

- We use the five phases of Six Sigma improvement: **DMAIC**.
Define-Measure-Analyze-Improve-Control (DMAIC)
- We use DMAIC in efforts to help Improve Speed, Quality, and Cost. This structure of DMAIC encourages creative thinking within boundaries such as keeping basic process, product, or service.

The Basics of Lean Management

What is Lean?

Lean is a systematic method for the elimination of waste within a manufacturing system. **(Mudas)** Lean also takes into account waste created through overburden, and waste created through unevenness in workloads. Working for the perspective of the client who consumes a product or service, “**real value**” is any action or process that a customer would be willing to pay for.

How is Lean Value Added?

Companies of varying backgrounds can be found implementing Lean as a vehicle to improve product quality, delivery performance and reduce cost. In parallel many organizations also find themselves reaping the benefits of increased employee satisfaction through true empowerment Lean provides.

- Lean organizations **deliver high quality** at the **lowest cost** with the **shortest lean time**.

Business Value Classifications

1. **Value-Added (VA):** also called **Customer Value-Add (CVA):** Any activity in a process that is essential to deliver the service or product to the customer.
2. **Business Non-Value-Added (BNVA):** Activities that are required by the business to execute VA work but added no real value from the customer standpoint.
3. **Non-Value-Added (NVA) or waste:** Activities that add no value from the customer’s perspective and are not required for financial, legal, or other business reasons.

5S Visual Workplace (5S)

5S Visual Workplace creates a work environment that is clean, well-organized and efficient. It provides your organization with a rapid, visible achievement while preparing your workforce for other advanced improvement efforts.

(1) Sort (2) Set in order (3) Shine (4) Standardize (5) Sustain

Is the implementation of Standardized Work Instructions (SWI) truly value added?

Standardized Work Instructions (SWI's) are specific instructions that allow processes to be completed in a consistent, timely, and repeatable manner. By implementing SWI's, employees will increase production, improve quality, and enjoy a safer, predictable working environment.

Value Stream Mapping (VSM)

Value Stream Mapping is used to illustrate the flow and relationship between work processes. A key component of VSM is differentiating value adding activities from non-value adding activities. Reducing or eliminating non-value adding activities is of paramount importance and a principle goal of Lean Manufacturing. Upon careful and detailed examination of your processes through VSM, it soon becomes obvious where improvement opportunities lie.

Total Productive Maintenance (TPM)

TPM is a powerful program for planning and achieving minimal machine downtime. Equipment and tools are literally put on “**proactive**” maintenance schedules to keep them running efficiently and with greatly reduced downtime. Machine operators take far greater responsibility for their machines upkeep. Maintenance technicians are liberated from mundane, routine maintenance, enabling them to focus on urgent repairs and proactive maintenance activities. A solid TPM program allows you to plan your downtime and keep breakdowns to a minimum.

Kaizen Events

Kaizen Events are highly focused improvement events designed to address and resolve important business issues and/or constraints.

Error and Mistake Proofing

Error and Mistake-Proofing (also known as “**Poka Yoke**”) is one of the powerful Lean tools used to ensure products and processes are completed correctly the first time.

Self-Directed Work Teams

Through the natural evolution of the Lean work environment, associates begin to work more as interdependent teams in order to accomplish area and company goals. When this begins, it is time to support the transition to a self-directed workforce, capable of managing their own areas with greatly reduced supervision and oversight. Self-Directed Work Teams, to a large degree, voluntarily interact with internal customers and suppliers to improve area effectiveness and effectively deal with area issues.

Mixed/Level-Loaded Production (Production Leveling)

Also known as “**Heijunka**,” Mixed/Level-Loaded Production provides a system for advanced scheduling of production activities. This tool allows you to reduce inventory, decrease lead-times, and produce the variety of products your customers’ want, as they want them. Many Lean tools should already be in place to properly use and maintain a Heijunka scheduling system.

Setup Reduction (S.M.E.D.)

Single Minute Exchange of Die (also known as S.M.E.D.), is the Lean tool used to create very fast changeovers and setups that greatly reduce machine downtime and increase throughput. It is common to reduce machine changeover times from hours to less than ten minutes. While that may sound too good to be true, some experts say it has happen time and time again.

Inventory and Lead-time Reduction

Reducing inventory will decrease your lead-time. Excess inventory inherently presents a great deal of waste, not to mention quality issues (spoilage), storage requirements, investment of funds, limiting cash flow, among others.

Constraint Management (TOC) “Theory of Constraints”

This tool addresses and helps to resolve the most important deterrent to increased throughput and productivity in your operation.

Two (2)-Bin Auto-Replenishment System

Two (2)-Bin and other forms of Lean parts and supplies replenishment eliminate downtime due to parts shortages, making replenishment simple while creating a “**self-evident**” inventory.

- Bin 1 has enough items to cover a calculated period of usage at the point-of-use.
- When the bin runs out, Bin 2 is there to take its place while Bin 1 is being refilled/replenished.
- **Option 1:** Line-Side replenishment
- **Option 2:** Point-of-use stocking

KanBan Implementation

Kanban’s are “**self-evident signals**” that indicate what work is to be done and when.

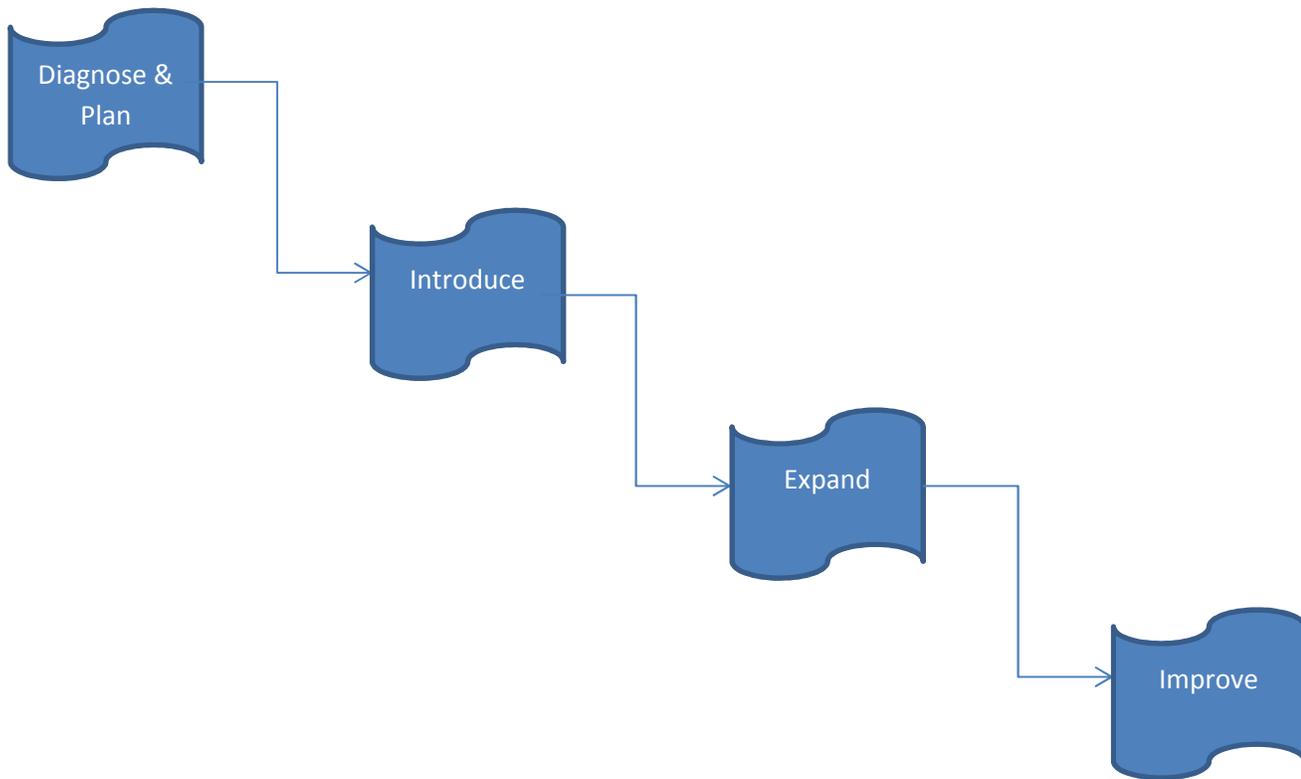
Supplier Approval Measurement Program:

The approval process for implementing a new supplier, and for an existing supplier. You must establish a firm foundation of the process. Approved Supplier, Preferred Supplier, Certified Supplier.

- **Approved Supplier:** A supplier who has met minimum qualification criteria and has been approved to supply a required item.
- **Preferred Supplier:** An approved supplier who is actively participating in the certification process.
- **Certified Supplier:** A supplier who, after extensive investigation, is found to supply materials of such quality that is not necessary to perform routine testing on each lot received.

Note: View implementation chart on the next page.

Implementing Lean Six Sigma



Lean Visioning

Determining where you want to go is the first step in getting there. Lean requires a journey best taken through learning, planning, and doing. Lean Visioning assists Senior Management create a “**Lean Road Map**” with which they may guide and direct the company to greatness.

MoPoe & Associates can help assist you with your implementation or process improvement with Lean Management/Lean Manufacturing/Six-Sigma