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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."

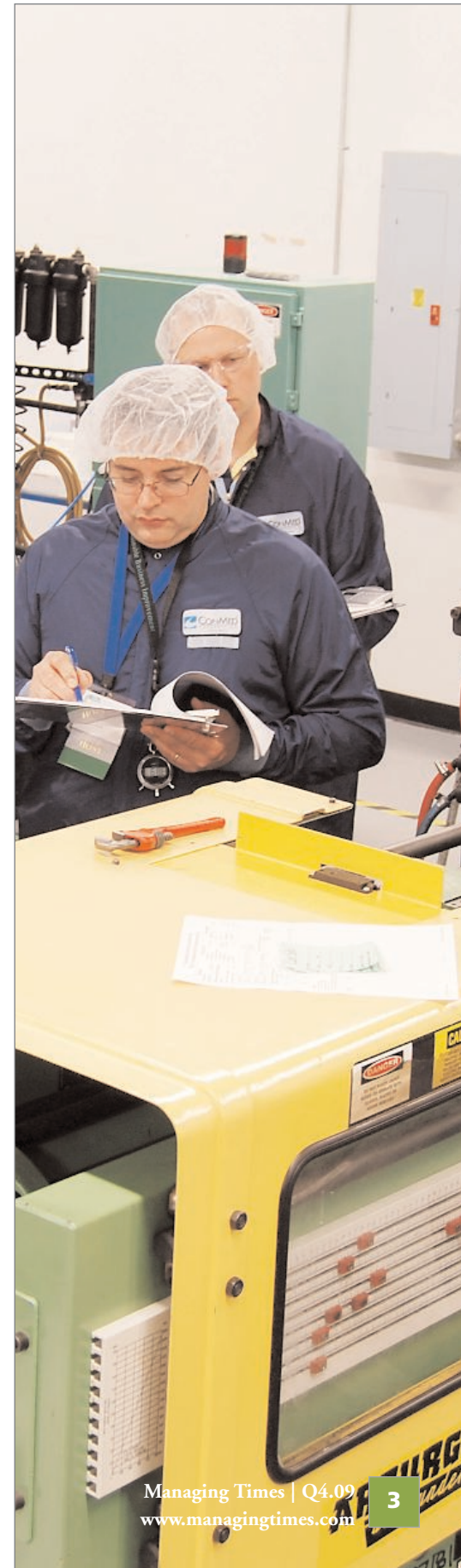
Clear and Consistent Results

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.



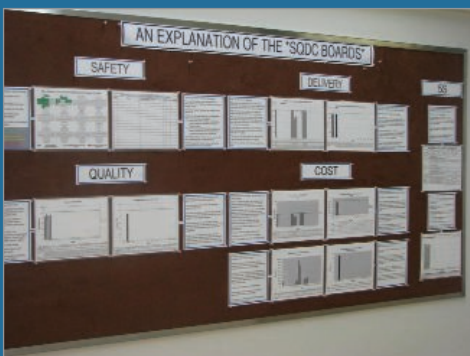
Line-side Kiosks

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.

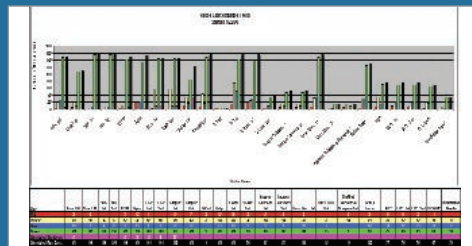


Morning Walk-Through "Status"

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. ■

