

WEDNESDAY
NOVEMBER 7, 2018

DAY 2

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CONGRESS CENTER



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FABRICATING, WELDING AND FINISHING EVENT



THE OFFICIAL FABTECH PUBLICATION

SHOW DAILY

TODAY'S EVENTS

Women of FABTECH Breakfast with Tech Tour

8:00 AM – 10:00 AM, B405
Purchase Tickets in Registration

Keynote: Kyle Petty, NASCAR Icon and Philanthropist

8:30 AM – 9:30 AM
Thomas Murphy Ballroom

Panel Presentation: State of the Industry

12:30 PM – 1:30 PM
Thomas Murphy Ballroom

Smart Manufacturing Hub

During Show Hours
Sessions All Day (see pg. 12)
A/B Connector, Booth AB2798

Knowledge Bar: Ask the Experts

11:00 AM – 4:00 PM
Sessions All Day
3D/Additive Manufacturing Pavilion,
Booth B6000

Spin to Win – Chance to Win Prizes!

10:00 AM – 4:00 PM
Booth B9681

Make Way for Gen Z

Manufacturers and fabricators have been told for many years now that they must adapt their hiring practices to changing workforce demographics. Well, get ready for an even bigger shift as Generation Z (born since 2001) prepares to enter the workforce.

This is the subject of the Thursday morning keynote by Generation Experts Jonah and David Stillman. For nearly 20 years, David has been researching, writing, consulting, and speaking about the various workforce generations for organizations such as MTV, American Express, Deloitte, Walt Disney, Pepsi, PricewaterhouseCoopers, GE, Cisco Systems, Lockheed Martin, General Mills, 3M, Best Buy, and Johnson & Johnson. He coauthored the best sellers *When Generations Collide* and *The M-Factor: How the Millennials Are Rocking the Workplace*.

David has also appeared as a generational expert on CNN, CNBC, and the Today show — and in national publications including *TIME* magazine, *The Washington Post*, *The New York Times*, and *USA Today*.

Diane Sawyer from ABC News said it best, “Whether you’re a tie-dyed preppie or a starched-shirt Traditionalist, David will help you see the world through the eyes of another generation.”



While David is from Generation X (entrepreneurial types born between 1965 and 1980), his son Jonah is firmly in the Gen Z camp. Jonah is a 17-year-old high school student and the youngest speaker on the national lecture circuit. He is excited to be the voice of his generation and offer companies and organizations a heads-up about our next generation gaps. He’s also psyched to be speaking with his Gen X dad.

This father-son duo will deliver an illuminating keynote that is designed to help companies get ahead of the next great generational chasm. The very first wave of

Gen Z are hitting the job market, and many will be looking for entry level positions on the shop floor.

But who are Generation Z? What has shaped them? What are their expectations around careers and the workplace? What’s it going to take to get this generation in the door, on board, and up to speed?

“There are many influences that have shaped Gen Z,” said David Stillman. “The main ones are the 2009 recession, the rise of technology, and different parenting styles.”

continued on p. 22



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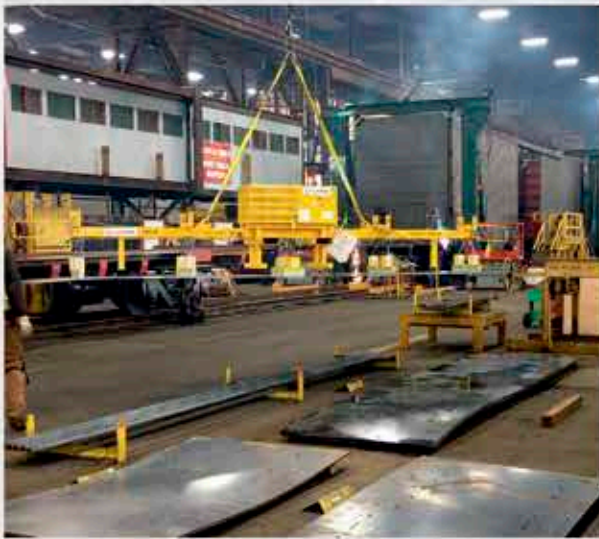


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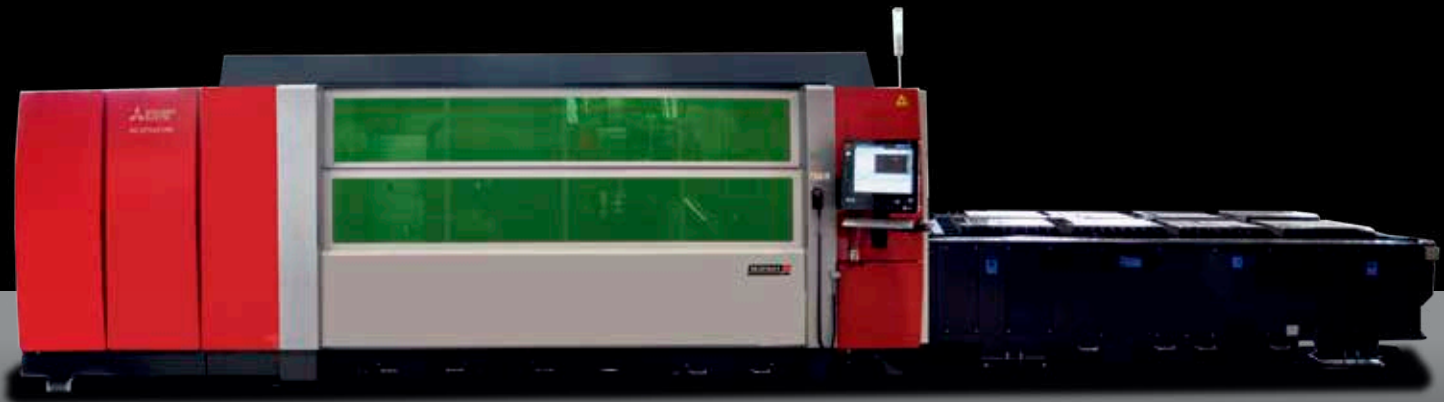
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FABx Tech Talks Wow FABTECH Crowd

Tuesday's FABx Tech Talks set the stage for a FABTECH 2018 like no other. Embracing the popular TED-style concept, the event keynotes kicked off with an exciting new format. Shining the spotlight on visionary leaders, the FABx Tech Talks motivated and inspired attendees via short inspirational talks on the topics of transformation, growth, advancement, creating expansion, and the future of manufacturing.

For those unable to attend, speaker after speaker offered insight and know-how based on many years of success in leadership positions. Dennis Adamovich, CEO of the College Football Hall of Fame, for example, has been a successful leader for decades. He spent 15 years at Turner Broadcasting System Inc., and eight years at The Coca-Cola Co. as managing director

of Marketing Works. There, he provided executive leadership in the development and commercialization of innovative North America consumer marketing programs designed to increase brand architecture strategies and overall positioning.

Adamovich talks enthusiastically about the value of his education at the University of South Florida, his work in advertising and marketing, how he uses data and analytics to his advantage, and his rise up the ladder to high level executive positions. As CEO of the College Football Hall of Fame, he sees first hand how the right attitude — whether in sport or in life — is a key element of success.

He believes college football can be a laboratory of what life is all about; the things you have to overcome, how you address

adversity, and how great leaders know what it takes to be a good individual.

Charlie Covert, Vice President of Customer Solutions at UPS, is all about the role of technology in creating a new tomorrow. Technologies such as the Internet of Things (IoT) and 3D printing are taking traditional supply chains on a journey towards possibilities that were undreamed of only a few years ago. But technology is secondary to strategic thinking. New technology is available to the many, yet only the few have the necessary vision to see where it can lead.

For example, UPS leaders outdid the competition by combining several technology elements such as Big Data, IoT, sensor technology, smart phones, tablets, modern processors, and more. By analyzing the rich data captured by connected devices

throughout the organization, UPS Package Flow Technology was developed. It evaluates and optimizes every step of the delivery cycle from routing and tracking to loading and final delivery. This innovation led to a wide range of customer solutions at UPS, which provided executives and consumers with unprecedented supply chain visibility and service options.

Aaron Kaufman, star of Shifting Gears on the Discovery Channel and owner of Arclight Fabrication, is all about viewing how each small task fits into the overall completion of a project. That keeps everyone unified around a common purpose. "The better you understand what has been done and why, the better equipped you are to perform your job at the highest degree and setup the next stage to hit the mark," said Kaufman. ■

FABx Tech Talk Speakers:



Dennis Adamovich
CEO, College Football Hall of Fame



Dennis Adamovich
Sr. Change Management
Training Consultant, Ignite
Women Leaders Founder



Charlie Covert
VP of Customer Solutions
UPS



Dan Kara
Vice President, Robotics
WTWH Media



Aaron Kaufman
Shifting Gears (Discovery
Channel); Owner, Arclight
Fabrication



Eric Wilson
Head of Global Sales -
Delta Cargo (Leadership &
Development)

Aluminum Blending and Finishing Jobs Just Got Easier Thanks to Walter Surface Technologies' New High-Performance Enduro-Flex ALU™ Flap Discs

Metalworkers who work with aluminum have a new innovative and powerful tool in their arsenal with the introduction of Enduro-Flex ALU™ flap discs from Walter Surface Technologies — the global leader in surface treatment technologies.

Aluminum's high strength-to-weight ratio has long made it a smart choice due to the alloy's lightweight properties, corrosion-resistance, and other practical benefits. Yet when it comes to blending and finishing, there's a different story for metalworkers on the shop floor. Working with heat-sensitive metals such as aluminum and other non-ferrous alloys can present tough challenges, which is why Walter developed the Enduro-Flex ALU line of flap discs.

Enduro-Flex ALU flap discs are specially formulated to maximize performance and drive productivity. Iron-free, sulfur-free, and chlorine-free — Enduro-Flex ALU's superi-

or zirconia alumina grain blend optimizes blending and finishing performance on virtually any aluminum surface.

Need for greater efficiency? Enduro-Flex ALU discs offer the highest removal rate in the industry and superior performance on non-ferrous alloys and heat-sensitive metals. Looking for a consistent finish without discoloration? Enduro-Flex ALU delivers every time.

Enduro-Flex ALU's special coating prevents load-up and glazing — key features that extend disc life and help cut shop-floor costs. Metalworkers will also appreciate Walter's proprietary Eco-Trim™ trimmable backing, which can triple disc life for even greater savings.

"The science and deep industry knowledge behind Enduro-Flex ALU flap discs is exceptional," explains Jonathan Douville, Senior Product Manager, R&D

International. "Outstanding removal rates, longevity, and resistance to glaze build-up make Enduro-Flex ALU the optimal choice for enhanced quality, safety, and productivity when working with aluminum."

Industry-optimized, Enduro-Flex ALU flap discs offer versatility and outstanding performance in automotive, aerospace, naval, and other sector-specific applications.

"Enduro-Flex ALU is simply a high-performance, long-lasting and productivity-enhancing flap disc," says Douville. "It's the ultimate blending and finishing tool that helps our customers work better."

Enduro-Flex ALU discs are available in 4 1/2", 5", 6", and 7" diameter sizes



with grit values of 40, 60, and 80. RPM ratings range from 8,600 to 13,300. Spend more time getting the job done and less time making trips to the tool crib with Enduro-Flex ALU — the longest lasting flap disc in the industry that removes more material than any competitive flap disc.

Discover the Enduro-Flex ALU flap disc and more at the Walter booth C12160. ■



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The Difference Between Quality Assurance and Quality Control

They focus on different areas of the value chain, but both are needed to keep customers happy.

By: Dipak Gandhi, manager, corporate quality assurance, and Shannon Eggleton, marketing and communications manager, EVS Metal

Quality assurance is involved in almost every phase of fabrication. Quality control ensures all final checks meet customer specifications. Both are needed to keep customers satisfied.

If you Google “QA vs. QC,” it returns approximately 47.9 million results. While that’s only slightly more than half the number of search results as “Taylor Swift” produces, it illustrates how much confusion exists

around the differences between quality assurance (QA) and quality control (QC).

While not every company defines QA and QC in the exact same way and the departments and areas might overlap in some manufacturing facilities, QA and QC do share some commonalities in the way they are treated in metal fabrication environments.

At EVS Metal, Riverdale, N.J., the role of QA is more about quality planning and ensuring potential quality issues are prevented, rather than just correcting problems that have already occurred. Of course, when quality issues do arise, quality personnel implement corrective action as well.

QA specialists also review customer returns and handle internal rejections, all with an eye toward continuous improvement and achieving the goals set up in the quality management system (QMS). The quality assurance team also works with vendors on quality-related issues, so they are able to make improvements.

On the other hand, the role of QC is skewed more toward the back end of the fabrication process, including in-process inspections, final inspections, receiving inspections, calibration, and first-article inspections.

In other words, QA is more about prevention, while QC focuses more on post-fabrication inspection and remediation when necessary. Both are important and are concerned with quality, but they have sharply different focuses and immediate objectives.



Figure 1
Quality assurance team members stay on top of daily production efforts. Dashboards that bring together information such as rework rates for certain manufacturing processes are helpful tools in this task.



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How Do QA and QC Roles Differ?

The QA role at EVS Metal requires juggling a lot of different details and objectives, depending on what projects are going through the QA process at any given time. This means that no two days are exactly alike. One day might involve reviewing sales orders for new parts before releasing them to the shop floor as per the new product checklist; handling reviews of customer returns or rejections; or analyzing internal rejections and disposition of rejections with the materials review board.

The next day might necessitate the initiation of corrective and preventive actions as required on a customer return or because of an internal rejection; coordinating quality-related issues with customers and vendors; or reviewing the performance of the QMS to make any changes that may be needed to achieve goals.

The QC team’s daily responsibilities are no less complex. They may spend an entire day performing first-/last-piece approval for each order during each stage of fabri-

cation and finishing; a morning receiving inspections for purchased items; an afternoon calibrating measuring equipment; or most of a day handling final inspection of a product before it’s released for shipment.

QA is involved with a job from the very start. Modern manufacturing projects require QA standards be built directly into design plans from the beginning. The EVS Metal QA team is involved with the fabrication process from the job’s kickoff, working alongside the engineering team to ensure design-for-manufacturability factors are considered upfront at the same time that customer specifications and other project requirements are being reviewed. QA assists in determining the many criteria necessary for efficient, cost-effective, and quality fabrication. This can include the design of manufacturing sequences, definition of critical dimensions at the component level, review of jig requirements during spot welding, and welding process and postmortem after first-build to address issues or make changes.

continued on p. 20

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FABTECH is the perfect opportunity to get connected with TRUMPF. With best in class equipment, automation components, vertical software solutions and experts that guide you every step of the way, TRUMPF is in the best position to support your smart factory. The demands of producing a high volume production of parts with smaller lot sizes require solutions that stay connected, adapt quickly and operate efficiently. TRUMPF provides solutions from stand alone machines to full systems across a wide range of processes. If efficient manufacturing is in your future, we invite you to stop by our booths at FABTECH and start your smart connection today.

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Experience “Innovation Drives Success — The Future of High-Performance Manufacturing” at the Bystronic Booth B7229

Innovation is the driver of high-performance manufacturing and the key to competitive differentiation. Innovative thinking is at the core of Bystronic solutions. Bystronic recognizes it's not how a single piece of machinery affects the fabrication process, but how all the machines and supporting software technologies work together to create a cohesive and effective fabrication solution.

Bridging Performance with Affordability: **Bystronic introduces the NEW BySmart Fiber**, equipped with the powerful ByVision Control and other innovative features you have come to expect from Bystronic. At the core of the new BySmart Fiber is a completely redesigned machine frame, motion control system, cutting head, and new exterior machine design. The new BySmart Fiber is available with either a 2, 3, 4, or 6kW fiber laser source and will be compatible with all Bystronic automation solutions.

The high-performance **ByStar Fiber with 10kW Fiber Laser** achieves the competitive differentiation sought by leading edge manufacturers. ByStar Fiber has been designed from the ground up to meet the speed and acceleration demands from high-power Fiber lasers. The ByStar Fiber

is available with 3kW, 4kW, 6kW, 8kW, or 10kW Fiber laser power and with optional ByTrans Extended automated material loading/unloading.

Mobile robot automation meets high-speed bending with the new **Xpert 40 Mobile Bending Cell**, a compact solution for automated as well as manual bending that supports today's fluctuating lot sizes and varying part complexities.

Smart, precise, profitable, and easy-to-use — the Bystronic **Xpert 150 press brake** with revolutionary Bystronic ByVision Bending control, pressure reference technology, automatic dynamic crowning, and 6-axis back gauge system offers unmatched efficiency and productivity capabilities and the highest repetition accuracy on the market. The Xpert 150 is the only press brake that introduces no angle errors itself with a ram positioning accuracy of .00015" inch.

High-performance software is fundamental to modern sheet metal processing. Bystronic's “Make It Easy” **BySoft 7**



software represents a new generation of design and manufacturing software that keeps pace with high productivity downstream equipment.

Bystronic MES (Manufacturing Execution System) is a new software solution developed by Bystronic that creates digital transparency across the entire process chain. MES allows users to plan, direct, and evaluate work flows according to defined timelines.

ByCockpit is a new app developed by Bystronic, which provides real-time analysis and visualization of the data associated with sheet metal processing. ByCockpit visualizes selected key indicators regarding machine performance and manufacturing efficiency.

Recent acquisitions expand the depth of Bystronic's offerings: Bystronic has significantly expanded its existing portfolio of sheet metal fabricating technologies with new solutions for tube processing, automation, and warehouse integration. At the **Bystronic-Antil S.p.A. work station**, representatives will showcase the latest in automated solutions for sheet metal processing and warehouse integration. At the **Bystronic-TTM S.p.A workstation**, representatives will showcase their world-class systems for tube and profile processing.

In addition, Bystronic's **ByFinances** will offer highly competitive and innovative financing options that make owning a Bystronic a reality.

Together, these new innovations are driving fabrication companies to new levels of productivity, profitability, and success. **Visit Bystronic at booth B7229.** ■

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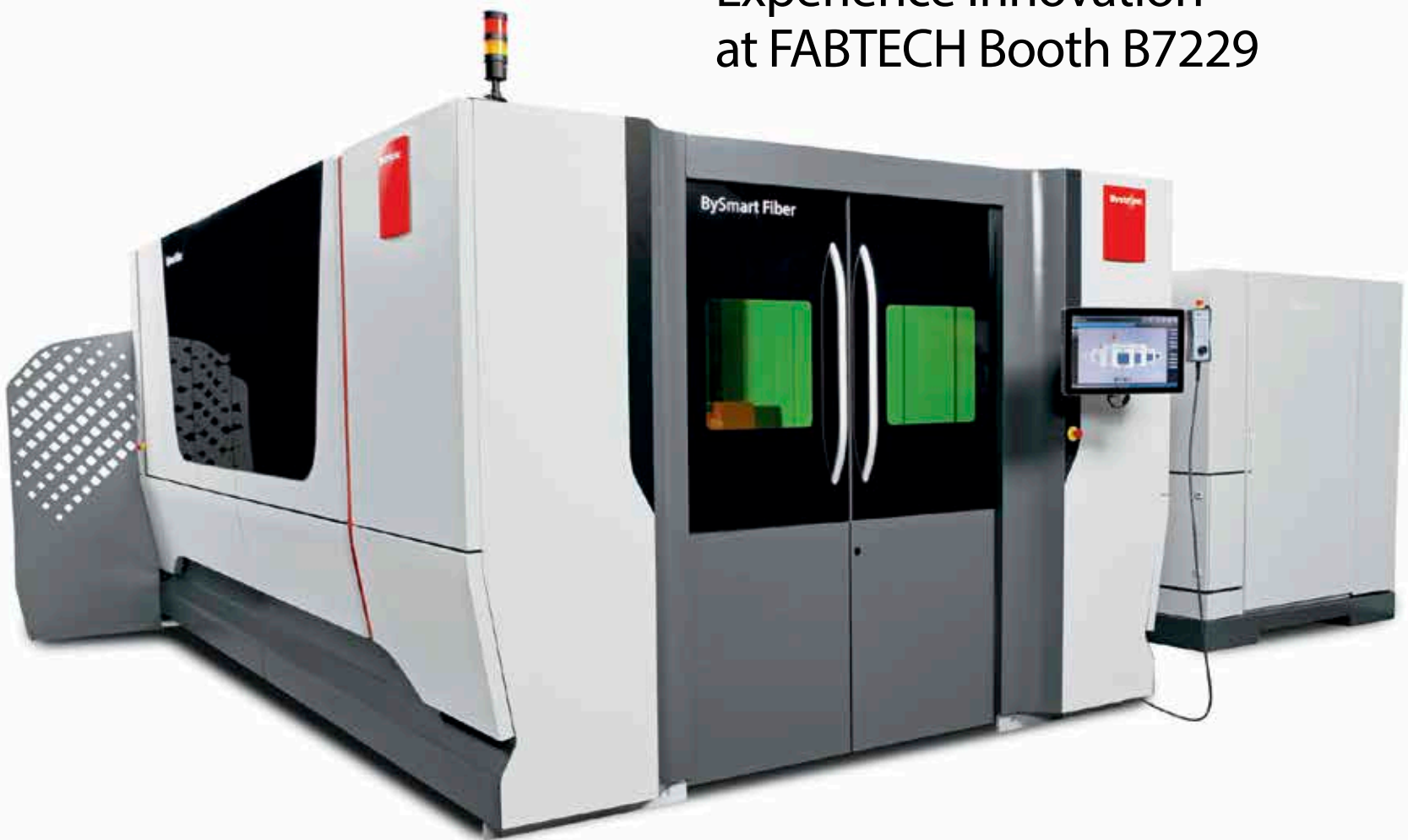
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FAB to FINISH Production Experience Returns to FABTECH

FABTECH 2018 marks the second year of the FAB to FINISH Production Experience coordinated by the Chemical Coaters Association International (CCAI) (Booth B4700). As a result of the successful debut of FAB to FINISH at FABTECH 2017, the program has been expanded for the Atlanta exhibition. On the finishing side, pretreatment has been added to the production process and the total number of FABTECH exhibitors participating in the program has increased from four to ten.

FAB to FINISH offers attendees the opportunity to experience part production from fabrication through the finishing process on the exhibit floor. Program participants will witness laser cutting, bending, pretreatment, powder coating, and curing processes in the production of a souvenir part.

Participants pick up a part at Mazak Optonics (Booth B7529), where they can see the OPTIPLEX CHAMPION Fiber laser cutting machine with Lateral Automation System turn a mild steel blank into a FABTECH memento with show logo — designed using the Mazak Smart System. The OPTIPLEX CHAMPION is an economical laser cutting system designed for low variation production environments.

Participants are then directed to specific exhibitors in the FINISHING Pavilion

where the parts will be pretreated, coated, and cured. The first stop in the FINISHING Pavilion is pretreatment to clean each part, an essential step to ensure a quality powder coated finish.

A GAT Finishing Systems (Booth B4921) single stage translucent polypropylene washer with an ambient pretreatment process that is corrosion resistant and energy efficient will be used to wash the parts. They will then be dried in GAT's convection dry off oven simulator, which uses a patented air seal design to reduce heat loss and ambient air load.

From there, participants will experience powder coating their own part. Then, they will observe the curing process at one of four FINISHING Pavilion exhibitors participating in these steps of the FAB to FINISH process.

Nordson Corporation (Booth B5216) will be using their Encore powder coating guns with Quick Color Change outfitted with the nLighten LED kit, which provides high-visibility for precise coating coverage. Participants will be able to customize their part by choosing from a variety of Axalta Coating Systems (Booth B5001) powder colors to coat their part. Parts will then be cured in a custom-built oven from Pneu-Mech Systems Mfg. (Booth B5409).



IFS Coatings (Booth B5112) will offer participants the opportunity to choose from several of their Polychem Coatings, including translucent colors. Participants will then use a Gema USA Inc. (Booth B5029) spray gun to coat their part inside a Wagner Systems Inc. (Booth B5053) laboratory

powder booth, prior to being cured in an IFS Coatings oven.

Keyland Polymer Material Sciences, LLC (Booth B5419) will offer a slightly different coating and curing experience. Using a Nordson Encore powder application unit with fluidizing hopper, participants will coat their parts with Keyland's UVMax® Polyester UV curable powder — which can be applied to metal, plastic, composites, and wood. Parts will then be cured in Keyland's own UV LED curing unit.

Fostoria Process Equipment div. of TPI Corp. (Booth B5208) will give participants the opportunity to see their modular concept spray booth and infrared curing technology, with all related equipment, incorporated into Fostoria's unique Micro-Mini Powder System in action.

The FAB to FINISH experience is open to all FABTECH attendees. To accommodate as many people as possible, participation is limited to one part per person. Attendees can pick up an instruction card at CCAI (Booth B4700) or Mazak Optonics (Booth B7529) that will provide the participating companies' booth numbers and directions outlining the production flow attendees should follow. ■

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Today's Smart Manufacturing Hub Presentation Schedule

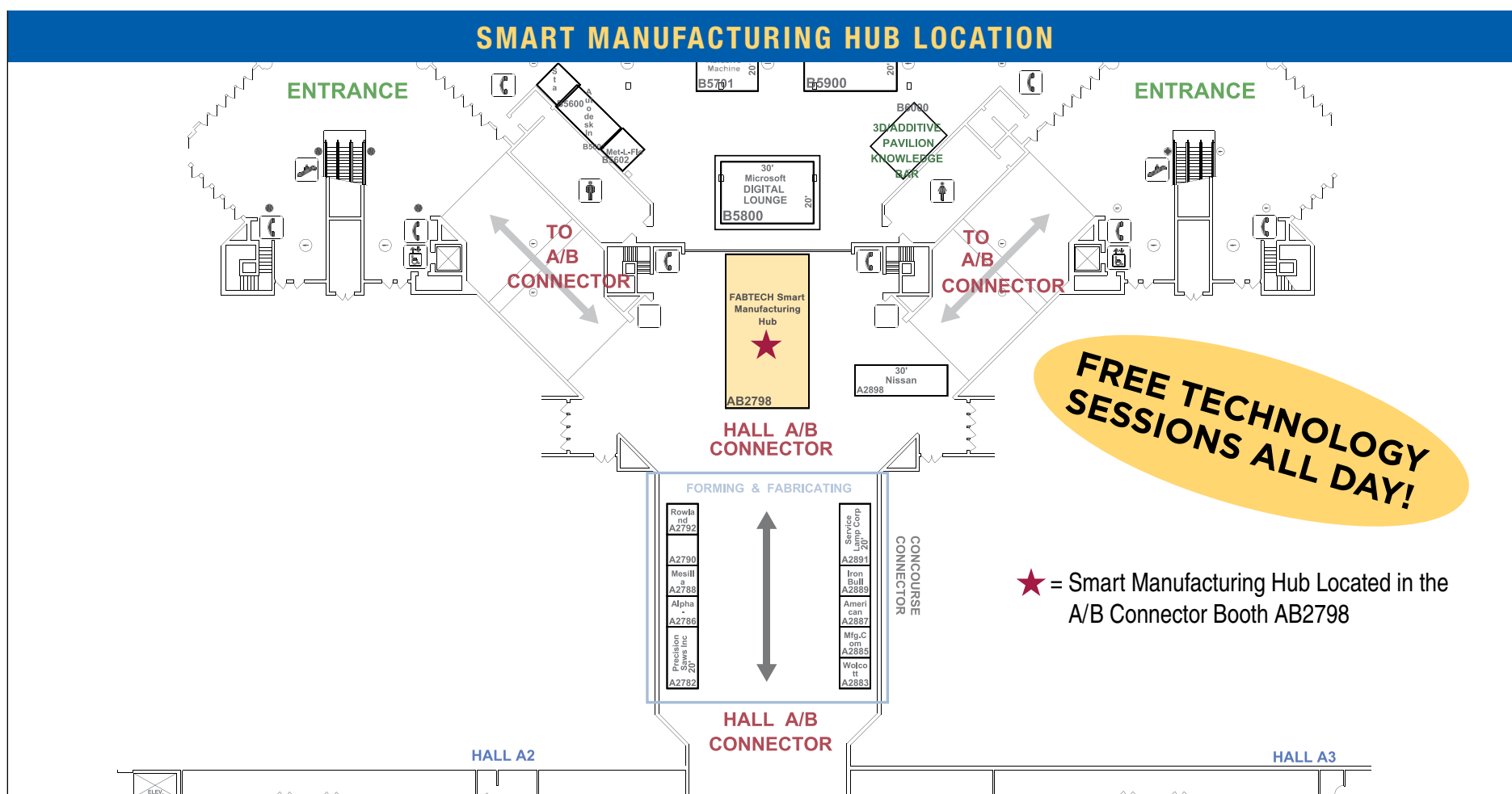
Sessions are free and open to all attendees

Technical presentations from industry-leading smart technology providers will give insight on recent developments in this rapidly evolving field.

WEDNESDAY, NOVEMBER 7		
9:20 AM - 10:00 AM	Data-Driven Manufacturing: Monetizing Your Investment with Impactful Continuous Improvement <i>David McPhail, CEO and President, MEMEX</i>	<p>No matter the size of your company, you can connect your manufacturing assets to your business systems TODAY and be rewarded with a compelling ROI. However, it is not enough for manufacturers to just monitor machines to achieve maximum efficiency and profitability. They must also ensure shop floor data is collected automatically and in real-time, and then must analyze and act appropriately upon this data. In this presentation, MEMEX will use actual case studies to discuss a strategy for monetizing real-time shop floor data that is rooted in a pragmatic approach and focused on the business case / outcome through impactful continuous improvement.</p> <ul style="list-style-type: none">• Understand the 5 steps to Success: Connect, Visualize, Analyze, Optimize, Monetize• Fuel Lean Continuous Improvement initiatives with real-time data to get to root cause and counter measures fast• Reduce your company's operating costs by effectively increasing your plant capacity• Learn how Data-Driven Manufacturing can boost your bottom line financial results
10:20 AM - 11:00 AM	From the Frontlines: Realizing the Benefits of Additive Manufactured Tooling <i>Dan Burseth and Wayne Benson, Vice President, Eckhart/Director of Factory Floor Solutions, Stratasys</i>	<p>Large and small assembly operations are using additive manufacturing to reinvent factory tooling. While the benefits of additive for LEAN manufacturing, ergonomics, and TPM are well documented — adoption across industries and within companies varies greatly. This session will explore why some organizations are realizing the benefits as advertised, while other organizations struggle.</p>
11:20 AM - 12:00 PM	A Deep Dive into Metal 3D Printing <i>David Bentley, Protolabs</i>	<p>Direct metal laser sintering (DMLS) is an emerging additive manufacturing technology that has great potential to change the way metal parts are manufactured. DMLS is ideal when trying to achieve complex geometries, lightweight metal parts, or reduced components. This presentation compares flawed versus optimized geometry, discusses part design considerations, and explores secondary operation options to keep in mind when designing for DMLS.</p>
12:20 PM - 1:00 PM	Demystifying Artificial Intelligence for Manufacturing <i>Diego Tamburini, Principal Industry Lead, Azure for Manufacturing</i>	<p>In this talk, we will provide a high-level introduction to AI and Machine Learning, and discuss why it's important for manufacturing. We will also provide an overview of the Microsoft Azure AI platform, and offer recommendations and resources on how to get started.</p>
1:20 PM - 2:00 PM	A Hitchhiker's Guide to Metal Additive Manufacturing — The Have's and Have Not's to Evaluating Additive Made Parts <i>Justin Joiner, South Region Manager, SLM Solutions NA, Inc.</i>	<p>Like any new endeavor throughout life, we all need to learn what we can and can't do when tackling life's problems and challenges. Metal Additive Manufacturing is no stranger to this notion with everyone undeniably celebrating its opportunity. But how can we approach its use through a tangible lens which embraces its freedom but also balances with reality? We'll explore this question in hopes that mice don't take over.</p>
2:20 PM - 3:00 PM	Robotically Integrated Bending Solutions (RIBS) <i>Chris Poole, Segment Manager, Fabrication, Acieta</i>	<p>Fabricators have been undergoing a technological evolution with the increasing use of robotic automation. Robots have become less expensive and easier to use than ever before, which has opened the door for both integrated manufacturers and contract fabricators to take a serious look at the benefits and ROI of robotic automation.</p>
3:20 PM - 4:00 PM	An Introduction to the World's First Office-Friendly, Affordable, On-demand Metal 3D Printing System for Rapid Prototyping and Functional Parts <i>Jonah Myerberg, CTO and Co-founder, Desktop Metal</i>	<p>Join us for an in-depth look at the first complete metal 3D printing system that enables engineers and designers to make metal functional prototypes in the comfort of their office, on-demand, and without the need for special facilities or operators. Gain insight into the strategy behind the design of the Studio System, its architecture, and components — and grasp the performance and cost-per-part benefits. Compare the print process to more commonly known technologies such as injection-molding, Direct Metal Laser Sintering (DMLS), and Fused Deposition Modeling (FDM). Walk through the 3-phase printing operation — including the end-to-end software that responds to your parameters and adjusts to your constraints — automatically through to printing, debinding, and sintering. Bring your questions and imagine what you can do.</p>

Smart Manufacturing Hub
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Pioneer in Workforce Development: Ajax Metal Forming Solutions

In 2011, The Precision Metalforming Association Educational Foundation (PMAEF), through a grant from the Hitachi Foundation, sought out and recognized successful metalforming companies driven by production-employee skill enhancement and advancement opportunities. Those companies, and their workforce-development efforts, were profiled in the pages of MetalForming as Metalforming Pioneer Award winners. Here we re-visit one of the winners to see how its efforts have progressed. Suffice to say, it's full-speed ahead.

Standing still is not in the DNA of Ajax Metal Forming Solutions, but continuous training and career building is. The Fridley, MN, supplier to heavy-equipment, durable-goods, architectural/construction and HVACR OEMs has undergone some big changes since 2011 when it was honored as a Metalforming Pioneer in workforce development. Then, E.J. Ajax and Sons, Inc. and its 30 employees prided themselves as champions of manufacturing, with the need to promote the industry and make it as rewarding as possible for those who choose that path.

Today, the company boasts 70 employees and has doubled sales as well as square footage — now 50,000 sq. ft. And, as of last fall, it became Ajax Metal Forming



Ajax Don and Kent: Don Wellman, vice president of sales and marketing (left), and Kent Djubek, president, both having risen through the ranks and benefited from various company training and education initiatives, now form part of the Ajax Metal Forming Solutions ownership team.

Solutions through its acquisition by Heartland Equity Partners. As part of the sale, Kent Djubek continued as president of Ajax while increasing his ownership position, and Don Wellman, vice president of sales and marketing, also expanded his ownership stake. Erick and Tom Ajax, members of the family that founded the company in 1945, continue as equity owners and have joined the board of directors.

Building on Training Program Every Day

"Our new entity is just as committed to the professional development of our colleagues as the Ajax family was," says



Ajax Curt: As Ajax' human resources and operations director, Curt Jasper, along with human resources administrative assistant Courtney Mickelson, leads the charge in recruiting and retaining talent, and helping that talent succeed personally and professionally.

Djubek, noting that he started as a second-shift temporary worker at Ajax, and both he and Wellman benefitted from that commitment. "We have used the same training program for 25 years now, and we continue building upon it on a daily basis."

At Ajax, as is typical throughout the industry, workforce development has become more challenging in the past few years. To meet that challenge, the company has undertaken a host of inhouse and partner programs, spearheaded by Curt Jasper, human resources and operations director. Right off the bat, potential employees are given a mechanical-aptitude test with only those testing above 70 percent given

a follow-up interview. Training begins on day one of employment, with safety and other basic work topics covered via PMA's OnboardingME training system, introduced in 2016. Within the first 90 days of employment, rather than strictly productivity, employees are closely monitored on safety and to make sure they 'learn the ropes' at Ajax.

From there, training combines inhouse tracks as well as learning opportunities via outside sources.

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Farm to Table

By: Abbe Miller, editor-in-chief, Welding Productivity

Whether seeking out maintenance skills or a totally new career path, a welding education goes a long way in the agricultural industry.

A farmer's day starts long before the sun comes up. And his list of responsibilities hardly stops at tending to the crops. On top of plowing, planting, and harvesting — farmers more often than not have to take care of a menagerie of animals. And, in

addition to the business side of operations, they also have to deal with the day-to-day maintenance of the property and equipment. It's a wonder there are enough hours in the day.



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In terms of maintenance, the list of equipment that farmers must upkeep is long: tractors, trailers, plows, fertilizer spreaders, threshing machines, balers, cultivators, and combines. There are also silos, grain bins, fences, gates, conveyors, and watering and irrigation systems that require occasional repair.

Considering the average size of a U.S. farm is 444 acres, one farmer couldn't possibly handle all of this work alone. In addition to relying on family members, many farmers hire help to ensure that every acre is well maintained. Those job titles include farm manager, maintenance supervisor, mechanic, farm/ranch hand, and farm equipment operator — among others. Many of these jobs offer a good salary. And many of them require some level of welding experience.

Planting Seeds

Knowing the many career opportunities available in the agricultural industry, the American Welding Society (AWS) offers a range of courses beneficial to agricultural career seekers and farmers that need to handle their own maintenance. Alicia Garcia, director of education and training at AWS, singled out four courses that would be especially well suited for these individuals: Welding Fundamentals I and III, Fabrication Math II, and Safety in Welding.

Garcia suggests that students start with the Safety in Welding course, but she also mentions that the four recommended courses do not need to be taken in any particular order — as each course is independent from the next. As an example, Welding Fundamentals I teaches beginning welders the basic principles of welding, including the main four arc processes, as well as various cutting and gouging processes.

Welding Fundamentals III offers a comprehensive approach to brazing and soldering — while Fabrication Math II explains concepts, equations, and

continued on next page ►

formulas for estimating, planning, and producing quality welds. Topics include everything from percentages and ratios to unit conversions, and the calculation of area and volume.

"The Welding Fundamentals I course covers the basic welding processes, which is what you'll see being used for a whole host of agricultural repairs," Garcia says. "For HVAC and cooling system repair, which is a typical maintenance job on a farm, the Fundamentals III course covers brazing and soldering. If a part needs to be fabricated to complete equipment repair, the Fabrication Math II course is incredibly helpful."

On Course

Interested individuals can take courses online or they can attend courses at a certified AWS partner school. For those in rural areas, the online option is incredibly convenient.

Because our courses are available online, students can access welding instruction whenever they need to," Garcia explains. "They don't need to sign up for a class on a specific date either. As soon as they enroll in the course, they're able to take it immediately."

For those more comfortable learning on-site or who may not have the equipment to practice and train on, AWS partners with community colleges all across the country — including, of course, those in traditional agricultural states.

"A lot of schools offer welding courses, so for someone more inclined to work with an instructor and attend a physical location, we have a welding school locator on our website to seek out community or technical schools," says Monica Pfarr, executive director of the AWS Foundation, a not-for-profit charitable arm of the AWS. It focuses on growth and development in the welding community through research and education. "Traditionally, community college tuition is pretty inexpensive, so it's a nice option for individuals seeking out on-site training and education."

AWS courses offer certificates of completion as well as professional development hours that serve as unmatched differentiators when applying for a job. They can also be applied toward other certifications, such as certified welder, welding instructor, or welding inspector. Courses range from \$99 to \$495 for nonmembers, and \$74 to \$370 for AWS members.

A Bright Future

AWS advocacy for welders in the agricultural industry goes far beyond its in-house

curriculum. In addition to partnering with community colleges, AWS also partners with organizations such as Future Farmers of America (FFA), which promotes and supports agricultural education for middle and high school aged youth.

"We focus on elevating the welding industry and informing the general opportunities in welding," Pfarr says. "In the agricultural space, we partner with a lot of schools and organizations, including FFA in particular, to make sure that welding is a component of agricultural education. The goal is to help students understand that there are many job opportunities in the agricultural industry where having a welding background and a basic understanding of welding could be very important."

Every year, AWS attends the FFA National Expo with its Careers in Welding Trailer, a large mobile exhibit that lets high school students learn more about welding careers and even try out welding with an on-board virtual welding simulator. The trailer also makes its way to high schools and trade expos around the nation, as well as state fairs throughout the Heartland. Each year, more than 28,000 people come on board.

"A lot of students that talk to us at the FFA National Expo say that they learned how to weld from their grandpa or dad while repairing fences on the farm," Pfarr notes. "But, they never thought about taking that skill and making a career out of it. It's a great example of taking experience from the farm and using it as a really lucrative career opportunity." ■

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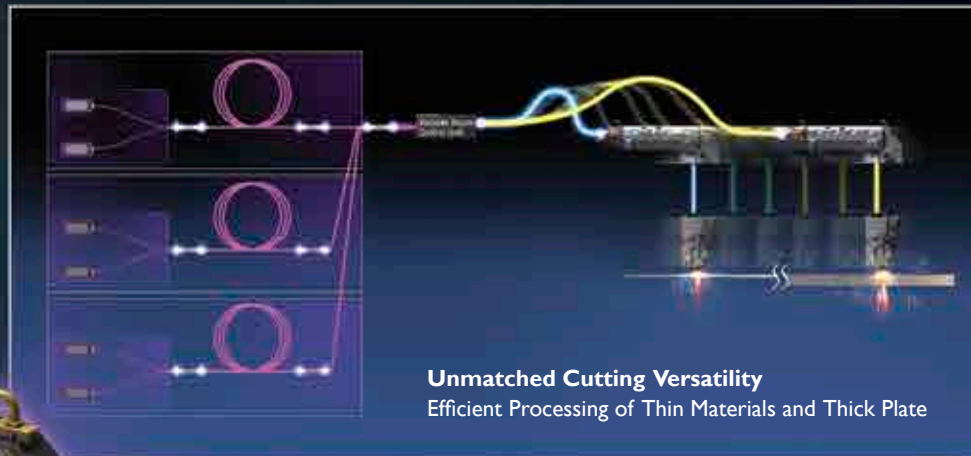


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Making Manufacturing Workforce Development a Priority

Advanced technologies — such as additive manufacturing, automation and robotics, advanced materials, precision machining, precision measurement and 3D scanning, and digital manufacturing — are revolutionizing the industrial sector.

They provide incredible opportunities for increased efficiency, improved quality, shorter cycle times, optimized energy, greater innovation, and reduced costs. As wonderful as these benefits are for the forming and fabricating industry, new

technology adoption presents innumerable challenges — and one of the biggest is finding a skilled workforce that will help companies drive business results.

Today's technology is accelerating so quickly that it's surpassing the pace of



employee development. The skill sets required for success have changed, and too many applicants and incumbent workers lack the skills now needed to fill open positions. To advance, the manufacturing industry requires a new kind of workforce with employees trained in areas from analytics to robotics.

When you pair rapid technology advancements with retirements, a decreased talent pipeline, and the need for new advanced technology skills — the industry is left with a deepened pool of unskilled talent unable to perform job duties on advanced factory floors. This idea of the skills gap is not new — our industry has been talking about it for nearly a decade. But it may be surprising how few manufacturers have moved to address this gap despite all the warnings.

According to Tooling U-SME's Industry Pulse: 2018 Manufacturing Workforce Report, more than 80 percent of respondents say implementing any type of new technology is going to be challenging. What's more, the study shows that the challenge of new technology is closely related to the skills gap: 56 percent of respondents say the gap is impacting the introduction of advanced manufacturing technologies and automation; 29 percent indicate it's impacting the introduction of flexible, complex work systems; and 27 percent say it's impacting the implementation of smart manufacturing technologies.

Released in September, the Industry Pulse report exposes even more disturbing revelations about the manufacturing workforce. One of the most troubling findings is that despite the clear need for stronger training and development, many manufacturers are still not effectively addressing the threats.

Even though employers say they are feeling the impact of the workforce shortage, only

continued on p. 28

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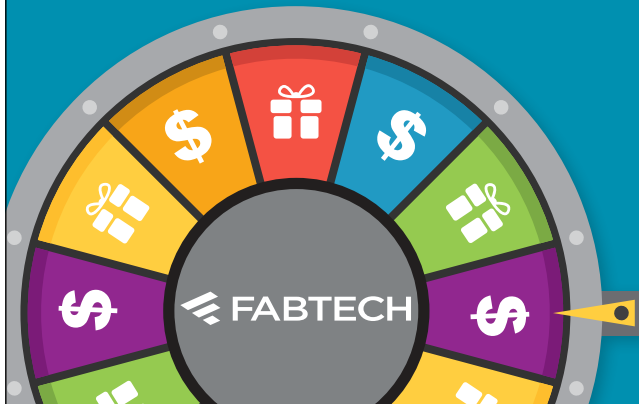
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3D/ADDITIVE MANUFACTURING	NEW! F40: A Guideline to Metal AM - Processes, Design and Applications I Room B313		F50: Business Considerations for 3D Additive Technology with Tech Tour B Room B313	NEW! F60: 3D Additive Manufacturing Applications for Fabricators I Room B313	
AUTOMATION	NEW! F41: Integrated Solutions for Industrial Automation I Room B314		NEW! F51: 10 Signs Your Business Needs to Replace Its ERP & Leveraging Next Gen Cloud ERP B Room B314	NEW! F61: Automated Technology Application and Benefits for Laser and Joining Process I Room B314	
CUTTING/LASER	AWF100: Laser Welding for Today's Fabricator Workshop I Room B305			NEW! F62: Next Generation Cutting Technology I Room B305	
FINISHING	C40: Optimizing Batch Powder Coating Operations I Room B302		NEW! C50: Powder Coating and Industry 4.0, Really? A Room B301	NEW! C60: Automation - Is It for Everyone? I Room B301	
	NEW! C41: Blasting Your Way to Success I Room B302		C51: Identify and Solve Finishing Defects: See It, Touch It, Fix It I Room B302	NEW! C61: Safety - It Works for All of Us I Room B302	
	C42: Architectural Coatings - Building a Lasting Finish I Room B301		NEW! C52: Developing a Liquid Coating Knowledge Base B Room B301	NEW! C62: Improving Performance of Pretreatment Processes I Room B301	
FORMING & FABRICATING	NEW! F43: Sheet Metal: Controlling Costs with Good Design and Equipment Purchases I Room B406		F53: Roll Forming: Justification, Basics and Lubricants B Room B406	F63: Tube & Pipe: Forming and Lubrication A Room B406	
	NEW! F44: Coil Processing: Slitting Thin Materials and Laser Blanking I Room B407		F54: Effective Safeguarding Risk Assessment B Room B407	NEW! F64: Hot Forming with Titanium I Room B407	
LEAN	F45: Lean Tools: A3 Thinking- Developing People & Solving Problems I Room B309		F55: Lean Tools: Flow and Pull Creating Flow in High-Variety Environments I Room B309	F65: Lean Principle: Continuous Improvement in Lean Culture B Room B309	
MANAGEMENT	NEW! F46: Innovation & Business Strategies for Growth! I Room B304		NEW! F56: What's Your Business Worth & Patent Rights for Your IP I Room B304	F66: Succession Strategies to Protect Your Business! B Room B304	
MARKETING & SALES TOOLS	NEW! F47: 5 Steps to World-Class Customer Experiences B Room B310		NEW! F57: Sales & Marketing Performance Management of People and Systems I Room B310	NEW! F67: Actionable Marketing Strategies for Competitive Advantage I Room B310	
SMART MANUFACTURING	NEW! F48: The Human and Digital Role In The Factory of the Future I Room B308			NEW! F68: Actionable Intelligence: Manage Data to Enable Good Decisions A Room B308	
STAMPING	S40: Sensor Technology - Practical Applications I Room B315		S50: Advance Press Room Technology I Room B315	NEW! S60: Sensors, Controls and Connectivity I Room B315	
	S41: Stamping AHSS Materials I Room B316		NEW! S51: Solving Progressive Die Problems I Room B316	S61: Preventative Maintenance in the Press Room I Room B316	
WELDING FABRICATION	NEW! W40: Welding of Advanced Specialty Materials I Room B406A		NEW! W50: Lean & Quality Welding for Smart Manufacturing I Room B406A	NEW! W60: Fundamentals of Welding Project Success I Room B406A	
WORKFORCE DEVELOPMENT	F49: Manufacturing and the Millennial: How to Attract and Retain Emerging Leaders B Room B312		NEW! F59: Accountability, Engagement & A Culture that Rocks I Room B312	F69: Accelerating Workforce Performance Through Best Practices in Learning & Development I Room B312	
WELDING					
SEMINARS	W11: The Why and How of Welding Procedure Specifications - Room C205			8:00 AM	5:00 PM
	W13: CWI Part B Hands-On Experience - Day 2 - Room C301			8:00 AM	5:00 PM
	W14: Welding of Stainless Steel - Day 2 - Room C302			8:00 AM	5:00 PM
CAREER PATH WORKSHOPS	W19: Getting Started in Underwater Welding - Room C202			9:00 AM	11:00 AM
	W21: Opportunities in Welding - Room C201			1:00 PM	2:30 PM
PROFESSIONAL PROGRAM	W24: Session 7: Plenary Session - Room C101			8:00 AM	9:30 AM
	Session 8: High Energy Density Processes - Room C101			9:30 AM	12:00 PM
	Session 9: Honorary Symposium for Dr. John Elmer - Contributions to the Welding Metallurgy of Stainless Steels - Room C102			9:30 AM	12:00 PM
	Session 10: Arc Welding - Room C107			9:30 AM	12:00 PM
	Session 11: Applied Technology - Room C101			1:00 PM	5:00 PM
	Session 12: Honorary Symposium for Dr. John Elmer - Contributions to Advanced In-Situ Characterization - Room C102			2:00 PM	5:00 PM
	Session 13: Modeling and Numerical Analysis II - Room C107			1:00 PM	5:00 PM
EDUCATIONAL SESSIONS	W28: National Center for Welding Education and Training, Weld-Ed - Room C201			8:00 AM	12:00 PM
RWMA SCHOOL	W22: RWMA Resistance Welding School - Day 2 - Room C110			8:00 AM	4:15 PM

Detailed Education Program session descriptions, speakers, pricing, room locations and more can be found at fabtechexpo.com/edu.

B = Basic **I** = Intermediate **A** = Advanced

The Difference Between Quality Assurance and Quality Control

continued from p. 6

In other words, QA is involved at just about every stage of fabrication, from product design to the setup of job processes to the management of production flow (see Figure 1). QC then takes over, ensuring all

of the final measurements meet the specs set out at the beginning (see Figure 2).

QA + QC: The Dream Team

One example of how a QA team tackles complex projects was demonstrated when EVS Metal received an unusually challenging request from a medical equipment manufacturer almost two years ago.



Figure 2

Quality control plays a huge part in ensuring quality goals are achieved with each production order. A check of part dimensions on a coordinate measuring machine is one way they do just that.

The request for proposal involved the fabrication of an elaborate chassis that required more than 30 sheet metal parts riveted together. It also required more than 600 incidences of manually inserted hardware pieces and rivets, all with extremely tight tolerances because of the end-use application. Now, this will probably come as a complete shock to anyone reading this, but it turned out that a number of the tolerances specified on the drawings were beyond the capability of typical fabrication processes. (Pause for shocked silence.)

Luckily, the QA team knew exactly how to respond. They took the time necessary at the start of the project to grasp the most critical features of the chassis. This was an essential first step. Why? As it turns out, the aspects of the chassis that required the tolerances that were outside of normal fabrication capabilities would need to be reverse-engineered. To do that, the team had to understand exactly what the chassis was supposed to do and how it was supposed to function in the first place.

Because of the QA department's dedication to address the customer's needs in parallel with the project's challenges, it found a way to make the design work. With assistance from the engineering, sales, and production teams — QA took advantage of tolerances for functional requirements while implementing various controls to be used during manufacturing.

continued on next page ►

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While the design of the parts did ultimately change to allow the tolerances required to be achieved, each adjustment was small enough as to not be easily noticed in the final assembly.

By keeping a close eye on the manufacturing process stipulated by QA from the start of fabrication to final inspection, the QC team ensured the final product met the customer's requirements. This prevented any issues during the on-site integration and ultimately made for one happy customer (not to mention a loyal one too).

In fact, EVS Metal's QA and QC departments were able to achieve a 5.5 sigma level for defect per million opportunities (DPMO). They also managed fewer than 1 percent of customer returns for operator-related error and fewer than 0.2 percent scrap of completed assembly. This entire project illustrated why a rock-solid quality team is an irreplaceable asset for a metal fabricator.

Challenges, Continuous Improvement, and the Future of Quality

With more than 100 years of combined experience in the fabrication and machining job sectors, EVS Metal has plenty of skill depth in its current quality team. However, that doesn't mean that the team isn't constantly kept on its toes by both customers and industry trends.

For instance, customer requirements for cosmetic finishes generally are not well-documented when they are handed over to quality. In fact, most customers' drawings are generated with software that assigns ± 0.005 -in. tolerances on all features.

So when ± 0.005 -in. tolerances across the board aren't feasible for the price a customer is able to pay, EVS Metal still works to find creative ways to make that customer's fabrication dreams come true. The company's quality team takes into account bottom-line job requirements and expectations, so they are able to mark up internal documents and make design changes that allow the customer to get its expected tolerances without the additional cost.

In terms of the industry overall, however, one of the biggest challenges the company's quality team faces is change. It's absolutely a constant, and keeping up with the latest trends can be a job in and of itself. Whether playing a part in instituting new applications of Six Sigma and lean methodologies, tracking regulatory updates, or analyzing a QMS for additional potential efficiencies across business

processes — continuous improvement simply never ends.

QA and QC may not be the same, but both play very important parts in the most central issue of maintaining overall product quality. From design to deployment, a quality team ensures that every job meets the requirements set out at each stage of the manufacturing process, so that

the end result is the same every time — products that meet, if not exceed, customer expectations, each and every time. ■

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Make Way for Gen Z

continued from p. 1

During the talk, he will showcase the sharp differences in the workplace today compared to 30 years ago. That being said, career expectations remain similar and employers should expect a hard-working, motivated generation.

Many assume, he said, that Gen Z will be most like the Millennials (born between 1981 and 2000, AKA Gen Y), who have never known life without computers. Resistant to traditional manufacturing workflows, they sometimes think they know how to do things better. But with their digital savvy, it was not uncommon for them to come up with more efficient ways of doing things. These qualities sometimes had new employees butting heads with Gen X or Baby Boomer managers. Despite apparent differences, though, Millennials are now spearheading a transformation of the industry.

Stillman will explain during the keynote how Gen Z will be easier to assimilate and will bring with them a whole new set of ideas.

“Statistically, Gen Z are similar to Baby Boomers in their approach to work,” said Stillman. “They are also the most loyal and competitive generation since the Baby Boomers.”

While the style of work may be similar, the method of approach will be quite different. Gen Z’s world engagement is all digital.

Trying to reach them through print ads will simply not have the same impact as it has had in the past.

Speed is another vital ingredient when trying to engage Gen Z. They have grown up in a world where they are used to instant responses. The faster you can respond to them, the more likely you are to engage them.

He’s learned these things by working closely with his son Jonah. Fresh out of high school, his first book “Gen Z @ Work” (HarperCollins) is already a best seller. Jonah and a team of peers conducted one of the first national surveys about Gen Z’s attitudes towards the workplace. The eye-opening results ignited Jonah’s interest in keeping the dialogue going.

“Companies often talk about how they love to innovate, and that is something Gen Z is very passionate about,” said Jonah. “Giving Gen Z employees the platform to create and drive change will get and keep them in the door.”

As well as innovation – this new generation craves innovation at speed, Gen Z will bring many more positive aspects to the workplace. As they grew up amid the 2009 recession, they have a more realistic attitude to work and careers than Millennials, who were sometimes criticized for coming across as entitled. Jonah believes Gen Z is ready to roll up their sleeves and work.



According to his surveys, 79 percent of Gen Z are prepared to start at the bottom of the ladder and work their way up.

Gen Z and Manufacturing

While the average Baby Boomer was largely content with a place on an assembly line, on the shop floor, or in the mechanical arts — subsequent generations have tended to shun careers in fabrication or manufacturing. As a result, hands-on positions in fields such as metal forming, fabricating, welding, and finishing became harder to fill. For at least twenty years the dialogue has escalated about the aging workforce and the erosion of skillsets.

Gen Z may well see the tide turn. They are less opposed to the hierarchical culture and approach common in the manufacturing sector. That may make them willing to return to traditional working styles – at least to some degree. And they are likely

to be easier to connect with and integrate — but only in the right atmosphere.

“If innovation is a priority, Gen Z will likely be a leader in streamlining and optimizing processes for fabricators and manufacturers,” said David Stillman.

Manufacturing, then, can become an attractive sector to Gen Z. As well as a culture of innovation, this new wave of fresh-faced and enthusiastic employees is likely to demand that traditional policies such as work hours, benefits, job descriptions, and career paths are brought up to date.

Gen Y Versus Gen Z

Each generation has distinctly different characteristics. The Millennials (Gen Y) were largely nurtured by omnipresent parents. They tend to be optimistic about the future and focused on their specific interests. Unlike the previous generation, they have some respect for authority. As opposed to the rugged individualism that marked the Baby Boomers and their predecessors, Gen Y prefer to work in teams. They tend to schedule everything and have grown up under enormous academic pressure to perform well. As they grew up in a digital environment, they prefer digital to print publications and reading materials. They are online 24/7 and obtain all their information and most of their socialization from the Internet. But with unlimited access to information, they tend to be assertive and have strong views on many subjects. This can sometimes make them a challenge for older managers set in traditional ways.

Gen Z are shaped by completely different circumstances. For one thing, they are part of a dramatic demographic shift that has gripped the nation. In 2006, for example, there were a record number of births in the U.S. 49 percent of those born were Hispanic. This represented a fundamental change in the American melting pot, both in terms of behavior and culture. Since 2006, that trend has escalated.

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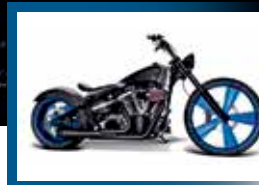
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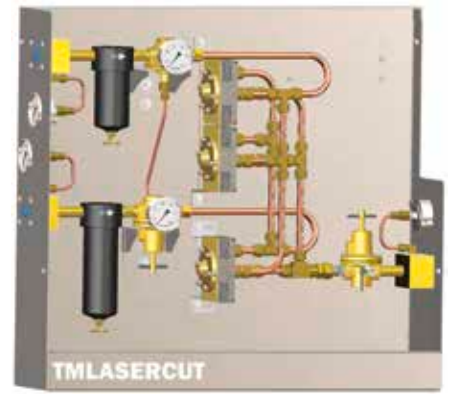
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perfect for other industries like welding and began researching the needs and nuances of those industries.



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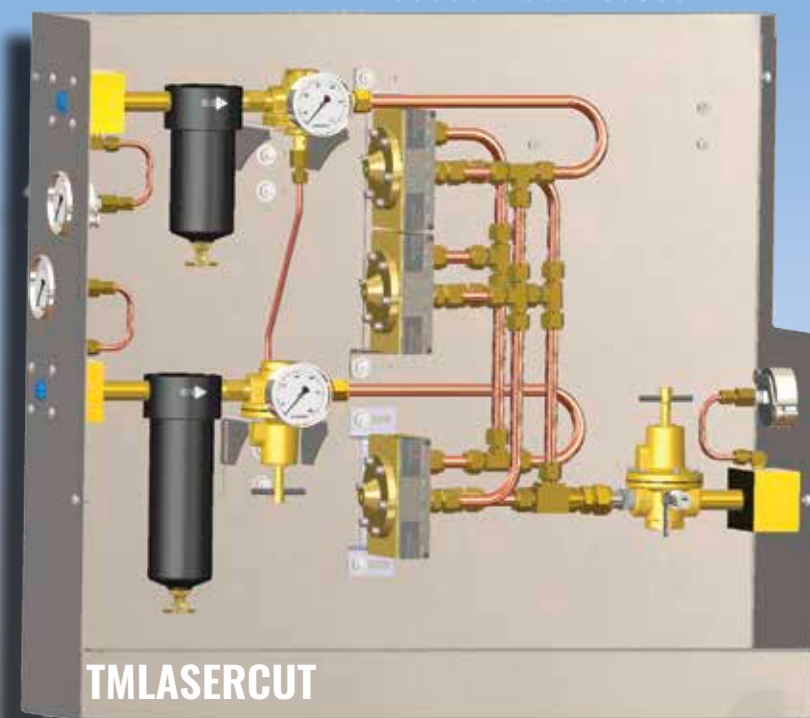


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Q: McDantim Trumix Blenders are not adjustable, why is that?

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Q: What flow ranges can your products handle?

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Q: How much space does your Trumix Blender need?

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Pioneer in Workforce Development: Ajax Metal Forming Solutions

continue from p. 13

"100 percent of our in-house training is documented on our training matrix, a color-coded Excel spreadsheet listing each piece of our production equipment and each employee," explains Brandon Holmes, Ajax plant manager, noting that color-coding is based on an employee's skill level — from entry level to proficient — on a particular machine. "Each skill level derives from a checklist filled out by leads and supervisors that ensures the proper skill sets attained for that training level."

For the large majority of cross-training, Ajax teams up a trainee with a Class A operator, who helps to build the trainee's skills to a proficient level on a particular operation.

"Employees almost never train on a single machine straight through to the proficient level," Holmes says. "They bounce across various machines based on demand because we are a job shop and must stay flexible. So an employee may take six months to become proficient on one machine."

Outside Partnerships Increase Learning Opportunities

Beyond in-house efforts, Ajax receives support from local technical schools, including partnerships with Hennepin Technical College and Anoka Technical College, which provide entry-level manufacturing courses, and Manufacturers Alliance, a Minnesota peer-to-peer education and training resource. State-sanctioned apprenticeships provide another vital learning avenue, as Ajax currently has nine apprentices. Online college courses via Pine Technical & Community College and other schools also find heavy use, as do Dale Carnegie courses. The company tries to make outside learning as convenient as possible via a well-equipped onsite learning center for webinars and online courses.

By continually evolving its training programs and working closely with other institutions, Ajax Metal Forming Solutions has become well-known for developing and rewarding its workforce, and that is paying dividends in its efforts to recruit talent.

"I was on a career panel at a high school event," recalls Wellman, stressing the importance of lifelong learning in our industry by noting that he earned his college degree at age 39. "As soon as the panel concluded, three kids came up to me asking where to find our booth because they were so enthused about the possibilities at Ajax. We need to keep getting in front of people and getting the word out that manufacturing is more than simply a manual-labor job... it is about life-long learning."



Success: Brandon Holmes, Plant Manager

Nearly 11 years ago, Brandon Holmes began his Ajax career performing single-hit stamping, at the time a \$10/hr. job. Looking to grow, he enrolled in the Hennepin Technical College M-Powerment fast-track manufacturing-training program and later would return to instruct some of those courses. He also attended Manufacturers Alliance lean-training courses. As time went on, Holmes transferred into Ajax's fabrication department and participated in the Anoka Technical College sheetmetal program. He became well-versed in fabrication, learning to operate various machines as part of Ajax's cross-training efforts. Holmes continued leadership training at Manufacturers Alliance after shifting to the company's logistics team. He would then return to the shop floor as fabrication supervisor and assistant supervisor in press-room production.

Eventually taking over as fabrication and production supervisor, within the last year Holmes has earned a promotion to plant manager. Along the way he also benefitted from University of Minnesota lean-management courses as well as Dale Carnegie courses. Most recently he earned Certified Professional Project Manager certification through the University of St. Thomas.

Company officials recognize Holmes as a natural leader with a willingness to train others and pass along his knowledge and experience.

"There are career ladders here, and I've benefited from that," says Holmes. "The company really believes in lifelong learning and cross-training." ■



Success: Tiffany Schluter, Class A Machinist

Tiffany Schluter formerly toiled in the retail world, but grew tired of that type of work. Joining Ajax, she took an M-Powered fast-track manufacturing training course at nearby Hennepin Technical College, then was accepted into the company's State of Minnesota-registered Journey Worker apprenticeship program. Completing the three-year program this past fall, Schluter, now a Class A machinist, is still taking classes, recognizing

the benefits of continuing education. Running numerous machines on Ajax's shop floor, she provides an ideal example of the company's cross-training efforts and commitment to employee education and betterment. ■

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When a machine goes down, it costs a company revenue, profit, and reputation. There are often long wait times to receive service. Up! provides manufacturers with available service options to get their machines up and running again.

For service providers, The Up! App offers the ability to connect with potential customers and better serve existing customers — through bid responses and technician scheduling. Service providers can improve the efficiency and productivity of their technicians, such as clearing a backlog of requests or efficiently assigning available technicians to open jobs.

The Up! network currently includes hundreds of service providers from across the country — including OEMs, distributors, and independent third-party service companies.

Easily Implemented in Manufacturers and Service Providers of Any Size

Service requesters can connect with potential service providers in three simple steps:

1. Send Service Requests – Users open the app to send a new service request. They enter equipment information, a brief description of the situation and the current operation status of the machine.

2. Receive Responses – In a short time, they'll receive bids from OEMs, distributors, and independent service providers — all competing for the business. Each bid includes the provider's cost for repair and a time when they can arrive.

3. Schedule Repair Service – Users decide which provider works best for their needs and accept the bid. When service is complete, users rate the provider.

Smartphone users familiar with nearly any on-demand service app find the Up! service request to be just as easy. The app serves service businesses of any size, from solo entrepreneur technicians to multinational OEMs.

Cost-Effective, Convenient and Efficient

The Up! App is free to use for service requesters and service providers. There are no fees for listing a service need or replying to a service request, and payment for service occurs outside of the app between the customer and provider.

The Up! App has the potential to take hours of manual searching and research out of the resourcing of service providers.

Demonstrated Real-World Applications

Service requesters have used Up! to:

- Get emergency service when a current provider was unavailable
- Compare service options to an existing provider
- Get multiple bids to satisfy internal sourcing requirements
- Find specialty providers for unusual or hard-to-service machines

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Make Way for Gen Z

continued from p. 22

While the Baby Boomers (as the name implies) have long been the largest generation, it has become clear that Gen Y numbers will dwarf those born in the two decades following World War II. This also shows up in American names. Smith has been the predominant American last name for three hundred years. But it has now been surpassed by Rodriguez.

Consulting firm BridgeWorks estimates that Gen Z accounts for 61 million people in the U.S., a number that's larger than the entirety of Generation X and already two-thirds the size of the baby boomers. They grew up using smartphones and tablets from an early age. Recent bankruptcies among toy manufacturers may be a symptom of things to come. Whereas pre-teens marked the biggest age bracket for toy makers, their market for those of

Gen Y. After all, Millennials will soon make up the majority of the workforce. The Stillman's and the other panelists will engage in a lively discussion about how to work best with Gen Y, and what hiring and HR

strategies are likely to resonate with an influx from Gen Z.

The panel of experts will share a new perspective and help your company understand how to adapt and attract these new

generations of employees. Topics covered include best practices in such areas as creating a culture of care, communication, technology, teamwork, and mentoring. ■



elementary school age and beyond has shrunk dramatically. Gen Z, though, are thinking ahead. They are prepared to roll up their sleeves and work hard. They want to secure their own financial future.

Companies looking to recruit and retain Gen Y and Gen Z, therefore, will have to adjust their tactics if they hope to succeed. And they must address each demographic differently.

Come hear Jonah and David Stillman, Best Selling Authors and Generation Experts, at their keynote address **"Make Way for Gen Z!" on Thursday 8 November at 8:30 AM. Both will then take part in a panel at 10:30 AM on "Manufacturing and the New Generation Workforce."**

They will be joined by Jacob Wilson, CEO, Morrison Industries, and Lee Ann (Schwope) Cochran, VP Sales & Marketing, PRADCO, to talk about Gen Z and

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Making Manufacturing Workforce Development a Priority

continued from p. 18

two out of five say companies are training people to develop the right skills.

Some other jarring realities for manufacturers exposed in the report: Most manufacturers surveyed say they will face

significant challenges developing a skilled workforce in the next three years:

- Finding experienced new hires (99 percent)

- Upskilling the incumbent workforce (92 percent)

- Onboarding new employees (84 percent)

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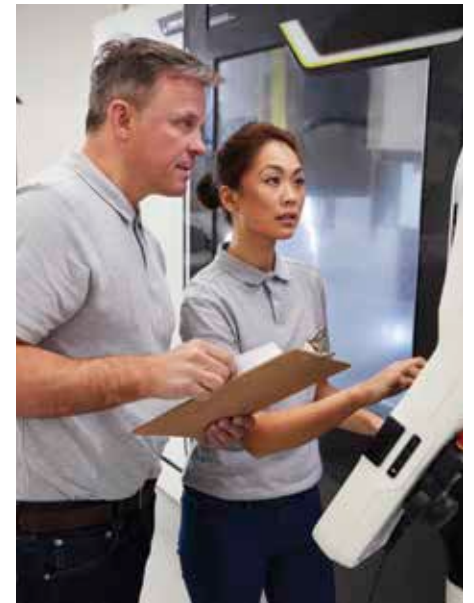
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What's particularly troubling about these results is that even though many actions companies can take to develop and retain employees are under their control, a lot of manufacturers are not taking steps to change the situation.

But even in the face of these challenges, there is hope. Companies can execute workforce development strategies now to ward off the skills gap threats. Developing a strong onboarding process, instituting a formal training program, encouraging continual education, and properly upskilling those responsible for training workers will help companies maintain a highly skilled incumbent workforce — even as they work to attract new talent to the industry.

Companies that recognize the urgency but don't know how to improve their learning and development processes can follow these five best practices for building a high-performance workforce:

1. Identify the business objectives —

A successful training and development program must have the support of senior management. The best way to do this is to demonstrate learning's impact on the business. Tie your training program to the bottom line.

2. Define performance-based competency models —

Having a system in place to codify knowledge and skills required for a specific job role is critical to ensure individuals are successful in their roles. This also ensures that institutional knowledge is passed on to the next generation as veteran workers retire. Today, more employers are using competency modeling to provide a structured way of looking at job progression, job skills assessment, and workforce planning.

continued on next page ►

3. Align learning solutions to develop knowledge and skills — A well-defined competency framework and aligned learning plan will eliminate unnecessary or redundant training and maximize training time to develop the knowledge and skills an employee needs.

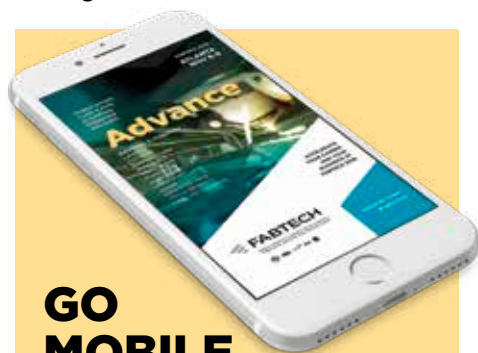
4. Structure your on-the-job training (OJT) program — Performance-based training programs should require the use of standardized OJT tools and techniques to ensure consistent delivery of training. Companies should also ensure they “train the trainers” investing in developing their OJT mentors and instructors so they have competencies in adult learning, mentoring, and delivery of OJT sessions.

5. Develop and execute a measurable impact study — At the start of program design, a company should document goals related to production, quality, innovation, and employee retention. Later, the team can refer back and see how the program measured up.

Manufacturers must start training their employees and their trainers now, so these workers fully understand how to use equipment and technology to their fullest. With proper training, manufacturers can greatly impact their hiring, onboarding and retention — addressing the skills gap and protecting their future growth.

By focusing now on top priorities such as finding skilled new hires, upskilling the incumbent workforce, and retaining employees — companies will be better positioned for productivity and profitability in an expanding economy.

To learn more about developing your workforce, visit our Tooling U-SME team during FABTECH at Booth A2641 or visit toolingu.com. ■



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