

AME Mid Atlantic Announces AERCO Best Practices Event

written by Lauri Moon | April 11, 2017

This AME best practice workshop consists of presentations by AERCO associates, a facilitated tour of AERCO's operations and breakout sessions offering a deeper dive into specific areas of interest. Workshop highlights include kanban replenishment, daily management focus on "making processes visible," product/process rationalization to focus on core competencies and leverage supply chain capabilities and more. The program concludes with a facilitated continuous improvement session to offer feedback to our hosts. Don't miss this opportunity to visit a mature system based on enterprise excellence concepts with application throughout operations and design.

[Click here for additional information on this event.](#)

IMC Needs Your Support

written by Lauri Moon | April 11, 2017

For over 25 years, IMC has been helping Central Pennsylvania manufacturers become more innovative, productive and profitable. We have been able to provide this support, in part, due to our affiliation with the U.S. Department of Commerce, NIST Manufacturing Extension Partnership.

We are asking for your support via an email campaign to Congress requesting continued support for the Manufacturing Extension Partnership (MEP) program, which has been zeroed out in the President's proposed budget.

To participate, [click here](#) to be directed to the email tool and follow these simple instructions:

1. Enter all required contact information and click Submit.
 2. Customize paragraphs 1 and 4, where indicated by the brackets, with your company specific information.
 3. Once complete, click Submit.
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Advanced Manufacturing Leadership Awards Nominations

written by Lauri Moon | April 11, 2017

“Manufacturing Trends” announced invitation to submit nominations for NACFAM’s Advanced Manufacturing Leadership Awards that will be presented at their annual conference luncheon on September 7, 2017. The awards are “the *big company* chair/CEO/president award and the *small company* chair/CEO/president award.”

If interested in nominating a candidate (chair/CEO/president) for one of these awards, please send the completed nomination to Fred Wentzel at wentzef@nacfam.org or mail to NACFAM, Suite 800, 2025 M Street, NW, Washington, DC 20036. Nominations must be received by May 15, 2017. Questions can made to Fred Wentzel at 703-455-3461.

Nomination Form

Success Story: IMC Transforms

Ralph S. Alberts Co.'s Business Processes

written by Lauri Moon | April 11, 2017

For over half a century, the Ralph S. Alberts Company has been one of America's most resourceful, full-service, multifaceted custom molders. Their departments and capabilities include CNC Machining, Custom Molding, Foam Molding, FRP Molding, Hand Casting, Injection Molding and Roto-Casting. Over 50% of their gross business involves manufacturing seating and padding devices for the amusement industry.

IMC has been working with Ralph S. Alberts Company for several years, but more frequently in the past two years in order to transform their business processes through lean and continuous improvement.

Situation

Due to the variation and large volume of amusement parks, rides and themes, Ralph S. Alberts has manufactured over 3,000+ tools to satisfy the needs of that industry over time. It is much more cost-effective to keep and store the tools for future reuse than it is to create a new one. Hence the significant number of tools.

These tools were stored randomly on solid wooden racks and on the floor in a low overhead mezzanine area, adjacent to the primary production area with limited space. There was no standard method for storing or finding a tool, rather each tool was stored where they could find space on the self-constructed wooden shelves.

In addition to being randomly stored, there was no comprehensive list of inventory. Specifications for all of the tools were not recorded in one central location, nor did the individual tools have any unique identifiers. There was a complete lack of organization, and the process for finding any given tool was completely manual.

Since the quantity of tools is significant, and there was no organization system in place, it took multiple employees, together, up to an hour to find the tool they needed. Sometimes, when they finally found the tool they needed, it was damaged, as a result of the ad hoc storage.

In addition to the primary concern of tool storage and organization, the mezzanine area in which the tools were located was poorly lighted, mostly as a result of the wooden shelves blocking the light.

Seth Alberts, the third generation owner, recognized the company could be more efficient in their tool storage and organization. Each summer, the company set a goal to reorganize and inventory the tooling mezzanine, but due to the demands of everyday business, they never made much progress. An overhaul was needed. Seth did not want to expand their facility, but rather explore options for maximizing their current storage space. In addition to maximizing their current storage space, they wanted to evaluate their current ERP system for possible scanning and location technologies that could help centralize the specifications and location of each tool.

Solution

IMC served as the systems integrator for this project. Since IMC and Ralph S. Alberts Company have been working together for several years, IMC understands the bigger picture of the company - where they've been, where they're going, trends, what works and what doesn't.

The first step was to complete a comprehensive inventory of all existing tools. This inventory resulted in a complex spreadsheet that included the weight, dimensions and information pertaining to the OEM, park customer, ride name and any other relevant information. Each tool was also assigned a unique identifier. While it is cost-effective to keep the tools that haven't been used in several years, they could be separated and stored in sea crates, the first step toward maximizing their current space.

The second step was to address the logistics, with the help of their current ERP system, EstiTrack. IMC contracted Gil Vierra of Business Imperatives Consulting Group, LLC, (BICG) to lead cataloging, defining the best system and evaluating EstiTrack's capabilities as it relates to a more efficient tool storage and organization.

Once Gil had narrowed down the information and categorized what was needed for the shelves, he worked with Seth and Bill DeHaan of APEX Storage, Inc. to research and design the physical shelving. Once the ideal shelving was determined and built,

Gil managed the installation process with the help of Melissa Timco, director of operations and sales, and Jason Francis, production coordinator, from Ralph S. Albert Company to ensure tool availability. The company shut down for one week, as employees removed old shelving, installed new lights and the new shelving. Once the shelving was installed, identifiers were added to each of the shelves, and tools were sorted and organized into their new location.

The project was completed in eight months, with a total expense of just under \$50,000.

Results

An investment of just under \$50,000 likely saved the company upwards of \$500,000.

The process of identifying and locating tools, which had previously taken multiple individuals up to an hour, was reduced to taking one person a matter of minutes. As a result, they have been able to schedule work more efficiently, which has enabled them to reduce lead times, in some cases by two weeks. The reduction in time and labor connected to the increased efficiency will also allow them to increase their overall net profit margins.

Furthermore, by maximizing their current space, they eliminated the need for a building expansion to accommodate their growing number of tools.

In summary, their notable results to date include:

- Increase storage capacity by 125%
- Eliminated the need for building expansion
- Reduced tool find and retrieve process from one hour to minutes
- Reduced time and labor costs
- Created two new Tooling Librarian positions
- Reduced lead time (by up to two weeks)

In addition to the dramatic improvement to their tooling inventory and organization, many employees were inspired and empowered as a result of helping with this project. Through the process, employees learned ways to improve their own workspaces, and are more conscious of the difference maximizing space and

organization can make. With the help of IMC, the culture at Ralph S. Alberts was improved.

“We believe this will be a step towards decreasing our COGS, increasing our sales and ultimately maximizing our margins,” said Seth. “These larger margins will allow us to invest in similar projects in the future, so we can carry on in our journey of continuous improvement. We want to thank IMC for all of their efforts in helping us accomplish our goals.”

PA Business Central Announces Top 100 Organizations

written by Lauri Moon | April 11, 2017

Congratulations to the following IMC manufacturers, clients and partners for being named a Top 100 Organization by PA Business Central.

- American Eagle Paper Mills
- Architectural Precast Innovations
- Avail Technologies
- Curry Rail Services
- Discovery Machine
- Electri-Cord Manufacturing Company
- Empire Kosher Poultry
- Homeland Manufacturing
- Lycoming Engines
- Nittany Paper Mills
- North Central Sight Services
- Philips Ultrasound
- Ram-Wood Custom Cabinetry
- Reclamere

- Restek
- Timberhaven Log and Timber Homes
- Williamsport Wirerope Works

Partners:

- Blair County Chamber of Commerce
- CBICC
- Concurrent Technologies Corporation
- Keystone Payroll
- McNees Wallace & Nurick
- Pennsylvania College of Technology
- Southern Alleghenies Planning and Development Commission
- Williamsport/Lycoming Chamber of Commerce

For a complete list, visit <http://www.pabusinesscentral.com/>.

Could your Company Benefit from an Apprenticeship Program?

written by Lauri Moon | April 11, 2017

The Central PA Advanced Manufacturing Industry Partnership has funding and resources available to support the development and expansion of apprenticeship programs in your company.

To learn more, consider joining us on Thursday, February 9th from 1-3pm in Lewisburg. Click on the flyer for additional information.

CPWDC Industry Partnership Apprenticeship Flyer

Williamsport/Lycoming KIZ Companies Receive Over \$126,000 in Tax Credits

written by Lauri Moon | April 11, 2017

Williamsport, PA - Innovative Manufacturers Center (IMC), Inc. is pleased to announce that two current and one former Williamsport/Lycoming Keystone Innovation Zone (KIZ) company were awarded \$138,948 in KIZ Tax Credits. This round of tax credit awards takes the total of local companies receiving KIZ Tax Credits since 2007 to over \$2.38 million dollars.

On January 6th, PA Department of Community and Economic Development Secretary Dennis Davin announced the approval of \$15 million in KIZ Tax Credits statewide to support 263 early-stage companies through the KIZ program. The Program is designed to support and encourage entrepreneurship in and around Pennsylvania's colleges and universities by providing young Pennsylvania companies with vital working capital to meet critical needs, including covering capital expenditures, workforce expansion, operational expenses and making companies more attractive to venture investment.

The program provides tax credits for companies within the Williamsport/Lycoming Keystone Innovation Zone that have been in operation for less than eight years, whose gross revenues have increased over the previous year and are operating within a targeted industry sector such as advanced manufacturing, plastics, wood and information technology.

"The KIZ Tax Credit program has continued to provide valuable access to credits for qualified local companies since 2007. Because these unique credits can be applied to business liability or sold for cash, they offer financial support during the critical first years of business and stages of growth," stated Lauri Moon, Coordinator of the

Williamsport/Lycoming KIZ. “KIZ companies have utilized these credits to fund new product development, staffing, marketing and other business needs,” Moon said.

For individuals and businesses interested in learning more about the benefits and services of the KIZ Program, [click here](#) or contact Lauri Moon at 570-329-3200x8085.

Why Offshoring May Not be as Cost-effective as it Used to be

written by Lauri Moon | April 11, 2017

It is no secret that large swaths of the Midwest have seen manufacturing plants shuttered or downsized, but there may still be some light at the end of the tunnel.

(Supply Chain Dive - Rich Weissman: 11-15-16) Homeshoring, it appears, is becoming more popular as hidden costs outweigh the benefits of sending production out of the country.

But is this trend driven by patriotism or economics?

A recent report from the U.S Bureau of Labor Statistics reveals there are currently about 12.2 million active manufacturing jobs in the United States, with a slight downtick in recent months.

Yet in the past several years, there has been a groundswell of efforts to increase manufacturing in the U.S. by repatriating operations and incentivizing companies to keep production within the country. Count General Electric, Ford, General Motors, Caterpillar and Boeing among the high-profile companies that have returned a portion of their offshore production to the country.

So what drives companies' decision-making process in this regard?

The hidden costs of offshoring. Offshoring may help lower the costs of consumer goods, but for the industrial buyer it often represents phantom cost savings. The costs saved can be easily be offset by the amount of time required to chase overseas suppliers, or other logistical challenges.

Supply chain risk is amplified with offshore suppliers; the greater the distance the higher the risk. The recent issues with Hanjin, and continued consolidation in the shipping industry, are just one such example.

In addition, extended supply chains around offshore providers are often opaque, clouding critical communication links. Meanwhile, a globally rising middle class will drive labor rates higher as they demand higher wages and reduce the primary cost advantage critical in the offshoring equation.

Meager economic growth and shifting economic alliances add to the uncertainty. Once companies begin to hedge domestic inventories to mitigate this risk the economics of offshoring worsen.

Harry Moser, founder and president of the Kildeer, Illinois based Reshoring Initiative, a cost of ownership financial model shows many offshoring decisions are not as effective as they first appear. For the most part, economics rule the day.

“Offshoring has been building for 50 years and companies have built their strategies around offshoring, believing that offshore is cheaper,” said Moser.

But looking at the manufacturing pain points of delivery, quality, intellectual property, and inventory position shows a different story, he says. “Companies need to look at the total cost of ownership when making sourcing decisions.”

Moser, a member of a long-time manufacturing family, claims to have seen dozens of U.S. companies that had been world leaders in machine tools, foundry, equipment, shoe and textile machinery, all idled due to global economics

“Many were not able to compete with offshore competitors due to foreign exchange issues, a poorly skilled workforce, gaps in training, and high corporate tax rates,”

said Moser.

A vote for homeshoring. “Increasing U.S. manufacturing is the key to reducing budget deficits, improving employment, reducing income inequality, and maintaining a strong defense,” said Moser. “By far the easiest, most sustainable way to increase manufacturing is to reshore, to substitute domestic production for imports.”

If a company must remain abroad, though, ‘nearshoring’ - where companies bring production back to North America from Asia - is still better than the alternative.

“It is better for the U.S. economy if production is brought back to Canada or Mexico,” he said, noting the impact of trade agreements like NAFTA. “Getting it closer to the United States is more advantageous than keeping it in Asia.”

The future of U.S. manufacturing may be brighter considering the trends towards advanced manufacturing and its higher value processes, products and wages. But a lack of highly skilled manufacturing professionals is impacting the potential growth in this sector.

According to recent research from Deloitte and The Manufacturing Institute, the U.S. manufacturing sector has a need for 3.5 million manufacturing jobs in the next ten years. Yet, it is forecasted that 2 million will go unfilled due to the skills gap.

A current movement revitalizing vocational training and a recognition that jobs in the manufacturing sector are indeed good ones may help to close this gap in the coming years. This may be the very boost that the homeshoring movement needs.

(Rich Weissman has more than 25 years of experience in all facets of supply chain management. He is past president of the Institute for Supply Management - Greater Boston, and the recipient of the Harry J. Graham Memorial Award, the highest honor bestowed by the Association.)

These Industries are the Future of Additive Manufacturing

written by Lauri Moon | April 11, 2017

Aerospace and medical industries lead additive manufacturing adoption. Here's why-along with how other industries can catch up.

(IW - Patrick Boyd: 11-17-16) Often considered a “futuristic” technology, industrial 3-D printing (also known as additive manufacturing) is already being implemented in a wide variety of industries, and companies are reaping the benefits.

The process of additive manufacturing involves growing objects layer by layer from a variety of materials, such as plastics or metals. The benefits are widespread, allotting for more design freedom, improving costs when manufacturing small batch sizes and allowing for increased product customization, among others.

Although companies in a wide range of industries, including automotive, tooling, dental, etc., find value in the additive manufacturing process, there are two industries that are positioned particularly well to see growth and success from additive manufacturing: aerospace and medical.

Aerospace Industry. The aerospace industry, one where safety and consistency is not only a priority but a necessity, was quick to adopt additive manufacturing. An industry dependent on advanced research and development, additive manufacturing presented aerospace with a means to easily prototype new products.

However, it doesn't end there. A study from SmarTech Markets forecasts that the “aerospace industry's adoption of 3D printing solutions is projected to increase from \$723 million in 2015 to \$3.45 billion in 2023, attaining a 18.97% compound annual growth rate.”

The projected accelerated growth stems from the countless benefits additive manufacturing provides the aerospace industry-including but not limited to cost reduction, lightweight design,

and tool-less production.

Leading helicopter manufacturer, Bell Helicopter, used additive manufacturing to prototype a range of different components for their aircraft, but wanted to begin to use the technology for functional parts. With the help of additive manufacturing company, EOS, Bell Helicopter designed and produced flight-certified components for its commercial aircraft.

Bell Helicopter discovered one of the biggest benefits to using this technology: the increased ability to quickly and easily reiterate their new designs. No company gets everything right on the first try, but usually changing the design of a manufactured product involves new molds, new tool paths and a lot of money.

However, changing the design of an additively manufactured component simply requires revising a CAD file, resulting in very little wasted time and money. This, along with the elimination of assembly costs, means that not only can companies manufacture superior products, but they can do so at a lower cost.

Medical Industry. While additive manufacturing can save the aerospace industry time and money, it can also save lives in the medical field. With an expected growth of \$2.88 billion from 2015 to 2023 according to SmarTech Markets, the medical industry can expect a future of nano-scale medicine and even complex printed organs. Currently, 3-D printing technology allows for quick and cost-effective production of specialized surgical instruments, medical devices and implants.

Every person is unique and has individualized needs. So when a person was missing a significant portion of cranial bone, Oxford Performance Materials (OPM) turned to additive manufacturing to develop the cranial implant. Using EOS' machines, OPM created a customized, patient-specific cranial implant-the exact right fit. This meant a shorter surgery, shorter recovery time and lowered risk of infection for the patient. Additionally, this saves the patient money as hospital and operating room rates run upwards of \$60 per minute.

And this is just the beginning for additive manufacturing in the medical field. OPM President and CEO, Scott DeFelice, notes "there is no region of the human skeletal anatomy that won't be touched by this technology."

Rapid prototyping, hyper-customization and ability to manufacture small batches of product all

contribute to the aerospace and medical industries' quick and accelerating adoption of additive manufacturing. However, the technology provides solutions to companies in industries ranging from consumer and lifestyle to tooling to automotive. The industrial world is only beginning to understand the value of additive manufacturing, and there is no doubt that new applications will continue to be discovered as the technology advances.

One of additive manufacturing's greatest challenges rests in the mindset of engineers and manufacturers. Before the world sees mass-adoption of the technology, there must be a shift in how we approach design. In the past, production capabilities determined the design of products. Now it is critical to re-train engineers and designers think in terms of design-driven manufacturing — providing high degrees of design freedom. Only once the thought process behind manufacturing changes will additive manufacturing fully reach its potential.

(Patrick Boyd is Director of Marketing for EOS.)

Closing Tech Gaps Can Fortify Advanced Manufacturing and Save \$100 Billion Annually

written by Lauri Moon | April 11, 2017

(Georgia Tech Manufacturing Institute - Laura Reilly: 11-18-16) To spur significant innovation and growth in advanced manufacturing, as well as save over \$100 billion annually, U.S. industry must rectify currently unmet needs for measurement science and “proof-of-concept” demonstrations of emerging technologies. This is the overall conclusion reached by economic studies funded by the National Institute of Standards and Technology (NIST) of four advanced manufacturing areas used to create everything from automobile composites to zero-noise headsets.

“Gaps in the technology infrastructure—including the lack of reliable measurement

and test methods, scientifically based standards, and other formal knowledge and tools—limit advanced manufacturing’s further development and adoption,” said NIST economist Gary Anderson, coordinator of the economic studies prepared by RTI International (link is external), an independent nonprofit research institute.

Using data collected through extensive interviews and surveys with researchers, developers, manufacturers and other stakeholders, each of the four studies identifies 5 to 10 critical technical barriers to the adoption of its specific manufacturing technology. The studies also estimate the impacts of eliminating those obstacles and define which needs should be met first to do so.

For example, establishing industry-wide standards and measurements for the inks and substrates used in roll-to-roll (R2R) manufacturing—the fabrication of electronic devices on a roll of flexible plastic or metal—is projected to reduce production costs by 15 percent. Likewise, the development and adoption of verified reference data, robust measurement technologies and testing protocols, and standardized modeling and finishing methods could yield some \$4 billion in annual benefits and savings for additive manufacturing, a process also known as 3D printing.

The two largest predicted cost savings were the \$57.4 billion and \$40.1 billion for the smart manufacturing (where all manufacturing data from design to finished product is electronically exchanged and processed) and advanced robotics and automation sectors, respectively. Among the needs that must be met to realize both of these benefits, the researchers said, is increasing access by small- and medium-sized manufacturers to the same state-of-the-art methods, tools and knowledge as their larger counterparts.

For each of the four advanced manufacturing technologies studied, the estimated annual cost savings and percentage reduction in production costs are:

- **Additive manufacturing: \$4.1 billion, 18.3 percent**
- **Advanced robotics and automation: \$40.1 billion, 5.3 percent**
- **Roll-to-roll manufacturing: \$400 million, 14.7 percent**
- **Smart manufacturing: \$57.4 billion, 3.2 percent**

The researchers stated that their studies only looked at benefits directly attributable to closing the identified technical gaps in each sector; therefore, the impact estimates are conservative. “If we consider the larger-scale outcomes brought about by meeting these needs—such as new and improved products, increased production quality, long-term industry growth and job creation—the impacts would be significantly higher,” Anderson said.

The studies also support a number of key strategies for overcoming technical barriers and fortifying advanced manufacturing, including:

- keeping standards and performance measures nonproprietary,
- using public research institutions to develop those tools, and
- working through manufacturing research consortia and technology extension services to ensure that all manufacturers—especially small- and medium-sized enterprises—can access them.

“Our studies emphasize that full economic impact will only be realized if all technical needs are met, and all stakeholders regardless of size, not just large manufacturers, can share in the rewards,” Anderson said.

A summary of the overall findings from the four economic studies is available. The individual reports and the overview brief for each also may be accessed:

- Additive manufacturing: Study, brief
- Advanced robotics and automation: Study, brief
- Roll-to-roll manufacturing: Study, brief
- Smart manufacturing: Study, brief