Success Story: Northway Industries Partners with IMC to Enhance Its Lean Manufacturing Culture

written by Lauri Moon | March 3, 2025

Northway Industries, Inc., located in Middleburg, Snyder County, is a privately held company that manufactures plastic laminated panels, tops, parts and kits. Northway's operation consists of CNC controlled cutting, milling, routing and banding operations. The market served is OEM suppliers, retailers, schools and institutions. They are FSC certified and conform with LEED specifications as required. The company has engaged in several small projects focused on sustainability including LED lighting with occupancy sensors, monitoring compressed air systems for leakage and an eco-gate system on their dust containment unit that monitors the RPM of unit motors.

Over the past several years, Northway has been working to instill a corporate culture based on Lean manufacturing concepts. While business has been steady, Northway's leadership recognized potential areas of improvement and decided to start with its order process, from intake to floor. To develop a more effective system in the order process activities, they reached out to the Innovative Manufacturers' Center (IMC) to assist them in further developing this initiative.

After meeting with the Northway team, it was determined that a continuous improvement program based on Lean manufacturing principles called *Winning Teams* would be the basis for making the desired improvements. This project

empowered employees with the skills and tools needed to identify inefficiencies, streamline workflows and enhance overall operational performance. By focusing on critical areas, such as initial order processing, customer demand interpretation, estimating and materials management, the company would significantly improve its ability to execute and deliver high-quality products with greater speed and precision. In addition, the IMC was able to assist Northway in obtaining a grant through the Appalachian Regional Commission (ARC) Energy & Manufacturing in Appalachia program that reduced their final costs for the project.

The Winning Teams program combined hands-on training with real-world application to develop a stronger culture of continuous improvement. Employees participated in structured problem-solving exercises, gaining both technical expertise and a deeper understanding of the human side of change management. As a result, Northway Industries has seen measurable gains in productivity, reduced waste and optimized resource utilization, further strengthening its ability to meet customer expectations efficiently and sustainably.

The success of this collaboration with the IMC has reinforced Northway's reputation as a forward-thinking manufacturer dedicated to Lean principles and operational excellence. With a more agile and efficient production process, the company is well-positioned for long-term growth and enhanced customer satisfaction. Moving forward, Northway remains committed to sustaining its lean culture, continuously refining its processes and fostering innovation across all levels of the organization.

" Through the Winning Teams program, we increased throughput in our laminate cleaning/inspection area by 18%, which also shortened the time for us to respond to vendors about defective products and to reorder replacements for those products by an average of 1 day. We also reduced the number of orders going from Sales to Order Entry with missing information by 25%. This reduced the processing time for order entry and throughput of an order through Sales and Order Entry by an average of 2.5 days. In partnering with IMC on the Winning Teams project, we equipped our team members with the skills needed to identify and drive waste out of our process and increase efficiency. By working with IMC, we bridge the gap between industry expertise and workforce readiness, creating a seamless integration of innovation and practical application. This collaboration strengthens our impact,

driving efficiency, quality, and long-term success.”

Steve Wagner, Director of Training & Development

Northway Industries, Inc.

Success Story: NuVisions Saves Employment Contract Through IMC’s CMMC Assessment

written by Lauri Moon | March 3, 2025

NuVisions Center, located in Lewistown, PA, exists to improve the lives of persons with vision, physical or mental impairments through services and employment; and to also educate the public about vision loss. They serve the Pennsylvania counties of Huntingdon, Juniata, and Mifflin. NuVisions employs persons with disabilities who perform manufacturing, sewing, janitorial, and customer service-related jobs. They currently employ 44 individuals spread among the various areas.

NuVisions Center approached IMC to discuss their desire to comply with the DFARS 252.204-7012, FAR 52.204-21, and the anticipated CMMC level cybersecurity requirements for government contracting. The need for compliance originated because of a requirement from one of their customers. To maintain an existing employment contract, NuVisions had to achieve the appropriate CMMC level of compliance. Higher levels of compliance are continuing to be assessed by the Department of Defense (DoD) and are a moving target for businesses in need of proving compliance. There are currently three levels being evaluated and considered by the DoD. Level 1 is the most basic, Level 2 is more advanced and results in a SPRS score (NIST 800-171 SPRS Score), and the highest level of compliance is currently rated as CMMC Level 3. Those requirements can be daunting to a small company with limited resources. NuVisions Center did not have in-house IT support and were very concerned about the time investment and how to address such a change in procedures.

IMC worked with NuVisions Center to provide them with professional assistance and guidance through self-assessment and used the CISA CSET tool to generate necessary reports. The CSET tool reports became the foundation for the project deliverables. The plan included a system security plan, action items, and milestones for incremental completion. A Gap Analysis was created, identifying deficiencies and any CMMC controls which weren't fully met. The project findings were then presented as an Executive Summary showing which requirements were met and any which needed further attention. Throughout the project, NuVisions and their IT contractor provided documentation and answered all questions relative to the content of the requirement.

NuVisions successfully completed the required CMMC requirements. In doing so, they were able to save an employment contract, which resulted in the retention of three jobs for their workforce. Three jobs equate to over 6% of their workforce. That result is very important to the mission of NuVisions Center, and extremely important to the people whose lives are so positively impacted by having a job. The assistance provided by IMC guided NuVisions Center through a process which seemed quite overwhelming and difficult, saving precious time for the leaders of the organization. The project also led NuVisions Center to upgrade some of their IT equipment, which improved operations and further protects their investment from cybersecurity

threats.

“We are a small organization and do not have IT staff. Before we found IMC, the task to implement CMMC seemed almost insurmountable. With their help, the process was no longer overwhelming, and we were able to easily manage the implementation of the CMMC requirements.” Terry Knouse, Vice President of Operations, NuVisions Center

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Success Story: Pik Rite, Inc. Implements Strategies Learned Through IMC’s CI Programs with Positive Impact on Production

written by Lauri Moon | March 3, 2025

Pik Rite was founded by Elvin Stoltzfus and Joe Yoder with a focus on creating a mechanical method for picking tomatoes. Their first machine was built in 1983, and by 1986, Pik Rite had manufactured three harvesters and incorporated the company.

From its initial tomato harvester, Pik Rite has diversified its product line to include equipment for harvesting cucumbers, peppers, gourds, zucchini, squash, pumpkins, and carrots. Additionally, Pik Rite produces vine diverters, commercial waste handling vacuum tanks, water hauling trailers, truck mounted dump bodies, manure spreaders, and municipal leaf collection units. Pik Rite also has a dedicated contract manufacturing line.

Pik Rite has steadily grown since the 1990s, expanding its market coverage, sales, and technological innovations both domestically and internationally. Based in Central Pennsylvania, the company now employs nearly 100 people across two facilities in Lewisburg, PA.

With continuous growth in business and varied industrial and agricultural markets, Pik Rite sought to increase production capacity and capabilities while maintaining their high-quality standards and design flexibility.

Pik Rite faced several critical challenges in their production process that hindered efficiency, employees, and ultimately customer satisfaction. The main bottleneck was cumbersome production flow due to fragmented processes, which led to frequent delays and increased operational costs. Material handling issues further complicated these inefficiencies, as the lack of streamlined systems resulted in frequent delays and product mismanagement. Employees reported dissatisfaction stemming from repetitive, unnecessary tasks, impacting overall morale and productivity. This ultimately resulted in strained relationships with clients.

Pik Rite has a long-established relationship with the Innovative Manufacturers' Center (IMC) and IMC is a contributor to Pik Rite's continuous improvement journey. Pik Rite selected several personnel to attend the IMC's Lean Level 1 and 2 certification programs to seek potential strategies to address its current challenges in production as well as to build on its mission to give everyone "the opportunity to grow personally while engaging in an atmosphere of unity, respect, and integrity."

Through both the training program and post training assessments, Pik Rite implemented strategies learned from the IMC certification programs that included but were not limited to:

- Streamlined receiving and storage methods in the material warehouse to eliminate waste and improve material flow.
- Implemented a small parts handling system in the fabrication shop to reclaim lost floorspace, eliminate wasted motion, and improve overall flow and efficiency.
- Relocated materials in the fabrication shop for easier access for fabricators.
- Created multiple travel lanes throughout the entire facility to provide direct

access from the fabrication shop to the production floor.
- Implemented a smart organization and carting system for Harvester fabricated parts.
- Started a safety hazard removal initiative in the fabrication shop.

These changes led to increased flow in the fabrication shop and production area, reducing the time employees spend searching for materials. Raw materials now flow into the storage areas seamlessly and can be retrieved safely and quickly by the operators.

Fabrication has become approximately 15% more time efficient while utilizing full sheets of raw material. Production now tracks and utilizes 100% of their remnant material, up from approximately 25%. Overall throughput has increased by 8-10% with these changes and has even spiked to 20% in unique scenarios. Since implementing a safety hazard removal initiative in the fabrication shop, Pik Rite has had zero incidents, improving from 1-2 reported incidents per month, previously.

"The IMC and its staff have played an integral part in the success of Pik Rite's Continuous Improvement culture as well as directly influencing more efficient production and operations. The proof is in our results – our workplace is safer, our employees are happier, and we're getting more quality work delivered to our customers, faster."

Caleb Thomas, Product Line Manager

Success Story: Rockland Manufacturing Invests in Training

to Prepare Workforce for Change in Production Flow

written by Lauri Moon | March 3, 2025

Rockland Manufacturing Co., located in Bedford, PA with approximately 250 employees, is a medium-sized manufacturer of bulldozer blades, loader buckets, beach cleaning equipment, and land clearing equipment. Rockland primarily serves the crushing, aggregate, and log loading markets.

Rockland was beginning to implement a major change to their long-established production methods. In fact, the current flow had been in place for well over 30 years. The major change was to create a combined production method/department from two formally standalone functions. The change required changes in supervision, ERP tracking, production planning and scheduling, and manufacturing engineering processes.

The change is driven by the need to improve efficiency, specifically by reducing the amount of handling and transportation of certain products. By combining production functions for several of their product lines, both assembly and finish welding functions will be accomplished at the same workstation. Formally, a product would be assembled at one location in the plant, then transported by overhead crane to be staged at the second location until that department had capacity to work on it.

Rockland had already conducted experiments to prove that the change to the production flow would be successful in improving efficiency, but since the change had far-reaching affects throughout most departments within the entire company, management felt that specific training of key stakeholders was needed to help build unified momentum for implementation and asked IMC to provide this training.

The Rockland management team, while in consultation with IMC Business Advisor,

Tim Davis, expressed concern about meeting project goals and objectives since the front-line production workers and their direct supervisors were accustomed to years of the current state workflow processes. Many organizations entering significant operational change are very good at getting the proper capital requirements and soft costs calculated and controlled, the weakest link is often underestimating the human side of change. As such, IMC proposed a Change Management training initiative that would complement the capital investment already being made.

Tim Davis expressed, “This training is essential, it is beyond the capital equipment, renovation, and other costs normally associated with significant change, it can make or break the change effort including the need to extend timelines and adjust milestones when employee teams struggle through the transition.”

The IMC team helped Rockland identify key personnel who had responsibility and direct impact on the change requirements. Additionally, the team investigated the organizational requirements compared with the current state of the supervisors and other key personnel to identify gaps and develop a program specifically designed to help the Rockland team navigate a successful transition.

A highly customized change management training initiative was deployed by the IMC. It focused on how to anticipate the implications of change, how to monitor and adapt to change, how to communicate through it, and how to keep changing and improving. This training included interactive exercises to help the participants be more comfortable with the new changes to their workflow, break down potential barriers to implementing change by improving communication, and really focus on the importance of positive changes in production. All customized to align with the requirements for a successful transition to the new process.

Impressed with the results, the Rockland management team reported that the training provided by the IMC was successful in helping their workforce understand the need for change in their production methodology. Particularly, they pointed out that communication about the change improved. The interactive exercises conducted by IMC in the training helped break down communication barriers and improved teamwork. The momentum for moving forward with the production change was achieved, and since then the new assembly/weld function is established and

becoming an accepted part of the company's culture.

"We're very pleased with the results of the training. It was a great way to break the ice regarding a systemic change in one of our oldest and most experience facilities. By training on change management, discussing the benefits of the change, and how to properly communicate the outcomes of the change, we experienced much less of the typical resistance to change that one usually experiences in any business environment. The project was done faster, with less effort, much less drama, and most importantly, we haven't had any trouble with making the change stick over time. We're now building more, more efficiently, together, than ever before." Bo Pratt, President, Rockland Manufacturing Co.

Success Story: IMC Assists

Furmano Foods with Safety Procedures

written by Lauri Moon | March 3, 2025

Furmano Foods, Inc. grows and produces canned vegetable products. It offers tomato, bean, and vegetable products; and formulates ready to use recipes for salads, stews, puffs, sauces, sliders, pizzas, bocaditos, tacos, soups, chili, appetizers, vegetarian, beef, fish, chicken, and pork products. Furmano, like other producers, provides product for others under other labels as well as occasionally runs product for small batch, specialty products. The company serves customers in various sectors, including foodservice, retail, manufacturing, export, and branded and private labels. Furmano was founded in 1921 and is based in Northumberland, Pennsylvania and employs approximately 350 people with an additional 150 seasonal workers.

Furmano proudly combines state-of-the-art agricultural and manufacturing technology with a kinship to the earth that comes from four generations of farming in this region. They grow most of their tomatoes and vegetables in the fertile Susquehanna River Valley and process millions of cases of tomatoes at their plant in Northumberland. They consider themselves stewards of the land and are sensitive to ecological concerns employing farming techniques that are environmentally friendly as well as safe for the surrounding community. Many in the Furmano organization grew up and still live in the area, so they strive to be good corporate citizens and a positive contributor.

Responding to an inquiry by Furmano regarding organizational safety assessments and establishing a new safety culture, IMC met with the company to discuss possible options. In addition to Furmano's leadership team, IMC Business Advisor Rick Terry brought in trusted IMC third-party consultant, Scott Witmer of EMS Consulting to the site visit as a subject matter expert. In addition to safety objectives, the overall business climate of the organization was discussed. While production growth wasn't the focus of this meeting, future proactive challenges and opportunities were

discussed regarding organizational culture, specifically around safety. There are some issues that the leadership team wants to address before they grow into major concerns and become detrimental to production.

EMS Consulting worked with Furmano to address safety culture and procedures. Scott presented his experiences regarding organizational development and safety protocols to the team as well as the challenges of establishing a new culture of safety in an existing organization. Scott engaged Furmano leadership in the various areas of safety and safety management to begin to gauge the current state of the organization and where they wanted to go with it. The objective was to ensure that Furmano's maintenance personnel and, where applicable, operators, have appropriate, accurate, written procedures to ensure their safety when cleaning, prepping, or maintaining each machine. The IMC proposed to do this by understanding the hazards, the procedures to be used to avoid those hazards and how to remove locks and / or tags to ensure their safety and those nearby. Also, clearly documenting this information in a Furmano approved format so the procedures can be used effectively to ensure worker safety and OSHA compliance.

The deliverables to achieve the project objectives included:

- appropriately documenting each LOTO procedure for effective use by Furmano's personnel
- evaluation of these procedures to ensure they are clear, effective representations of the procedure to follow to be safe when working on the machine.
- providing onsite advice utilizing IMC's SME during the assessment of the current state of safety protocols
- written procedures, including photographs finalized for use by Furmano personnel

Assessment of the plant equipment and existing LOTO procedures began in early December 2022 and culminated with final documentation submitted to Furmano leadership in June 2023. Based on both a walkthrough of the facility and a review of the existing LOTO records, EMS estimated what equipment in each section of the production facility would require review and procedural documentation. Furmano leadership selected the main production area, approximately 32 LOTO procedures,

as the first area to address.

During the work assessing and developing the LOTO procedures, it became evident to the IMC team and Furmano that equipment labeling and posting of LOTO procedures were nearly non-existent. IMC worked with onsite Furmano maintenance support to make sure they concurred on the procedures as the best solutions for the equipment. Trouble spots were identified by missing or broken handles, and other signs of required Preventative Maintenance (PM) were noted throughout the process. The response by Furmano to repair or replace any deficiencies was handled with diligence and completed prior to the end of the project. The overall project resulted in visibility of the LOTO procedures through equipment labeling and posting of the procedures at each location, safer overall environment for all employees, and better coordination between safety and the PM departments. In addition, the established procedures enabled better training resources for safety and PM training in the future.

Success Story: QCast Aluminum – Casting for Efficiency

written by Lauri Moon | March 3, 2025

IMC Facilitates a Value Stream Map for QCast Production Process Improvement

Located in New Berlin PA, (approximately 30 miles south of Williamsport, PA) QCast Aluminum Co. is a family owned, high–quality manufacturer of aluminum sand castings for commercial industries. QCast manufactures all their products in the USA and can produce excellent finishes and sizes of parts, including prototypes and small to large production runs from 1 oz. to 300 lbs. They work with customers to develop a mutually beneficial long-term relationship and have a strong commitment focused on service, quality, deliverability and affordability. They have grown to become one of the highest quality sandcasting companies at the most competitive price.

Situation:

Working with our strategic partner PennTAP, who sponsored an E3 project (Economy, Energy & Environment), the Innovative Manufacturers' Center (IMC) was engaged to facilitate a Value Stream Map (VSM) to determine why QCast's production was unable to meet desired delivery times for their customers. The scope of the value stream map began with the core preparation area of production and ended at the finishing area. The VSM continued to track the various operations that included saw, belt sand, blast, drilling and inspection in the finish area.

The Work In Process (WIP) materials for the finishing area were stored in scattered locations causing some delays in finding them for finishing. In addition, the molding process continued to run at a faster pace than finishing could respond, creating a bottleneck in production flow. An accurate inventory was taken of the WIP at the finishing stage, and it was learned that 3x the original estimate of pieces was there. The mindset within the facility is one that is grounded upon 'keep the molders running', which caused overproduction and a choke point in finishing customer orders.

Adding to production flow delays, finishing operators performed excessive amounts of searching, stretching, reaching and bending for the parts resulting in additional non-value added efficiency losses. It was evident that in addition to the overproduction of parts, their multiple locations in the finishing area took time away

from actual finishing work thus contributing to not meeting the delivery times promised to their customers.

Solutions:

At the completion of the 'Current State' VSM the project team, facilitated by the IMC, determined the 'Future State', which led the company to define several objectives. QCast wanted to exceed customer expectations by utilizing an effective pull system that would generate a 7-day throughput with a 4-week lead time, 99% on time delivery and a 100% quality level by September 1, 2023. Through the input of the QCast team, the IMC generated a series of challenges for the company to tackle and record the results over the next several weeks. The first two target conditions were designing a 'supermarket' that would visually control the work in progress inventory levels to 3-5 days and to improve the efficiency of the belt sanding area to 85%. The QCast VSM team conducted various experiments to see how best to meet their first target conditions.

Over the next several months the improvement in excess production was moving in the right direction; however, the team was still finding difficulty in addressing the finishing department's challenges, which were defining standard work and overcoming a shortage of labor.

Results:

Actual inventory being produced was tracked on a weekly basis, which resulted in the reduction of WIP sitting at the finishing stage by 54%. The finishing department continued to see challenges to meet the target condition until a member of the VSM team tried an experiment with the finishing of parts by running them through a tumbler; a process used in their sister company's metal fabrication process. The results were very promising. After continued experimentation with various aspects of the tumbling process including time, media and actual parts to be finished, the company has calculated that they could increase finishing productivity by up to 300%. Because of the IMC's VSM facilitation, the members of the QCast team were able to implement a series of experiments and apply the continuous improvement culture that enables

them to find a solution far beyond the original expectations. The company is planning on investing in the appropriate equipment during the first quarter of 2024 that will include the tumbling stage in their finishing process enabling them to reduce overall throughput and meet the delivery times their customers expect.

Testimonial:

“The Value Stream Mapping exercise conducted by the IMC enabled us to visually see the overall production process and the areas we needed to target for improvement. Without this process, QCast may not have identified the key areas needed to meet our overall objectives. We look forward to continuing to work with the IMC in the future.” Terry Arnold, General Manager, QCast Aluminum

Contact IMC:

To learn how IMC can assist your Central PA manufacturing company with process improvement, contact us at 800-326-9467 or info@imcpa.com.

Success Story: Prysmian Expands Frontline Development Skills and Employee Engagement with Onsite Training

written by Lauri Moon | March 3, 2025

Prysmian Group

Prysmian Group, the world leader in the energy and telecom cable industry, engaged with the IMC with interest in various areas of improvement including communication and leadership skills as well as job instruction training.

To address this need, the IMC provided content and expertise for Frontline Development Essentials as well as Training Within Industry (TWI) Job Instruction, a dynamic and proven method of hands-on training, learning and coaching for supervisors, team leaders and workers.

The Frontline Development Essentials program included theory, activities and small group interactions designed to foster learning and growth while also solidifying knowledge transfer and retention. Twelve frontline supervisors completed the three-day Frontline Essentials program. Through instruction, hands-on simulations and coaching, they demonstrated new skills to make them more effective and improve morale in their areas.

An IMC Business Advisor, who is TWI Job Instruction certified, delivered a ten-hour TWI program to Prysmian. The TWI program provides a proven and reliable system for elevating employee engagement that advances ongoing and planned continuous improvement, kaizen, lean and operational excellence initiatives. Ten employees completed the TWI JI program and demonstrated mastery of the 4-step How to Instruct model. They also demonstrated the ability to effectively Get Ready to Instruct with a focus on the Job Breakdown. These employees then successfully implemented this model within their own areas, resulting in consistent training and reduced training time.

“The attendees of both training programs came away energized and eager to apply their new skills in training, coaching and communications. There is broad consensus that these skills should continue to be developed throughout the company.” Jeanette Wragg, Training Manager, Prysmian Group

Prysmian Group will expand Williamsport facility, bringing jobs to area | News | northcentralpa.com

Prysmian Group Hosts Beam Signing Ceremony on $22.5M Williamsport Facility Expansion Project | Prysmian Group

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Success Story: Nittany Paper Invests in Training Ahead of New Equipment Investment

written by Lauri Moon | March 3, 2025

Marcal Paper aka Nittany Paper Mills, LLC, is owned by Atlas Holdings, LLC. Atlas was founded in 2002 and is headquartered in Greenwich, Connecticut. Atlas and its affiliates own 16 companies employing nearly 20,000 associates. With more than 100 facilities across the globe, Atlas generates an estimated $4 billion in annual revenue. Nittany Paper Mills in Lewistown, PA manufactures and provides recycled tissue and towels for use in homes, schools, restaurants, hotels and hospitals.

Nittany Paper Mills is investing in new equipment and technologies to become even more competitive. These include new production lines, new packing lines, robotics and more. Such new technologies are disruptive as they change how work is done. In an effort to ensure the successful implementation of these investments, Marcal sought training for its managers to prepare them to manage change. Specifically, training to help managers understand the psychology of change and how to

accelerate change. In other words, they wanted to help their managers to further develop their skills to be more effective at leading change. Without these skills, investments on this level may not have the desired impacts.

After the training, with these skills now developed in their managers, Nittany Paper Mills was confident that the implementation of the new equipment and technologies would be successful, driving confidence to make the investment of more than $500 million.

“We make investments where and when our workforce is skilled and ready. The training was a solid foundation for supervisor development”

Steve Prentiss, Vice President of Human Resources, Marcal Paper

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Success Story: IMC Helps Metal Integrity Implement Advanced Robotics & Automation Technology

written by Lauri Moon | March 3, 2025

Metal Integrity, a sheet metal fabricator and machine shop in State College PA, was having continued workforce issues, leading to challenges to meet customer orders. Through a national Advanced Manufacturing Technology Solutions grant, IMC helped the company implement advanced robotics & automation technology. They quickly realized production improvements with the first job run on the automated system of 200-250%, seeing an increase in production from 180 parts per week to 475 parts per week.

After attending an AMTS sales training program in Fall 2022, knowing of Metal Integrity's interest in automation, IMC's Dana Gordon reached out to Metal Integrity directly to discuss. The sheet metal fabricator and machine shop was having continued workforce issues, leading to challenges to meet customer orders.

Support provided; tools utilized

Upon meeting with Metal Integrity, IMC helped them refine their automation strategy, which consisted not only of robotic machine tending, but also an investment in a new lathe with a bar feeder along with sheet metal quoting automation software. As the client was already progressing down the path toward machine tending, there was no need to complete a full assessment; IMC and the AMTS lead for Pennsylvania instead met with client to validate their robotic machine tending approach.

Lessons Learned

Overall, the project was a success, however the timeline was longer than anticipated. The project hit various challenges during the implementation phase, leading to a longer than desired learning curve. These challenges were primarily related to the inexperience of both the integrator and the robot manufacturer.

The first challenge dealt with the performance of the Productive Robotics OB7 robot once a dual gripper was added. The robot motion became very erratic and was unable to perform the programmed tasks. It was later discovered that the robot programming interface was inadequate for making the needed adjustments for the higher weight of the end effector and the extended tool center point (TCP). It took weeks of troubleshooting by both the integrator, Exact Machine Tool, and the manufacturer, Productive Robotics to make this discovery, further delaying production implementation.

The next major challenge involved the workholding setup. As is common in mill machine tending systems, Exact Machine Tool installed a Airvise AV-T-4 pneumatic vice that was integrated into the robot controller. However, the pneumatic vice was unable to hold the tight tolerances required of the target part. In the end, Metal Integrity found a solution that allowed them to automate their standard Kurt workholding system that already held needed tolerances with a Rapid Design Solutions CNC vise actuator.

An ROI of 4 months was expected prior to launching the project and that will be exceeded, depending on upcoming parts volumes. Metal Integrity has already realized production improvements on the first job run on the automated system of 200-250%, seeing an increase in production rate from 180 parts/week to 475 parts per week. For this part, based on reallocated labor alone, they will see an ROI of 6 months. When the increase in production for parts run off-shift with a conservative value applied to machine runtime is considered, it surpasses a 3-month ROI.

In hindsight, going with an experienced system integrator may have reduced the implementation difficulties experienced in working with an equipment distributor. However, the low price point of the system and the fact that they are now in operation, makes it challenging to determine if that would have been advantageous. Even considering the delays and additional time required of Metal Integrity personnel, the ROI is in an acceptable range.

This project made possible through MEP AMTS grant funds.

Success Story: IMC Assists Lycoming Engines in Realizing Significant Cost Savings with Lean

written by admin | March 3, 2025

Lycoming Engines is the leader in the piston aviation market, producing more piston engines for general aviation manufacturers than any other company in the world.

Headquartered in Williamsport, Pennsylvania, Lycoming is a global operating division of Textron's Avco Corporation subsidiary, and an operating unit of Textron Systems, specializing in the engineering, manufacturing, assembly, test and support of piston aircraft engines. The company employs 470 people.

SITUATION

Lycoming Engines realized that remaining competitive in a downturned economy requires ongoing innovation, enhanced efficiencies and involvement from all members of an organization to be alert and focused on continuous improvement and opportunity. Lycoming Engines began what would be the underpinnings of an aggressive initiative to have all levels of the organization undergo training in Lean manufacturing.

According to Gary Naculich, Manager, Transition to Production, **Lean training was an integral part of the organization's growth strategy.**

"Identifying ways to remove waste from our processes is a significant component of keeping Lycoming Engines a thriving business. Our approach is always to have an eye on the future and to be prepared. Our hope was that LEAN would help us to cut back on waste, be more efficient and remain optimally productive," said Naculich.

Naculich reached out to IMC-PA, a NIST MEP network affiliate, to assist in building a strategy to accommodate an aggressive schedule, variety of skill sets and potentially diverse feelings about the initiative.

As a result of IMC's assistance, Lycoming Engines was recognized as the global

premier award process for operational excellence, has twice gone 1 million hours without a lost time injury, and was recognized as one of Cessna's 'Top Suppliers' by earning their STARS supplier award three consecutive times.

SOLUTION

IMC business advisors and Lycoming management developed a master plan to engage the entire organization in Lean. The first step was to send several employees to IMC Lean 101 training in order to better familiarize them with the principles and help them determine the merits of a full-scale training initiative for the company.

To achieve buy-in from Lycoming's union workforce, management sent several union members to Lean 101 training to evaluate its worth for the company. Union members returned from the training enthusiastic about Lean and fully engaged.

IMC planned a variety of training scenarios, including employee participation in scheduled workshops as well as IMC training sessions conducted directly in Lycoming Engines facilities.

Lycoming Engines Manager of Proposals and Contracts, Mary Fourney, said, "A key factor in the success of the program was IMC's ability to work with employees at all levels and build trust. Some of our folks had the perception that Lean meant losing their jobs. Their fears were alleviated, though, due in large part to how IMC engaged them in the process and the obvious positive benefits that Lean could potentially have for Lycoming Engines."

RESULTS

- Realized $50M in cost savings
- Improved safety by 30%
- Improved on-time delivery from 40% to 98%
- Awarded Shingo Silver Medallion in Shingo Prize program