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

written by Lauri Moon | October 31, 2022

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.

PA MEP
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EXTENSION PARTNERSHIP

Picking Area Error Reduction Efforts Successful at Diamondback Automotive Accessories

written by Lauri Moon | October 31, 2022

DIAMONDBACK

Diamondback Automotive Accessories, located in Philipsburg, PA with 117

employees, manufactures load-bearing pick-up truck covers and accessories used primarily by outdoor enthusiasts.

Diamondback continues at a rapid growth rate at their Phillipsburg facility, experiencing 25% growth in 2020, followed by 45% growth in 2021. As the company enjoys rapid growth, it also experienced an increase in customer complaints. The main reason for the customer dissatisfaction was errors in picking the right parts to be shipped along with the truck cover. As a percentage of orders, greater than 2% contained picking errors.

IMC's Continuous Improvement Expert, Jeff Kopenitz, facilitated a dedicated team of Diamondback employees to focus on the errors in the picking areas. Over the course of eight days of on-site facilitation plus off-site coaching, Jeff guided the team through various Lean tools such as A3 thinking, PDCA cycles, DMAIC projects, FEMAs and Coaching Katas.

As a result of these efforts, manufacturing communications were improved, key parts visualization was enhanced using shadow boards, labelling was enhanced, equipment such as scales were deployed, and processes were changed and improved. In one year, the picking errors percentage has dropped from 2.29% to 1.29%. Diamondback is well on their way to achieving their next target goal of less than 1% picking errors.

"The results of this project far exceeded my expectations. Every minute and every dollar spent with IMC has resulted in tremendous returns. With IMC's help, we are achieving our mission of being a company that people love to buy from." Gerald Gardner, Quality Manager

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Success Story: Custom Container

Solutions, LLC Surpasses Production Objectives with IMC Support

written by Lauri Moon | October 31, 2022

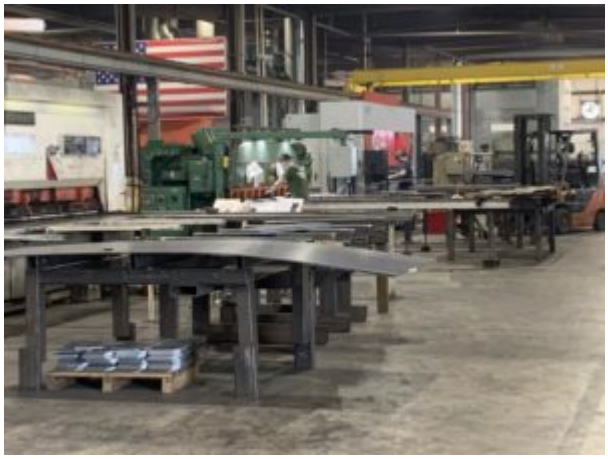
IMC has been working with Custom Container Solutions (CCS), an area manufacturer of industrial roll-offs, for several years. Past projects have included operational improvements, ERP selection, HR policies, hiring and selection practices and improved job training.



As CCS has grown, they transitioned to a larger facility and now have three production lines instead of one. Each line makes a certain type of unit.

One of the lines makes smaller roll-offs and has proved to be most challenging in terms of reaching desired throughput quotas. The company contacted IMC to provide support for their efforts to improve production results on the small roll-off production line.

IMC proposed a 3-day value stream mapping (VSM) initiative that also included the supporting fabrication area. The VSM involved workers and supervisors from both production and fabrication along with CCS management and IMC facilitators. The VSM effort started with a map of the current state of both the fabrication support and production operations including critical facts and data on task times, wait times, throughput history and layout, sequence and flow.



A direction and quantitative goals were established, and a future state map developed. Within the initiative, numerous opportunities for improvement were identified, prioritized and structured to ensure successful implementation. Included were multiple visits to the factory floor and many coaching opportunities by IMC's VSM facilitator.

The result to date (2 months following the end of the initiative) is that the line has surpassed the production objectives and is now operating at a consistent level of 25-30% above pre-initiative throughputs. The improvements made in fabrication have also led to improved operations for the other production lines.

"IMC has played a crucial part in the success of CCS – it's like the gift that keeps on giving. IMC has helped us recognize system failures and ask the right questions of our team members without fear. Jeff, Russ and Jen spent multiple days working with our team digging deeper then we could ever dig because we needed outside eyes to see the problems. By implementing workflow processes that are cyclical, we are able to pull the work down the line versus pushing it down the line, which creates a more efficient and happier workforce which, in turn, increases productivity and reduces absenteeism significantly. As we identify areas of improvement, we utilize IMC and its expertise to improve. We are grateful for the help and we look forward to working with IMC again in the future." Chuck Williams, General Manager, Custom Container Solutions

This project was funded, in part, by a grant made available by PennTAP.

Success Story: IMC Client Achieves Highest Safe Quality Food 9.0 Certification Rating of “Excellent”

written by Lauri Moon | October 31, 2022

Founded in 2006, Lang’s Chocolates LLC is a family owned and operated manufacturer of handcrafted fine chocolate confections sold at their retail location in downtown Williamsport, PA, as well as, sold and shipped to a worldwide customer base via their online storefront. Father and son, Robert and William Lang (Master Chocolatier) create and oversee the gourmet products, ensuring the highest quality ingredients are used in production.

Over the past two years, the company has been expanding into providing their own products, such as chocolate chips, as ingredients to other manufacturers of food products. This led to a substantial opportunity to increase company revenues by opening new markets in the US and worldwide as an ingredient manufacturer/supplier.

Due to regulations and standards that are required and requested as conditions of doing business with this market and to fully develop and execute on this substantial new market opportunity, Lang’s Chocolates was required to develop a Hazard Analysis and Critical Control Point Plan (HACCP) and become SQF (Safe Quality Food) trained and certified, as recognized by the Global Food Safety Initiative (GFSI), and ultimately required by the Food & Drug Administration’s (FDA) Food Safety Modernization Act (FSMA) by 2021.

The company reached out to IMC, who was able to partner with Lang’s and an exceptional third-party consultant to successfully prepare them for the audit, ultimately resulting in the highest SQF 9.0 certification rating of “Excellent”. The

company is currently 1 of only 37 confectionary companies to achieve this level of certification in Pennsylvania. This also allowed the company to execute a planned 6300 square foot expansion into a new manufacturing facility and resulted in more than $500,000 in new ingredient market sales (and growing), as well as the creation of several new jobs.

Robert Lang enthusiastically credits the skill and experience of the SQF consultant, Martin Ziegler, with their successful certification efforts. “His background and knowledge were so relevant, and his delivery set a solid foundation upon which we could build for our re-certification as well.”

Kwik-Care, LLC Readies for Launch

written by Lauri Moon | October 31, 2022

An Unconventional Approach to Lean Manufacturing



Laurie Fontaine Jenkins, Owner with husband Bingo Jenkins

Located in Muncy, PA, Kwik-Care LLC was founded in 2019 as a start-up manufacturer of a patent pending line of “feel better convenience kits”, which are designed to provide consumers with a cost-effective, comprehensive approach to the treatment of minor illnesses.

The owner has been working with IMC on several initiatives since starting the business, including business planning, financial forecasting, product development, supply chain sourcing, and market and sales development planning. As the official product test launch was unfolding in spring of 2021, the company was beginning to secure initial orders across the country; however, the Kwik-Care team was struggling to efficiently set up an assembly process, as the kits contain over a dozen components that must be placed in a specific way to properly fit within the packaging.

With the goal to maximize assembly time and layout to determine labor needs and scalability of production while meeting the specific assembly placement of products within the retail package for visual and space needs, the IMC team incorporated a creative in-field approach to tackling the client’s challenges. An onsite, class field project was arranged with IMC’s in-progress Lean Manufacturing Level One Certification class. The class spent an afternoon at the Kwik-Care production facility and tackled different challenges for each workflow and job breakdown.

The real-time results produced by the class efforts were outstanding, which included: decreasing assembly time by 45% resulting in significant labor cost savings and the proven scalability of production to the target goal and beyond; addition of a simple label machine and digital scale to allow for package design simplification and greater quality control, resulting in additional cost and time savings.

It was an extremely successful experience for Kwik-Care, the Lean Manufacturing Certification class and the IMC team and will be used as a model for future projects.

Laurie Fontaine Jenkins, Owner of Kwik-Care LLC says, “Working with IMC has afforded us great insight into areas that we were lacking knowledge for our business to move forward and do it with efficiency. The value and resources that IMC has brought to our new company has played an integral part in our business launch and

getting to market this past spring. We are now in retail locations, vacation/campground stores and university bookstores across the country and we would not be here without IMC."

IMC Assists Hermance Machine Secure GAT Funds to Plan and Grow Two New Product Lines

written by Lauri Moon | October 31, 2022

Located in Williamsport, PA, Hermance Machine Company is a 100+ year old, family owned and operated industrial machine company specializing in the sale, distribution and manufacture of equipment used primarily in the woodworking and wood products manufacturing industries, with the majority of sales in the mid-Atlantic and northeastern US. The business currently employs approximately 40 full-time skilled employees, many of whom have been with the company for 10 or more years.

The Hermance management team had begun the implementation of a project plan to launch and grow two new product lines through acquisition and product development to complement, deepen and further develop the broad product and customer base in the core industrial equipment business, which had realized consistent year-over-year (YOY) growth. Because of the success of these initiatives to date, as well as, increased revenues and geographic market expansion of the core business, Hermance Machine Company was outgrowing its current facility and was also preparing to purchase additional capital equipment to move forward. With many initiatives in partial progress, coupled with an internal transition in management of the company from parents to sons, the executive management team was seeking assistance and options for planning and implementation.

Through an on-going client relationship with Hermance Machine Company, IMC recognized an opportunity to present the company for consideration to the Pennsylvania Governor's Action Team, which provides assistance packages to select companies looking to locate, grow or expand in Pennsylvania with an emphasis on quality job creation. To implement the initiative, IMC conducted a series of strategic planning sessions with the Hermance Executive Team to develop a detailed Strategic Project & Business Plan that would result in the creation and retention of nearly 60 full-time jobs, an estimated revenue increase of 20% YOY with a total project investment of $3.2 million. The strategic plan and proposal were successfully submitted and approved by the PA Governor's Action Team. In addition to providing direction and clarity for the Hermance leadership team, this process also resulted in an assistance package offering from GAT that included a robust combination of grants, low interest financing, tax credits and employee training reimbursements totaling more than $2.1 million. Hermance Machine company continues to implement these plans.

In local media articles and published press releases from PA GAT, owners Joe and Claire Strouse expressed their appreciation for IMC's assistance by saying, "Our local Innovative Manufacturers' Center personnel were instrumental in assisting us to prepare and qualify for this opportunity." (https://imcpa.com/imc-helps-hermance-machine-secure-state-funding-expandsupporting-nearly-60-jobs/) They also stated, "We would have been hard pressed to complete our appeal to the Governor's Action Team without IMC doing the heavy lifting and having their backing and support." (https://www.sungazette.com/news/topnews/2019/10/local-company-to-expand-with-state-grants/)

IMC Hosts Quick Response

Manufacturing Event with QRM Founder Dr. Rajan Suri

written by Lauri Moon | October 31, 2022



Rob Bargo and members of the Videon team with Dr. Rajan Suri, Founder of Quick Response Manufacturing.

IMC hosted its first Quick Response Manufacturing (QRM) and POLCA training events with QRM Founder, author and *IndustryWeek* Manufacturing Hall of Fame Member, Dr. Rajan Suri.

During this day and a half of training, Dr. Suri and guest presenter, Rob Bargo, VP of Manufacturing Operations at Videon Central, shared:

- An Overview of QRM Principles & Strategy
- Practical Hands-on Manufacturing Critical-path Time (MCT) Mapping Exercises
- An Overview of POLCA along with Computer Simulation Demonstrations

30 individuals were on hand for both QRM and POLCA from half a dozen unique manufacturers from Central PA.

Curry Rail Services Completes IMC's ISO 9001:2015 Internal Auditor Training

written by Lauri Moon | October 31, 2022

Curry Rail Services has been in operation for eight decades with three generations of owners, with the company evolving into a multi-company operation. Their state-of-the-art coating and paint facility opened in September 2015. Located in the heart of Central PA in a community with roots dug deep into the railroad industry, CRS and their 75 employees respect and take pride in supplying products and services to the railroad industry every day.

With a multi-company operation, CRS identified the need to have employees trained to the ISO 9001:2015 Standard, which requires companies to conduct internal audits of their management system. IMC contracted The Bonney Ziegler Group to provide Internal Auditor Training, which is designed to train personnel to become qualified and confident to conduct internal audits in a positive, constructive approach consistent with the objectives of a companies' management system. The company received two days of teaching in the fundamentals of the audit process, which included a number of case studies to facilitate the learning process.

At the conclusion of the training, the company participants received a certification of ISO 9001:2015 Internal Auditor Training completion. This is a requirement for a

success external audit. The client also received follow-up services to create a plan of action for certification.

Testimonial:

“As we continue to grow our businesses we battle how to properly train our managers for the challenges ahead. As with allot of companies, we struggle to get our managers to see the forest and not just the trees. IMC was willing to listen to our needs and then tailor the training to what was really needed. Everyone expressed their gratitude towards IMC and walked away with an understanding of what it takes to be a a better manager. We look forward to working with IMC in the future on other areas of training necessary to continue our path of success.”

Mark Ritchey, President, Curry Rail Services

Overhead Door Completes IMC Lean Manufacturing Certification

written by Lauri Moon | October 31, 2022

Overhead Door Corporation in Williamsport, PA is a manufacturer of metal garage doors employing approximately 150 individuals.

Overhead Door wanted to have an employee trained on Lean Level One and Continuous Improvement concepts. This individual participated in a 64 hours of Lean Manufacturing training where he learned Lean tools and concepts as follows:

A3 Thinking and Value Stream Mapping – Learned and applied A3 Tools and Thinking

along with the Edwards Deming Plan-Do-Check-Act (PDCA) approach using a problem identified at Overhead Door. Learned the fundamental tool of Value Steam Mapping and built a VSM from customer order to shipping.

Effective Communication – Learned about social styles within the framework of working Lean/CI with teams of people from different functions and levels of the organization.

Root Cause Analysis & Standard Work – Learned problem solving tools, methods and Standard Work including tools for identifying root causes (SIPOC, 5 Why, Fishbone) and for taking corrective and preventative actions (Benefit-Effort Matrix, Design of Experiment, Poka-Yoke,). Standard Work was presented as the foundation of CI and key to all other improvement activities.

Change Management & Visual Workplace – This section of the training provided an understanding of change, how people view and respond to change and how to better facilitate change in an organization. It also introduced the visual plant. Ideas and examples included a detailed review of the 5S Workplace Organization System (Sort, Set in Order, Shine, Standardize, Sustain).

Total Predictive Maintenance (TPM) – TPM methods and examples for reducing downtime were presented and discussed.

Teams & Single Minute Exchange of Dies (SMED) – This session was an exercise on Team Building that provided answers to the challenges of developing teams for successful problem solving and continuous improvement activities. It utilized a NASCAR changeover simulation and teaching of SMED principles for achieving significant reductions in changeover times.

Principles of Kata – This session focused on applying what the participant learned from the previous sessions to reinforce learning. Included a team-based production simulation reinforcing a number of key ways reduction and productivity increasing tools and methods, such as inventory reduction, error-proofing, continuous flow, Kanban, etc.

At the end of the training, the participant showed that they did a “waste” walk within

Overhead Door and exhibited their learning by presenting a Process Map and improvements that have been made within their organization using the problem identified at the beginning of the training.

As a result of this training, the participant is equipped with the tools to continuously improve their organization such as being able to:

- Reduce waste (excess inventories, errors and rework, inefficient processes)
- Maximize productivity (quick changeovers, single piece flow, reduced variation)
- Increase responsiveness to ever-increasing marketplace changes
- Engage your employees in Continuous Improvement of your business

Then EQUIP YOUR PEOPLE WITH THE TOOLS TO CONTINUOUSLY IMPROVE with the Lean Manufacturing Level One Certification Program.

Impact Reported by Company:

- Retained Sales – $1,00,000
- Employee Creation/Retained – 20
- Cost Savings – $100,000
- Company Investments – $2,500,000

Testimonial:

“IMC Lean Certification has been an excellent development tool for our up and coming Leaders. It gives them the knowledge and practical experience to improve our process.”

Eric Vitunac, Plant Manager, Overhead Door Corporation

“Employees with specific and limited job scopes can easily come to see that they are just a cog in the wheel whose work may not be that important. The Lean Training Certification program at IMC allows both the organization and individual employee to

develop and accelerate their net worth to an organization."

Stephen Smink, Materials Manager, Overhead Door Corporation.

Success Story: Data Papers Expands Product Offerings with IMC's Innovation Engineering Services

written by Lauri Moon | October 31, 2022

Data Papers, Inc. began in 1969 and can provide virtually any product or service imaginable to communicate with your clients, employees, stockholders, or vendors. They are a manufacturer of various print materials such as business forms, catalogues, manuals, digital plotting files, etc. with headquarters in Muncy, PA.

SITUATION

Data Papers (DPI) realized many of their traditional products and services had become commoditized and as a result DPI had lost pricing leverage and profitability was suffering. Consistent with those realities, the industry was going through cost-cutting and consolidations. The highly experienced DPI Leadership Team recognized that if DPI was going to rise above these industry trends, they needed to develop new products and services that are both meaningful enough to customers to generate interest and unique enough to demand a healthy profit. As a result, they began working with IMC on a systematic "innovation how-to" from strategy to idea generation, to idea development and delivery that would leverage DPI's strengths by focusing a portion of the organization's time and energy specifically on innovation.

SOLUTION

IMC utilized Innovation Engineering (IE) tools and techniques that guided DPI through a series of steps with the aim of identifying strategic directions for innovation focus; generating ideas that support these strategic directions, educating and training a core group of DPI employees on IE tools, concepts, roles, responsibilities and how-to's; and assisting DPI on initial creation of their own "DPI Innovation System". Under IMC coaching, the team identified two projects to move through a development phase.

As projects moved through the Development Stage, all facets of the business opportunity, including Customer, Problem, Promise, Proof and related Financials, Markets, Technologies, Skills and Knowledge risks and rewards were worked on and evaluated.

One of the projects was a new business that leveraged DPI's considerable data management capabilities to be able to offer non-profits a suite of data management services that many non-profits currently do in-house. The realization was that DPI could perform these services much more efficiently and effectively and that in turn would allow DPI to provide improved print materials for the non-profit that could provide donors with more specific and more timely information about how their donations are being applied. That information is quite meaningful to donors and supports donor retention and additional donations. All of that made possible by more effective data management that is beyond the data management capabilities of the non-profit.

During the Innovation Engineering project DPI added a second customer for this service and using the IE tools and methods, DPI has turned this into a formal business offering. Per DPI's objective, this business service offers higher value to customers (meaningful) and fewer companies can provide this service (unique). That higher value has provided significantly better pricing leverage and this service is providing margins well-above DPI's traditional products and services.

RESULTS

The company is now applying IE practices to more purposefully take this service to

the marketplace and add more customers. Reported specific impact results:

- Increased Sales – $150,000
- Employee Creation/Retained – 53
- Cost Savings – $100,000
- Company Investments – $200,000

TESTIMONIAL

Jerry Wertz – President & CEO, Data Papers, Inc.

“IMC took our innovation team to places we never imagined we could go. Their deep knowledge of manufacturing and process development helped them to speak our language and guide us to simplify and improve.”