

To compete better, local plants go lean

Japan's "lean production" methods are embraced by the state's manufacturers

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To get a glimpse at the future of manufacturing in the Portland area, head out Northwest Yeon Avenue to ESCO Corp.'s Plant No. 3, to a wall just off the shop floor to a tower of homemade cardboard cubbyholes.

The folks at the plant call it a heijunka box. The term is Japanese and means a way of smoothing production. The box helps workers efficiently assign and track production of the metal parts that ESCO makes. But it also symbolizes a revolution, how ESCO and dozens of other local companies are helping each other get "lean."

"We all know it's an incredibly competitive and changing world out there," says ESCO's Dale Gehring, the former manager for the company's Plant No. 3. "The continuous improvement, and achieving operational excellence through lean methods, is our best shot at being successful."

Faced with a shrinking local labor pool and growing overseas competition, Portland-area manufacturers have been searching for ways to adapt. Chief among them, Gehring and others say, is an embrace of the lean production philosophy.

At the beginning of the decade, executives from ESCO and a handful of other companies in Oregon and southwest Washington formed the nonprofit Northwest High Performance Enterprise Consortium. Born in a shared enthusiasm for the thinking on lean, the consortium's membership has been leaping forward.

In 2007, 34 companies were members; today, more than 80, of all sizes, take part – including Daimler Trucks North America, Precision Castparts Corp., Rejuvenation Inc., Tri-Met and folding-bike maker Bike Friday in Eugene.

The consortium's purpose, says Brian Goodman, chief executive officer of Columbia Machine in Vancouver, is to bring people together "who are really trying to achieve the same thing, which is improving their business operations and allowing them the opportunity to communicate with one another and share ideas and concepts in an effort, basically, to improve their own companies."

Born in 1940s

Lean is an old concept with many names. Its foundation is attributed to Taiichi Ohno, a vice president for production at Toyota Motor Co., who toured the United States in the late 1940s to study Henry Ford's assembly lines. But Ohno's inspiration took flight at a Piggly Wiggly grocery store. There, he saw a thin inventory, replenished only upon customer demand.

Back in Japan, Ohno and another Toyota engineer, Shigeo Shingo, concluded that the retail principle could transform manufacturing. Anything that did not add value to the customer is waste. And eliminating waste created a more efficient operation.

In the following decades, the impact of that thinking on Japan was so profound that U.S. managers eventually started studying the Japanese models. In the early 1990s, books about the philosophy – variously called "the Toyota Production System," "the Toyota way," "just-in-time delivery" and "lean production" – flooded bookshelves.

Norman Bodek, a Vancouver publisher of hundreds of books on productivity, says U.S. companies have gradually embraced lean, but they wrestle with a fundamental component of the philosophy: the worker.

To study lean, Bodek has taken 67 trips to Japan, where a company promises a worker a job for life and invests in continuous training. At the same time, workers are given responsibility for improvements and efficiencies.

But generally, it doesn't work that way in the United States, Bodek says.

"We've had this myth of individuality. Management has used that myth to dominate workers and keep them separate," Bodek says. "The shame is, we all love teams. We're excited that the Blazers did so well this year, and we hope they do better next year. It's puzzling to me why we don't have teams in every American company. It's a powerful missing ingredient."

Sharing creates ideas

Gehring, Goodman and others acknowledge the lean philosophy demands tectonic shifts in corporate cultures.

"It takes some courage to do this," says Gehring, now ESCO's director for lean enterprise development. "It requires senior management to look three, five, 10 years down the road."

Goodman says that what speaks to him about lean "is the fact that every person who is part of an organization should be challenged to look for those little improvements that they can incorporate into the day-to-day business."

The strength of the consortium, members say, rests in the frequent kaizen meeting. Kaizen is Japanese for "continuous improvement," and a typical kaizen meeting might involve a dozen people from different companies touring a plant to look for improvements. The ideas benefit the host and the visitors.

To allow outsiders into a facility would seem counterintuitive to protective production managers. To reduce that fear, participants in a kaizen can veto attendance from direct competitors. But Theresa Mills, continuous improvement manager at ESCO, says competitive worries melt away as knowledge of lean's advantages spreads.

"I'm not worried about someone coming in and seeing what we're doing now," she says, "because a year from now, it will all be different."

Gehring says the heijunka box at ESCO's Plant No. 3 came out of a kaizen meeting. The cubbyholes allow production managers to figure out just how many parts, and what kind of parts, need to be made at any time.

They can distribute manufacturing assignments depending on customers' needs. Partly because of the heijunka box, the piles of inventory that once accumulated around Plant No. 3 have disappeared, Gehring says.

A group of ESCO workers noticed the box at another company and "were literally on a bus talking about what we had seen," Gehring says. "By the time we got back, they had already designed it in their heads and within a week, they built it."

A brief walk through Plant No. 3 allows Gehring, Mills and plant shift manufacturing manager Phil Jelliffe to point out a few points of lean's impact on ESCO.

"We can't do lean at our desks," Mills says. "You have to be out on the shop floor."

Gehring sweeps his arm toward a huge space near the big metal-melting furnace. Five years ago, the space was a jampacked storage area. Today, Gehring says, the space is devoted to prototyping, "which gives our engineers a wonderful opportunity to develop and design new product."

Once, a worker walked as much as seven miles in a day maneuvering a giant ladle of liquid metal to pour molds. Now, the work space has been reconfigured to cut the walk to about a mile a day.

Across the plant, scorecards rank different areas on how well workers achieve lean goals. More change came April 7: Rather than take parts to yet another ESCO plant for paint, No. 3 rearranged the end of its production line to add a painting station.

Mills says that line now is producing a part every 18 seconds – and it's a part that a customer already wants.

A tone that borders on the religious colors the language of people who believe in lean. "Success breeds success," Gehring explains.

"Lean's becoming more mainstream," he says. "At first, the early adopters looked like they were bucking the system. But a lot of that is falling away now. The world is a much more competitive place, and if you're not doing this, someone else is."

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