visual Controls

Visual controls are simple signals that provide an immediate understanding to team members of what needs to be done. A work place that uses visual controls can reduce the chance for miscommunication among employees and supervisors alike. The key is to keep it simple, standardized, and effective.

5. Mistake Proofing (Poka Yoke)

Quality is key to lean manufacturing. "Do it right the first time" is easier said than done. By using the philosophy of poka yoke, or mistake proofing, processes can be designed so that making the product right is the only option. This means providing operators with the means to make good parts and only passing good parts on to the next process. Making parts right the first time means not having to inspect parts later.

6. Value Stream Mapping

Value stream mapping (VSM) is a means of analyzing an existing product flow to determine where waste exists. The process involves tracing the product from customer order to product delivery, including all material movements and information flows. The result is a complete and thorough map of products and information flows, as it currently exists. The next step is to develop a "future-state" map that eliminates waste from the process. Typical results from VSM are reductions in inventories, material handling, and lead times.



7. Set-up Reduction

A set-up, or changeover, is the time between the last good piece off the current machine batch of parts and the first good piece off of the next. Reducing set-up times (or machine downtime) is a prerequisite to the reduction of batch sizes in order to reduce lead times and become more responsive to customer needs. The Single Minute Exchange of Dies (SMED) is a structured approach to set-up reduction. By eliminating some tasks, setting priorities, and organizing the other tasks, SMED can reduce set-up times from hours to minutes.

8. Cellular Design

Cellular design is the linking of one man and machine to produce a product start-to-finish using the most efficient method possible. The goal for developing cellular manufacturing is to physically locate all the required resources to manufacture a product in close proximity to each other—within reach if possible. Only by doing this can a product be manufactured in a batch size of one—or "make one move one"—even if demand for the product fluctuates.

9. Creating a Kanban/Pull System

Creating a Kanban system, a "pull" system, is a means of controlling the flow of resources by replacing only what has been consumed. It begins with the shipping of an order to a customer; this generates a new order and follows it through to the last operation in the plant. When that team member pulls Work-In-Process (WIP) from the next up-stream operation, the empty "kanban" (card) signals that operator to replenish the location. This is true for all operations up the line, including the supplier of raw materials. A pull system strictly controls inventory and makes finished products based on actual demand rather than forecasts.

10. Certifying Your Lean Program: The J4000 Standard

The automotive industry recognizes the Society of Automotive Engineers (SAE) J4000 standard to identify and measure best practices for the implementation of lean principles in a manufacturing operation. Soon J4000 will be visible on the COVISINT portal Internet site for customers to assess the efficiency of a prospective supplier. For automotive suppliers, adherence to the principles of lean manufacturing and the J4000 standard may make the difference in securing a contract.

Six Sigma

If there is an additional step to becoming a lean enterprise, it is Six Sigma. Where lean manufacturing improves the process, Six Sigma perfects it.

Six Sigma is gaining tremendous notoriety from companies like GE, Motorola, Allied Signal, and many others. It is defined as a comprehensive and flexible system for achieving, sustaining, and maximizing business success. Six Sigma is driven by close understanding of customer needs, disciplined use of facts, data and statistical analysis, and diligent attention to managing, improving, and reinventing business processes.

A total lean manufacturing program can make your company more responsive, more productive, and shave cost from your bottom line.

This document was provided courtesy of the Edison Industrial Systems Center (EISC), Inc. in Toledo, Ohio.

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