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Sustaining Lean: How nurturing a 'healthy discontent' and rewarding employees turns lean into a way of life.

The HON Co., Cedartown Plant, Cedartown, Ga.

Employees: over 700, non-union

Total square footage: 533,619

Primary product: Metal and wooden case goods; vertical and lateral filing cabinets, desks and bookcases

Start-up: 1969

Achievements: Awarded the Shingo Prize in 2003, the Georgia Oglethorpe Award in 2004, as well as numerous local environmental awards.

The steel presses seem to set the pace of the plant, a steady whump that you feel in your chest as much as hear through ear plugs. It's the start of the production lines at The HON Co. in Cedartown, Ga., maker of midmarket office furniture -- steel and wooden desks, filing cabinets and bookshelves. As the sound reverberates through to the management offices, located just across the aisle from the machines, Vice President and General Manager Todd Murphy describes the plant's management philosophy and strategy, from how it's established at and communicated from corporate headquarters to how it's executed on the floor. Though the story sounds familiar, students of world-class manufacturing know the essence is in the execution. It's not *what* they're doing at Cedartown that's special -- isn't everybody doing lean and employee empowerment? Rather, it's *how* they're making the familiar operations strategies work to, for example, reduce costs by over \$7 million in one year, as well as increase plant profitability by 27% and reduce an already stellar .22% warranty cost as percent of sales by nearly 32% over three years.

Hon's effort, Murphy explains, begins at the top, with a parent company, HNI Corp. of Muscatine, Iowa, dedicated to meeting its customer's increasingly stringent needs through operations excellence and lean manufacturing. From headquarters also comes the values and vision that are firmly rooted in the beliefs of the corporation's founder, C. Maxwell Stanley. As Murphy retells it, Stanley set out to build a business where the employees would share in the company's success and be treated with fairness and respect -- before he knew what product he planned to sell. These core philosophies now are passed through the corporation to each plant member -- plant floor operators are members of the team, not employees in HNI's world -- in a Plan-Do-Check-Act sequence that circles from a corporate three-year plan to a unit-level policy development process that creates one-year plans with action-steps, and reports back to corporate via progress and annual reviews when the process begins again.

Plenty of corporations have great vision, and some even have similar plans for executing it, but at HNI -- itself an [IW 50 Best Manufacturing Company](#) for three years running (the corporation changed its name from Hon Industries in 2004) -- and its award-winning Cedartown plant, the plans are turned into results, thanks to Rapid Continuous Improvement (RCI), says Murphy. RCI, he explains, is the philosophy, department and on-going training and implementation program that is the centerpiece for transforming the corporation's policy and strategy into specific plans and actions. Indeed, at Cedartown, the RCI department office is located as near the center of the 534,000-square-foot facility as possible, with each of the five focused factories on one side and distribution along the other. There, seven permanent members work with six or more plant floor and distribution members who rotate through to learn the tools of and implement RCI throughout the plant. (Another seven permanent RCI members are deployed on the plant floor.) By immersing the members in the program, Murphy says, the company has been successful at instilling in their members the three elements needed to sustain a vibrant lean manufacturing effort: the sensitivity, or the ability to see processes that need to be improved; the passion, or the desire to improve them; and the tenacity, or the will to do the hard work necessary to improve them.

A brief tour of the plant demonstrates how completely RCI, based in HON's own version of the Toyota Production System, is embedded in the facility. The plant itself houses five focused factories, each with its own profit and loss responsibilities and management team. The steel department runs 24-hours a day making and distributing steel components to Lines 1 and 3, which make vertical filing cabinets; Line 2, which makes metal desks; and Line 4, which makes lateral files and storage cases, shelf files and bookcases. (The fifth factory produces laminate produces, including desks, lateral files and bookcases.) Members in welding start the day first (and run two shifts), half an hour before painters, who start half an hour before assembling and packaging, following the flow of materials roughly from the front of the building to the back.



Scott Dingler, utility lead, cycle tests a drawer on a wooden desk and prepares to install packaging foam.

Once started, the pace of production is, frankly, relentless. Processes are designed so the machine operators can do nothing but the task at hand. Drop a file drawer handle as you try to place it for fastening? There's no time to stoop and pick it up, and just barely time to "grab another and go" onto the next drawer presenting itself on the paced conveyor. Need a tool changeover? A standardized mounting system reduces the time from an average of three to 11 minutes, down from 45 minutes to an hour.



Steven Whatley, work-cell operator, prepares drawers for finishing and assembly.

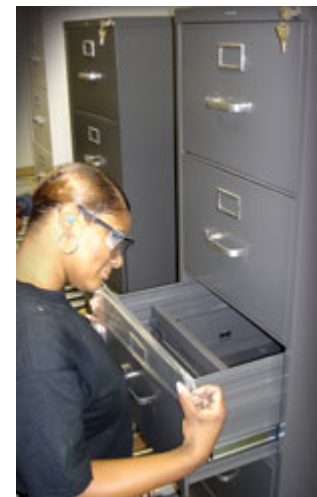
Such an effort to keep the operator focused on producing product is by design, Murphy explains. The operator is the surgeon here, he says, and all processes are designed to allow the operator to focus on the patient -- the product being made -- and to make takt time.

The resulting work is as hard and sometimes as tedious as it looks, line workers acknowledge, but the company works with them in a continuous effort to make the job easier and safer, just as it does to make it faster and more productive. Custom-designed machine tools -- created, tested and implemented in RCI -- assist operators throughout the plant. The operator fastening handles to file cabinet drawers, for example, has a custom-made, poka-yoke designed, hydraulic-assisted, dual-feed fastening device to help her.

Ergonomic innovations garnered from the employee suggestion system (which thanks to the RCI program, Murphy says, increased 61% in one year) also are prevalent. The operator installing the file drawer slides (the device on which the drawer rides in the cabinet), is located at the point where the conveyor carrying the cabinet begins an angled decent toward the floor. Such placement presents the lower drawer opening to the operator at waist-high level, so she doesn't have to bend over to install the slide. In the assembly area, bins delivering steel parts feature spring-loaded bottoms, lifting the heavy parts so the operator won't have to.

Just as important, Hon shares the financial rewards of RCI with plant members, as the company founder had wanted. Employee's share of the profits are paid out semi-annually; weekly and monthly bonuses are paid out for exceeding quality and production goals; and individuals earn vacation credits by submitting member suggestions and participating on improvement teams.

In spite of the progress and the awards, Murphy says, his goal is to maintain a "healthy discontent" among members throughout the plant. More than anything, he concludes, it's the members' embrace of never being satisfied with the way things are and their commitment to implementing the RCI process that is the key to the plant's success.



Inspector Teresa Haynes evaluates vertical file drawer fit and function.

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HON plant earning wide acclaim for operations

When introducing the topic of lean manufacturing, **HON Co.** executive Todd Murphy falls back on the old example of a glass half full (or half empty) with liquid, but there's a twist. Murphy transfers the liquid to a smaller glass that it fills completely. To the lean mind, he says, the original glass was simply too big for the job. "It's a shift in philosophy," Murphy says about the move to lean manufacturing that many companies are making. Office furniture manufacturer HON Co. made the move in 1992, and since then the Cedartown facility has seen efficiency improvements that have garnered it wide acclaim – namely, Georgia's 2004 Oglethorpe Award and in 2003 the Shingo Prize, which Business Week magazine has called the Nobel Prize of manufacturing. Just last month, IndustryWeek named the Cedartown facility one of the 10 best manufacturing facilities in North America for 2005. The success also has landed Murphy – who's vice president and general manager in Cedartown – on the public speaking circuit, scheduled to share HON's story with others at an Association for Manufacturing Excellence conference later this year. But the story, he said, is still being written. "It really boils down to consistently looking for better ways of doing things," Murphy said. "Never be content with where you are at."

Waste not, want not

Rapid continuous improvement – HON's term for its lean manufacturing efforts – focuses heavily on cutting out the wasted time, inventory, floor space and other resources in every process of its work. "It's a lot about waste reduction," Murphy said. "Reaching a foot vs. reaching six inches is waste." One major way the Cedartown plant saves time and floor space is by keeping everything in a particular place. Every part in process, every scrap, every stamping die has its designated place on a shelf with a color-coded pallet and a detailed tag and part number. Automation is a factor as well. For example, hooks on a suspended conveyor system carry the parts for metal file cabinets from the assembly area to the paint shop and back. The plant is also organized into what Murphy calls focused factories, each one with its own manager who has full responsibility for operations, efficiency and profits and losses. The facility is divided into sections for vertical files, desks, laminate products, steel and tooling, bookcases/shelf files/lateral files, and distribution. Small details also play a part in cutting out wasted time and energy. For example, parts are loaded and unloaded on floating-bottom skids – or carts with a spring-loaded base that pushes up as the parts are unloaded, so workers don't have to reach down into the cart.

Full participation

An essential – Murphy says perhaps the essential – factor to a successful lean conversion is getting everyone involved, from the chief executive of the company down to the hourly production worker. (HON calls its workers "members" and has offered a profit-sharing program since the 1950s.) The top management must be committed to a lean conversion, he said, because financial results don't always come as quickly as some executives might like. "When you first make major changes, it's like a leap of faith." The members working on the shop floor must get on board, too, Murphy added, because they're the ones who see the day-to-day processes that could use improvement. To get that full participation, HON's

Cedartown plant in 2001 began a rapid continuous improvement (or RCI) rotation – taking all production members a little at a time into intense RCI training. Since then, the plant has seen a huge jump in the number of member suggestions provided on ways to improve product quality or safety. In 2000, the plant got 755 suggestions. For 2005, members are on pace to offer about 4,800 suggestions. The company encourages suggestions by setting up stations in each factory where members can compare HON's products to those of its competitors. Members are also rewarded with a half hour of vacation time for each suggestion implemented by the company.

Results

Not just in Cedartown, but throughout HON's 10 manufacturing facilities, the company has seen improvements in member safety, product lead times, deliveries and productivity, according to an article the company wrote for the Journal of Innovative Management. The lead time on an average product order, for example, fell to 10 days in 2002 from about 56 days in 1991, before the company's lean conversion. Complete and on-time deliveries improved to 96.2 percent in 2002 from 70 percent in 1991, and per-member productivity rose to \$191,733 in 2002 from \$108,539 in 1991. Companywide, sales were up 2.85 times in 2002 over 1991, while manufacturing floor space increased only about 25 percent. These improvements were made, Murphy said, without increasing prices to the customer.

Lofty plans

Apart from the day-to-day basics, HON's lean efforts reach to executive-level talk as well about three-year plans and policy development. The company sets what Murphy called "stretch goals," which boil down to aggressive, profitable growth. "We review that every month then take corrective action where we're missing the goals," he said. The company also relies on the guidance of lean manufacturing consultants, although not as often now as in the early days of its conversion. HON's coaches come from Shingijutsu Global Consulting Group in Japan, and the consultants are closely familiar with the Toyota Production System, which is generally considered the inspiration for lean manufacturing itself. HON members are also taught a bit of grandfatherly wisdom along the way. For example, the 80-20 principle teaches them that 20 percent of the work can account for 80 percent of the results, Murphy said. "You want to focus on the important few, rather than the trivial many."

Company background

The original HON Co. was founded in 1944 and initially made kitchen cabinets, although it transitioned to office furniture early in its history. The Cedartown plant began production in 1969, as HON's first plant outside its native Iowa. The Cedartown facility today employs more than 750 members in a 533,000-square-foot facility. The plant works in both metal and wood, performing processes ranging from stamping, shaping and welding up to assembly, packaging and distribution. Cedartown is one of 10 HON manufacturing plants. The parent company, based in Muscatine, Iowa, is now known as HNI Corp., to reflect the acquisition of other product brands, although HON remains its largest. HNI Corp. employs 10,500 members with \$2.09 billion in net sales last year.