

Q4.09

# MANAGING TIMES

Sharing Solutions for Your Lean Journey



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In this issue we feature ConMed Corporation, the 2008 Perfect Engine Site Award winner. ConMed began its lean journey in 2006 and has created a business culture that uses continuous improvement to innovate, focus on the customer, and reliably bring new products to market. ConMed's transformation is an impressive one because of their expedited approach to developing a lean culture and the discipline required to generate and sustain rapid business improvement. ConMed did in just one year what many companies do in three.

If you ask David Johnson or Don Keeler at ConMed how they did it, they would attribute the transformation to strong committed leadership; extremely aggressive implementation, including clear objectives, discipline, and accountability; a robust continuous improvement cycle; a technologically-advanced visual management system; and an army of dedicated employees.

Also featured in this issue is the retiring CEO of Pella Corporation, Mel Haught, another visionary leader who led a company-wide LeanSigma® transformation to create a high-performance organization. The Pella Storm Door plant in Clear Lake, Iowa, also won the Perfect Engine Site Award in 2004.

One company profiled in this issue has taken lean a step further, to help the people in its local community. Amway Corporation, based in Grand Rapids, Michigan, helped the Kids' Food Basket, an organization that provides meals to school children at risk of going without, streamline its meal-packing process, saving time and improving quality—all of which allowed Kids' Food Basket to expand capacity to help more children in need.

This December, I will host CEO Boot Camp, an intimate, one-on-one opportunity to meet and learn from leading CEO practitioners who aggressively leverage lean as a tool for market dominance. Attendees will spend three days meeting directly with CEOs from four leading companies who

have led their organizations through a lean transformation: Steinway & Sons, Sealy Mattress, ConMed Corporation, and H&T Battery Components. If you're trying lean but not succeeding, if you are thinking about getting started but not certain if it's worth the time or effort, or if you just want to benchmark your program against another, consider joining us for an inspirational, thought-provoking tour of outstanding lean organizations.

A visit to these facilities or any other Perfect Engine Site Award winner will leave you energized and ready to return home with a renewed focus on your own LeanSigma® transformation. Whether you join us for a vision tour, attend CEO Boot Camp, or pick up the phone and chat with someone at one of these exceptional companies, I am certain you'll reconsider the intensity of your own initiative and seek ways to drive better results, faster than ever before. This economy will take a turn for the better some time in 2010 or 2011 and you won't want to miss the opportunity to leapfrog your competition and go for the gold. ■

A handwritten signature in black ink that reads "Anand Sharma". The signature is fluid and cursive, with a horizontal line underneath the name.

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A publication of  
TBM Consulting Group

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**Art Direction and Design**

IONA design  
www.ionainteractive.com

**Printing**

Carter Printing & Graphics, Inc.  
www.carterprintingnc.com

**Published in Durham, NC**

4400 Ben Franklin Boulevard  
Durham, NC 27704

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**On the cover:** Utica, NY-based ConMed Corporation used an expedited approach to lean implementation to improve customer-centricity, reliability of supply, and sales growth and profitability.

**Marc Kincade** is the new plant manager for Pella in Columbia, SC. ... **Frank Stroschio** is the new lean leader at ConMed in Utica, NY. ... **Don Healy** is the new vice president of operations at Visiogen in Irvine, CA. ... **Erik Vaal**, former KPO Manager at Vermeer is now Carlisle Operating System Director for Carlisle Food Service Division in Oklahoma City, OK. ... **Charlie Allen** is the new corporate KPO for Bunge in Europe. Allen is an American who has been with Bunge for about 15 years, the past 10 or so in Geneva. He speaks fluent English, French, and Russian. ... **Michael Edwards**, managing director for Scholle Asia Pacific, has been promoted and is now also responsible for Scholle Europe. ... **Keith Grala** has taken the position of CI regional manager for Multiserve Australia, relocating from New Zealand to Australia. ... **Stuart Falconer** has been promoted to plant manager for McCain Penola SA Safries. ... **Melissa Sawin** recently joined Mid-Continent Engineering in Minneapolis, MN, as business development manager for healthcare. ... In corporate news, **Fosfertil**, the leading supplier of raw materials for Brazil's fertilizer industry, received the Melhores e Maiores award from *Exame* magazine. The award is a benchmark for companies operating in Brazil, and Fosfertil was first in the petrochemical and chemical sector, on the basis of a number of factors including profitability, financial health, investments, market share, and productivity per employee. ... The TBM LeanSigma Institute congratulates those who successfully completed its Lean Certification course in 2009. To date, graduates are as follows: **Denise Koster**, Access Business Group, Ada, MI; **Gary Shadick**, Appleton Papers, Appleton, WI; **Keith Waninger**, Best Home Furnishings, Ferdinand, IN; **Jeff Chevalier**, CertainTeed Corporation, Kansas City, KS; **Kristin Lund**, DST Output, South Windsor, CT; **Jamie Smith**, GrafTech, Clarksburg, WV; **Pablo Rocha**, GrafTech Mexico, Apodaca, Nuevo León; **Ben Cole**, Harsco Air-X-Changers, Tulsa, OK; **Mark Elinski**, Harsco HTT, Columbia, SC; **Robert Siebenaler**, Harsco IKG Industries, Garrett, IN; **Carlos Rodriguez**, Harsco Patent, Paramus, NJ; **Doug Shuff**, Harsco HR, Camp Hill, PA; **Rick Byrd**, Harsco HTT, West Columbia, SC; **Phil Mackey**, Harsco IKG Industries, Carnegie, PA; **Rob McKenzie**, Harsco Metals, Surrey, UK; **Paul Nott**, Harsco MultiServ, Port Talbot, UK;



Lexington, KY-based **Link-Belt** hit a milestone this summer, reaching its 100th kaizen event. The company has had 318 people on events—about 46 percent of its population—from across many areas, including the shop floor, purchasing, design engineering, and accounting. Link-Belt marked this milestone with a celebration at which approximately 190 team members from previous events showed up for cake and a picture.

**Phillip Turner**, Harsco Infrastructure SGB, Staffordshire, UK; **Daniel Tranotti**, Harsco Patterson Kelley, East Stroudsburg, PA; **Bryan Welch**, Milbank Manufacturing, El Dorado, AR; **Tom Weiss**, Milbank Manufacturing, Kansas City, KS; **Larry Sterling**, Milbank Manufacturing, Kokomo, IN; **Cole Foley**, Owens Corning, Amarillo, TX; **David McCain**, Owens Corning, Amarillo, TX; **Glenn Benton**, Owens Corning, Duncan, SC; **Nadia Holloway**, Owens Corning, Fairburn, GA; **Bill Mars**, Owens Corning, Fort Smith, AR; **Larry Grant**, Owens Corning, Granville, OH; **Jason Younggren**, Owens Corning, Kansas City, KS; **Desha Smith**, Owens Corning, Ladysmith, WI; **Rich Baughman**, Owens Corning, Springfield, TN; **Felix Alonzo**, Owens Corning, Toledo, OH; **Anand Brahme**, Owens Corning, Toledo, OH; **Martin Kvetko**, Owens Corning, Waxahachie, TX; **Laura Jackson**, Phifer, Inc., Tuscaloosa, AL; **Becky Klotz**, QuadTech, Sussex, WI; **Gretchen Whitcomb**, Saint-Gobain Containers, Milford, MA; **Tom Shehy**, Seaman Corporation, Wooster, OH; **Ricardo Goncalves**, Vetrotex (Owens Corning Brazil), Rio Claro, SP Brazil; and **Mike Schuh**, WIKA Instruments, Ltd., Alberta, Canada. ■



“ . . . with an eye to removing wastefulness and increasing productivity, ConMed chose to embark on its lean journey as a means to grow the business, enhance customer service, and expand profitability for their employees and shareholders. ”



### Improving on Success

ConMed is a global medical technology company, based in Utica, New York, that specializes in the development, manufacture, and sale of products that enable physicians to deliver high-quality care and enhanced clinical outcomes for their patients. The ConMed name is recognized across the world as a technological leader for their medical devices and instruments for surgical procedures.

ConMed has experienced great success through the integration of strategically selected acquisitions. Traditionally, the company has moved acquired product lines into its facilities in their current state. As a result, ConMed inherited a number of manufacturing processes that were often very inefficient and wasteful. Rapid growth and servicing the customer took priority over improvement, and the acquired products were brought on line “as is.” ConMed ended up with large quantities of work-in-process (WIP) inventory, low productivity, and excessive safety stock to try to guarantee timely delivery to customers.

The situation was ripe for examining processes with an eye to removing wastefulness and increasing productivity. ConMed chose to embark on its lean journey as a

means to grow the business, enhance customer service, and expand profitability for their employees and shareholders.

#### Lessons Learned: Where To Begin

Many companies take a standard approach to their lean journeys, starting with the shop floor and branching out to other areas once operational excellence has been achieved. More recently, a number of companies have decided to take a more accelerated approach, realizing that greater benefits will accrue more rapidly if they are willing to dive in deep from the start.

But that deep dive takes commitment. According to Dave Johnson, Vice President of Global Operations for ConMed, a lean journey needs to be driven from the top down, but executed from the bottom up. Says Johnson, “It’s leadership first and accountability second, and then it’s execution with metrics.”

“I tell other companies that this isn’t a program, it’s a cultural change,” he adds. “And if you really want to do that, then you must get buy-in from your senior management team, put your best people into a continuous improvement (CI) function, and then, as the senior champion, you must start walking the talk on the shop floor on a daily and weekly basis.”

Another lesson Johnson learned early on is the need to integrate the Finance Depart-

ment from the start. Without their buy-in, it's difficult to show improvements in a meaningful way. "Our finance team can provide reports that show productivity at the cell level, and can differentiate between kaizened and non-kaizened lines," notes Johnson. "We're showing an 18-to-20-point spread in productivity between kaizened and non-kaizened lines. And what's being reported out in our Friday kaizen debriefings is being corroborated by the monthly reports generated out of Finance."

"A common mistake companies make is not aligning their financial metrics and reporting structure to highlight the results you get out of lean," he adds. "We've taken our financial reporting to the point where we can capture variances in output, material, labor, rate, yield, and other items right down to the cell level."

According to Johnson, although the whole process of starting on a lean journey sounds simple, many companies do not perform it well. The foremost complaint he's heard in his travels is that many companies just throw a lean function together and don't give it any teeth, dooming it to failure, or at least not great success.

"My philosophy is that, as the senior leader, I must lay out the vision to the staff, put our 'A' players in charge of it, and then walk the talk every day," says Johnson. "Walking the lines every morning creates high visibility and is a means of holding your people accountable. We didn't do a push onto the organization—the results spoke for themselves which actually created a pull with people wanting to get involved because they could see and feel the positive results."

It's that sort of passion from the top, the willingness to walk, to talk, and to hold everyone accountable that will start a lean journey off on the right foot. At ConMed, it not only started the journey, but accelerated its acceptance.

When deciding where to actually begin kaizen work, ConMed took an outside-in approach, looking for its customers' pain points and focusing on products with supply problems or abnormally high backorders.

"We weren't trying to get faster or save money; we were trying to become more reliable," says Johnson. "Our execution was unpredictable and not aligned with customer demand."

Johnson spent time with his management team, and with the people in the Sales and Marketing Department, to find out where the pain points were. As a result, many of the events conducted over the past 18 months have been focused on products where a 24-hour turnaround on orders is expected. He notes that, from a strategic standpoint, once the Sales and Marketing people saw what a difference the kaizen events made, they became "instant zealots." They recognized how great an impact lean had on reliability of supply, reduced costs, and improved quality. "My Operations team bought in because they had to, but I didn't have that luxury with Finance or Sales and Marketing," says Johnson. "I had to convince them through execution and results."

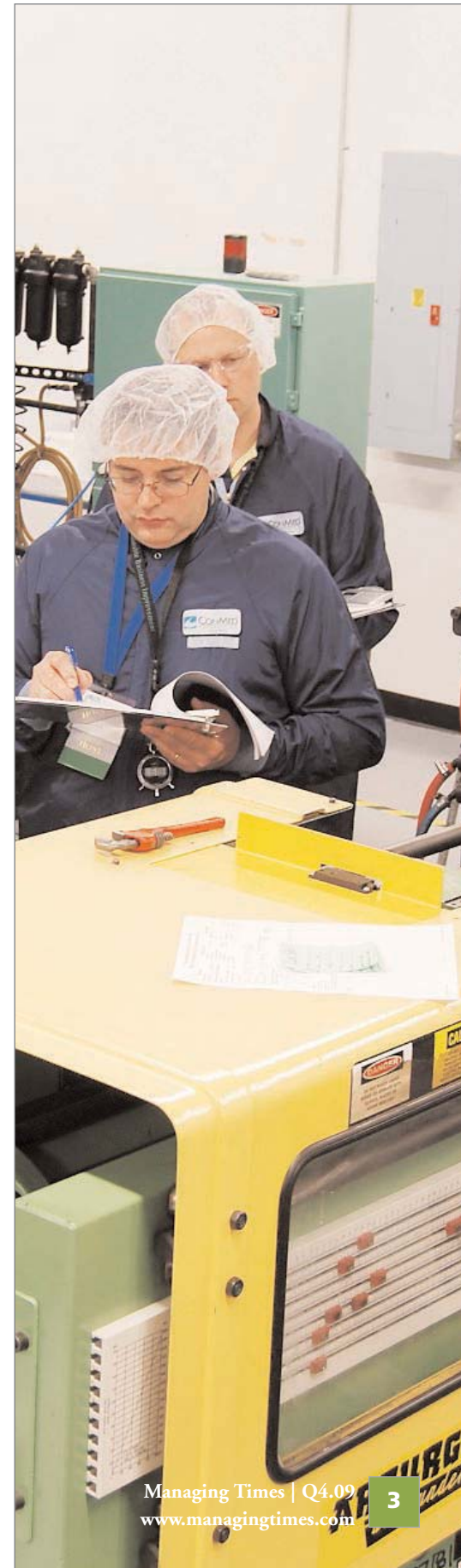
### Clear and Consistent Results

In their first year, ConMed successfully completed 33 week-long kaizen events, including 23 shop floor kaizen breakthrough events, six single-minute exchange of dies (SMED) events, three business process kaizen events, and one managing for daily improvement (MDI) event. For all events, the company established a set of standard objectives:

- Improve productivity by 20 percent
- Reduce floor space by 40 percent
- Reduce line-side WIP by 75 percent

Characteristically, those objectives were not only met, but exceeded, with productivity being improved by 22 percent, floor space reduced by 66 percent, and WIP reduced by 85 percent.

More specifically, through its lean activities ConMed freed up 38 seasoned employees, who were then available to staff new initiatives. Considering a cost of \$150 per square foot for clean room space, the 16,868 square feet of space that the company opened up translated not only into a savings of more than \$2 million, but also



# CASESTUDY

## World-Class Visual Management

### Abnormality Response

To help drive accountability, ConMed has installed a state-of-the-art visual management system, which includes andon lights for abnormality management and electronic messaging to responsible parties.



### Line-side Kiosks

Line-side kiosks allow individual work cells to keep track of their performance metrics at the cell.



### SQDC Training

By placing clear explanations of basic lean topics where anyone can easily view them, ConMed has helped ensure a higher level of understanding of basic lean principles among all employees.



### Touch-Screen Displays

Touch-screen SQDC wall monitors keep morning walk-through activities outside of the clean rooms where production takes place and they enable any employee throughout the plant to monitor any production line within the plant.



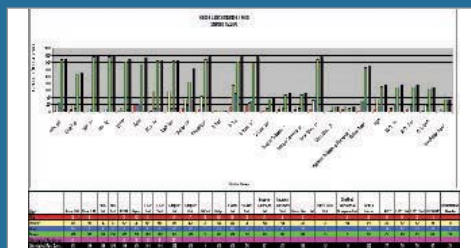
### Morning Walk-Through "Status"

Keeler created a spreadsheet that he uses as part of his morning walk-through. The sheet lists each production line, the Andon status of that line, an area for explanation of the Andon lights, and the person responsible for that line. This is another example of accountability management at ConMed. At the end of the morning walk-through, the updated sheet is e-mailed to Johnson.



### Andon Implementation Trends

The Continuous Improvement Office keeps track of Andon light implementation trends. By doing so, they can keep track of what lines have recurring problems, and they can use the trend data to be proactive in addressing potential problems.



represented space that the company could then fill with new production. Likewise, WIP reduction represented nearly \$1 million in savings. Increased efficiencies created through lean allowed the company to remove nearly half a million dollars' worth of small equipment and fixtures. But all of these gains were just another way of improving reliability for ConMed's customers.

### Real Commitment

Often, companies struggle with a lean transformation because their associates don't see a firm commitment from company leadership that clearly indicates the changes are for real and will be lasting. This is the "initiative of the month" syndrome that colors the expectations and actions of so many members of any manufacturing workforce. ConMed leadership recognized the problems these attitudes can engender and took proactive steps to ensure that everyone would see the company's commitment to the process.

To that end, the company built an 8,000-square foot Continuous Improvement Center, which includes four CI team rooms and a presentation room with seating for 120 people. Don Keeler is the manager of ConMed's Continuous Improvement Office and, along with his staff of five, provides the key ingredients required for a rapid and effective transformation:

- Strong, committed leadership
- A robust CI office
- Extremely aggressive implementation
- Visual management and modern technology
- Dedicated employees

Committed leadership is already in place in the form of Dave Johnson and his management team, which includes Keeler. Keeler notes that he has a top-notch staff of his own—the same "A" players that Johnson feels are fundamental to showing commitment and getting the job done. According to Keeler, "You've got to like what you do and this is what I enjoy doing. We've been getting great results for the company, and to

Dave's point, the key to my success is that I have the strong backing of the executive management."

"Without the leadership from executive management, I could not have been as successful, or led my teams as well as I have been able to. It's a team effort from the top down," he continues.

So how did the company start implementation at all levels? Effective education was the most important step taken to prepare everyone for the lean transformation. For ConMed, education began at the top, with an executive Quest for the Perfect Engine event in May 2007. This was followed by 5S training. Says Keeler, "We deal with a multicultural group—12 different cultures—and when we started talking and teaching about 5S, there appeared to be a lot of confusion, so we generated a special 5S training module and took 1,100 employees and broke them into groups of 50 and trained all of them on 5S. All three facilities received a 2–2.5-hour training module on 5S, which made a very big impact here. It took us three to four weeks to do that, but once we got everyone educated to 5S, it made a huge difference."

In fact, training is continuously available to employees through a wall monitor mounted in the main hallway at the plant, which Keeler calls his "Public Relations" monitor. Strategically situated where everyone will pass it, the monitor consists of three elements:

1. A large screen on the left continuously runs PowerPoint training modules, which Keeler changes monthly. Employees passing down the hallway can pause and take in a training module on their way to or from lunch or a break.
2. In the upper right of the monitor's screen is a video player. Observers can select from a number of lean transformation videos and play them on the monitor.
3. Below that is a continuously running screen of results sheets from each production line or cell that has participated in a kaizen event. It scrolls

through productivity improvements, quality, cost, and square footage improvements for each line that was kaizenized.

According to Keeler, "People use it a lot—they like watching the training modules and the videos. It is always current and they can easily see all data from the most recent events. We can't fit 1,100 employees in our presentation room, so this gives everyone a chance to see the presentations from kaizen events. It's a great communication tool."

“**My philosophy is that, as the senior leader, I must lay out the vision to the staff, put our 'A' players in charge of it, and then walk the talk every day.**”

Another educational tool that Keeler's group has employed is a large hallway bulletin board with an explanation of safety, quality, cost, and delivery (SQCD). "Once we had the 5S training program we still had some people with questions such as 'What does safety mean?' or 'What does quality mean?'," Keeler remarks. "It's a lot for some folks to absorb all at one time, so I set up this explanation board and it's been very successful at helping teach people what SQCD really means." Again, by placing clear explanations of basic lean topics where anyone can easily view them, Keeler's team has helped ensure a higher level of understanding of basic lean principles among all employees.

### **Visual Management and Accountability**

As Johnson noted, accountability is the second key ingredient to a successful lean transformation, and part of what drives accountability is effective visual management. ConMed has established a state-of-the-art visual management system, which includes andon lights for abnormality management and electronic messaging to responsible parties.

Instead of the typical red, yellow, green configuration of andons, ConMed has taken them a step further to also include a blue light. A red light means that the line is down; a green light means that the line is running, and a yellow light means that the line has problems. Blue indicates that the line is out of material or too low on material to meet the production schedule. At a glance, a supervisor can look at the combination of lights and know exactly what is going on at a particular line. For example, if both the red and blue lights are on, then the line is down due to material shortage. If both red and yellow lights are on, then the line is down due to a line problem. And if the green and yellow lights are both on, then the line is running, but with a problem, and so on for the other possible light combinations.

But the company didn't stop there—they also use available technology to ensure that the responsible people would be notified immediately of any issues on a line. "Within 12 seconds of an operator throwing a switch on the wall, an e-mail is executed to anyone involved with that particular line," says Keeler. "An e-mail is also forwarded to those individuals with Blackberries, so they'll get the message no matter where they are." Keeler notes that if someone on the production floor throws a switch, the person responsible for that line must contact them and let them know when the abnormality will be addressed and provide a date by which it will be done. "Those dates don't get changed," he says. And because the responsible parties are also listed in the kaizen newspaper, there's no avoiding accountability.

The Continuous Improvement Office also keeps track of andon light implementation trends. By doing so, they can keep track of what lines seem to have continuing problems, and they can use the trend data to be proactive in dealing with potential problems.

The company also installed touch-screen wall monitors, which allow anyone to review the performance of any line in the plant. "That's where we, the senior management team, do our walk-through every morning at

8:00 a.m. without fail,” says Keeler. “We review safety, quality, delivery, and cost for every line on these touch screen displays.”

The wall monitors offer several advantages. First, it’s a way of keeping SQCD activities outside of the clean rooms where production takes place. It also enables any employee throughout the plant to monitor any line within the plant. Anyone can go to a screen, select a line, and walk through every chart to see where that line stands currently, as well as view trend sheets for the entire year.

The data displayed on the monitors is entered into preset templates at the end of each shift by the supervisor or lean coordinator. It takes about ten minutes at the end of each shift. Then, Keeler and his staff deploy that information in a content manager so that all charts are updated before the 8:00 a.m. walk-through.

Keeler also has created a spreadsheet that he uses as part of his morning walk-through. The sheet lists each line and the andon status of that line. It has an area for explanation of the andon lights and lists the person responsible for dealing with the problem, as well as a date by which the problem will be corrected. “By 8:15 a.m., I’ve completed this sheet, and no matter where Dave is, the sheet is e-mailed to him and he knows the status of the walk-through,” notes Keeler.

And that’s just another link in the accountability chain.

Another area where ConMed truly shines is with standard work. Check any line and you will see the standard work for that station clearly delineated in charts above the line. The standard operation sheets include text and photos to make clear the step-by-step procedures that are to be followed for a particular process, with a chart below that lists the steps, their takt time, and the tools and equipment needed for each step.

### Powerful Ingredients

ConMed has taken a multipronged, aggressive approach to its lean transformation. As a result, the company has achieved impressive results at a much faster rate than normal. It’s not an easy task, but as ConMed has discovered, the results are well worth the effort, and as Johnson notes, “It’s all about results.”

“If you don’t have the metrics in place and you aren’t holding yourself accountable, and you aren’t executing and course correcting when you need to, then it’s just an exercise,” he adds. “And that’s where most companies fail—because they can’t measure it; they can’t explain it.”

Johnson goes on to say, “I think another mistake companies make is that all too often the operations people do it for their own

benefit, instead of looking at the process from the customer’s perspective. Lean is often viewed as a cost-reduction opportunity, but we very much took the approach that it was a growth strategy. It’s a big philosophical difference because people look at lean and say ‘I can take money out of the system,’ whereas for us it’s a form of reliability. I don’t think we’ve ever emphasized cost as much as we have supply.”

Keeler adds, “If you don’t have the senior executive backing, it will not work. I’ve put my heart and soul in this for many hours every day—leadership is the key to the whole thing.”

It’s clear that ConMed lacks neither leadership nor commitment. Combined with clear objectives, discipline, and accountability; strong visual management that helps to maintain both sustainability and accountability; and dedicated people throughout the organization, ConMed has found the right ingredient mix to create the kind of results it seeks in order to be reliably responsive to its customers and remain a premier provider of medical and surgical devices. ■



At the TBM Executive Exchange this past spring, the assembled company principles and owners agreed that they were focused on resizing and rebalancing their businesses as they dealt with the global economic recession. As they acknowledged the struggle, they also saw this crisis as an opportunity to emerge in a position of strength—even in tough times, destinies can be improved. It's possible to leverage the current economic climate to come out better in the future, and these are the six steps these leaders believed could help meet that goal.

### Dive Deep and Fast

Drive lean deeper and faster into your culture. Create internal bench strength and nurture lean leaders—the skills and depth of knowledge you create now will be your power of the future. Refocus on kaizen activity: set clear objectives for events, and then make sure to measure results and put methodologies in place to ensure sustainment.

Create visual factories. As Dave Johnson of ConMed noted in this issue's case study, effective visual management is essential to drive accountability. A more visual factory will make it easier for everyone to be involved. And that increased involvement will help engender the viral spread of lean throughout the organization.

### Aggressively Commit to Policy Deployment

Policy Deployment is the means by which a company sets priorities and aligns its business goals. "We're not ready" is no longer a valid excuse. If you want to weather the current economic storm and come out stronger, then you must find a way to become extremely focused on the critical few breakthrough objectives that will drive meaningful top- and bottom-line growth. This means creating the internal processes to make significant change in the way you do business. A number of companies—Vermeer, Pactiv, Hubbell, and Brady among them—are aggressively using Policy Deployment to confront the current economic crisis and still stay on top.



### Align Business Metrics and Purpose

Policy Deployment is a significant aspect of business alignment, but you should also seek the opportunity to be certain that your KPIs are aligned with your strategic objectives. Are you measuring what really matters? Be certain that a target set of KPIs is directly tied to high-level business needs around sales, profitability, customer retention, organic growth, and safety, to name a few. KPIs should be visible and easily understood throughout the organization—everyone should know what the goals are.

Install the discipline of daily, weekly, and monthly management engagement meetings. Make sure that people are preparing and following action plans, performing root cause analysis, and focusing on implementing immediate countermeasures.

### Create a Formal, Robust, Measurable VOC Process

Are you focused on the customer experience? Do your new products reflect features, benefits, or services that are meaningful—and can support higher prices and better margins? If less than 20 percent of your current sales each year comes from new products, you need to ask why. Perhaps you don't have the processes you need to drive innovative product development. For example, QuadTech used voice of customer and value innovation curves to develop new strategies for three markets. As a result, they have entered two markets where they had no previous presence.

Your strategic planning process should unearth the greatest business opportunities. Your Policy Deployment process should support the effort and help drive a focused initiative to achieve the things that really drive step-change growth in your business.

### Form Breakthrough SWAT Teams

If you've got extra resources, get a team of people focused on fixing a problem quickly. In law enforcement, a SWAT team is a strategic weapons and tactics team. No physical weapons are required here—in business your weapons are the minds and skills of your team, their ability to develop creative solutions and implement them quickly, and their ability to learn from mistakes and continue to innovate. Such teams can be on call as needed, and their make-up and frequency of deployment will depend on the complexity of the problem that needs to be solved.

### Leapfrog Your Competitors

Remember, in a global crisis like this, everyone is hurting. Use this time to take advantage of their issues. If you have refocused your continuous improvement program and you've embraced Policy Deployment, and if you're eliminating waste, freeing up capital, making space, and meeting your lead-time requirements, there's a good chance you can steal market share, make competitors irrelevant or buy them, or even expand into new business segments. Use this time—and your lean expertise—to excel, leapfrog, and win. ■

## Amway and Kids' Food Basket: Giving Back Using Lean Principles

Chris Wilson, Operational Excellence Deployment Champion/Director, Amway



# Amway



“ Thanks to the efficiencies that this project team from Amway created for KFB, we will have the ability to grow our critical services by 30 percent this fiscal year. Because of Amway's efforts, hundreds more children in Kent County won't eat lunch as their last meal of the day. ”

— Bridget Clark Whitney,  
Executive Director, Kids' Food Basket

Most people have heard of Amway and are familiar with its network of global independent business owners. Amway was founded 50 years ago in West Michigan by two friends, Jay Van Andel and Rich DeVos. The company's global success is well-known, and that success has continued even in the recent economic downturn: Earlier this year, Amway announced record sales for 2008 of \$8.2 billion, a 15 percent increase over 2007 sales. But this story isn't about Amway's corporate success, which is fairly obvious to anyone who follows the company; it's about giving back to the community.

Throughout Amway's existence, it has held close to its core values of freedom, family, hope, and reward. As an extension of those values—caring for people and communities—the company has made a habit of making a difference through charitable contributions and local hands-on activities. This is just one such story.

### Kids' Food Basket

According to the Kids' Food Basket (KFB) Web site, 14 percent of households with children under 18 live in poverty in Kent County, Michigan. The federal school program, which provides breakfast and lunch to children in need, supplies approximately 1,000 calories a day for these children. Unfortunately, many of these children do not have access to an evening meal, leaving them at a nutritional disadvantage of 800 to 1000 calories (roughly half of their daily required caloric intake). The end result of the lack of proper nutrition is children who have difficulty attending school and learning.

KFB was founded by Mary K. Hoodhood in 2001 in Grand Rapids, Michigan, to address the need for evening meals for children in poverty. KFB started providing bag dinners for 125 children from three schools. Those “sack suppers” were prepared in a church basement by volunteers. Currently, KFB is providing 1,750 meals to 18 elementary schools in Kent County,

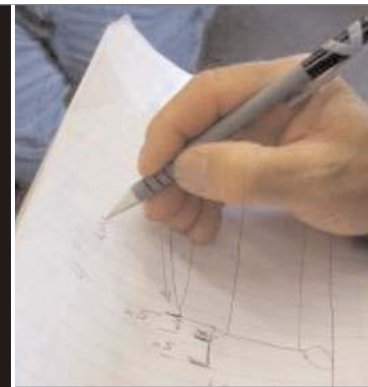
where 80 percent or more students live at the poverty level. Clearly a need was there, and KFB was filling it.

KFB meets this mission with an average of 75 volunteers from the community each day, and has an annual budget of \$820,000, with administrative costs making up less than 12 percent of the total budget. In fact, KFB had grown to the point where it was considering moving to a larger space. They believed they could do even more if they could find a way to expand without breaking the budget.

### Enter Amway

I first got the idea of using lean to help nonprofit organizations (NPOs) when I saw a newspaper article about Hope Network (a Grand Rapids-based organization founded to empower people with disabilities and disadvantages) moving to larger premises. It simply occurred to me that with lean they could increase their productivity, allowing them to be more cost effective and do more with the resources (volunteers) and funding they have. Following the lean principle of taking action, I, along with Amway's Corporate Citizenship group, set up a lean overview for representatives from eight area NPOs in late 2008. Following this, and in response to their interest, we conducted a one-day “Understanding Lean” class, which was a high-level look at lean—what it is and what it does.

This outreach effort, which was inspired by a simple newspaper article, led to Amway's involvement with KFB. With Marcia Carbines and Steve Sweers of Amway facilitating and with lean volunteers from Amway's Home Tech and Cosmetics plants, KFB undertook a kaizen event to try to improve their processes to gain more from existing resources, with the ultimate goal of being able to help even more children.



### The Training

Before diving right in to an actual kaizen event, the KFB team underwent training in lean principles and kaizen. To simulate KFB's bag meal production process, the training event used the assembly of Mr. Potato Head® toys.

The scope and objectives of the Mr. Potato Head kaizen training event were to create a continuous-flow process, establish assembler standard work, establish line-side supply, and improve output by 25 to 50 percent.

The team looked at established procedures—a batch and push process—and calculated lead time, travel distances, quality defects, and work in process (WIP) inventory. They discovered a high level of defects and a WIP inventory of 315 pieces. A number of issues were identified, including lack of standard work, wasted time, clutter, and parts not clearly marked. The team then came up with five best ideas for improving the process. The next step was to implement those ideas following lean principles. Making the changes outlined above led to a decrease in lead time from 54 seconds per unit to 10 seconds per unit. Travel distance was decreased from 5,200 feet to 20 feet. Quality was improved to 100 percent and WIP was reduced to 0. This was a clear object lesson in what kaizen could do.

### The Main Event

The team then put its new-found lean knowledge and skills to work addressing the meal-assembly process. Following the steps they had learned during kaizen training, they chose the assembly process for one school, Congress Elementary, and identified process issues and the changes needed to address them. Among the issues were clutter; lack of space and organization; excessive inventories; wasted time and motion, as well as interrupted flow and lots of reaching and bending; assembly table height too low; meal items difficult to find; and no obvious work instructions.

To address these problems, the team suggested a one-piece flow with a “plan for every ‘part’” of the meal that would go in the lunch bag, a total of nine items per bag. During this phase of the event, the team also established an 11-step standard work protocol. They determined that meal assemblers would work from one side of the assembly table, with line-side supply coming in from the opposite side and a pack-out bin capable of holding 20 meals at the end of the table. With this set up, the assemblers averaged 4.5 seconds to prepare each meal; packing the 105 meals intended for Congress Elementary required just 8 minutes.

The time savings obtained with the new process was astounding. The original process required 41 seconds per meal, which means assemblers were able to package 88 meals per hour. Reducing the time to 4.5 seconds per meal meant that 800 meals could be packed every hour—a ten-fold improvement over the old assembly process! Not only did this mean a time savings for volunteers, but it also meant that KFB could potentially serve many more children without having to move into a larger space or requiring additional volunteers.

### Going Forward

For the near-term, the meal assembly cell that was created during this kaizen event will be dedicated to producing meals for Congress Elementary. The team expects that when the cell operates with 11 work stations, assembling meals for Congress Elementary will take less than 10 minutes.

Amway's team members agreed to continue their support of KFB by offering their knowledge, skills, and experience to help further refine the Congress School Assembly Cell by using Quixx-Smart structures and other enabling materials to enhance KFB's ability to assemble just-in-time.

Since the event, several of the Amway team members made an assembly table based on what

was learned during the kaizen event. The table was delivered to KFB, where volunteers had some improvement suggestions, and the Amway team is now making modifications based on those suggestions. Amway's cell production team modified the original assembly table, incorporating KFB's improvements and made 3 additional tables, thereby completing the meal production cell.

I think the most spectacular outcome of the lean work we did is not just the incredible increase in throughput, but that by doing this along with other lean improvements KFB is able to stay where they are. Now not only can they operate in the space they have, they can also seriously consider increasing the number of sack suppers they produce, depending on food donations of course.

Bridget Clark Whitney, KFB's executive director, says, “We are truly grateful to the Amway community for contributing their expertise and consequently becoming a very instrumental part of our growth. As KFB is responding to a previously unmet need in the community, and given the economic climate in Michigan, it is imperative that KFB continues to expand our services for the Kent County community. KFB is currently serving food-insecure children in 18 schools; however, we have 15 schools remaining on our waiting list for meal services. Thanks to the efficiencies that this project team from Amway created for KFB, we will have the ability to grow our critical services by 30 percent this fiscal year. Because of Amway's efforts, hundreds more children in Kent County won't eat lunch as their last meal of the day.”

The Kids' Food Basket Project is just one example of how corporations can give hope and assistance to people and communities in need simply by supplying their lean expertise to help outreach organizations do what they do better and with less. ■

*Bob O'Briant, TBM Senior Management Consultant*

**Would you like to increase productivity by 50 percent, increase the ability to be on time with components to close to 100 percent, reduce your need for floor space, improve quality dramatically, reduce lead-time by 70 percent to 80 percent, and reduce your inventory substantially?**

**Then routing standardization is the tool for you.**

Routing standardization is a tool employed by organizations in need of a product or process family focus; it works particularly well in organizations with high-variety, low-volume processes and creates flow where none existed before. Unlike cellular manufacturing in the 1980s and 1990s, routing standardization uses the kaizen breakthrough methodology to form the product/process families; assign the equipment; and develop the takt time, staffing, and capacity of the cell.

Product family cells are based on process similarities, not end-item or geometry, and using such cells enables an organization to focus its factory and improve performance by creating small, manageable work areas.

The biggest impediment to starting on this journey is understanding how to begin. The routing standardization process has several steps:

- analyzing part quantities
- analyzing the routing of each process
- grouping routings
- simplifying process routings
- calculating takt time
- assigning equipment
- developing operator and machine cycle times
- analyzing process capacity
- developing potential layouts
- developing an implementation plan

#### Part Quantity Analysis

The first step is the part quantity analysis, which allows the team to start to understand the scope of the project and start making decisions about the method that will be used to work on the product/process groupings. The part quantity analysis is used to view the part numbers that represent 80 percent of the total volume and place those into product families. Every part must be placed; the thought process is that if you find a home for the part numbers that represent 80 percent of the volume, then the rest of the part numbers will most likely fit into one of those families.

#### Process Analysis

The second step is to analyze the process. In order to reveal similar process routings, you need to understand the level at which to analyze the process. You could have turn-

ing—milling—deburr or N/C turning—N/C milling—deburr, or going into even more depth, Mazak 6 Horizontal N/C turning—Mitsui 5 Vertical N/C milling—brush Deburr—hand deburr. All are correct, but the more specific you get with the machine group categories the more difficult it will be to have similar product families drop out of the process. At the same time, you must separate the machine groups into capability in order for all the parts selected for a product family to be able to be run in a cell.

#### Group Routings

The third step in the process is to group similar process routings. There are several methods to do this, including using spreadsheets or strips on a wall.

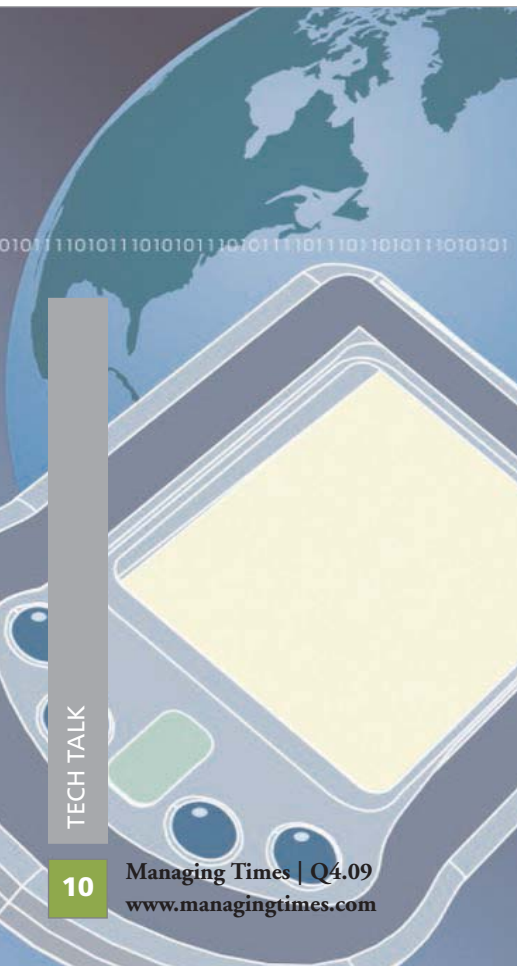
If you have 300 part numbers to segregate into part families, writing out the routings on pieces of paper, cutting them into strips, and placing them on the wall will allow the team to get a picture of the cells. If you have 10,000 part numbers, strips will not be as effective when trying to complete the process during one week.

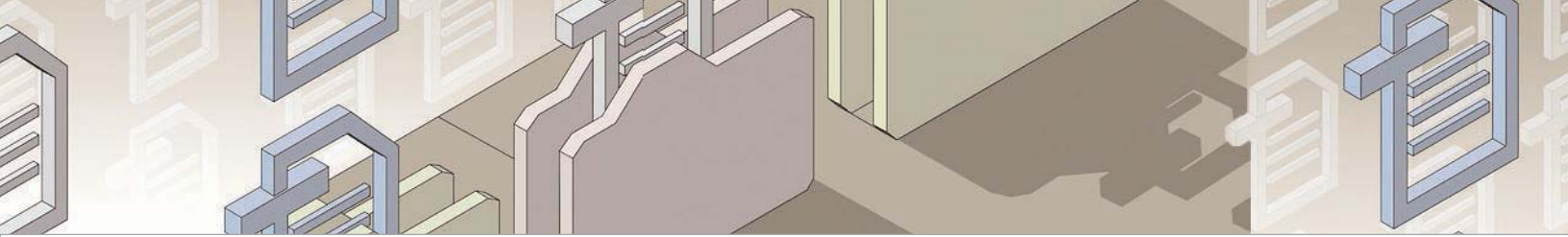
In the case of many part numbers, the best approach is to use a coded spreadsheet constructed in Excel. Although a spreadsheet is helpful for handling large numbers of parts, this method also has some shortcomings because it will be more difficult for the entire team to assimilate the data and the cells will not be as obvious to the team.

#### Simplify Process Routings

The fourth step is to simplify the routings. Often routings for similar part numbers are different simply based on who created the routing, and when. Simple steps like rearranging the order of processing, eliminating redundant operations, and splitting or combining across CNC work centers can have a profound impact on managing the complexity of the business.

This is also the step where you start looking at the “cats and dogs” (routings that do not fit the cells as defined in step three). At this step, you may be combining cells or adding processes to cells. This step and the following four steps are usually worked together because they commonly have an effect on each other.





The fifth step is to develop a takt time for each of the new cells. This is a small step, but an important one if the team is to begin to understand each cell.

### Assign Equipment

The sixth step is to assign the appropriate equipment to each cell. This is where the trouble begins. Several issues can arise at this point: not having enough machines, having machines that are in a poor state of operation, and not having the correct machines.

At this point, understanding the equipment in the operation becomes paramount. Often companies will color code their equipment, red–yellow–green to indicate the process capability or the reliability of the equipment. At this step, the team must be creative in solving each issue as it comes up. The last resort is to share a machine. This step is closely related to the next two steps in the process.

### Develop Operating Cycle Times

The seventh step in the process is to understand the operator cycle times and machine cycle times. Operator cycle times should be measured, if possible, but sometimes you must use educated guesses in order to move forward. It's best if the machine cycle times are based on actual data as well, but often educated guesses are used here too.

Guard against using tape times in place of machine cycle times—these are almost never accurate. At this point it may become obvious that there can be many machine cycle times, and it's tempting to use weighted average cycle times as a guide. Avoid this if possible, because for product to flow smoothly through the cells, the manual time and the automatic time for every part, number must be below the takt time; otherwise, you will have to use mixed-model logic to manage the flow, and this is not the most desirable method. The automatic cycle time on machines can almost always be reduced—often substantially. Cycle times will be used to calculate the process capacity of each cell, so this is a very important step to insure that each cell can perform as required.

### Develop Machine Cycle Times

The eighth step in the process is to calculate the process capacity for each of the cells using the equipment and machine-cycle-time data collected in the previous step. You may have to make adjustments at this time to the equipment or products if there isn't enough capacity in the cell for the product family assigned to it.

### Target Staffing

Once all the parts are assigned to cells and the manual and automatic times have been balanced, calculating the target staffing is possible. Staffing requirements should be based on the load–unload–inspection/gauge time and not on the set-up times. Do not be surprised if direct productivity doubles; this is very common and although it can seem unbelievable to teams, trust the numbers. The process capacity sheet can also be used to calculate the lowest lot size in days that can run through the process without running out of capacity, and if you do not like the answer, then targets for setup reduction can be set.

### Develop Potential Layout

Once you have the cell organized to meet takt time, have the correct process capacity, and the team understands the staffing required you are ready for the ninth step in the process: developing suitable layouts for each of the cells identified. Scale foam blocks are helpful during this process, but full-size cardboard models work best.

Things that must be taken into account are machines that require a foundation or other special needs. The team needs to assess the need for each foundation—in most cases, the number of machines that require a foundation is small, and some companies just have a culture of putting a foundation under all machines. Why waste the funds?

### Implement the Plan

The last step in the process is to develop an implementation plan. Many things must be taken into account for the implementation plan to be effective, including the overall flow of the building, any foundations required, and any special needs of an individual cell, as well as any precedents of one machine needing to move before another can move.

There are pitfalls to the process that you must also take into account. Not every part fits into a family grouping easily, and such parts can be dealt with in one of several ways: change the routing, change the engineering, or move the part to a supplier. The natural reaction is to create a “general cell,” but this can be a mistake for many reasons. Issues with shared resources must be dealt with to proceed with product family cells. The last pitfall to consider is the cultural changes required. Issues always arise when fewer employees are needed, especially regarding what the organization is going to do with the excess operators. Another issue is the need to have operators operate several machines instead of just one.

### A Powerful Tool

The process steps for routing standardization are logical and powerful. They allow the organization to focus their activities on small manageable sections of the business; link processes together; and manage resources such as manpower, inventory, and floor space. Each step plays an important part in the organization's transition to cellular manufacturing. Routing standardization also applies lean manufacturing techniques to the organization throughout the process.

The benefits to the employees include the expansion of their skill sets and job security through better performance of the organization. The tight focus of a product cell gives each employee a sense of pride and belonging.

Routing standardization is a powerful tool for an organization that is trying to become more effective and profitable. By using routing standardization, an organization can hope to improve its productivity, reduce inventory, reduce lead-time, and improve the availability of their product. By following the ten steps, an organization can become more agile and responsive to its customers, and that's a formula for success. ■



## Mel Haught: Pella's Visionary Leader

Anand Sharma, Co-founder and CEO, TBM Consulting Group



Mel Haught, who has played a leadership role at Pella since joining the company as vice president of manufacturing in 1991, and who became the company's president and CEO in 2002, is planning to retire at the end of November. Pella, a manufacturer of quality windows, patio doors, and entry door systems, is headquartered in Pella, Iowa, where the company was founded 84 years ago.

I first met Mel when he attended our Kaizen Breakthrough Experience workshop, along with Pella's CFO and vice president of engineering. He and his colleagues were so impressed with the continuous improvement process that within just a month they launched their own lean transformation with the help of TBM and with absolute commitment. Our partnership has lasted for 15 years and is still going strong. I consider Mel to be one of the top leaders in America.

Haught not only produced incredibly consistent top line, bottom line, and cash flow results for Pella, but through his visionary leadership, he involved and empowered employees at all levels of the organization. As a result Pella has over many years been consistently voted by its employees to be one of the top 100 companies to work for in America in *Fortune* magazine's survey.

Haught's commitment to lean manufacturing is probably his most important legacy at Pella. When he arrived at the company, Haught recognized that in order to grow the business Pella needed a much broader appeal. The company had done very well in its high-end niche market, but Haught realized that for the company to grow, improvements were needed. And those improvements could be brought about through lean and kaizen.

Haught became a driving force behind redefining what Pella stood for in order to respond to the market and to customer needs. He has credited the company's continuous improvement efforts with being

a vital element in its transformation from a niche-company to a one-stop shop for all of a home owner's or builder's quality window and door needs. Says TBM's Dan Sullivan, "Mel often had a grin on his face when we were doing breakthrough work. He had said to me one time, 'I love it when we are uncomfortable ....' His quiet demeanor and confidence gave comfort to others as we engaged in aggressive change through the years."

And he didn't stop with Pella. Haught has had a very open door policy when it comes to sharing Pella's journey with others—whether those others were companies just starting on a lean transformation or seasoned practitioners seeking to benchmark and perhaps find ways to raise the bar. Pella has been an amazing partner to TBM, willing to share its story and offer wisdom gained through its own transformation and to be a learning leader to other TBM client companies.

Today, Pella is committed to incorporating new technologies, increasing productivity, and practicing environmental stewardship, lean tenets that were largely brought to fruition under Haught's leadership. With a strong foundation in continuous improvement and an active, engaged employee base, Haught can retire knowing that the company is poised to continue to grow and innovate, and to remain the top company in its market. ■



## What Is Standard Work?

Standard work is how Pella Corporation performs work in a prescribed sequence of steps with an associated time for each step. The total of each step will add up to a cycle time (CT) for each station within a particular work area or assembly line. Standard work must be designed to support takt time (TT). This seems simple, yet poses many challenges.

## What Is Pace?

Pace is the process of controlling the flow of an assembly line or assembly area. Pacing methods are numerous and can range from a moving line, to a control at each station that will not move the product to the next station until the TT has been satisfied, to a simple countdown clock at the pack-out station with an audible andon to indicate the start and finish of a cycle. A countdown clock is a cost-effective approach to pacing—or pulsing as some may call it—but one of the more challenging to coach and maintain.

At Pella Corporation’s Gettysburg Operations, we use the countdown clock for a number of reasons. We implemented a clock on an assembly line for less than \$500 while reinforcing the culture of “TT every time.” Countdown clock implementation requires extensive training of the department’s leadership team along with shop floor team members, but once everyone is trained and appropriate follow-through is conducted, you will achieve a high-performing team environment, focused on abnormality identification and elimination.

## Can You Have One without the Other?

You can, but your success rate goes down significantly if you don’t incorporate the two together, because they are enablers of one another. The team must have the discipline to follow the standard work as written, because the success of one station depends on the standard work of the pre- and proceeding stations. If one person is out of sync with their standard work, there will be a trickle-down effect throughout the entire line, resulting in poor flow or work-in-process (WIP) imbalances. Pace will give the

leadership team visibility of any CT variations that may exist due to lack of standard work adherence or any other abnormality. Along with well-written standard work, you must have an informed team, the correct support structure and processes, and a responsive leadership team.

“The pace clock is an effective tool used to maintain a consistent flow on the window assembly line and also helps operators meet takt time every time,” says Lyle Griffe, a Pella Gettysburg Operations Double Hung 2 team member. As with any other lean tool it takes commitment, support, and a sense of urgency to make it successful.

## So What Are the Benefits?

Implementing pace is difficult and requires 100 percent commitment at all levels of the organization. So why invest in something like this? If you are a manager or lead of a line or department, the pace clock gives you visual management, that quickly allows you to survey your areas performance.

It is also an aid to Pella team members. Judy Wickline, Pella Double Hung 4 department manager says, “Team members alert the manager or lead of any CT issues with standard work, so the manager/lead can work on implementing a solution. It also provides a trigger for the team member to reference when the pace horn goes off, so they know if they are ahead or behind in their standard work.”

Using pace in the workplace allows team members to identify a bottle neck within a couple of seconds, which then permits response in a timely manner. A pace clock is an enabler to managing for daily improvement (MDI). When an abnormality occurs, pace allows us to respond with a short-term solution (save a unit mentality) and then put a long-term solution (eliminate the issue) in place by tracking and executing a solution based on the appropriate data. Pace makes those little abnormalities that may only account for 4 or 5 seconds an incident but that show up multiple times a day more obvious. Without pace it would be next to impossible to identify them. This behavior creates long-term sustainable growth. On average we have seen a 13 percent labor



efficiency improvement over our 2008 performance on all the lines with a countdown clock and a 5.6 percent improvement for those without a countdown clock.

## Bottom Line

Well-written standard work coupled with the use of a countdown clock or pace system and with the appropriate support will deliver a culture of “Takt Time Every Time”. If you have a Takt Time Every Time culture you will create the following:

- **Safe work environment:** focus on the standards—injuries happen when team members deviate from standard work.
- **Customer satisfaction:** focus on standards along with a controlled pace—team members aren’t rushing and have time to look at the product to help ensure it is defect-free.
- **Productivity improvements:** focus on abnormality elimination or MDI—standard work creates the most efficient way to perform the work and pace will expose the small, but recurring abnormalities.

The combination of standard work and some form of pace can deliver outstanding results, but it is important that the team is engaged and understands the true purpose of the tools. Most importantly, the team must not view them simply as tools, but more as a “way of life.” The two tools used in conjunction will help deliver positive results for your business. ■

**TBM LeanSigma® Institute***2009 Schedule Highlights*

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**Brazil**  
São Paulo  
55.11.5051.7490

**China**  
Pudong, Shanghai  
86.21.6888.6671

**France**  
Lyon  
33.472.91.32.88

**Germany**  
Heidelberg  
49 (0) 6221.825.835

**India**  
Gurgaon  
91.124.437.5995

**Mexico**  
Monterrey  
52.81.50.00.91.36

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Geneva  
41.22.710.77.70

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44.1332.367378

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- February 24-25, 2010 in Durham, NC
- June 23-24, 2010 in Durham, NC

Go to [www.tbmcg.com/lg](http://www.tbmcg.com/lg) for more information.

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Spend three days meeting directly with CEOs from leading companies who have led their organizations through a lean transformation. Tour their facilities and take advantage of the opportunity to meet directly with CEOs and senior site and division leaders.

TBM executives, Anand Sharma, CEO, and Bill Schwartz, Executive Vice President, will host CEO Lean Boot Camp. For the past several years, both Anand and Bill have worked closely with the host CEOs throughout their lean transformation.

- December 8-10, 2009, touring various companies in New York.

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- May 3-7, 2010 - Durham, NC
- August 9-13, 2010 - Durham, NC
- November 8-12, 2010 - Durham, NC

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- Analyze/Improve/Control: May 10-14, 2010 in Durham, NC
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