

# IMC's Latest e-News

written by Lauri Moon | December 8, 2022

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## **Request for Information: Manufacturing USA Semiconductor Institutes**

written by Lauri Moon | December 8, 2022

NIST is seeking public input on the development of up to three new Manufacturing USA institutes focused on semiconductor manufacturing. The institutes, authorized by the recently passed Creating Helpful Incentives to Produce Semiconductors (CHIPS) for America Act, will enhance U.S. leadership in semiconductor manufacturing through advanced research, education and workforce development.

NIST requests the public's input into:

- Design of, and requirements for, potential Manufacturing USA institutes to strengthen the semiconductor and microelectronics innovation ecosystem, which could include design, fabrication, advanced test, assembly, and packaging capability.
- How these Manufacturing USA institute(s) would support R&D efforts, infrastructure investments including the establishment of a National Semiconductor Technology Center, investments in advanced packaging, expansion of NIST's metrology R&D in support of semiconductor and microelectronics R&D, as well as education and workforce development.

Responses are requested by 11:59 p.m. Eastern time on Nov. 28, 2022, and should

be submitted online here. More information, including registration for public webinars, can be found here.

For questions about this request for information, visit the NIST Office of Advanced Manufacturing FAQ page or send an email to [MfgRFI@nist.gov](mailto:MfgRFI@nist.gov) (cite “Manufacturing USA Semiconductor Institutes — Questions” in all correspondence).

For media inquiries contact NIST’s Office of Public Affairs at 301-975-2762.

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# Cyber Attacks: A Growing Threat to the Small Business & U.S. Economy

written by Lauri Moon | December 8, 2022



U.S. Small Business  
Administration

**FROM THE DESK OF THE REGIONAL  
ADMINISTRATOR**

## **CYBERATTACKS: A GROWING THREAT TO SMALL BUSINESS & U.S. ECONOMY**

BY: Regional Administrator John Fleming - U.S. Small Business Administration

Last year, cybercrimes targeting small businesses reached a record high of \$2.4 billion. With online sales expected to surpass \$1 trillion, retailers must evaluate their vulnerabilities to cyberattack and protect their systems. Small businesses are especially attractive targets because they typically lack the security infrastructure of large corporations.

Administrator Isabella Casillas Guzman, head of the U.S. Small Business Administration (SBA) and the voice for America’s 33 million small businesses in

President Biden's Cabinet, earlier this year announced millions in new funding for states to help small businesses develop cybersecurity infrastructure as part of the SBA's Cybersecurity for Small Business Pilot Program. I encourage you to check out our in-person and virtual events as well as the National Cybersecurity Alliance, a public-private partnership providing virtual and in-person cybersecurity events.

There are simple steps business owners can take to mitigate risk. Here are five easy actions business owners can take:

1. **Update your software:** Check regularly for updates or patches to guard against the latest cyber threats, it's the cheapest and easiest way to prevent online attacks.
2. **Review security protocols:** Ensure your website is protected with a Secure Sockets Layer (SSL) certificate, which authenticates a website's identity and enables an encrypted connection. Also, do not store credit card data on your systems.
3. **Create effective passwords:** Weak passwords are a major reason small retailers are prone to cyberattacks. Unique passwords with at least 12 characters that are a mix of numbers, letters, capital letters, and punctuation are proven most effective. Multi-Factor Authentication provides additional security.
4. **Be aware of social engineering threats:** Hackers bait or trick employees through phishing, baiting, scareware, and incentives that appear to be coming from someone familiar but contain malicious code allowing them access to sensitive information.
5. **Set strict rules on computer use:** Training and guidelines for employees who access your computer systems ensure only activities and data deemed necessary keeps hackers at bay.

Small retailers owe it to themselves, their customers and their employees to ensure online systems are safe. To learn more about SBA's programs and services related to cybersecurity, visit [www.sba.gov/cybersecurity](http://www.sba.gov/cybersecurity).

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

written by Lauri Moon | December 8, 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.



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# IMC Celebrates Manufacturing Week

written by Lauri Moon | December 8, 2022

IMC, along with partners across Pennsylvania and the United States, is excited 

to celebrate **Manufacturing Week on October 7-14, 2022.**

Governor Tom Wolf has proclaimed the week as **Manufacturing Week in Pennsylvania** to honor our manufacturing industry, our makers, and encourage the next generation of talent to take a closer look at manufacturing careers in the commonwealth.

Today's industry demands experienced problem-solvers and strategists, digital operators, engineers, and others who can blend management and STEM skills. And we're proud that our state is preparing the next generation of talent for careers in manufacturing. We know these careers offer challenging, fulfilling, and stable work — presenting us with the opportunity to bring Pennsylvania's innovation, imagination, and legendary can-do spirit to the industry at the heart of our economy and communities.

## **MANUFACTURING IS AT THE HEART OF PENNSYLVANIA'S ECONOMY.**

*(bea.gov Employment by State 2020; Pennsylvania Manufacturing Advisory Council, PA's Manufacturing Competitiveness Playbook 2022)*

- 6th largest manufacturing industry in the United States by employment
- \$113.2 billion in gross domestic product (GDP) in 2021
- 562,700+ employees (accounting for ~9.5% of all private sector jobs in PA)
- 14,000+ manufacturing establishments

## **MANUFACTURING OFFERS WELL-PAYING, FAMILY-SUSTAINING JOBS.**

*(Pennsylvania Manufacturing Advisory Council, PA's Manufacturing Competitiveness Playbook 2022)*

- Manufacturing workers earn 33% more compared to the average for other nonfarm businesses in the state
- \$86,129 avg. compensation in manufacturing in PA, including benefits

# **U.S. MANUFACTURING JOBS HAVE GREAT EMPLOYEE BENEFITS.**

*(Pennsylvania Manufacturing Advisory Council, PA's Manufacturing Competitiveness Playbook 2022; U.S. Chamber of Commerce)*

- Many manufacturers offer on-the-job training that helps employees expand their skillsets and adapt to new industry needs
- 90% of U.S. manufacturing employees have access to medical benefits through their employer
- 78% of U.S. manufacturing employees have access to retirement benefits from their employer
- U.S. manufacturing workers have the highest job security in the private sector.

# **MANUFACTURERS AND MAKERS COME FROM DIVERSE BACKGROUNDS AND HAVE A VARIETY OF SKILLS AND EDUCATION LEVELS.**

*(bls.gov, Manufacturing Career Outlook, From Prototype to Production: Careers that Bring Ideas into Being, 2018)*

- Entry-level positions have different educational requirements ranging from a high-school diploma (or equivalent), to a bachelor's degree or higher.
- Many manufacturing positions include apprenticeship opportunities and on-the-job training - offering an opportunity to earn income while learning new skills
- Career opportunities abound for those looking for work in the manufacturing industry including:
  - Industrial designers
  - Mechanical and electrical engineers
  - Graphic designers
  - Systems software developers



- Team assemblers
- Electricians
- Computer-controlled machine tool operators (metal and plastic)
- Industrial machinery mechanics

## **Pennsylvania 2022 PARTNER TOOLKIT**

Help us spread the word about modern manufacturing, its positive impact on our economy and communities, and how it benefits existing employees and students who are exploring career options. DCED's digital toolkit will help you get started with suggested social media posts, newsletter content, and digital graphics. Get involved and be sure to share your own manufacturing resources and stories. Be sure to tag IMC in your social media so that we can share your posts all week. IMC's Facebook. IMC's LinkedIn. Download PA's toolkit [here](#). Post your events on the national [mfgday.com](#) site – Or IMC can for you. National MfgDay Toolkit.

## **Resources**

Check out information about Central Susquehanna's What's So Cool About Manufacturing Video Contest.

For a list of manufacturers who have worked with IMC, check out our [directory](#)!

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## **Volatile Energy Prices Will Impact Bottom Lines**

written by Lauri Moon | December 8, 2022

IMC recently hosted a webinar where our energy partner, APPI Energy, shared what the volatile energy markets will mean with historic increases in the cost of energy for manufacturers in PA for the coming year and beyond. Dan Forgacs, VP of Market Intelligence & Analytics for APPI, presented



both historical data and projected commercial energy costs as well as potential ways to combat its effects on the bottom line. Included were the projected or confirmed commercial energy increases by utility companies in PA:

- PECO: \$.07699/kWh, up from \$.06816, June 1 – August 31
- PPL: \$.11695/kWh, up from \$.09675, June 1 – November 30
- Met Ed: \$.10625/kWh, up from \$.07482, 42% increase, June 1 – August 31
- Penelec: \$.11056/kWh, up from \$.08031 per kWh, 38% increase, June 1 – August 31
- Penn Power, \$.12533/kWh, up from \$.10002 per kWh, 25% increase, June 1 – August 31
- West Penn Power, \$.10115/kWh, up from \$.06542, 55% increase, June 1 – August 31

Key to potential solutions were the reduction in peak demand, the use of alternative energy sources, and increasing energy efficiency in facilities. Also presented were opportunities to explore energy procurement opportunities and potential grants and incentives for energy related improvements.

If you missed the webinar, but are interested in learning more, or would like to connect with an IMC Business Advisor to discuss ways to potentially reduce your energy costs through efficiency measures, process improvement, and/or energy procurement services with APPI Energy, email [info@imcpa.com](mailto:info@imcpa.com).

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# Pennsylvania Manufacturing Advisory Council Releases Playbook for Competitiveness

written by Lauri Moon | December 8, 2022



As Pennsylvania's third-largest employment sector - with more than 560,000 full-time workers generating nearly \$115 billion of goods last year alone - manufacturing drives Pennsylvania's overall economy. On August 31, 2022, the Pennsylvania Manufacturing Advisory Council, a nonpartisan partnership

of manufacturers and industry experts, released Pennsylvania's Manufacturing Competitiveness Playbook - an actionable strategy document that identifies three game changers and 10 specific recommendations to make Pennsylvania's manufacturing economy more robust and resilient - thus creating more good-paying jobs for Pennsylvanians.

The efforts of the industry-led, 25-member Pennsylvania Manufacturing Advisory Council were focused on developing recommendations that government leaders across the Commonwealth should consider as ways to expand Pennsylvania's manufacturing economy. The Council's resultant Playbook includes data and advice derived from insights and commentary offered by more than 500 Pennsylvania manufacturers.

"Over the course of the past year, the Council conducted industry roundtables, one-on-one interviews, and surveys to learn directly from manufacturers what statewide policy and programmatic or procedural changes would most immediately and dramatically enhance their ability to compete, win and grow in today's economy, and the Council's report reflects that knowledge and insight," said Eric Joseph Esoda, Council Co-Chair.

Through careful analysis of industry input, the Council, within its Playbook,

recommends three game changers for strengthening Pennsylvania's manufacturing competitive position:

- Recapture Pennsylvania's manufacturing competitive advantage by aggressively pursuing manufacturing growth sectors to drive prosperity.
- Invest in the factory of the future to boost the performance of small and medium-sized companies, improve the quality of manufacturing jobs and provide better career options for more of Pennsylvania's citizens.
- Unleash the power of advanced manufacturing to drive regional prosperity through policies and services that are more responsive to the needs of manufacturers.

The Playbook builds on Pennsylvania's historic strengths in manufacturing and captures a vision for Pennsylvania's future as a global leader in advanced manufacturing.

"It's vital that we do more for manufacturing because it represents one of Pennsylvania's largest sectors, pays better than most others and offers good benefits," said Dan Fogarty, Council Co-Chair. "The Playbook is a great first step toward coming together around how we can be there for the sector and for communities across the Commonwealth that both support and benefit from our great industrial employers," he added.

The full report can be downloaded on the Manufacturing Advisory Council's website: <https://www.pamanufacturingcouncil.com/playbook>.

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## **Picking Area Error Reduction Efforts Successful at Diamondback**

# Automotive Accessories

written by Lauri Moon | December 8, 2022



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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# Central Susquehanna What's So Cool About About Manufacturing? Award Winners Announced

written by Lauri Moon | December 8, 2022

The What's So Cool About Manufacturing? program is a video based educational tool that increases awareness of career paths in manufacturing. This innovative career awareness program is "peer marketing" - kids telling kids what's so cool about manufacturing and manufacturing careers.

This contest gives students the opportunity to connect with local manufacturers, document their experiences and present them in an educational and "cool" way. The contest was created to generate excitement that draws students towards manufacturing career paths, and CTE and STEM education. The Central Susquehanna WSCM contest is made possible by the Innovative Manufacturers' Center (IMC), The Foundation of the Columbia Montour Chamber of Commerce, Advance Central PA, Central Susquehanna Intermediate Unit (CSIU) and BLaST Intermediate Unit.

This year's Central Susquehanna contest featured schools from Columbia, Lycoming, Montour, Northumberland, Snyder, and Union counties and the following manufacturers:

- BrightFarms
- Girton Manufacturing Co., Inc.
- Kawneer
- Playworld Systems, Inc.
- PMF Industries, Inc.
- Ralph S. Alberts Co., Inc.
- Strong Industries, Inc.

AND the Awards go to! (click here to view all the videos)

- **Outstanding Overall Program:** Selinsgrove Middle School/Bright Farms
- **Viewer's Choice:** Selinsgrove Middle School/Bright Farms
- **Outstanding Team Spirit:** Danville Middle School/Strong Industries, Inc.
- **Outstanding Brand Placement:** Lewisburg Donald H. Eichhorn Middle School/Playworld Systems, Inc.

Two district and manufacturer partners will also be moving on to the statewide competition May 18th in Harrisburg: Selinsgrove Middle School/Bright Farms and Central Columbia Middle School/Kawneer.

CONGRATULATIONS to all!



Central Columbia Middle School/Kawneer



Danville Middle School/Strong  
Industries, Inc.



Lewisburg Donald H. Eichhorn  
Middle School/Playworld Systems,  
Inc.





Selinsgrove Middle School/Bright Farms

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# The Manufacturers' Guide to Finding and Retaining Talent

written by Lauri Moon | December 8, 2022

As part of their annual survey, NIST MEP asks clients from the 51 MEP Centers, including IMC, to identify the top three challenges their companies will face over the next three years.



Not surprisingly, manufacturers continue to report that employee recruitment and

retention are their greatest challenges. In fact, these concerns have heightened during the COVID-19 pandemic and subsequent workforce disruptions. The market forces driving these challenges are not likely to improve soon. Based on a Manufacturing Institute and Deloitte study, the National Association of Manufacturers estimates that manufacturers will need to fill 4.6 million jobs by 2028.

In this guide, we outline steps that will help you improve and enhance your employee recruitment, retention and engagement. We'll look at:

- Strategy
- Attracting and retaining talent
- Training and development
- Workplace culture

MEP Manufacturers Guide to Finding and Retaining Talent Whitepaper