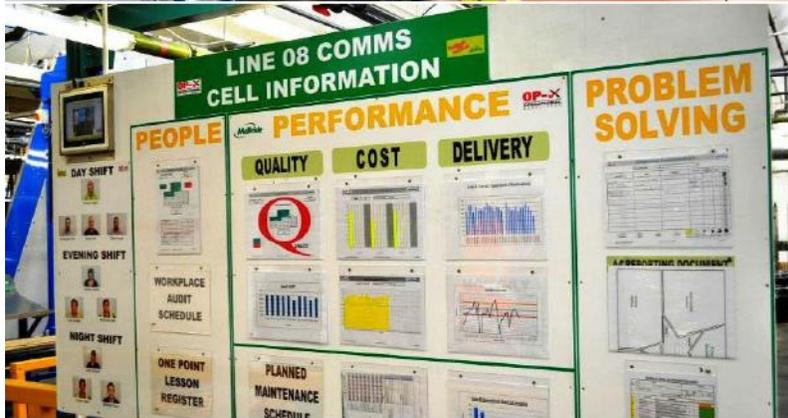


LEAN Manufacturing Initiative

Complete Implementation by
SOBO Associates LLC and Alpha-Flow LLC Consulting Services



www.soboassociatesllc.com

About SOBO Associates and Alpha Flow

The consulting alliance of SOBO Associates LLC and Alpha Flow Consulting LLC gives you access to a team of subject matter experts in Workforce Training, Organizational Development and Manufacturing. We have a proven track record of bringing solutions to a variety of large and small organizations. Our team represents decades of experience working with businesses, manufacturers, educational institutions and government entities. Our consulting services include workforce training design and facilitation, organizational development solutions, project planning and implementation, manufacturing process development, new product development, business planning and grant writing. We provide expertise to assess, analyze and advise to create strategic plans and solutions. We are also the “extra set of hands” adding capacity to implement programs and projects from conception to completion. We add value and achieve goals and objectives on behalf of your organization without adding headcount and incurring long term expenses. For more information visit www.soboassociatesllc.com

Major Activities Facilitated by SOBO Associates and Alpha Flow

Value Stream Mapping: Working with your staff we will visually map the flow of production. This will illustrate the current workflow allowing us to map the future or desired state of processes. This will highlight opportunities for improvement providing a roadmap to improved productivity.

Bottleneck Analysis: With the value stream mapping complete we will identify which parts of the manufacturing process limits the overall throughput. This will allow us to prioritize and strengthen the weakest links in the manufacturing process first to rapidly improve overall productivity and throughput.

Six Big Losses: Six categories of productivity loss that are almost universally experienced in manufacturing includes...

- Breakdowns
- Setup/Adjustments
- Small Stops
- Reduced Speed
- Startup Rejects
- Production Rejects

This will provide the framework for attacking the causes of waste in your overall operations including any manufacturing cells, processes, tooling and machinery. We will work with your managers and staff to identify these conditions and develop strategies to greatly reduce or eliminate the adverse effects of each occurrence in all six categories. This can also involve reworking and/or replacing tooling and equipment and reconfiguring work cells.

5S plus safety: Is a vital LEAN manufacturing tool designed to help improve workplace efficiency through facility organization. Working with your management and staff we will provide training and facilitate 5S implementation through all 5 phases of SORT, SET IN ORDER, SHINE, STANDARDIZE, SUSTAIN and the added element of safety in every department of manufacturing. We will provide training and guidance for each department to facilitate implementation themselves promoting teamwork beyond their everyday duties. Champions from each department will participate in tours of every department to

establish best practices and collaboration between departments and shifts. The results will be highly organized work cells that maximize workflow and better utilization of tools equipment and space. This will also be a foundation for creating a LEAN culture throughout the entire organization.

Visual Factory: Visual indicators, displays and controls will be implemented throughout the operational areas to improve communication of information. The state and condition of production processes will be easily accessible and very clear to everyone. Most of this will be accomplished within departments and work cells in the 5S implementation process. However, more visual displays will be needed in common areas such as breakrooms and high traffic corridors.

Kan Ban: “Pull Systems”, will be implemented as the method of regulating the flow of goods both within the factory and with outside suppliers. New systems based on automatic replenishment through signal cards, bins or racks that indicate when more goods are needed will be implemented throughout operations. This will eliminate waste from overproduction and excessive inventory.

Continuous Flow: With 5S implemented and Kan Bans in place we can refine all work-in-process (WIP) to smoothly flow through production with little or no inventory buffers of WIP between manufacturing departments or processes. This will eliminate many forms of waste such as inventory, waiting time, and transport.

Standardized Work: Documented procedures for manufacturing that capture best practices including the time to complete each task is a vital part of any world-class manufacturing company. Good documentation of manufacturing methods eliminates waste by consistently applying best practices, reduces variation in output and forms a baseline for future improvement activities. We will review all existing documentation and work with your management and staff to upgrade exiting documentation and produce new documents where required. These will be “living” documents that will be easy to change, update and maintain. This will also make training new staff and cross training existing staff easier with more reliable outcomes.

Just-in-time (JIT): A more efficient operation will be achieved that pulls parts through production based on customer demand instead of pushing parts through production based on projected demand and forecasts. Realizing a truly JIT operation relies on the many lean tools, such as Continuous Flow, Kan Ban and Standardized Work that will be in place as a part of our overall LEAN Manufacturing Initiative. Just-in-time (JIT) is highly effective in reducing inventory levels. It also improves cash flow and reduces space requirements.

Deliverables/Measures of Success

Increased productivity: Waste or “Muda” as it is known in LEAN Manufacturing, will be targeted in every activity we do while implementing our LEAN Manufacturing Initiative. Productivity increases when waste is eliminated. Major improvements in productivity will be realized as we address these other areas of the manufacturing process.

- We will eliminate unnecessary transportation by designing efficient work cells with equipment, tools and workstation arranged to optimize workflow.

- Unnecessary motion by people is a common condition where LEAN does not exist. We will work with the team to eliminate wait time where people stand waiting for changeovers, inventory or supplies.
- Over-production of product is a misuse of valuable resources. We will focus on making the product based solely on customer demand and create a just-in time (JIT) organization.
- Our LEAN Manufacturing Initiative will create a culture that practices “Kaizen”, a process and mindset of continuous improvement that combines the collective talents and resources of your organization to address quality issues early and then eliminate the cause. This will eliminate the need for “safety stock” and delegate the responsibility for quality to people closest and most involved with production. This will also bring your organization to high levels of ISO 9000 compliance making doing business with ISO compliant companies possible and making the option of pursuing an ISO or other quality certifications much easier in the future.
- We are confident that you have a talented workforce, but we assume they will need additional training to unleash their unused talent and ingenuity. The person making the product is the best source of information to ascertain what improvements can and should be made. We will provide training and create synergistic collaboration between and within departments where each staff members voice be heard and valued. The results will be a workforce with greater sense of team work and the knowledge to create and maintain a LEAN manufacturing culture.
- Create world class factory environment (5S plus Safety). The 5S aspect of the our LEAN Manufacturing Initiative will engage the entire workforce to deliver a world-class environment of workplace organization and safety. The results will be increase communication within and between departments, higher efficiency in workflow, reduced inventory, reduced work-in - process (WIP) and give you a production floor that is a marketing tool showcasing the pride, dedication and capabilities of the entire organization.

Based on available data and case studies, we predict at least a 25% increase in productivity.

Inventory reduction: We will implement systems where the need for inventory will be based on what the customer demands, not what the inefficiencies and problems in the process require. There will be a significant reduction in your inventory resulting in increased cash, reduced waste and reduced risk of obsolesce. Every piece of inventory you hold has an associated cost, that cost is carried directly by your organization either from your available cash or borrowed funds for which you are charged interest. Cash that is used for inventory is not available for use elsewhere in your business. We will also address less obvious conditions that significantly reduce profitability. Some of those include:

- The transportation and movement of this inventory.
- The space required to store it and the containers to store it in.
- The administration of keeping track of it.
- The damage and losses that occur during transportation.
- The cost of writing off materials that become obsolete.

Based on available data and case studies, we predict a minimum of a 33% increase in inventory turns resulting in significant reduction in costs and an increase in cash flow and profits.

Improved utilization of facilities and floor space: Implementing Lean Manufacturing Principals always reduces overall space requirements. This is accomplished by:

- The elimination of excess inventory and safety stock

- Arrange the process flow to eliminate buffer stock and repetitive material handling and movement.
- Consolidate the manufacturing process to be based on customer demand and the value it adds regarding the final product, not on the inefficiencies of processes.
- Eliminate the space between the machines to accommodate continuous flow
- Work with suppliers to supply inventory in a just-in-time (JIT) system based on customer demand, eliminating bulk purchases of inventory based solely on forecasts. This will free up cash and space that can be used for more value-added activities.

Based on available data and case studies, we predict at least a 33% reduction in space utilization and it is not uncommon to reduce the manufacturing footprint by 50%.

Proposal Summary

Our LEAN Manufacturing Initiative will use as its core, the elimination of the 8 primary forms of waste or “Muda” defined in LEAN manufacturing principles. The categories of waste include Defects, Excess Processing, Overproduction, Waiting, Inventory, Moving, Motion and Non-Utilization of Talent. Each of these forms of waste are commonly systemic conditions with interdependencies between departments and organizational functions. Our experience tells us that any attempt to implement Lean on a single area and a limited basis will likely be unsuccessful or at best only yield limited results. It is for this reason that we highly recommend a comprehensive approach to implementing our LEAN Manufacturing Initiative and is the basis for our recommendation for an extended term for our services. Working with your leadership and staff we will be the extra resources needed to provide training, facilitate implementation and deliver a sustainable model that will not diminish over time.

The benefits of LEAN Manufacturing implementation are well documented with thousands of case studies and examples spanning decades. Many of the benefits are highlighted throughout our proposal; some are easily quantifiable, while others add great value but are less quantifiable. Our LEAN Manufacturing Initiative will transform your business into a world class LEAN organization. The level of efficiency and organization will bring quality to ISO compliant levels. We will also set in place inventory and material control improvements that will increase efficiency and profitability with maximum utilization of facilities and floor space. Your operational floor and production cells will be transformed into a marketing show place for existing and potential customers. Our LEAN Manufacturing Initiative will increase employee satisfaction and engagement. There will be new knowledge gained by all, new opportunities for communication and teambuilding and the satisfaction of co-creating a more pleasing and safer work environment.

