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Lean in a Downturn

Six Actions to Take Now



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As the global economic downturn deepens, cash-strapped companies are looking for ways to cut costs and increase cash flow. The principles of lean align well with this agenda, since their focus is on eliminating waste, improving productivity, and increasing agility. But although most companies have formal lean programs in place, these don't always deliver significant results. That's unacceptable in today's challenging environment. For this reason, it is critical for companies to take a closer look at whether their lean initiatives are really generating cash and improving the bottom line.

Our experience shows that well-executed lean programs can cut production cycle times and quality costs by half, increase productivity by 10 to 30 percent, and reduce inventories by 30 to 50 percent. What's more, quick wins can deliver a large share of these savings. The problem is that lean efforts are rarely implemented thoroughly and effectively, and companies often slip into costly bad habits that prevent them from achieving or sustaining results.

To get your lean efforts back on track, refocus on the basics and cor-

rect the bad habits that are undermining results. Besides generating much-needed cash, you'll make your company stronger and better positioned for the upturn. Here are six actions to take now.

Focus on High-Impact Areas

Ideally, lean should become a way of life, and applying its principles throughout an organization is a worthy long-term goal. But to get faster results, companies should concentrate on critical, high-impact areas and avoid the temptation to do too much at once—particularly during a downturn. Many companies dilute their efforts with too many small projects instead of working toward the clear goal of an optimized business or production system. As a result, their lean programs don't significantly improve what really matters: core capabilities and delivery of customer value.

In the short term, small projects are good if they target the right areas. Every factory has a few places where even small changes can deliver major improvements to the bottom line—and these are especially important in the current downturn. At most companies, certain areas or processes

have disproportionately high scrap rates, labor concentration, or capacity utilization. These outliers are a good place to focus your initial lean efforts.

The actions you take will depend on your company's current demand levels, whether declining (the situation at most companies in a severe downturn), growing (even at these lucky companies, growth is likely to slow in a downturn), or uncertain (also common in today's environment):

- ◇ When demand is down, it is most important to focus on inventory and asset reductions, plant closures, overhead optimization, cost cutting, and labor productivity improvement. Carefully analyze where and how to cut back.
- ◇ When demand is growing, focus your efforts on eliminating bottlenecks and improving labor productivity so that increases in capital investments or head count can be avoided.
- ◇ In a cyclical or highly uncertain environment, flexibility and responsiveness are critical, so focus on production flexibility and leveling, reduce production cycle times, and optimize inventory and service levels.

Directing lean resources to the most critical areas is crucial, and a deep analysis is often required to pinpoint where you'll get the biggest payback for your efforts. The goal is to achieve step-change improvements so that you can eliminate entire production lines or cut back on the number of shifts needed. Bottlenecks are good high-impact targets. Since capacity at bottleneck equipment determines overall plant capacity, simple improvements in these critical assets can lower the number of shifts needed or increase productivity without adding resources. A medical-devices company measured the effectiveness of all the equipment in its factory and planned microimprovements in hundreds of machines. But further analysis showed that only two machines were real bottlenecks. The company found that by improving the effectiveness of just those machines, it could cut back from three to two shifts and eliminate overtime payments.

By spreading valuable lean resources too thin, companies often miss these high-impact areas or don't fully capitalize on their potential.

Look Beyond the Shop Floor

Because lean programs are often the domain of manufacturing, they tend to be production focused. As a result, potential savings beyond the shop floor can be overlooked. But the root causes of costly production problems often lie outside of manufacturing, and many barriers to improvement are organizational. For instance, overly complex product designs from the engineering group can lead to longer changeovers, high-

er labor and component costs, and excess scrap. Likewise, prices determined by sales and marketing may not reflect a product's true cost, or they may not draw buyers to standardized products that are faster and cheaper to make.

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Simple analyses can often reveal these broken links, and improvements can lower overall costs. A food company that systematically analyzed the complexity involved in making each of its products—and the related costs—discovered that many stock-keeping units were unprofitable. By cutting the bottom 30 percent of its SKUs, the company achieved a double-digit reduction in variable costs with minimal impact on sales revenue.

Lean programs also may fail to address administrative functions—a good potential source of cash in a downturn. Examine the size, role, and structure of all support functions, especially if your business has high indirect-labor costs. By applying lean concepts to these functions, companies can often reduce head count without hurting service levels.

Use Lean Insights to Avoid Capital Outlays

Done right, lean programs allow companies to do more with less. If your lean initiatives haven't allowed you to postpone or reduce capital ex-

penditures, then something's wrong. For instance, most companies have much more available capacity than they think. The trick is to release the hidden capacity in bottleneck assets that is often tied up in breakdowns, changeovers, shift changes, small stops, or lines running at less than optimal speed. For example, a pharmaceutical company was using high-speed lines to run low volumes of product with frequent changeovers, which reduced overall effectiveness and resulted in a higher cost per unit than if it had used more flexible, less technically complex (and less costly) lines.

Too often, instead of finding and using their hidden capacity, production managers expand their manufacturing facilities or buy new, more complex machines. In boom times, these outlays may be overlooked, but in a downturn they are truly wasteful unless they cannot be avoided. Before investing in any new equipment, make it a point to thoroughly understand your manufacturing needs; perhaps a less expensive solution would suffice. And analyze theoretical capacities and efficiency levels to determine whether improvements to critical equipment could reduce or postpone short-term investments.

Another way to postpone or avoid maintenance-related capital outlays is to improve equipment performance or replacement rates through enhanced maintenance practices, such as total productive maintenance (TPM), that prolong equipment life and reduce replacement needs. Frontline operators are often a good source of ideas for simple, money-saving fixes. Consider expanding your improvement (or kai-

zen) events and employee involvement activities and focusing them on ways to avoid capital spending. One manufacturer achieved a 25 percent reduction in capital outlays for production line replacements by using TPM to increase the useful life of its equipment.

In addition, instead of buying expensive control or quality-inspection equipment, make improvements at the source with mistake-proofing (or poka-yoke) devices, statistical process control, or product designs that are easier to manufacture. A chemical company that used expensive control equipment realized that the many costly control mechanisms it “needed” would actually be unnecessary if the root causes of deviations were addressed. It therefore increased its focus on quality at the source in future equipment projects.

Poorly used space, too, often leads to needless spending. Many companies expand their facilities instead of rethinking and redesigning their current workspace. Pull systems such as just-in-time or kanban can significantly reduce work-in-progress (WIP) inventory—the boxes and pallets that clutter many factory floors. Reconfiguring existing space can also result in consolidated factories or warehouses, excess assets that can be sold, and lease or rental savings. One company that was planning to expand its manufacturing facility found that by making a few simple changes, such as removing obsolete stock, eliminating redundant raw-materials inventory, and revising the safety stock parameters for semifinished goods, it could free up 40 percent of its warehouse space and convert it to production space—for far less capital.

Rightsize Inventory

To reduce net working capital and costs while shortening production cycle times, companies must target all types of inventory with their lean initiatives. Inventory is often seen as

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a production problem, but product engineering or sales is often responsible for the proliferation of SKUs that can drive up inventory levels. In our experience, the bottom 10 to 30 percent of SKUs can frequently be cut without any negative impact, leading to lower stock levels and lower costs related to obsolescence and overhead.

Generally speaking, production or replenishment lead time and variability of demand drive inventory levels. Supply chains often distort demand (the so-called bullwhip effect), as each stocking point orders more than is needed to avoid stockouts. This has the effect of artificially amplifying demand and leads to more upstream stock. Better communication between marketing and operations as well as more accurate forecasting methods can also help reduce inventory levels. One food company realized that its distributors—often collocated with the company’s own distribution centers—kept excessive safety stock. By integrating this stock with its own inventory and then managing it centrally (on the basis of shared information about stock levels), the com-

pany reduced its overall finished-goods inventory by ten days, freeing up working capital, cutting warehouse costs, and delivering fresher food to customers.

To reduce their reliance on demand forecasting and its inherent limitations, companies should improve their operations and use pull systems to more closely align production levels with true demand. Before cutting too far back, however, make sure that you understand the tradeoffs. Stockouts can lead to lost sales—a risk that you may not want to take in today’s uncertain environment.

With demand falling off sharply in most industries, pull systems can minimize WIP inventory by aligning production with customer demand. But although many companies use pull systems in areas where lean pilots are under way, very few use them throughout the supply chain. This can result in vast pockets of overproduction and a buildup of “pushed” inventory—especially problematic when business slows. To make matters worse, many companies still try to increase the output per hour of nonbottleneck equipment to minimize unit costs—an outdated concept from the days of standard cost accounting, when equipment efficiency was linked to cost per unit. In doing so, they unwittingly increase cost per unit by building up inventory that requires handling, storage, and space, which results in excess working capital. A more effective way to minimize WIP inventory is to bring down production cycle times by reducing batch sizes and performing shorter, more frequent changeovers at nonbottleneck machines.

Raw-materials inventory is often much larger and more mismanaged than WIP—mainly owing to organizational issues. While lean programs and projects are typically the domain of manufacturing, raw materials are often managed by the procurement group, whose incentives may not be aligned with lean programs. For instance, to obtain supplier discounts, procurement typically buys raw materials in bulk, and transport costs are bundled in the price. As a result, large shipments and high inventory levels have become the norm. Instead, companies can unbundle transport costs and balance the tradeoff between smaller, more frequent just-in-time shipments and the carrying costs of inventory—without sacrificing the volume discount.

Finished-goods inventory, too, must be carefully managed in a downturn. High levels of finished goods can stem from overly optimistic sales forecasts, make-to-stock policies (resulting from long production cycle times), poor delivery reliability (which gives rise to the need for buffer stock), and a less than optimal network configuration (for example, inventory is sometimes held locally because factories are far from the target markets).

Not much can be done about network configuration in the short term, but production cycle times and delivery reliability can be improved relatively quickly. The latter, surprisingly, can have a major impact by reducing variability of demand. A manufacturer that had struggled with its dealers' high inventory levels drastically shortened the lead times for certain products. As a result, delivery reliability dropped

sharply, and dealers made the problem worse by building up safety stock. Once the company focused its lean program on delivery reliability, dealers' stock levels fell by more than 40 percent.

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Go Back to Basics

The downturn is a perfect opportunity to refocus on the basics: cutting costs and waste, decreasing complexity, improving productivity, reinforcing zero tolerance of budget overruns, and making “pure lean” improvements in productivity without added investments. Often, simple solutions yield major results. For instance, tracking and displaying real-time or hourly performance on the production floor can ensure that under conditions of reduced volume, people don't spend more time doing less. Incentive and bonus structures should be aligned with the changing environment, with more frequent measurement and evaluation and an emphasis on short-term impact and cash flow.

Now is also a good time to question long-held assumptions and sacred cows regarding maintenance spending (Is it too high for an acceptable risk of breakdown?), outsourcing (Should outsourced parts be brought in-house to keep people and machines productive?), and safety stock calculations (Do the parameter assumptions still hold?). One company

maintained six weeks of safety stock for every component needed to repair a critical molding machine. The rationale was simple: it took a total of six weeks to get the needed parts from the overseas supplier and repair the machine. The company decided to look again at whether its overseas supplier was really the only one available and whether it really took six weeks to repair a mold. As it turned out, there were other options, such as paying the supplier a small premium for express service or switching to other suppliers—some of them local—that would allow the company to cut service time from six to two weeks and release large stores of inventory.

Look to the Future

Despite the challenges, downturns present an opportunity to drive forward a lean agenda, which can better position a company for the future. During difficult times, people are more flexible and leaders are more willing to make tough and often unpopular decisions. Painful cutbacks, layoffs, and new ways of working are easier to justify when survival is at stake.

But it's important not to lose sight of the big picture. Although tough decisions are necessary, short-term cost savings can hurt long-term performance. For example, outsourcing can save money but sometimes at the expense of service or speed—a tradeoff that could damage future revenues. Often, seemingly smart decisions made in one area of a company have unintended negative consequences elsewhere. For instance, when capital budgets are tight and under extreme scrutiny, buying a large piece of equipment for several production

lines to share, instead of three or four smaller machines at a higher initial cost, may seem like a good idea. In fact, shared arrangements frequently lead to higher internal transport and labor costs, long production cycle times, overly complex workflows, and increases in inventory. Similarly, cutting back the manufacturing workforce in response to lower production volumes makes sense, but eliminating certain functions, roles, or individuals with specific skills could cause long-term damage that would take years to correct.

To ensure that cost cutting doesn't have unintended consequences—or at least that the consequences are fully known and acknowledged—companies would be wise to assign responsibility for keeping track of the big picture. Operations managers may be well positioned for this role. To succeed, they'll need to balance the needs of the line organization with the demands of the corporate center and provide valuable input to senior management on the basis of a rigorous analysis of cost-benefit tradeoffs over the long term.

With their focus on eliminating waste and doing more with less, lean programs are gaining renewed attention as the global downturn deepens. But because of the challenges involved, many initiatives haven't lived up to their promise—often because the initial rigor fades over time and counterproductive behaviors emerge. The current financial crisis presents an opportunity for companies to revisit their lean programs and correct the bad habits that are consuming cash and hurting profitability.



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