KRONOS®

WHITE PAPER

The Lean Workforce

Applying Lean principles to improve workforce management

Lean Enterprise – A business system for organizing and managing product development, operations, suppliers, and customer relations. Business and other organizations use lean principles, practices, and tools to create precise customer value — goods and services with higher quality and fewer defects — with less human effort, less space, less capital, and less time than the traditional system of mass production.[1]

Using Lean principles, manufacturers have made significant improvements to their operations, from improved productivity, increased resource utilization, to a more accurate understanding of product costs. One area where manufacturers may not have thought to apply Lean is the workforce. But as labor pressures increase and margins tighten, savvy manufacturers are turning their attention to the workforce, and discovering that Lean can help them increase workforce flexibility and agility, and improve their bottom line.

A flexible, motivated workforce is the central component of a successful Lean program. Applying Lean principles to the workforce can play a critical role in ensuring that labor is aligned to demand, which in turn can result in lower costs and shorter lead times. There are three primary areas of improvement that manufacturers should focus on to achieve Lean improvement in the workforce:

- Identifying non value-added labor
- Measuring and managing variability
- Motivating the workforce

Non value-added labor

In Lean manufacturing waste is anything that adds to the time and cost of making a product, but does not add value from the customer's point of view. Value-added activities transform products into something the customer wants. Non value-added activities are meaningless to customers, and as a result, customers are not willing to pay for them. Examples of non value-added activities include moving WIP between departments that are organized functionally, or building a defective product. The labor wasted in non value-added activities can be significant, and unless manufacturers are able to accurately measure this waste, it can be difficult to identify and eradicate. There are two areas where manufacturers can look for this waste: documented and undocumented non value-added steps and events.

Documented non value-added steps

Documented waste is the easier type to identify and eliminate. Often tracked in an ERP or other manufacturing system, its impact can be easily measured and corrective action taken. But even documented waste can represent significant challenges to manufacturers. The small amounts of waste that occur when worn tooling or declining raw material quality creates longer setup times may seem insignificant, but over time, this waste can add up and can result in large variances. And depending on how variances are captured and measured, this waste may be lost between the manual capture process and general ledger labor allocation. For most manufacturers, these minor variances are summarized as the difference between payroll and earned hours and are allocated to overhead in the next fiscal year.

Undocumented non value-added steps

Undocumented waste is more difficult to identify. While no one intentionally adds these steps, they are incorporated into a process over time, often in conjunction with value-added steps that are required. For example, as changes are made to a production line but not to the routing, operators are forced to add steps and indirect employees may pick up additional tasks. Since the steps performed by indirect employees are often undocumented, these additional steps aren't measured and don't impact earned hours, a common value metric on the shop floor. But costs are still being incurred, and they will show up as increased overhead applied to all products.

[1] The Lean Institute.

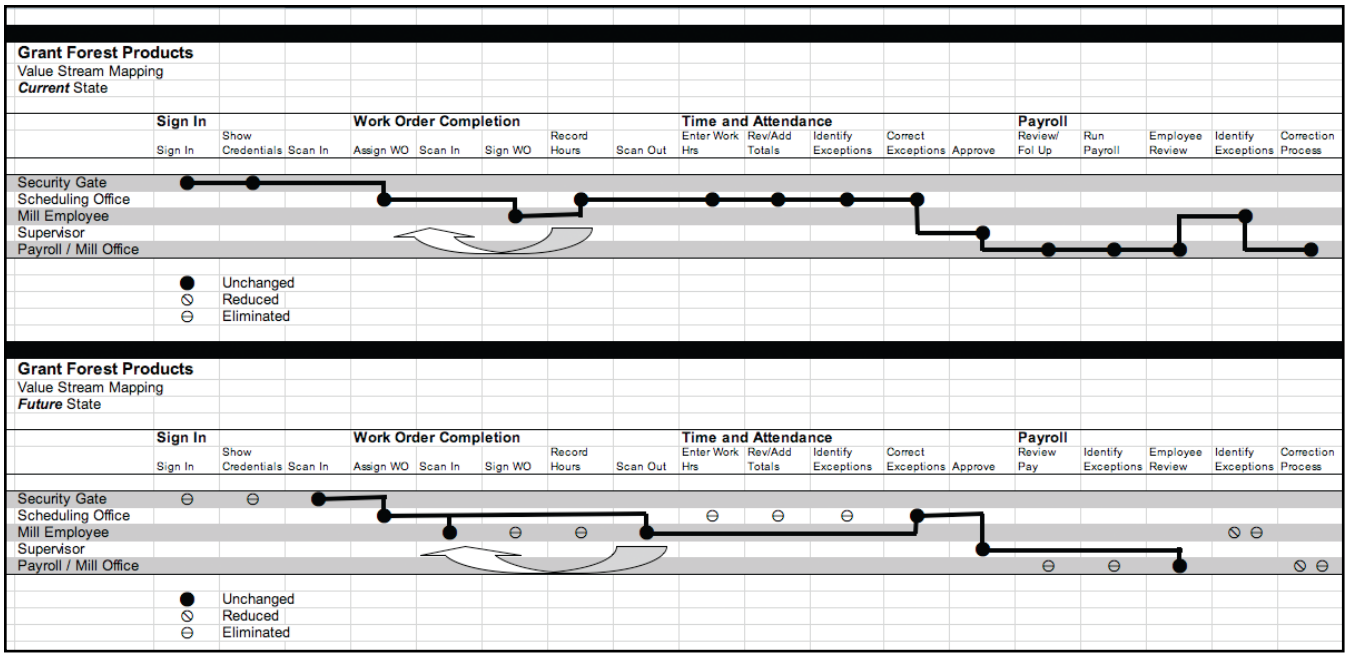

FIGURE 1 **Value stream map showing current state and future state. Grant Forest Products**

A good way to identify and quantify this undocumented waste is to use Value Stream Mapping, a proven method for finding both value-added and non value-added steps in a manufacturing process. A properly executed value stream map shows the current flow of materials and information needed to make a product. By looking at a process in a value stream map, a manufacturer can diagnose problems and identify significant opportunities for cost and time savings. Figure 1 illustrates the before and after for one of our customers, Grant Forest Products, that used value stream mapping to identify significant savings opportunities in one of its processes.

Measuring and managing variability

Daily changes on the shop floor such as material delays, unscheduled machine downtime, absenteeism, changing customer due dates, processing issues, overcommitted resources, and fluctuating productivity create variability and increase lead times and costs. It is important for manufacturers to be able to manage and display information on these variables in real time, so that managers can make proactive decisions to improve operational efficiency. In addition to helping manufacturers improve on-time performance and resource utilization, the ability to better manage variability gives manufacturers the data they need to cost products more accurately, resulting in better product mix and pricing decisions.

Labor not aligned with demand

When labor isn't aligned with demand, manufacturers find themselves with over- and underscheduled employees and a labor allocation that is out of sync with rising and falling demand. This type of variability can be particularly challenging for manufacturers facing supply challenges and volatile customer demand. Too often, the connection between workload, employee schedules, and shop floor processes is managed by supervisors who are forced to rely on a combination of their own experience and limited information. Even when this information exists in an ERP system, it's often summarized at too high a level to aid decision making and corrective action. To be truly effective, labor allocation information must be more granular and available in real time.

No real-time shop floor visibility

A real-time view of what's actually happening on the shop floor is important for manufacturers seeking to apply Lean to the workforce. Unscheduled machine downtime and delayed orders are a reality for every manufacturer; the challenge is to quickly identify the problem and react appropriately. For example, when a machine goes down, qualified employees can be deployed elsewhere on the shop floor. Unfortunately it may take hours for machine and labor downtime to be reported to supervisors, and by then the labor waste has already occurred. With real-time shop floor visibility, supervisors can react immediately to production disruptions. And because the shop floor information is being collected over time, managers can identify and evaluate shop floor trends and recommend improvements.

Wage variability

Manufacturers often use a wage standard to cost an operation. But differences in actual wages paid and premium pay used can have a significant impact on the actual cost of production. Reconciling actual wages to a product or production line can uncover startling trends of overtime abuse, absenteeism, and inefficient use of premium wages.

"The top two business initiatives with the greatest impact on IT spending are the application of lean practices across the organization and better utilization of information."

Fenella Sirkisoon, AMR Research,
"U.S. Enterprise IT Spending Profile, 2006-2007," October 19, 2006

Motivating the workforce

Understanding what motivates the workforce and then accurately measuring those drivers are critical components of integrating Lean with a successful workforce strategy. Every technology solution requires a motivated workforce to leverage all the benefits offered by increased automation and access to information. Increased productivity, quality, innovation, and agility are hallmarks of a motivated workforce that can embrace business process change and help sustain competitive differentiation.

The Bama Companies is an example of a manufacturer that is using an integrated strategy to enable a motivated workforce. By linking the strategic outcomes of growth, innovation, and profitability to its work-force, Bama has created processes to support a motivated workforce. For its efforts, the company was awarded a 2004 Malcolm Baldrige National Quality Award. (See "People make a company.")

Kronos for Manufacturing

The workforce management solution for achieving operational excellence

Kronos for Manufacturing helps manufacturers leverage the workforce to improve productivity and increase competitiveness. Kronos for Manufacturing allows managers to clearly see what is happening at each facility, cost center, and department. Managers can examine underperforming areas to identify root causes and take corrective action. This insight facilitates the removal of constraints and the elimination of waste. It also provides increased agility, allowing manufacturers to reduce lead times and meet volatile customer demands.

Kronos for Manufacturing allows manufacturers to achieve operational excellence, with time and attendance, scheduling, absence management, compliance, and shop floor management tools that can:

- Improve business profitability
- Enhance resource utilization
- Simplify compliance management
- Streamline contract compliance

"PEOPLE MAKE A COMPANY"

Founded in the kitchen of Cornillia Alabama "Bama" Marshall in 1927, the Bama Pie Company defines its corporate culture in two ways: 1) Keep your eye on quality and 2) People make a company. According to a Bama Companies report, "Bama is on a never-ending journey to a clear destination: to achieve Business Excellence in all that it does, which is more than just a slogan — it aligns all strategic outcomes, improvement actions, reviews and daily decisions. Bama is team led. Fun and community are major priorities."[2]

Believing that its success depends on its employees, Bama used Six Sigma to implement the People Assurance System (PAS). The stated goal of PAS is to ensure workers are well trained, fully informed, and understand the expectations for their individual job responsibilities in order to feel empowered. By focusing on its greatest asset — its people, Bama is working to create and deliver loyalty, prosperity, and fun.

Three strategic objectives — employee satisfaction, growth opportunities, and corporate citizenship — are mapped to specific strategic measures, value creation processes, and action plans to ensure each employee's personal objectives align with the corporate strategy. The PAS program has allowed Bama to reduce costly employee turnover from approximately 25 percent to 14 percent, a figure that is well below the industry average and one of the best in the local labor market.

A Lean checklist

Find out if your organization has the processes and technology in place to support a best practices Lean program by answering these questions. If you identify areas where your processes could be improved, a Kronos team is available to assess your process and make recommendations for improvement.

How does your company reconcile payroll to labor hours?

Many manufacturers manually reconcile their direct labor hours to production in order to measure workforce productivity against a particular line or work order. This tends to be a cumbersome process that results in information that is either too summarized or not accurate.

Does reconciliation accurately capture indirect hours?

While most manufacturers are able to capture direct hours, many have difficulty capturing indirect hours resulting from activities that do not directly affect production or are variances from expected times to execute an operation.

Can you measure your workforce not only by hours, but also by actual wages, to gain true cost performance?

While some manufacturers have put technology and processes in place to measure labor hours against work, they have not been able to measure the cost of those hours in terms of wages. Different wages to accomplish the same work can have a significant impact on costs. More effective use of overtime hours is a common benefit we encounter in companies that reconcile the cost of labor in addition to the labor hours against work.

Are you measuring the status of your machines, WIP, and labor at the same frequency with which your demand signals are changing?

If your company is moving toward make-to-order or demand-pull operations, increasing the frequency of status on your shop floor is the only way you can

[2] The Bama Companies Inc., National Institute of Standards and Technology 2004 Award Application Summary.

sustain efficient operations. While this is different for every manufacturer based on its market and operations, status of the shop floor should align with the ability to change according to the rate of change in your demand signals.

How flexible is your workforce, and are you able to take advantage of that flexibility?

Manufacturers are moving toward more flexible workforces, in the ability to both schedule the correct number of staff for a daily and weekly workload, as well as the ability to redeploy operators throughout the day. The ability to translate production demand signals into labor requirements, and then schedule and redeploy labor while still meeting company, union, and regulatory constraints is how leading manufacturers are able to evolve their operations into true make-to-order production environments.

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