

DESIGN ■ DEVELOP ■ DELIVER ■ DOMINATE

# ARMY AL&T

ASC.ARMY.MIL

JANUARY-MARCH 2012

## LOGISTICS LESSONS LEARNED



NO MORE 'STEEL MOUNTAIN'

Responsible Reset  
Establishes Efficiencies

THE MATERIALS DIFFERENCE

S&T Seeks to Tap  
Potential Capabilities



# GOING LEAN

How Letterkenny Army Depot built a prize-winning culture of process improvement

*by COL Cheri A. Provancha*

**I**n late 2002, Letterkenny Army Depot, PA, (LEAD) began a journey in transforming business practices to become a powerful, dynamic, and agile Army industrial facility.

To start the process, LEAD implemented the Lean Six Sigma Manufacturing approach, focusing on principles of operational excellence and embedding them into the organizational culture. The Lean Six Sigma philosophy considers the expenditure of resources for any goal other than creating value to be wasteful for the customer. These expenditures become targets for elimination, thus reducing costs and increasing productivity.

The Shingo Prize for Operational Excellence was established in 1988 to educate,

assess, and recognize world-class organizations for creating a culture of continuous improvement through employee empowerment and effective leadership. LEAD is a seven-time recipient of prestigious Shingo awards, most recently receiving the Shingo Bronze Medallion in August 2011 for the Aviation Ground Power Unit Value Stream.

Previous awards include Bronze Medallions for the Patriot (Phased Array Tracking Radar Intercept of Target) missile system in 2010; the Biological Integrated Detection System manufacturing process in 2008; and Power Generation Equipment repair in 2007. LEAD's Shingo Silver Medallions include High-Mobility Multi-purpose Wheeled Vehicle (HMMWV) Recapitalization in 2006 and 2007; and Patriot Recapitalization in 2005.

The awards confirm LEAD's Lean success, but how did an organization thought to be on the brink of elimination in 2002, before LEAD employees embraced Lean Six Sigma and Base Realignment and Closure (BRAC) brought a larger workload to LEAD in 2005, become an example of efficiency, cost-effectiveness, and worker empowerment?

## **SURVIVAL STRATEGY**

Initially, the Lean vision was based on the reality that LEAD needed to improve productivity and reduce cost to survive the BRAC reviews scheduled for mid-2005. COL William A. Guinn, then Depot Commander, said that leadership needed to maximize the use of the depot's facilities and equipment, as well as the skills of the workforce. The depot also needed to expand, modernize, and improve these

## **SHOWING THEIR WORK**

Letterkenny Army Depot (LEAD) displays two-piece summaries by employees supporting the Aviation Ground Power Unit (AGPU). The two-piece summaries are LEAD's tool to capture employee-driven improvement initiatives. The Power Generation Branch, encompassing AGPU, leads the depot in employee-driven initiatives for improvement in their processes. (Photo courtesy of LEAD.)

same capabilities to position LEAD as the provider of choice for current and future systems and stakeholders.

Ten employees were handpicked to implement Lean principles established in the depot's Strategic Business Plan. The Lean team quickly realized that a change in culture would not be achieved through top-down directives but needed to flourish through camaraderie among employees sharing and pursuing a common goal. The team strived to train the workforce to be proactive in recognizing opportunities for improvement, suggesting changes, and applying the modifications.

"At first it was a battle, because no one understood Lean and everyone was reluctant to embrace it," said Keith Collins, Chief Steward of National Federation of Federal Employees (NFFE) Local 1429. "Veteran employees were set in their ways and saw this program as something that wouldn't last."

Standard work events were established to provide firsthand demonstrations of ways to accomplish a job more efficiently. This training was instrumental in securing Lean buy-in as employees began to realize time- and cost-saving opportunities.

The initial strategy was developed to implement Lean initiatives for the depot's largest maintenance, repair, and overhaul program: Patriot Recapitalization. Value stream analysis activities were the first step. These tools documented the current state, created vision for an ideal state, and displayed the future state over the next year for the Patriot system.

The cost savings quickly became obvious. In September 2003, the Lower Tier Project Office received \$1.2 million in cost savings for LEAD's Patriot Recap. Less than a year later, in August 2004 the depot returned



**AWARD-WINNING TEAM**

For their workmanship and alignment with the Soldier, the AGPU team received the Shingo Bronze Medallion in August 2011. Here, COL Cheri A. Provancha, LEAD Commander, congratulates the AGPU team. (U.S. Army photo by Don Bitner, LEAD.)

\$1.5 million to U.S. Army Aviation and Missile Command's Integrated Materiel Management Center for Patriot Reset. By returning money to the customer, the depot achieved an unprecedented efficiency.

**GETTING RESULTS**

Earning a Shingo award is not easy; doing things well on the shop floor is only the first step. An extensive process of documenting the improvements must occur. The assembled documentation must be verified both internally and externally by a Shingo inspection team. Wayne Eichenlaub, Major Item Division Chief, said it was a learning process for everyone involved, with guidance from the Lean team.

The hard work came to fruition in 2005, when LEAD became the Army's first Shingo award winner for Excellence in Manufacturing. The award proved what a team committed to improving could achieve and, perhaps more important, demonstrated to Army leadership that Lean principles could support Army mission requirements. Not long afterward, the Army officially adopted Lean business processes as a servicewide business transformation tool.

In 2006, the Lean team became a formal entity, the Office of Continuous

Improvement (OCI). The team's next focus was a new program at the depot: the HMMWV Recapitalization line. The mechanically inclined HMMWV team required a completely different approach than the electronic and technological focus mastered in the Patriot program.

At the outset of the HMMWV program, five vehicles were produced per day from a static, single bay. Lean thinking indicated that assembly-line production could make LEAD more economical. Moving the product down a line was a new concept. Employee involvement and proper part flow were critical to the success of the assembly line. By 2006, the depot was completing 19 HMMWVs per day. The HMMWV line became LEAD's "model cell," showing how much faster and more efficient LEAD could be by adapting and supporting new ideas.

Success continued to produce success, and in August 2006, the savings from the HMMWV program made it possible for the depot to provide the customer, U.S. Army TACOM Life Cycle Management Command, 27 HMMWVs for free. "The HMMWV program award validated that the depot could run a full production line, and customers could see that Letterkenny could do that type of work," said

Joe Olsen, Industrial Engineer and Chief of the Lean Six Sigma Office in 2006-07. “It was phenomenal from beginning to end, as we were able to meet the constant demand of the Soldiers while driving down costs.”

Despite a workforce new to Lean, the feedback from Shingo in 2006 commended their high level of enthusiasm to embrace Lean concepts. Olsen said the young workforce was motivated and had high energy for embracing the new thinking. The feedback also revealed that the depot had not reached its fullest potential and that opportunities existed for improvement. It indicated that the number one need for development was Lean training, as well as establishing a true Lean culture.

OCI concentrated on imparting its knowledge to the workforce through various avenues, such as the Civilian Education System, High Potential Leadership, and other mentorship courses. Employees began submitting two-piece summaries, a LEAD tool to capture employee-driven improvement initiatives. Others participated in traditional Lean Green or Black Belt training, learning the tools used to collect and analyze data to find and eliminate areas of waste.

### MAKING MISSILES

Employees work on the guidance section of the Patriot (Phased Array Tracking Radar Intercept of Target) missile in LEAD's Theater Readiness Monitoring Facility. The Patriot missile system program received a Shingo Bronze Medallion in 2010. (U.S. Army photo by Don Bitner, LEAD.)



“We preached a change in culture, and as preparations began for the 2009 Patriot [Shingo award] submission, employees were facilitating their own two-piece summaries and rapid improvements events,” Eichenlaub said. “Employee leadership, facilitating events, and managing change have most notably shaped the change at Letterkenny.”

### CULTURAL SHIFT

Nine years after Lean Six Sigma began at LEAD, the cultural shift of placing responsibility in the hands of the employees is undeniable. The 2011 Shingo Bronze Medallion for the Aviation Ground Power Unit (AGPU) was the first Shingo award in which the cost center unit owned the entire process. Production-line employees briefed the Shingo review team, describing their role in the AGPU's continuous improvement process.

Shingo examiners, during an audit in July, were impressed by LEAD employees' alignment with the Soldier, the flexibility and adaptability of the workforce, and their pride of workmanship. The Shingo auditors walked away with a strong sense of the heart and soul that the AGPU workforce demonstrated.

“What an amazing commitment at all levels. Very impressive,” said Paul Terry, Shingo Examiner.

The Power Generation Branch, encompassing AGPU, leads the depot in employee-driven initiatives for improvement in their processes. Employee ownership has proven the secret ingredient to shaping the culture into one of continuous improvement. Employee-driven success stories led the Shingo efforts.

An AGPU assembly-line employee realized that each rubber back shell brushing, which serves as a shield between the

wiring harness and the connector to prevent cutting of the wire, cost \$965.85. With research, a replacement was found at a cost of 78 cents. This resulted in a savings of \$965.07 per AGPU produced and saved LEAD more than \$240,000 by May 2011.

Incorporating employee solutions into process improvements and communicating the results show that leadership values employees' opinions. This mutual trust encourages employees to continue offering solutions.

“We want to put the systems in place in the organization to sustain the principles that drive the culture,” said Gerald Chapman Jr., Process Improvement Facilitator.

### CONCLUSION

LEAD's seven Shingo awards are the result of a diligent and committed workforce. “Lean has become part of their work ethic,” said Jerry Mellot, President of NFFE Local 1429. “Now the employees think Lean instead of just do Lean.”

The Shingo awards are a supplement, though, to the ultimate success, in which employees drive change and take pride in providing high-quality equipment to the U.S. military. These prestigious awards confirm that Lean has transformed LEAD into a thriving competitive facility, the provider of choice for DoD in production, repair, or overhaul.

*COL CHERI A. PROVANCHA is the Letterkenny Army Depot Commander. She holds a B.S. in psychology from Colorado State University, an M.P.A. in administration and organization from Golden Gate University, and a Master of Strategic Studies from the U.S. Army War College. Provancha is also a graduate of the U.S. Army Command and General Staff College.*