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Global operations chief Johnson with employees at Conmed's Utica (N.Y.) plant

SIX SIGMA IS OUT. EXTREME LEAN MANUFACTURING IS IN

U.S. companies from food makers to heavy industry to banks are cutting costs by gearing output precisely to demand

When surgical device maker Conmed decided in 2007 to streamline production, executives explored the usual options. The Utica (N.Y.) company could ship more manufacturing to China. Or it could invest in automation.

Conmed chose a third path instead: It completely overhauled its production. Long assembly lines at its 600-worker Utica plant have given way to compact U-shaped workstations. Piles of plastic boxes stuffed with enough parts to last weeks have been replaced by just a few bins containing the exact number of parts needed.

No longer do workers furiously crank out products that languish in warehouses. Instead they build only as many as customers need at the time. Conmed calculates that every 90 seconds hospitals worldwide use one of its disposable devices for inserting and removing fluids around joints during orthoscopic surgery. So that's precisely how long it takes for a new one to roll off its assembly line. A growing number of products, such as instruments for cutting bone, are assembled only after hospitals place orders.

"The goal is to link our operations as closely as possible to the ultimate buyer of the product," says David A. Johnson, vice-president for global operations.

Lean manufacturing—producing goods with minimal waste of time, materials, and money—was pioneered by Japanese companies such as Toyota Motor decades ago. Now a growing number of U.S. businesses are trying a more extreme form of lean. Besides making factories superefficient, they are gearing output to current demand rather than three- to six-month forecasts. "We're seeing a precipitous rise in companies adopting a religious commitment to producing only what they know will sell," says William A. Schwartz, managing director for business development at TBM Consulting in Durham, N.C., which shapes make-to-demand strategies for producers of chemicals, building materials, and packaged foods.

In capital-starved times, companies can ill afford to tie up cash by letting parts and finished goods lie idle in inventory. And these days, even if companies place orders, there's no guarantee they'll get the financing to complete the purchase. In most past recessions, notes Richard Seaman, CEO of Seaman Corp., a Wooster (Ohio) maker of heavy fabrics for industry and construction, companies could generally predict demand for the next month with an accuracy within 5%. "In the past four or five months," he says, "there has been a sea change." Converting to very lean manufacturing helped the company adjust to the new environment. It used to fill large orders in six weeks. Now some fabrics are out the door 48 hours after an order is placed.

TYING EVERYONE IN

The next challenge is getting a clearer picture of what's happening on the customer's end. Celestica, the $7.7 billion contract manufacturer of electronics gear, is rolling out a system it calls Liveshare. Within two years, the company hopes Liveshare will let all of Celestica's customers, global factory network, and 4,000 suppliers share real-time data on demand, production, inventories, and shipping for every product. Some suppliers already use Liveshare, but the plan is to include major electronics buyers as well.

Say a purchase manager for Best Buy needs supplies of a hot video game console assembled by Celestica. Today, most buyers would use phone, fax, and e-mail to assess how quickly Celestica could deliver. But a buyer checking Celestica's online database would see up-to-the-minute diagrams showing how many consoles are rolling off production lines. And Celestica could peer into Best Buy's inventory and sales data to estimate how many consoles the chain needed. "What a tremendous breakthrough this would be," says CEO Craig Muhlhauser.

Not all goods can or should be built to order. Some 80% of Conmed's $742 million in 2008 sales came from disposables sold by the millions to hospitals, where demand is fairly steady. For mass-produced items, it bases hourly output targets on forecasts updated every few months. Before, mass quantities of goods sat in warehouses until they were sold.

At Conmed's Utica plant, the assembly area for fluid-injection devices once consumed 3,300 square feet and had $93,000 worth of parts on hand. Now it covers one-fifth that space and stocks just $6,000 worth of parts. Output per worker is up 21%. Do the improvements yield savings superior to what could be had in China? Wages there, though vastly lower, are largely offset by the costs of long lead times, inventory pileup, quality problems, and unforeseen delays. "If more U.S. companies deploy these production methods," says Johnson, "we can compete with anybody."

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CONMED has been on its LeanSigma® journey with TBM Consulting Group since 2007 and was awarded the 2008 Perfect Engine Site Award in recognition of its French Road location's commitment to the continuous improvement philosophy and dedication to lean culture.

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