

SUCCESS STORY



Extended Enterprise Management—a Next Generation Manufacturing Success Strategy

DeCrane Aircraft Seating Company



DECRANE AEROSPACE

A telephone sitting on a desk tucked away in a corner on the shop floor – it's probably one of the most common and innocuous sights in any manufacturing facility. But for Jim Tress, general manager of DeCrane Aircraft Seating Company, that telephone is a symbol of the firm's commitment to continuous improvement, productivity and employee empowerment.

In 2003, when Tress joined DeCrane, a manufacturer of aircraft seating for the private aircraft market based in Peshtigo, he saw an organization in desperate need of a lean transformation. DeCrane was rigidly structured along hierarchical chains of command with little lateral communication and was resistant to change and innovation.

"The process to develop a new aircraft seat that meets stringent industry standards and also meets FAA

Lean Culture increases revenue by strengthening bonds with customers and suppliers

DeCrane Results:

DeCrane's focus on Lean Culture has positively impacted all areas of the business, resulting in:

- ▶ Stable earnings in 2009 despite a 40% reduction in the demand for private aircraft due to the recession
- ▶ A \$3.5 million reduction in inventory
- ▶ An increase in revenue per man hour of 26% since 2007
- ▶ The results of one Kaizen event in one work cell resulted in a 100% increase in work cell throughput and a \$750,000 inventory reduction



Jeremy Jones, upholsterer, attaches an arm to a custom aircraft seat.

certification requirements requires at least a \$1 million investment," said Tress. "People were afraid to change anything for fear it would jeopardize the products that were already certified, even though some of those products were losing money."

Against this backdrop, Tress began to lead his company on a Lean journey. "I'd worked with WMEP in the past, and I knew they had the expertise and depth I needed to



A sound business strategy maps out success

help get the company on the right path,” said Tress. The first step was to work with WMEP to develop a business strategy that determined DeCrane’s overarching goals, then to develop a plan to get there. DeCrane’s goals included:

- ▶ Increase Market Penetration
- ▶ Improve New Product Development and Bring R&D In-house
- ▶ Reduce Material and Operating Costs
- ▶ Enhance Use of the Business Information System

“We all agreed that developing a Lean Culture was the only way we could develop the capacity to reach our goals,” said Tress.

The first step in developing a Lean Culture was to conduct a Lean assessment, which provides a snapshot of where the company stands on day one. Performance metrics were established in the areas of quality, cost, safety and delivery. After the assessment was completed, a group of 30 managers, supervisors and support staff received Lean leadership training from WMEP. Lean leaders focus on strategic goals and empower workers to act on the behalf of the customer.

Keeping the lines of communication open with customers is crucial. So the company installed a telephone in the production area on the desk of Kevin Sieman, the seat assembly cell leader. “That allowed Kevin to talk directly to our largest customer in order to provide instant problem resolution, get input for changes or offer suggestions for improvement,” said Tress. “Kevin has been with DeCrane for 16 years and has a wealth of knowledge about this product. He is the ideal person to provide service to this customer.”



John Komp, welder, assembles one of DeCrane’s custom-designed divans - a proprietary seating innovation

In addition to promoting communication between the assemblers and the customers, Tress engaged WMEP for Kaizen events to reduce assembly time. Kaizen is the Japanese word for “change for the better” and is the philosophy and practice of continual improvement. Successful implementation relies on the full participation of workers in the improvement process.

The results of a Kaizen event in one work cell resulted in a 100% increase in work cell throughput and a \$750,000 inventory reduction.

Another focus of the Kaizen events that is critical to custom manufacturing is setup time reduction. Setup time is a major expense to custom manufacturers such as DeCrane that produce a variety of products for a number of customers, many in smaller quantities. For each separate product, a manufacturing line must be set up with the correct configuration, tooling and parts. The Kaizen events reduced setup time which contributed to a lead-time reduction from 30 days to 10 days, with some variability due to scheduling and inventory.

Kaizen events work well within a Lean Culture that stresses employee participation from the shop floor

Aircraft Seating Company

to the executive suite. One aspect of employee participation is DeCrane's emphasis on cross-training and skill expansion. Each person within a cell can step in and do a co-workers' job. This increases the organization's flexibility when large orders come in – no time is lost training additional workers for the job. This capability also helped the company weather the recession, which saw a 40% reduction in the demand for private aircraft. "Like many suppliers, we were forced to reduce staff, but cross-training allowed us to continue to fill orders on-time and at the highest quality levels and continue product development," said Tress. "We actually introduced a new product during the recession that continues to be in very high demand even in spite of the recession."

DeCrane has achieved great success in meeting its strategic objectives set back in 2006. Here's a snapshot of outcomes:

- ▶ **Increased market penetration:** Developed government contracts, doubling original revenue estimates
- ▶ **Improve New Product Development and Bring R&D In-house:** DeCrane developed new types of proprietary custom seating that are extremely



DeCrane aircraft seats are made with high-tech materials that are both strong and lightweight.

"The real secret to our success is the willingness of our employees to diversify their skills and concentrate their considerable knowledge and expertise to helping the company succeed. Our turn-over rate is almost zero, which is a powerful statement about employee engagement. I believe we have become the kind of company in which people want to invest their careers, and that is what my management team and I are most proud of."

*Jim Tress, General Manager,
DeCrane Aircraft Seating Company*

popular; in addition, new assembly methods and technologies have been introduced that reduce seat weight while maintaining high strength standards while exceeding all industry standards.

- ▶ Using WMEP's "Eureka! Winning Ways" product development method, DeCrane has developed two new products for evaluation; a new seat design is expected to be introduced in 2011.
- ▶ DeCrane has several engineers with specific training in FAA regulations to ensure new products meet FAA standards. "In essence, these people are the on-site FAA," said Tress. "This helps ensure that product improvements will meet FAA standards for certification."
- ▶ **Reduction of Material and Operating Costs:**
 - ▶ Physical inventory has been reduced by 30%.
 - ▶ No finished goods are warehoused; product is shipped the same day it is completed.

Success



All of DeCrane's assembly cells are arranged based on the seat model and customer specification.

- ▶ Crates are no longer stocked; crates are constructed around the seats immediately before they are shipped using a specially-designed system that reduces labor, time and risk of injury.
- ▶ Revenue per man hour has increased by 26% since 2007.
- ▶ **Enhanced Use of Business Information System:**
 - ▶ Assemblers can order parts directly from their cells;
 - ▶ Changes to parts or assemblies are immediately conveyed to the shop floor via electronic files of 3D electronic drawings of the assemblies; this also enhances training, because the construction of all assemblies is embedded in the file.
 - ▶ DeCrane is in the process of incorporating real-time tracking of each part in the

inventory so that re-ordering is automated and the need to shut down for physical inventory will be eliminated.

Steve Straub, a senior manufacturing specialist with WMEP said, "DeCrane is an outstanding example of a successful lean transformation that has allowed the company to achieve its growth and revenue goals."

What does Jim Tress find most rewarding about DeCrane's lean journey? "The real secret to our success is the willingness of our employees to diversify their skills and concentrate their considerable knowledge and expertise to helping the company succeed," said Tress. "Our turn-over rate is almost zero, which is a powerful statement about employee engagement. I believe we have become the kind of company in which people want to invest their careers, and that is what my management team and I are most proud of."

Visit the DeCrane Aircraft Seating Company website: www.decraneaerospace.com

About WMEP

WMEP is a private, nonprofit consulting organization committed to the growth and success of Wisconsin manufacturers. WMEP is a leader in bringing Next Generation Manufacturing best practices to Wisconsin firms to help them achieve world-class performance through innovation and transformation.

For more information, visit www.wmep.org or call 1-877-856-8588.

