

Al Olson and Janice Tobin of Medtronic Brooklyn Park's Environmental, Health & Safety department hold the Medtronic Sustainability Award the site received in 2011 for multiple projects ranging from lighter, recyclable delivery pallets (center) to baling and recycling polyethylene packaging (bottom).

LEANER AND GREENER

PHOTOGRAPH BY PATRICK KELLY

Instilling green and lean as cultural cornerstones helps manufacturers realize significant savings, attract top talent and keep one step ahead of the competition.

By Andrea Lahouze

Ryan Bruers likes to say that he may be the only person on Earth compensated to discourage sales of his company's own product. As field sales engineer at Xcel Energy, Bruers sells electricity. But he also sells conservation.

"The greenest energy we produce is the energy we don't have to produce," Bruers says. "If we can get our customer using less energy, that's fewer plants we have to run, that's fewer turbines we have to build and put online. It benefits us all." In more ways than one.

Bruers is among a growing cohort of manufacturers who appreciate the correlation between green practices and the more traditional procedures of lean enterprise. Rooted in the famed Toyota Production System, lean practices have long been valued by manufacturers for cost savings and efficiency. "Green" manufacturing practices have popped up in business plans along the way, but usually for reasons based in altruism. Most companies continue to view green and lean projects as separate endeavors.

Brian Kopas, director of supply chain management at food service furnishings manufacturer Foldcraft Company, disagrees. Thirteen years into a lean journey that has dropped lead-times by 66 percent, reduced floor space requirements by 65,000 square feet, increased productivity by 240 percent, and increased the company's on-time percentage from 95.2 percent to 99.5 percent, Kopas believes green is an inseparable part of lean.

"My favorite definition of lean is, 'doing things in the least waste way,'" Kopas says. "The more I think about lean and green, the more I realize that it's impossible to do one without the other. They go together."

Like Foldcraft, the green experience of global medical device manufacturer Medtronic provides evidence that pairing the two concepts together leads to even greater lean success. In the past two years alone, Medtronic reports that its pairing of green and lean efforts has reduced millions of pounds of waste and saved more than \$16 million.

At a recent Enterprise Minnesota business event, speakers from both companies presented snapshots of their green and lean journeys, and, along with Xcel's Bruers, offered tips for instilling a lasting, results-oriented lean and green culture. Their achievements and insights serve as proof that whether your company is large or small, established or entrepreneurial, you can kick-start, build upon and sustain a culture of lean and green that benefits your employees, your supply chain and your bottom line.

Green-lighting Green and Lean

If you've ever stepped inside a Subway, Dairy Queen or Panera Bread Company, you've caught a glimpse of Foldcraft's products. Under the name Plymold, the 215-employee business manufactures upholstered booths, tables, chairs, metalworking, queuing line railings and more for restaurant chains across the world. Its lean journey began in 1998 after Kopas read an Industry Week magazine article that described how Iowa-based window and door manufacturer Pella Corp. reduced waste through a series of more than 1,000 Kaizen events in one year. Intrigued but skeptical, Kopas arranged for a small group of employees, including the company CEO, to travel to Pella to see their lean efforts in action.

"We were blown away by what they had accomplished. A lot of it resonated because half of our business is woodworking and half of our business is metalworking, so we saw the same kinds of processes being done vastly better by them than by us," Kopas explains.

Foldcraft immediately began reworking the production process for making one of its best-selling items, contour seats, all in five days. In doing so, the company produced 25 percent more product in the same amount of time. It also decreased its floor space by 50 percent, and removed 66 percent of the work in process, as seats moved through production without as much lag time between process steps. Its success inspired a multitude of lean production projects, which improved efficiency so much that the company could soon make most products in a matter of hours—faster than it could quote and enter the orders into its system. Foldcraft has since instilled lean in every area of its facility, including the front office.

Foldcraft's focus on efficiency yields green benefits as well. Recent acquisitions of two companies in Brooklyn Center and Eden Prairie were followed by a series of Kaizen events that reorganized existing space and brought both companies together under one roof. In doing so, Foldcraft eliminated the need to rent, light and heat at least 35,000 square feet of space, saving \$634,000 in utilities and even more in avoided truck traffic between multiple sites.

In embarking on a green and lean journey, Kopas stresses that active leadership involvement, like the company CEO's willingness to learn from Pella, is essential, but adds that leaders should be attentive to the pace of change.

If you move too fast, "lean very quickly equals mean," Kopas says. "People will hate it ... and folks will start

Brian Kopas, director of supply chain management at Foldcraft Company, with a handful of the company's wood waste, which helps heat its facility in winter months to save the company an annual \$100,000.

PHOTOGRAPH BY PATRICK KELLY

to work against what you're trying to accomplish. You only move as fast as what you're able to sustain. It's really critical that you help people work through this process so that you're doing this stuff with them and for them, not to them."

Kopas recommends empowering employees to make improvements. "The folks that are driving your organization forward have to know that they don't have to look over their shoulder for permission to do things that make sense," he explains.

Medtronic's lean and green culture stemmed from both internal and external forces. "It was driven from the employees asking for it, it was driven from our customer base and shareholders ... and, most importantly, it linked in with our mission ... to ensure that we are good citizens to a wide variety of stakeholders," says Janice Tobin, senior operations manager in Medtronic's Environmental, Health & Safety department.

With more than 38,000 employees and annual sales topping \$15 billion, those requests inspired Medtronic to prepare a companywide sustainability policy in 2006. It also became part of the FTSE4Good Index, a series of socially responsible stock market indices, and the Dow

Jones Sustainability Index (DJSI), which evaluates the largest 2,500 companies in the Dow Jones Index on a set of global sustainability benchmarks. Membership in the DJSI was a major step, Tobin says, because it gives the general public a detailed look at Medtronic's sustainability goals and its progress towards them. It also requires Medtronic to demonstrate continual improvement on an annual basis.

Employees at Medtronic's Brooklyn Park site launched a sustainability council that dove headfirst into to reducing waste, discovering opportunities for reusing and recycling by literally jumping into its garbage containers to see what it was throwing away. The company has continued to pursue waste reduction in a variety of areas, including water and electricity conservation, and recycling of plastic, cardboard, metal, light bulbs and batteries. Today, 52 percent of the industrial waste created at the Brooklyn Park facility is reused or recycled, up from 27 percent six years ago.

Tobin advises businesses just beginning their green and lean journeys to form a volunteer group to achieve a few smaller improvements before tackling larger issues. The "quick-hit" successes, she says, will generate excitement



Going GreenLean™

Launched by Enterprise Minnesota last year, GreenLean™ is a training program designed to help companies foster a culture of continuous improvement and growth by eliminating time and energy wastes.

Enterprise Minnesota Business Growth Advisor Samuel Gould maintains that employing traditional lean improvement tools to establish greener business practices can maximize the bottom-line benefit.

“The potential savings are huge for every company when you tie lean and green initiatives together. It’s hard to separate the two. If I am able to stop a ton of metals being poured because I fixed a process issue, then I saved a lot of energy, and that’s green. There are also savings there, so they’re tied together,” he says.

With guidance from Enterprise Minnesota consultants, companies participate in a detailed Value Stream Mapping session to create a blueprint of current processes. The visual allows companies to pinpoint opportunities for GreenLean™ improvements. Companies then prioritize those opportunities, and organize a series of Kaizen events to turn them into realities.

To learn more about the GreenLean™ program, go to <http://www.enterpriseminnesota.org/operational-excellence/greenlean.html>.

and build momentum among the employee base. Allowing an employee group to drive improvements can also set the stage for buy-in across the business, because employees can take ownership of making improvements and inspire others in the company to do the same.

“Employees know where their wastes are,” Bruers adds. “A lot of times, it’s just [a matter of] ... listening to them and helping them solve those problems.”

Cultivating the Culture

Kopas advises that sustaining a green and lean culture requires a shift not only in actions but also in thinking.

“It’s culturally about trying to get folks to think about everything they do as an experiment,” Kopas explains. “Making a table is an experiment with our process and if I get a bad table, or if it takes too long, the experiment didn’t go the way I wanted it to. That’s neither good nor bad. But how can I increase the odds for my experiment to succeed the next time I do it?”

Foldcraft’s management team promotes a mindset of continuous improvement by visiting one business area each day. They ask key employees to assess their production progress and report on the improvements they are

making if they are not meeting or exceeding their quotas. Medtronic’s Process Improvement Teams employ a similar system for reviewing performance metrics.

Medtronic reinforces the urgency of lean improvements by writing sustainability goals into the objectives of its management team. Tobin says doing so has been key in sustaining Medtronic’s lean and green commitment because it has extended accountability to the entire Brooklyn Park organization.

“Because we do have a separate Environmental, Health & Safety department, sometimes it was viewed as, ‘oh, *they’re* doing that.’ But you can’t get the full benefit unless you’re all part of the team,” Tobin says.

Xcel’s Bruers agrees that including green and lean objectives in job descriptions drives ongoing improvements. “Then if the players change, the policies are in place to maintain that momentum,” he says.

Recognition plays a role, too.

“As much as possible, let the employee be the instigator, the implementer, and the one that can claim the credit, and then publicize that,” says Al Olson of the Environmental, Health & Safety department in Medtronic’s Structural Heart business unit.

To that end, Medtronic hosts a global competition among its 270 sites that rewards innovative improvements with proven bottom-line benefits. Brooklyn Park won the award last year for a collection of projects ranging from recycling more plastics and water within its own plant, to using more environmentally-friendly delivery pallets and working with some suppliers to develop a continuous reuse cycle for packaging materials.

Maintaining momentum has been a team effort not only among its employees, but also among members of its supply chain.

Medtronic Brooklyn Park has worked with suppliers to reduce the amount of packaging on orders, in turn

reducing the weight and transportation cost of each delivery, as well as the space needed to warehouse orders until they are used. It has also partnered with suppliers to switch from wood to corrugated pallets for raw material order shipments. The corrugated pallets are 100 percent recyclable and weigh 65 to 75 percent less than their wood predecessors. The change has reduced wood waste by 97,825 pounds each year, and has contributed to lower shipment costs and saved floor space.

At Foldcraft, Kopas appreciates suppliers' honesty when they see inefficiencies in Foldcraft's processes—even when it's something that may seem obvious. He tells suppliers to have no fear suggesting ways that Foldcraft can improve.

Xcel Energy Field Sales Engineer Ryan Bruers shows that small changes, like using high-efficiency light bulbs, can add up to big energy savings.



PHOTOGRAPH BY PATRICK KELLY

"The things that you are afraid to tell us are the things that I want you to tell us because that's where the good stuff is," he tells suppliers.

The resulting candor has helped Foldcraft reduce freight damage by working with its carrier to understand the delivery process. Instead of adding more packaging, Foldcraft now loads orders onto its carriers' trucks according to their final destinations, minimizing the number of times they have to be handled. A similar project has reduced freight damage on Foldcraft's trash receptacles, which are now packaged in clear stretch wrap so that the carriers can see what's inside and be more cautious.

"We had to invest in a \$13,000 stretch wrapper, but we save \$45,000 each year. It was a huge improvement for us," Kopas says.

More Benefits

There's no question that there is a substantial business case to be made combining lean with green. Bruers of Xcel Energy reports that the average manufacturer could use green practices to save about a third of its energy bill each year. By simply cutting the running time of a dust collector in half, Foldcraft Company has saved \$25,000 in electricity over the course of a year. The company also invested in technology to remove the nails and other contamination out of its wood waste so that it can be burned

safely to heat its facility during the winter months, saving more than \$100,000 per year on the cost of natural gas.

At its Brooklyn Park facility alone, Medtronic has saved 1.5 million gallons of water, reduced wood and packaging by 200,000 pounds, and has sustained an annual savings of \$215,000 through its green and lean efforts.

Though it's harder to quantify, Tobin believes a commitment to sustainability is also helpful in attracting both new customers and the next generation of top talent.

"Our customers and our potential high-caliber employees are asking us, 'what are you doing for lean and green? Show us.' That [demand] is giving us a competitive edge," Tobin says.

Enterprise Minnesota Business Growth Advisor Sam Gould says employees benefit, too, because improved efficiencies help them work smarter, not harder. "I boil it down into a simple statement: GreenLean™ will give you more energy at the end of the day to take home to your families," he says.

For Medtronic and Foldcraft, the journey is continuous. "The more you learn, the more you realize how much opportunity there is for you to work on things," Kopas says. "Everybody, everything, every day. What waste can we find today and make it go away? That's what it's all about." ■

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