A growing number of companies, in the pharmaceutical and other industries, are applying Lean manufacturing, continuous improvement and efficiency principles to improve manufacturing and quality. In their quest to eliminate waste and inefficiency in their operations, many are neglecting a huge and obvious source of bottlenecks: human resources, and how they manage the skilled people who design and operate their processes and run their laboratories and manufacturing plants.

There is increasing evidence of misalignment between human capital and key business initiatives. The results are reflected in lost business opportunities and increased noncompliance risk. Long term, they can result in worker burnout and high staffing turnaround, and even product recalls and consent decrees.

Are pharma’s current workforce management practices resulting in a disconnect that is draining productivity and sapping employee morale?

FDA’s plant inspection 483’s and warning letters continue to cite training as a compliance issue. Industry professionals, meanwhile, complain of burnout and describe a mismatch between what they have been trained to do and what they are doing, day to day, in their workplaces.

In Pharmaceutical Manufacturing’s 2012 reader survey on job and salary satisfaction, for example, 39% of respondents described employee burnout as a “real issue.” Over 73% of respondents described feeling overly stressed or burned out at work, some or most of the time.

36% described some degree of mismatch between what they are doing at work, each day, and their training, interest and skill sets. Of that number, 11% complained of a serious mismatch.

27% said the mismatch is damaging their operation’s ability to compete.

As more skilled professionals retire, there is an urgent need to examine human resources management, and addressing any “skills gaps” that may exist.

Are you taking a good look at how you use skilled workers and professionals at your facilities? This e-resource is designed to help you assess problems and ensure alignment. We hope that you find it useful.
Why can’t manufacturers manage their workforces as well as they do machines and materials? Gregg Gordon, author of Lean Labor, discusses why his book is a “survival guide” for global companies, and why pharmaceutical manufacturers should pay particular heed. Employees should take note as well. Of all pharma’s cost cutting measures, Gordon says, only continuous improvement preserves jobs and standard of living.

PhM: What prompted this book, and who is it for?

G.G.: In speaking with manufacturers, I recognized two trends. The first was that many manufacturers had difficulty in managing the workforce as effectively as they managed other resources such as machines and materials. While they often gained improvements in labor costs and productivity by managing other resources more effectively, but when they attempted to improve their processes starting from the workforce, it was more challenging.

The second trend is that I saw some manufacturers successfully using the Lean techniques they had become comfortable with to solve these same challenges. Over time I recognized that there was an opportunity to formalize the application of Lean techniques to workforce challenges.

PhM: Your subtitle is, “A Survival Guide For Companies Facing Global Competition.” This would seem to have particular relevance to all pharma and biopharma companies, wouldn’t you agree? Is “survival” at stake?

G.G.: Unit cost is arguably the most important factor in competitiveness in a mature market. There are four ways to reduce the labor component of unit labor cost in a company: automation, offshoring, wage reduction and continuous improvement. For an employee affected by this, only continuous improvement offers a chance at keeping their job and maintaining their standard of living. To them it’s survival.

PhM: In the introduction, you suggest there’s a limit to how much manufacturers can move from country to country, chasing low-wage labor. Can you elaborate on this?

G.G.: To put this in context, I’m not talking about a global growth strategy, but rather a cost cutting strategy. There are many reasons, but I’ll list three:

• It increases supply chain costs and risks such as fuel prices and weather that are no longer controllable by the company.

• Innovation comes from motivated employees that are familiar with a process. If a company’s strategy is based on reducing wages rather than improving throughput and agility, it will limit its potential for innovation.

• There is no long term competitive advantage to be gained when your operational moves can be easily copied by competitors. Internal innovation is cloaked and difficult to duplicate.
PhM: You also suggest that Lean is often overlooked as a philosophy or method for addressing workforce issues. Why is this?

G.G.: Lean is often considered more effective for repetitive processes. The largest opportunity for the workforce lies in turning non-productive time into productive time. Because each day is unique regarding where productive time is lost, it seems counterintuitive that Lean would be a good fit. The challenge is that each day seems different when it comes to managing the workforce as there are different paths of work. But when one looks at the workforce as a whole, the patterns of how time is lost becomes very repetitive. Therefore improving workforce effectiveness becomes a good opportunity for applying Lean techniques.

PhM: In the first chapter, you write: “Those companies that effectively manage their workforce and the intellectual property (IP) the workforce creates will enjoy higher returns than competitors that don’t effectively capture that potential.” What are some of the keys to doing this?

G.G.: When on plant tours with companies that I would rate as high on the operational excellence curve, the people I interact with in production are friendly, they are proud of their work, and want to show me the changes they have made. This isn’t some pre-destined culture. It’s working the fundamentals. Just like a family, no company is perfect, but here are some common attributes that I see at those successful companies:

• The workforce clearly understands the company’s strategies and goals and how those affect and benefit the employees.

• The workforce clearly understands how their jobs are part of the larger picture and has the ability to have a measure of control over the disruptions that occur.

PhM: You draw careful distinctions between OEE and OLE (Overall Labor Effectiveness). Do you think that many drug and other manufacturers are still relying upon OEE as a labor performance metric, to their detriment?

G.G.: While the OEE metric offers great benefits to a constrained operation, it’s not complete. It only measures an individual machine’s effectiveness and not the system required to support it. As a result, there are many stories of companies that improve their OEE metrics but in reality shift the problems to the maintenance department or drive up wages and overtime. Those are two “leaks” that can’t be identified by an OEE metric but are visible when OEE is used in conjunction with OLE.
PhM: What are the challenges of using OLE well? Do most drug and other manufacturers have the labor information needed to do the kind of OLE measurements that you suggest?

G.G.: Manufacturers often already collect the information required to calculate OLE. This data sits in many different systems and is measured at different levels of granularity and frequency. Companies have to figure out a way to change the way they collect and reconcile this data so that it can be used to calculate OLE.

PhM: Finally, what’s the key takeaway from the book? What should readers remember and take to heart?

G.G.: A key takeaway is that applying Lean techniques to the workforce can have as significant an impact on productivity as Lean has had with machines and materials. Lean Labor does have a difference though. Unlike machines and materials, the workforce has feelings and emotions and it takes more than just applying methodology and techniques to create an effective workforce. Lean Labor also requires a touch of compassion and treating other people like you would want to be treated.
No manufacturer's workforce is static. Those who understand the variable nature of their workers, and manage that variability, gain competitive advantage, says John Frehse, Partner and Owner at workforce management consulting firm Core Practice Partners. Reducing workforce variability is not only a key to increasing quality and reducing costs in drug facilities, Frehse says, but also to improving worker morale. Automating and applying metrics to workers and their performance is a first step. Pharmaceutical Manufacturing spoke with Frehse to learn more.

PhM: When you speak of reducing “variability” in the workforce, what are you really talking about?

J.F.: There are two types of variability that we are concerned about. The first is created by the shape of the demand curve for the products and services offered by the company. As demand changes, variable levels of staffing are needed. Without the right labor strategies, this variability can be costly as overtime and idle time become larger when management teams can’t adapt labor effectively to these adjustments.

The second form of variability is much more dangerous. Quality can be compromised when employees are asked to be flexible with their work hours. The variability in an employee’s alertness, rest level, and consistency have become major realities in the life sciences sector. Removing human error and providing an environment that fosters focus must be given more attention. This means deploying the right labor strategies with heavy respect for the physiological effects of shift work and also deploying the right workforce management software to monitor results.

PhM: What are the keys to reducing variability in the pharma manufacturing workforce?

J.F.: We cannot reduce the variability associated with launching new products, demand spikes, and seasonal requirements, so we have to focus on the areas we can control. Consistent quality should be the focus. To accomplish this, employers need to take a fresh look at labor practices. Employee morale plays a large role and every workforce is different. Survey your employees to understand what they like and do not like about the current operation. Find out what motivates them. You will be surprised that often the answer has little to do with money. Then design a scheduling system with labor strategies that not only work for their lives, but also have health and safety factors built in to maximize alertness levels and reduce variability.

PhM: When you look at the workforces of drug manufacturers, what glaring weaknesses jump out at you?

J.F.: Drug manufacturers have long believed that the answer lies in the length of the shift. This simply is not true. If they have 8-hour shifts, companies may adjust to
12-hour shifts, thinking that it will solve morale problems. They may be successful, but they may also increase payroll costs in the process. Due to federal labor laws, employers may increase payroll costs by over 2% in this transition because overtime occurs in some weeks and working less than 40 hours occurs in other weeks. We call it the “44th Hour Problem” and it is rampant.

Other work and pay policy adjustments (or lack of adjustments) can lead to millions of dollars in additional costs. We do not, however, think that overtime is a bad thing. Healthy levels of overtime should be used where needed. Although we do not advocate spending money for no value (the 44th Hour), we do advocate using overtime as an effective tool to manage spikes in demand.

PhM: Where are drug manufacturers in terms of automating their workforce oversight, and what’s holding back the laggards?

J.F.: Drug manufacturers are excellent at measuring and monitoring everything—except the workforce. Although software and other forms of technology have been heavily implemented to improve quality, consistency, and the supply chain, many management teams are still using Excel, pencil and paper to manage shift workers. It just does not make sense. Few can identify labor best practices, top performers, and detailed labor inefficiencies and are left managing to the status quo. The laggards are too comfortable with current practices and will not change unless they are hit with a catastrophic event. Of course at that point, it is too late.

PhM: What does real-time management of a workforce mean? What key factors are being monitored and manipulated?

J.F.: Real-time management of the workforce means that management teams can look at effectiveness throughout the day and not just a week later when reports have been tabulated. It allows management teams to look at key performance and productivity measures and understand success while also making immediate course corrections as employees deviate from best practices. In summary, it is a way to maintain the highest levels of labor quality all the time. The basic views typically surround productivity (how many, how fast, for how much effort). As advances in data integration have improved performance analytics have thrived. The question of “how many” and “how fast” have been augmented, but not replaced, by “how well.” This is the key to managing quality and not just cost. Units produced per hour can now be units with zero defects produced per hour. Microbial counts can be integrated as well where applicable. The move to quality-based analytics (and not just quantity) have driven lower-cost, higher-quality solutions for both businesses and consumers.
A sound measurement framework is something every manufacturer would like to have. Yet today, most measurement systems focus on machinery effectiveness or production output. Manufacturers measure time and attendance carefully, but beyond that, few have a method of understanding the effective use of their workforce. This white paper will provide a description of Overall Labor Effectiveness™ (OLE) and discuss how to use it as a tool to improve the overall effectiveness of the labor force.

Why Labor Is the Next Frontier in Overall Manufacturing Performance

Manufacturers know the problem well. Entering the quarter with a sizable backlog, the management team is optimistic about steady revenues and high profits. Yet when the results are tallied, the profitability expected doesn’t materialize. Postmortems show no important equipment failures, no labor issues that drained productivity, and profit nowhere near the level everyone thought possible.

The culprit? Beyond operating failures, very likely the problem can be traced to a host of workforce-related issues that accumulated as the plant ran at less-than-optimum capability. Some probable causes: The plant’s hard assets weren’t used efficiently due to difficulty scheduling the right resources when and where their specific skills were required. Absenteeism of critical individuals contributed to the problem. Undelivered or ineffective training hampered quality output and slowed production ramp ups — the same for changeovers and new product startups.

Factors like these are drawing attention to labor as the next critical manufacturing element to optimize in today’s demand-driven world. During the past decade, manufacturers poured attention and resources into supply chain improvements as a way to increase competitiveness and profitability. It was a successful strategy, but now it’s hitting the law of diminishing returns. Savvy managers have realized that their workforce can be the engine that drives supply chains and manufacturing in the quest to move to the next level of performance. And the pressure is getting greater. For many manufacturing executives, dealing with a changing workforce, competing with offshore manufacturing, and maintaining profitability are factors of corporate survival — and these goals will be achieved only if they can optimize their workforce performance.

Defining Overall Labor Effectiveness (OLE)

Optimizing workforce performance requires new insight. Attaining that insight requires companies to establish methods of quantifying, diagnosing, and ultimately predicting the performance of their workforce — one of the most important and highly variable elements of manufacturing. That insight can be provided by Overall Labor Effectiveness (OLE).
Simply put, OLE is the analysis of the cumulative effect three workforce factors have on productive output:

- Availability: the percentage of time the workforce spends making effective contributions
- Performance: the amount of product delivered
- Quality: the percentage of perfect or saleable product produced

OLE is the key to understanding the effect the workforce has on manufacturing performance — and, most important, it provides a platform that helps diagnose and predict that performance.

**OLE: A PARTNER TO OEE**

OLE has a precursor in a metric known as Overall Equipment Effectiveness (OEE). Designed to ensure maximum output from machines, OEE has been a bellwether of performance for manufacturing managers in asset-intensive industries, such as chemicals and refining. To understand OLE completely we must understand OEE, the relationship between the two, and how they work together to raise overall manufacturing productivity and performance.

OEE is a formula that shows the overall performance of a single piece of equipment, or even an entire factory, and is governed by the cumulative effect of three factors: the equipment's availability (percentage of scheduled production time available), performance rate (percentage of parts produced compared to standard), and quality (percentage of saleable parts produced compared to parts started).

OEE takes a holistic view, and many managers feel it is the best tool for managing operations in the context of cost- and efficiency-focused manufacturing. OEE is an effective measure, but it doesn't tell the whole story. In today's demand-driven operations, many manufacturing environments no longer place a high value on flat-out volume production. Shorter cycles and more frequent changeovers — which reduce the OEE values — are more important, lessening the value of OEE as an indicator of manufacturing productivity.

The shortcomings of OEE as a stand-alone measure are related to the interactions of labor with equipment:

- In asset-intensive industries, such as refining, the ratio of employees to assets is very low. If a certified operator isn't available to start a machine, OEE looks negative — but impaired output was not caused by the machine's potential.

- OEE doesn’t capture the interdependency of the direct and indirect workforce. For example, machine availability may be high, driving good OEE. A deeper look, though, may show that the maintenance staff is spending significant amounts of time to keep the machine running. As a result, other areas suffer indirectly, since
maintenance resources are not available to them, which causes overall workforce productivity to drop. Similarly, attendance, scheduling, breaks, and other workforces issues are not directly captured.

• OEE doesn’t work when there isn’t a machine to measure. Many critical manufacturing processes don’t have a machine to capture measurements from. For example, a welding station depends upon highly skilled (and difficult to recruit) workers performing a manual process.

• OEE does not have a comparable cost metric — and for good reason, as machines generally have predictable costs, such as depreciation and scheduled maintenance. Adding a labor element to an operation brings in three dimensions of variable costs. First, operators have different wage rates. Second, operators may earn premium wages, such as overtime, during production. Finally, a difference in cost attributed to performance against a standard may actually be caused by labor.

To get a true picture of operational performance, we also need to look at OLE, which provides insights into the critical elements of workforce preparation and execution.

It helps managers see how the workforce influences profitable production and points to the root causes of ineffective labor utilization. In its own way, OLE can show how assets and employees come together to drive performance. Some examples:

• OLE provides the ability to analyze the labor impact at the operator, department, plant, and even corporate levels of the organization.

• OLE can expose the interaction of interdependent variables. Changes made to improve one area may have a negative impact elsewhere. For example, a process change makes it faster to get parts to the shop floor but complicates warehouse operations.

• Trends that individually are too small to be noticed are highlighted earlier because of their cascading effect on total performance.

The familiar OEE factors — availability, performance, and quality — are the basic elements used in measuring labor effectiveness. But in measuring the contributions human beings make, it’s useful to look deeper and consider additional factors.
BEHIND THE OLE EQUATION:
POWERFUL DIAGNOSTICS FOR IMPROVING WORKFORCE CONTRIBUTION

Effective labor contribution is accomplished when managers can see and manage the three OLE elements — availability, performance, and quality — in concert. A manufacturer can improve shop floor productivity, and therefore the level of profitability, by understanding the interdependency and trade-offs of these three factors and managing them in real time. Let’s examine these elements:

**AVAILABILITY**

Clearly, availability is a basic criterion, and utilization is the most important component of availability. There are many things that influence workforce availability, and therefore the potential output of equipment and the plant. For example:

- Absenteeism and utilization: Standard labor utilization measures — which include employee illness, approved or unapproved leaves, and times when people are unavailable due to training, meetings, or other company-defined activities — come into play here.

- Scheduling: Involves having the right skill at the right time. Beyond merely providing a worker, we must consider employee skills and certifications, as well as flexible work schedules.

- Indirect time: Includes material delays, idle time, shift changeover, and machine downtime.

**PERFORMANCE**

This is the recording of output, which determines whether producing or delivering a product or service took as long as company labor standards indicated it would (whether tangible units are manufactured or specific services are delivered). Performance output includes:

- Availability of processes, instructions, tools, and materials: Shop floor issues, such as worn or misplaced tools, material shortages, or missing processes or instructions, will slow production and limit output — and likely have a negative impact on quality.

- Training and skills: Do employees know how to do the tasks they are assigned? Certainly these factors affect the ability to deliver the expected output throughout a complete shift or job run.

- Indirect support staff: A workforce that is insufficiently trained or skilled will require additional support staff, including supervisors, maintenance technicians, and quality assurance personnel.

With OLE analytics, interdependencies between factors are brought to the surface. Here’s a scenario: Something disregarded on the shop floor as a minor availability issue shows up as a troubling performance shortfall. OLE analytics track the problem back to a failure to meet standard job times, which was caused by jobs that weren’t started on time because the right employees weren’t at their stations and ready for the work at hand. When performance consistently falls below expectations, OLE quickly highlights the root causes, including inaccurately set labor standards.
QUALITY
At the end of the day, we need to know if the output of production met specified quality levels. While quality is certainly a function of the materials used, it is impacted by important human factors:

• Employee knowledge: Do employees understand the quality drivers of their specific operations? Employee skills directly affect the quality of output. Knowledgeable operators know how to measure their work and understand how the processes operate, how variability affects quality, and what adjustments keep processes to spec as they run. They also know when to stop production for corrective actions, should quality fall below specified limits. Applying this type of knowledge reduces the amount of wasted work and cuts scrap and rework costs.

• Proper use of instructions and tools: Did workers use the right tools and follow the right procedures?

MOVING FROM ADMINISTERING HUMAN RESOURCES TO MEASURING THE WORKFORCE INVESTMENT: WHAT OLE CAN TELL MANAGERS
Managers in the manufacturing industry have invested in workforce management tools, but until recently most money was spent to manage human resources from an administrative point of view. The true power of OLE is its ability to show cause and effect. It identifies problems that cut into profitability and shows how investments in human resources pay off. Examples of what managers learn from OLE include:

• Root-cause insights: For example, recognizing that a maintenance crew spent an inordinate amount of time in one production area, a manager sees that either a particular piece of equipment needs to be replaced or the operators are using it improperly. Digging further into OLE, the manager finds the root cause — a higher volume on the equipment that correlates to a change in incentive pay, which, unfortunately, promoted bad operational practices.

• Predictive measures: OLE can provide insight into the root causes of manufacturing inefficiencies. For example, seeing that overtime rose 10 percent in a recent period, a manager learns that when several new technicians were hired, the average skill level dropped and the average time spent per assembly rose 15 percent. Spending resources to improve the new-hire introduction program can be weighed against the incremental overtime costs of the new hires. Either way, the effect of additional new hires can be forecast better.

• Return on Investment from training: Measuring the effect of education is something everybody wants but few have been able to do. Using OLE, a manufacturer can pinpoint the root cause, invest in training, monitor specific increases in quality or performance, and recognize the improvement in productivity. Most importantly, the results of training can be monetized for ROI calculation and justification.

OLE can show how assets and employees come together to drive performance. Interdependent variables and difficult-to-identify relationships are exposed by a balanced key performance indicator such as OLE, showing how changes made to improve one area could have a negative impact elsewhere. Trends that individually are too small to be noticed are highlighted earlier because their cascading effect on total performance is recognized earlier. Executives throughout the organization have hard facts to help them analyze the effective contribution of the workforce and don’t have to rely on anecdotal evidence.
A SIMPLE EXAMPLE
Imagine a manufacturer that has full employment, sufficient demand to run the factory at full output, and equipment that is in good operating order. It’s a rosy outlook, but experience tells the plant manager that something is just not right. Margins are looking good, but given the opportunity, shouldn’t they be better? How can OLE illustrate how the workforce is affecting profit potential? Let’s consider some simple specifics for each element of OLE:

- Availability: Utilization is hampered by several items in the plant. First, absenteeism accounts for a capacity shortfall of approximately 2 percent each period. Also, poor material scheduling and movement causes about one hour of idle time per shift.

- Performance: Output is down somewhat. An insufficient number of technicians available to set up the equipment often means productive output is stalled at every changeover. The impact: lost productive time of about 5 percent.

- Quality: Given the shortfall of productive hours, the supervisors attempt to make up the lost time by running at higher production rates. The result: Quality begins to slip as the day wears on, and yields drop. The impact is a 4 percent loss of acceptable product.

The cumulative impact: The OLE value for the plant is 78.2 percent — a far cry from what the plant manager and his staff expected.

The takeaway is that this plant converted only 78.2 percent of the factory’s potential for profitable output — potential that can never be regained. Effective use of OLE uncovers the data that fuels root-cause analysis and points to corrective actions. Likewise, OLE exposes trends that can be used to diagnose more subtle problems. It also helps managers understand whether corrective actions did in fact solve problems and improve overall productivity.
THE CALL TO ACTION: USING OLE TO MASTER THE NEXT MANUFACTURING FRONTIER

You get what you measure. Surprisingly, although manufacturers track time and attendance, they seldom have a method of measuring, or understanding, how the actions of the labor force directly influence profitability. Now that they have squeezed productivity from their supply chains, manufacturers are looking for ways to further increase competitiveness. Identifying ways to help the workforce become more productive affords that next big opportunity.

Using OLE concepts and backing them with the power of analytics provides a real-time method of recognizing the cumulative effect of workforce variables. It gives managers hard data to diagnose, correct, and improve the financial performance of manufacturing operations. Just as people influence performance throughout the operation, OLE data can quantify the effects of their actions. OLE addresses smaller details, such as on-time performance, and answers larger questions, such as whether a training budget is justified.

Three things will power the competitive advantage of the next generation of manufacturers:

- A stream of innovative products that excite customers
- Highly flexible and effective supply chains
- A highly motivated, effective workforce

OLE helps manufacturers develop a highly motivated, effective workforce by helping them identify where people need better processes, materials, training, or indirect support. It’s a productivity tool for managers that helps them manage better as they convert labor dollars into profits.

To learn more about how OLE can benefit your organization, visit the resource center at www.kronos.com/manufacturing
Shapeshifting according to Wikipedia is a common theme in mythology that describes the ability of one thing to transform into something else, often to elude its predator.

While Wikipedia describes several examples of shapeshifting, one type I didn’t see was labor waste. For Lean champions, chasing this shapeshifting prey is often difficult. Labor waste has the ability to transform itself into many forms. Late shipments, customer concessions, premium freight, increased WIP and finished goods inventory are but a couple of common transformations.

For example, tardy arrivals by one or more people either first thing in the morning or even after lunches and breaks might not seem to have a significant impact. No one else is complaining as they slow down a little while the late person catches up.

It’s only after shapeshifting occurs, that small delays in production result in a premium freight charge to ensure on time delivery. What makes this so elusive is that by the time premium freight is authorized, it might be weeks since the operator’s tardy arrivals caused the initial delay.
If premium freight charges continue and the linkage is not made to late operator arrivals, a new thought process sets in. It is probably less expensive to increase safety stock levels than to pay premium freight. And since no one measures changes in safety stock, labor waste shifts its shape again into inventory carrying costs.

As these safety stock increases collect over time, inventory levels start to rise and red flags start popping up on the many detailed inventory reports. A directive comes out to reduce inventory levels. But without eliminating the root cause, the shape shifts again into other unmeasured forms of waste. This cat and mouse chase of labor waste occurs because it is challenging to tie many individuals’ unproductive labor minutes to more aggregated and readily measured metrics such as inventory levels and premium shipment costs.

ERP systems are often configured to measure labor inputs as a standard cost. Labor variances occur at the cost center level leaving plant accountants and production supervisors to manually chase down the labor losses through paper based variance tracking or Monday morning interrogations.

By sharing the production cost of a lost minute of labor with all employees, everyone understands the cost of the loss as it occurs. Improving the ability to track highly variable production operations shines a light on labor waste and eliminates its ability to shift shape and elude its predator: The Lean champion.
EXECUTIVE SUMMARY
If you’re like many manufacturers, you’ve already implemented Lean principles in your manufacturing operations. Now that you’ve seen the benefits of Lean within your manufacturing operations, you may be looking to implement Lean techniques in your “back office.” These processes include administrative tasks, sales and marketing, information technology, engineering, product development, and other “white collar” operations. By expanding proven Lean methods from your manufacturing operations to your back-office processes, your organization can continue to extend the benefits of Lean across the entire organization.

A Lean workforce is essential when applying Lean principles to your manufacturing operations. After all, labor comprises more than 50 percent of a typical operating budget, and an idle or underutilized worker creates labor expense without adding value. Lean labor is even more important for back-office operations because labor is the single most important input in back-office processes.

This article explores how workforce management technology enables your organization to apply Lean principles to your back office by automating manual activities to reduce waste and by giving you visibility into labor productivity so you can remove inefficiencies from your labor utilization. As a result, your organization can improve productivity and control labor costs throughout your back-office operations.

LEAN BEYOND THE SHOP FLOOR
In a competitive market, you must continually find ways to improve your operations to heighten productivity, increase quality, enhance responsiveness, and reduce costs. Many organizations have long achieved this goal by applying Lean principles to their manufacturing operations. Yet 60 to 80 percent of all costs related to meeting customer demand are administrative or office-related functions. As a result, many

organizations are looking to significantly improve their bottom line by extending Lean initiatives beyond the plant floor by applying Lean concepts to back-office processes long ignored in process improvement efforts.

IMPLEMENTING LEAN PRINCIPLES IN THE BACK OFFICE
Lean is based on two principles: eliminating “waste” — any step in a process that adds no value as defined by customers — and smoothing workflow. Seventyfive to ninety percent of the steps in service and administrative processes, such as order entry, quoting, and purchasing, add no value. Lean analysis identifies wasted processing and manpower. It is also designed to smooth out the volume of work so that it can be performed continuously regardless of variations in demand, eliminating rush periods and fire drills that drive excess staffing and negatively impact quality.

Implementing a Lean initiative involves defining important business processes from beginning to end and then identifying bottlenecks, defects, and mistakes in these processes. Organizations then look for ways to eliminate waste and unnecessary steps that do not add value. The goal is to reduce processing times, improve flexibility and responsiveness, and ensure continuous flow through each process. Organizations also typically define performance metrics for staff and processes to create a closed-loop methodology that helps improve the effectiveness of people and processes.

By applying Lean principles, organizations aim to remove a number of types of waste from their back-office processes. These wastes include:

Overproduction — the unnecessary production of more service than is demanded. Examples include using “reply all” or sending multiple copies of reports, forms, or other information to several people for review and comments, which in turn must be consolidated.

Waiting — the time that workers are idle due to bottlenecks or processing delays, which increases labor costs. In the back office, staff often wait while other people or processes finish work before they can do their work.

Poor logistics — includes any movement of materials that does not add value to the product. Examples include back-and-forth transfers of information, such as getting approvals and sending them back to the original person or the need to obtain too many approvals.

Inventory — in a back-office context, inventory is work waiting to be processed, such as tasks in inboxes and on to-do lists.

Rework — is necessary when something isn’t done right the first time. For example, when workers input erroneous information into a report, it will be caught later and will have to be re-entered.

Movement — is the exertion of effort without producing meaningful output. Examples include meetings that do not result in a decision or produce information through collaborative discussion through the work of a team.

organizations are looking to significantly improve their bottom line by extending Lean initiatives beyond the plant floor by applying Lean concepts to back-office processes long ignored in process improvement efforts.


5 Carter, “A Lean Office.”

Tools and concepts that Lean methodologies provide to eliminate waste include:

- **Prioritization** — In the back office, it’s easy for staff to concentrate on the projects they enjoy rather than on those most important to customers. Or staff may be unaware of the tasks that add value for customers, because workflows span multiple departments. Lean initiatives establish clear priorities and instill the discipline to drop one work process to immediately process another of greater importance. For example, priorities might include due date, value of order, or customer type.

- **Performance measurement with KPIs** — Key performance indicators (KPIs) enable organizations to “close the loop” on process improvements. They are used to determine how well current performance measures up to company or industry standards so management can evaluate the progress of Lean and process improvement efforts toward organizational goals. Two KPIs often applied to Lean manufacturing efforts include “pitch” and “takt time.” Pitch measures how much work can be completed during a given amount of time; Lean efforts look for ways to do more work in the same amount of time. Takt time is the rate of customer demand, and Lean manufacturers aim to turn out products at the appropriate rate to meet customer demand.

In back-office processes, the KPIs you choose to employ depend on the questions you want to answer about your value stream and how you define the product or service produced by these processes. For example, if your goal is to reduce the number of engineering change orders (ECOs), you can define ECOs as the product and identify the total number of ECOs issued, cycle time, and queue time for processing. This information can help you pinpoint bottlenecks and eliminate waste in your process.

- **Eliminate non-value-added activities** — Lean initiatives strive to include activities and processes that add value for the customer and eliminate non-value-added steps that lengthen process cycles/times or result in any type of waiting.

- **Address unpredictable and highly variable workloads** — One of the key reasons for waste in work processes is unpredictable workloads, which can be caused by unbalanced workloads and fluctuations in customer demand.

Uneven workloads lead to bottlenecks and often mean that considerable work must be done at once, followed by periods without enough work.

- **Avoid overburdening people** — During peak workflows, manufacturers need to avoid pushing people beyond their natural limits. Overburdening people results in low engagement, fatigue, turnover, and quality problems.

- **Leveling volume** — While Lean manufacturers practice “pull” demand where they produce products based on customer demand, they also want to ensure continuous flow. By studying the amount of time each task takes, you can ensure that each step has a similar cycle time to level the operation. The same concept can be applied to the back office, where Lean practitioners try to level the tasks workers perform, to avoid rush periods and fire drills.

- **Capacity flexing** — Capacity flexing enables organizations to find the right number of workers with the right skill sets to meet expected seasonal surges in demand, such as when accountants must prepare tax returns in March and April.

- **Change management** — In changing from a traditional to a Lean environment, your organization must change its corporate culture. Without employee support for
Lean efforts, no organization can make major changes. Change management will need to encompass updating management skills, training workers, and revising reward systems. For example, the Lean principle of engaging employees in problem-solving means that instead of dictating new workflows from above, management must ask workers involved in a process how that process can be simplified or improved. Managing change and people’s behaviors is a continuous process that must be addressed from day one.

CHALLENGES OF BRINGING LEAN TO THE BACK OFFICE

In the past, organizations have hesitated to apply Lean techniques to the back office because of significant differences between back-office processes and standard manufacturing. While manufacturing operations typically follow set processes, the back office has highly unorganized workflows. Rather than following standard operating procedures, staff may employ different ways to accomplish the same task, depending on personal relationships and experience.

Back-office work also typically flows across multiple departments and functions; for example, the order-to-cash process encompasses order entry, distribution, invoicing, and collections processes. These diverse and multi-departmental workflows make it challenging to map out, measure, and improve processes.

Because projects are often small and ad hoc, output is not always standardized, and individuals may have multiple responsibilities, it can be difficult to determine who is responsible for what and to measure productivity and quality. To further complicate matters, priorities for projects are constantly changing.

Finally, back-office employees are typically salaried. Organizations feel they can do little to control labor costs when wages are fixed. Even if organizations can control employee activities, salaried employees resist being measured, as they feel it is demeaning or unfair because their priorities are constantly changing.

Even when organizations have applied Lean techniques to the back office, these attempts have seen limited success. For example, many organizations successfully improve specific functional areas, such as accounting, but see limited improvement overall because they fail to target workflows that extend across departments.

Many organizations also fail to apply Lean initiatives consistently. When organizations have instituted quality and process improvement initiatives, they have been “flavor of the week.” Employees have gotten used to change for change’s sake and learn to appear to address this week’s management priorities knowing that next week they will be asked to focus on another “hot issue.”

THE ROLE OF WORKFORCE MANAGEMENT TECHNOLOGY IN LEANING OUT THE BACK OFFICE

While efforts to apply Lean methodologies to a manufacturing organization concentrate on a combination of labor and other resources, labor is the most important input in back-office processes. Thus, any attempt to bring Lean to the back office must start with improving the efficiency of labor utilization.

Workforce management technology plays a critical role in recalibrating processes and ensuring that Lean efforts are applied consistently. Workforce management technology is a key enabler for Lean because it delivers automation and visibility.

AUTOMATION ELIMINATES WASTE

Workforce management solutions automate wasteful manual processes to improve productivity and accuracy and eliminate waste. For example, absence management capabilities automate the application of your attendance and leave policies. This eliminates manual processes for your human resources staff while making it easier for
your organization to enforce your absence and leave rules consistently as well as improve compliance with FMLA and other federal, state, and local leave laws.

ESTABLISH CONSISTENT WORKFORCE VISIBILITY
Visibility allows organizations to see where labor is, what labor is doing, and how it relates to productivity goals. Thus workforce management makes it easy to allocate the right labor to the right place at the right time to further streamline back-office processes. Key capabilities that workforce management technology delivers include the ability to:

• **Track workforce activity** — Workforce management solutions provide detailed, up-to-the-minute activity tracking data. Activity tracking capabilities allow you to collect and analyze data about labor according to a wide range of criteria — by employee, task, department, project, or customer. You also gain complete visibility into the status of work in progress. The resulting insight helps you find hidden productivity drains so you can take steps to eliminate wasteful activities.

• **Identify potential shortfalls** — On-demand dashboards make it easy to see if you’re approaching trouble in critical areas like cost or impending due dates so you can take proactive steps to avoid bottlenecks.

• **Match the right person with the right skills to the right task** — Workforce management helps keep workflows balanced by allowing managers to make sure people with the right skills and certifications perform the right tasks. Scheduling capabilities allow managers to view worker profiles (skills, availability, etc.) as they set up schedules — for example, to ensure they have the right workers with the right skills to meet seasonal peaks in demand. Timeoff management and vacation planning tools enable you to reduce unplanned leave and make sure the right people are covering for absent workers to avoid work spikes that can lead to burnout or delays in work.

• **Measure performance** — KPIs enable you to see how the entire workforce is performing, with the ability to drill down to an individual or project to diagnose the problem. By identifying trends and distinguishing one-time occurrences from recurring events, you can better schedule and plan for situations such as increased volume or sporadic holiday attendance. With KPIs and analytics capabilities, your managers can make quick adjustments and continuous improvements.

BENEFITS OF USING WORKFORCE MANAGEMENT TO BRING LEAN TO THE BACK OFFICE
Workforce management software uses these capabilities to enable organizations to reduce costs and improve productivity.

**Reduce Costs**
Organizations using workforce management gain visibility into real-time information about labor that is accurate and actionable. They use this visibility to match labor capacity and skill sets to demand, reallocating labor resources as necessary to meet deadlines and maintain customer satisfaction. They can even pinpoint problem areas and take appropriate action before service levels are compromised. As a result, they can have the right person at the right place at the right time to meet customer expectations — often using less labor than they would have needed otherwise.

For example, as one company reviewed its order entry processes for a Lean initiative, it found that it was using a significant amount of time to acknowledge orders. Whenever the company entered an order, it automatically printed an acknowledgment and manually sorted and mailed it to each customer. However, it turned out that few customers wanted an acknowledgment — and those who did were willing to accept an email response — which meant that this process added little customer value. By coding orders to acknowledge via email only
customers who wanted such notifications, the company was able to free overworked staff to spend more time on value-added activities.\textsuperscript{7}

**Improve Productivity**

Your organization can use automated workforce management to improve productivity by eliminating manual processes. In addition, workforce management provides detailed labor activity and performance information that organizations can use to improve processes.

For example, one large multinational company was able to improve cash flow by reducing the amount of time from when work was performed in the field to when it was able to send invoices. Rather than using paper documentation, the organization was able to enter data about the activities performed into the workforce management solution. Not only did the workforce management solution allow the organization to measure performance, it also interfaced directly to the ERP invoicing system, eliminating the need to rekey information in multiple systems.

**BRINGING LEAN TO THE BACK OFFICE: HOW TO GET STARTED**

While workforce management technology is a critical enabler, you also need to learn new Lean methodologies. The following are steps your organization should take to bring Lean practices to your back office:

- Define “value” by identifying your internal and external customers and defining what these customers want
- Identify and document your current workflows
- Look at workflows from an enterprisewide, system, or business process perspective
- Determine value-added/non-value-added elements of workflows
- Eliminate waste by weeding out any activities that don’t meet real demand
- Use metrics and rapid performance feedback to improve real-time decision making
- Implement a rapid plan>do>check>act improvement framework to achieve results quickly and build momentum
- Pursue perfection by involving employees in efforts to continually identify and eliminate non-value-added activity from all processes
- Emphasize learning at an organizational level through sharing of best practices from one project to another

**CONCLUSION**

Lean provides the foundation for more efficient and profitable operations — not only in manufacturing, distribution, and supply chain operations, but throughout the back office.

Bringing Lean to both the shop floor and the back office requires a holistic effort that encompasses new methodologies and new technology to ensure that labor embraces new concepts that can seem foreign to back-office operations.

With labor as the critical input for most business processes — particularly those in the back office — workforce management solutions are clearly a key enabler for Lean initiatives throughout the organization. Workforce management solutions automate critical manual processes to improve productivity and drive out errors and waste. These solutions also furnish visibility into labor productivity that allows you to assign the right workers to the right tasks at the right time to streamline processes and smooth workflows. As a result, workforce management helps deliver on important Lean promises of improving productivity and reducing labor costs.
If only your actual labor costs were this easy to see.

If you don’t know your actual labor costs, you may be missing orders or leaving margin on the table. And if you have an ERP system, it’s hiding those actual costs in unexplained variance. But with a fully-integrated suite from Kronos, you get real-time visibility into your actual labor costs. Providing you a valuable solution that tracks both direct and indirect labor, giving you detailed data as never before to make better, more profitable decisions about your pricing and product mix strategies. All from the company that’s proving workforce management doesn’t have to be so hard.

For Chapter 8 of *Lean Labor: “Labor Costing as a Competitive Advantage.”*