IT for the future

Create the perfect plant in a volatile economy with **strategic software investments**
By Greg Swift

With the recession softening manufacturers' fourth-quarter revenues, financial analysts are emphasizing different barometers — such as operating margins — to gauge companies' success.

Leading manufacturers are taking steps to improve margins by running as Lean as possible, ensuring continued focus on quality and compliance and reacting swiftly to take advantage of new revenue opportunities as a result of the economic environment.

While IT is not spared from cost-cutting initiatives, smart companies are making targeted IT investments that provide quick return on investment (ROI), particularly in areas that support the organizations' differentiating business and manufacturing processes. This dual strategy of selective cost-cutting and targeted investments in IT from an end-to-end process perspective typically has delivered larger returns than focusing purely on cost-cutting measures, according to a report titled "Managing IT in a Downturn: Beyond Cost Cutting" in the September 2008 *McKinsey Quarterly* business journal.

This counterintuitive approach has marked a shift in "C-suite" (CEO, CFO and COO) purchasing and decision making it likely to become the new norm even when the economy recovers. As early as last fall, companies began shifting more IT purchasing and decision-making power to senior levels — and beyond the traditional realm of localized budget approvals into aggregated decisions — because the combination of limited access to capital and declining revenues was forcing companies to more closely manage budgets in shorter time segments, sometimes from quarter to quarter or even month to month.

As a result, the C-suite is taking a more bite-sized approach to selecting software that solves immediate pain points, can be paid for easily and implemented quickly, and provides measurable near-term ROI. It must integrate seamlessly into differentiating business processes and also align with the company's long-term IT and business strategy.

This new emphasis is driving demand for three types of software — each supporting an end-to-end process perspective — helping manufacturers weather the downturn while positioning them for strong growth when the economy recovers.

1 **Performance management software** helps manufacturers reduce costs by providing visibility into operations and enabling quick tactical responses to production or supply volatility. Examples include manufacturing visibility and intelligence and inventory optimization solutions that integrate with tactical production planning, procurement, scheduling and execution capabilities. This combination enables manufacturers to respond quickly to supply or demand volatility.

Consider a situation in which cost-cutting measures necessitate a production line (or even a plant) to be shut down, and production needs to be shifted quickly onto other plants so existing order delivery or inventory is minimally impacted. This situation requires deep visibility into — and tight integration across — process steps such as demand planning, production scheduling and manufacturing execution.

2 **Quality and compliance software** helps manufacturers mitigate potential revenue leakage due to product and process defects, non-conformance or quality violations. This includes improving detailed track-and-trace and recall-man-agement capabilities from core production processes across the supply network.

Consider a situation in which a sudden quality defect in a key component required for one of your best-selling products is introduced by one of your suppliers. Rapidly uncovering the quality or conformance issue, conducting a root-cause analysis and taking corrective action across the supply network requires a complete view and detailed reporting of compliance and traceability from component to finished assembly, and from the supplier's plant to the store.

3 **Revenue-capturing software** enables manufacturers to identify and capitalize on new opportunities created by the current economic environment. Such solutions typically support deep insight into customer buying preferences and are integrated into trade promotion management, demand management and production fulfillment processes.

Dramatic shifts in the economy can create new opportunities. Products that may not be in demand today may be tomorrow. In today's global business landscape, it's not enough for manufacturers to have software that provides insight into industry trends, into buying behavior and into product and profitability analysis and processes. Software must integrate seamlessly into trade promotion management and collaborative demand and fulfillment planning solutions to enable manufacturers to more nimbly react to and capture new market opportunities.

Smart manufacturers know they can't afford to postpone IT investments until after the economy improves. By selecting software that can be quickly implemented, deliver fast results and seamlessly integrate differentiating business processes, the CEO/CFO can achieve short-term goals of improving margins while still following the CIO roadmap for creating the perfect plant.

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LEAN INSIGHTS

Lean and performance management

By Dr. Timothy D. Hill

Toyota doesn't use performance appraisal, but they do performance management. How? They use the before-after information from simple kaizens and A3s to set the processes they want to improve.

A kaizen (it's a simple fix, just go ahead and do it) or an A3 (the sheet of paper used to plan out larger kaizens) are both continuous improvement. There will be a gap to close and measurements taken to assess its initial size. The continuous improvement will be aimed at closing that gap. Ideally, it will be closed enough so that the problem goes away — you eliminate, not manage, your problems.

You track those measurements and put into place visual displays (charts, graphs, andons, etc.) to display your progress. As progress is made and the continuous improvement efforts take hold, you set a new standard for that task. You deliver continuous improvement so that you can set a new standard.

It's the process of creating new standard work and displaying progress that form performance management.

It's not using performance management to:
• assess progress toward under-specified goals;
• address behaviour issues that should have been resolved by many trips to the *gemba* (the actual place where work is done); and
• assess performance towards under-defined work standards.

In fact, William Deming (one of the fathers of the quality movement) said of this form of performance management that it forced half of the people to be sub-standard. He said to throw out traditional performance management.

He was right. More than 75 percent of all North American firms don't do performance management (PM). Those 25 percent that do tend to use PM data for at least four different reasons. There are problems with how people rate themselves and how others rate the target person. Forced distributions,

grading on a curve, central tendency errors and more all combine to render traditional PM literally useless.

How people rate themselves: The most popular PM measure is a narrative form wherein the rater describes their own work. This is subject to over inflation when rating one's own work.

How others rate the target person: Given that the rater has not been going to *gemba* on a frequent basis, they will be forced to try to remember how they think the rate did. There are many rating biases that come into play here.

Forced distribution: Based on the incorrect belief that performance should be normally distributed, a forced distribution has so many As, Bs, Cs and the like. If the number of As has already been met, but you have an A for your performance, you will receive a B rating. This is similar to rating on a curve, or "belling" the ratings.

Central tendency errors: Not wanting to give too high (or low) a score can lead to a rater giving a middle rating. Sometimes the rater wants to avoid giving too high a rating because there is no more room in a pay-for-performance scale; the rater won't know where to place them next year; and so on. Since raters really dislike giving negative ratings, they bump them up to a middle-most rating. Central tendency errors confound the rating system, with repercussions for advancement, career counselling, termination or remuneration.

By concentrating on improving standard work through continuous improvement, Toyota and others can use the before-after values, make those values into visual displays (charts, tables, etc.) and connect accountability to those who brought the idea forward.

The before-after kaizen improvements are the criterion measure for performance management. As each kaizen is implemented, the before-after data is gathered and tracked. This tracking is displayed visually and serves as the basis for

shifting from kaizen to standard work. As the new standard is implemented, checks on the performance are conducted.

A person can pull the andon cord, a poka-yoke can be implemented to ensure consistent performance or a piece of autonomation ("intelligent automation" or "automation with a human touch") can be used to test the conditions of the new standard work. Regardless of the method, the checks on performance are conducted. In this way, performance management is realized.
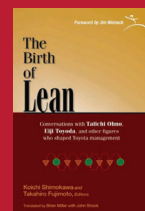
The cycle of kaizen improvement leads to buy-in from employees. The accountability loop is closed by having the criterion measure from the kaizen event being tracked. As the transition to the new standard takes place, autonomation makes sure that the standard works within tolerance. Note that an emphasis on standard work and a buy-in to lean area required.

Voila — performance management without a performance appraisal!

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