CIRAS assists Stellar in continuous improvement effort

In early 2005, the management team at Stellar Industries, Inc., in Garner, Iowa, recognized the need for changes in the manufacturing plant.

Founded in 1990, the family-owned company, which manufactures hydraulic-truck-mounted equipment, including tire and mechanic-service-truck packages, appeared to have outgrown its space. Parts were being produced faster than assembly could install them, and since there wasn’t space available to keep the parts in the plant, they were stored in off-site locations. The inefficiency of continually having to retrieve parts was impacting the company’s ability to complete products on time. The team called on CIRAS for advice.

“We had a pressing issue regarding plant layout and space,” explains Steven Schnieders, Stellar operations manager, “but we also wanted to learn more about lean management activities. We knew other companies were achieving better, faster, and more cost-effective methods of production, and that is what we wanted to accomplish.”

Mike Willett, CIRAS project manager, visited the plant to observe how it operated. “They called me to do a plant layout in the assembly and install area, and they said they were thinking about adding more space,” he says. “I took a look at their manufacturing process, and there were a lot of red flags, things I knew could be resolved by improving their manufacturing process instead of expanding the facilities.”

Willett discussed theory of constraints (TOC) principles with the Stellar team. TOC is a management and improvement philosophy developed by Eli Goldratt and introduced in his book The Goal. The emphasis with TOC is on increasing throughput, the rate at which a company makes money through sales. To increase throughput, the system constraint must be identified, exploited, and subordinated before more money is spent to elevate.

“A manufacturing process is a series of dependent events, and one thing can’t occur until something else occurs,” Willett explains. “Throughput is like water flowing through a hose. If there is a kink or constraint in the hose, the water gets backed up. In the case of manufacturing, that backed up water is work in process inventory, which requires storage space.” Using the TOC philosophy, inventory can be a liability to the extent that it limits throughput, because producing it ties up resources that could be used otherwise to generate throughput now.

With this information as background, Stellar was ready to move forward. CIRAS developed a project to take the 10-member leadership team and employees from strategic areas through a step-by-step process that would help them generate ongoing business improvement. Their goal: improve their bottom line.

A CIRAS productivity improvement team including Willett and project managers Tim Sullivan and Jeff Mohr met regularly with the Stellar team from October 2005 through January 2007, with follow-up continuing through March. While the CIRAS staff provided background and intensive guidance throughout the process, the Stellar team was responsible for using their knowledge and intuition about the unique characteristics of their operation to generate a business improvement plan.

The project was divided into five phases. The first phase established a common understanding regarding the policies, measurements, and behaviors that are required to generate the desired business and productivity improvement.

In the second phase, the Stellar team applied information from the first phase to create a map of their current state. This required taking an objective look at how their manufacturing processes were working, identifying their constraint, and determining how the constraint was impacting throughput.

The third phase focused on designing a new future state that incorporated TOC and lean principles. The fourth phase identified everything that needed to be changed and in what sequence the changes needed to occur in order to achieve the overall goal. The final phase, which is an ongoing process, is implementing those changes.

Recognizing that the buy-in of all employees is crucial to the success of a project like this, CIRAS encourages companies to use a team approach throughout the process. “Some companies feel a need to hire someone to be in charge, to be a champion of change,” says Willett. “Our philosophy is that we want everyone to be a champion. If you have one person, and that guy leaves, or if CIRAS is the champion and we leave, then everything bogs down.”

As Stellar moved through the process, they brought in employees from strategic areas to lead improvement
activities, such as discussing ideas for lowering inventory levels in their respective areas. As a result, many of the 250 Stellar employees had the opportunity to learn about the philosophy of continuous improvement, offer their insights on the manufacturing process, and contribute to the implementation.

Now, Schnieders says, Stellar is driven by TOC principles: increase throughput, reduce inventory, and decrease operating expense. “This process really helped us see things through ‘throughput’ glasses,” Schnieders says. “In addition, we have shifted away from capital solutions to creative solutions. We put everything into terms of ‘Will it help us ship additional product?’ A new machine might lower costs in a specific area, but if it won’t help us ship additional product, then it won’t help throughput, and we will be hard pressed to purchase it.”

The original problem of storage space for inventory was resolved without capital investment. “We kept people busy producing inventory, but that created bottlenecks,” Schnieders explains. “It wasn’t helping throughput, so our tradeoff is that if we are slow, we are okay with finding activities for people that will be aligned with throughput initiatives.”

Stellar has seen good results from the project. Throughput increased, allowing for a $4.5-million increase in sales without hiring additional staff or adding capital equipment and facilities. In addition, the company believes they retained $2.1 million in sales that they were at risk of losing had they not been able to increase production.

“Our relationship with CIRAS has been successful. They guided us and gave us the tools so we could implement the system ourselves,” Schnieders says. “We have coined our lean system as CSI Garner, continuous Stellar improvement. It isn’t a perfect system, but if it were perfect, we would quit trying to make it better. We know we need to keep everyone involved looking at things from different perspectives so that we can continue to improve.”

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Team CSI Garner proudly displays the implementation schedule they developed to get from their current state to the desired future state.