

## BUILDING WITH AN EYE TOWARDS THE FUTURE

As their pilot apprenticeship initiative takes off, Philadelphia/Delaware Valley Chapter President John Shegda discusses getting to this point and what the future holds. – pp. 15-16

## MEET OUR NATIONAL ASSOCIATE MEMBERS: ROYAL PRODUCTS

Royal Products Vice President of Marketing Tom Sheridan shares the company's experience with NTMA, what they can offer members, and being part of Titan: American Built. – p. 20

## EMPLOYMENT TRENDS YOU NEED TO KNOW

Because the world of work is changing so rapidly, it's absolutely essential to be up to date on the latest industry trends. To help you stay ahead of the curve, Aerotek compiled a list of the top five trends you may have missed in 2015 and need to know in 2016. – p. 28

## 10 WAYS YOU CAN SIMPLIFY YOUR MANUFACTURING

Every day, Global Shop Solutions talks to small and medium sized manufacturers who are busier than ever. Over and over again, they're asked "How can we simplify?" Here's a list to get you started. – p.30



## TURNING WORKFORCE DEVELOPMENT INTO YOUR PERSONAL MISSION

WHAT IS WORKFORCE DEVELOPMENT, HOW IS THE NTMA PREPARING THE NEXT GENERATION AND WHAT CAN YOU DO TO HELP? – PP16-17

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WELCOMES  
NEW MEMBERS

**ARCH ENGRAVING & STIERN LASER**  
St. Louis Chapter  
Mr. Bill Collier  
254 Northwest Blvd  
Fenton, MO 63026

**HERITAGE AVIATION**  
North Texas Chapter  
Mr. Alan Delgado  
419 Duncan Perry Rd Ste 109  
Arlington, TX 76011

**RIPLEY MACHINE AND TOOL COMPANY**  
Northwestern Pennsylvania  
Chapter  
Mr. Andrew Reinwald  
9825 E Main Rd  
Ripley, NY 14775

**TOLEDO MOLDING & DIE**  
Western Lake Erie Chapter  
Mr. Joe Pirrone  
4 E. Laskey Road  
Toledo, OH 43612

**VOLO AERO MRO**  
Connecticut Chapter  
Mr. Andrew Walmsley  
140 Industrial Dr  
East Longmeadow, MA 01028

**WOODHILL PLATING WORKS**  
Cleveland Chapter  
Mr. Eric Beebe  
9114 Reno Ave  
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**IMTS August Issue**

Contact Tiffany Bryson at [tbryson@ntma.com](mailto:tbryson@ntma.com)



## PRESIDENT'S UPDATE

DAVE TILSTONE / NTMA PRESIDENT

Since its launch in September of 2011, NTMA-U has become one of the most popular member programs. **Because of this success, we recently introduced some exciting alternatives to our Chapters and members during the Chapter Leadership Conference and the MFG Meeting held earlier this month!**

First, some background on the growth and success of NTMA-U: The Education Team, led at the time by Herb Homeyer, wanted an industry specific technical training program that could be delivered at a reasonable cost and offered online for convenience and ease of use. Making it affordable and easy to access at a convenient time for the student became the foundation of NTMA-U. If you aren't familiar with NTMA-U or the NTMA Aptitude test, you are missing out on two of the best workforce development offerings in our industry. The NTMA-U apprenticeship program is sanctioned by the Department of Labor in all 50 states and offers 21 college credits towards an associate degree at the University of Akron to students who complete the courses.

NTMA-U was developed to address the lack of available skilled labor coupled with fewer and fewer schools offering any technical training and instruction on machining. The Education Team was instrumental with identifying the courses offered, and Ken McCreight developed the course materials and videos that supported the lesson plans. After several weeks of development and testing, a pilot semester was launched in the fall of 2012. After the first semester proved to be so successful, the spring semester was expanded to include over 40 students. With insufficient funding to support the anticipated growth, the NTMF awarded \$100,000 to the Education Team. This was a major turning point for the program because it allowed for additional resources to be dedicated to the development of the apprenticeship program and much needed updates to the textbooks.

It also became evident that the fax-based NTMA Aptitude Test that had been used for many years needed to be rewritten and updated to provide an internet-based platform where members could get test results immediately following the exams. Like the modules of NTMA-U, the Aptitude Test has become very popular with over 700 copies sold in 2015. Some members have used the Aptitude Test to determine the training needed for all of their employees and in turn have worked with Ken McCreight to implement a training program for their staff.

The initial pilot program was designed for a semester-based curriculum, however many of the NTMA members wanted the ability to "upgrade" the skill set of employees; so in the fall of 2014, modules were introduced. Modules are single courses that address a specific subject matter such as GD&T. Each module costs \$199, whereas a three-course semester remains at \$449. The modules can be started at any time and provide the same instruction supported by textbooks and videos. Modules provide students and their employer the option of taking one course at a time or enrolling in a 3-course semester. NTMA-U has expanded, now offering 20 modules and training over 850 enrolled students in 2015.

### NEW!

*Three new additions to the NTMA-U program were introduced at the Chapter Leadership Conference and the MFG Meeting in early March:*

#### 1. MEMBER PORTALS:

NTMA-U now offers member companies their own branded NTMA-U portal for training.

#### 2. CHAPTER PORTALS:

Chapters can establish their own branded NTMA-U portal as a "member only" benefit for membership and retention while generating revenue for their chapter

#### 3. CHAPTER GROUPS:

Chapters can establish their own "NTMA-U Group" that offers the "member only" benefit with a revenue sharing component with minimal investment.

For members who have established or want to establish their own apprenticeship program, their own company branded portal is now available. The portal landing page has the company name and logo and offers unlimited access to all NTMA-U courses and related updates for an annual fee. A company planning to purchase 25 or more modules or train 25 students at \$199 per module will breakeven, ultimately receiving the training modules for free. Similarly, Chapters can have their own branded portals and realize higher member loyalty while generating income for every module sold above the breakeven threshold of 25 modules. Yes, for every additional module sold, the Chapter keeps the revenue. For Chapters not interested in a portal or those that simply want to begin a workforce development campaign, a Chapter Group might be the best fit. A Chapter Group includes all students enrolled in NTMA-U that work for member companies within the Chapter. When the Chapter reaches the goal of 25 students or 25 modules purchased, 50% of the revenue for each additional student or module is rebated to the Chapter. The rebate amount will be increased by 15% if it is used for member registration to the Legislative Conference, the Fall Conference or the MFG Meeting.

If you have any questions about NTMA-U, the programs offered or want to arrange a demo, please contact Ken McCreight at 216-264-2834 or [kmccreight@ntma.org](mailto:kmccreight@ntma.org).

DAVE TILSTONE / NTMA PRESIDENT

## OPERATIONS & EDITORIAL

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Nikki Hunt, Writer and Publicist

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Herb Homeyer, Chairman

*Homeyer Precision Manufacturing – St. Louis, MO*

Mark Vaughn, Vice Chairman

*Vaughn Manufacturing Co., Inc. – Nashville, TN*

Ken Seilkop, Board Member

*Seilkop Industries – Cincinnati, OH*

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To advertise in *The Record*, or for information on publishing your corporate newsletter or sales literature, contact *NTMA* at (216) 264-2847 or [tbryson@ntma.org](mailto:tbryson@ntma.org) for advertising, [nhunt@ntma.org](mailto:nhunt@ntma.org) for editorial content.

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[david.zablo@gmail.com](mailto:david.zablo@gmail.com)



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## KUSS FILTRATION DEPLOYS MERLIN IIOT MANUFACTURING SOFTWARE IN USA, CHINA, BRAZIL FACTORIES

In 2008, Cisco first used the term “Internet of Things”, or IoT, to describe the intelligent connectivity of smart devices by which objects can sense one another and communicate. The data shared between these devices offers the potential to profoundly change how, where and by whom decisions about our physical world are made.

Manufacturing companies craving competitive advantage are actively seeking ways to

implement machine-to-machine connectivity their shop floors. They refer to this movement as the Industrial Internet of Things, or IIoT.

IIoT adoption accompanies a changing of the guard in manufacturing plants. New managers consider technology an everyday appendage, not an exotic novelty. So while it's true that there's a herd mentality in manufacturing that can stifle innovation, it's also true

CONTINUED ON – P7

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# 8th Annual NTMA/PMA One Voice Legislative Conference

## April 12-13, 2016

Melrose Georgetown Hotel | Washington, D.C.



Help bring common-sense solutions to Washington by joining us for the eighth-annual NTMA/PMA One Voice Legislative Conference in Washington, D.C., April 12-13, 2016. This is your chance to have your voice heard by the policymakers who are making decisions that directly impact your business.



Manufacturers need to build on their recent major victory: making the R&D Tax Credit and Section 179 Equipment Expensing permanent while extending Bonus Depreciation at the end of 2015. In this election year, lawmakers need to hear from One Voice members to make certain that support for U.S. manufacturing plays a central role in their campaigns and on the 2016 congressional agenda. In this final year of the Obama Administration, businesses must stand up against the onslaught of regulations and make their voices heard in Washington.

For first timers and those seeking a refresher, the One Voice Washington Office will offer a pre-conference webinar on April 5 to brief participants on what to expect during the congressional visits and the latest policy developments. You do not need to be a "policy expert." All you need to do is to talk about your own experience and business.

We need your help and participation to make certain that Washington hears our voice. Please join your industry peers in Washington, D.C. to represent manufacturing in America.

**To Register,**

Visit [www.metalworkingadvocate.org](http://www.metalworkingadvocate.org)

**NTMA | PMA | WiM member** \$345 First Attendee, \$295 Additional Attendees  
**Nonmember** \$495 Attendee      **Spouse** \$195 Attendee

**Registration deadline** March 18, 2016.

**Questions?** Contact [info@metalworkingadvocate.org](mailto:info@metalworkingadvocate.org) or 202-393-8250.



## Legislative Conference Agenda

### Monday, April 11, 2016

4:00 p.m. – 5:30 p.m.

Early Conference Registration

5:30 p.m. – 6:30 p.m.

Optional Early Arrivals Reception  
(Sponsored by Bracewell)

### Tuesday, April 12, 2016

8:00 a.m. – 11:30 a.m.

Conference Registration

11:30 a.m. – 1:00 p.m.

Conference Opening Remarks, Briefing and Lunch

2:00 p.m. – 4:30 p.m.

Capitol Hill Visits

5:30 p.m. – 6:30 p.m.

Networking Reception

### Wednesday, April 13, 2016

8:00 a.m. – 9:30 a.m.

Breakfast, Issues Presentation

10:00 a.m. – 4:00 p.m.

Capitol Hill Visits

(includes lunch with members of Congress)

## Conference Location/ Hotel Accommodations

Melrose Georgetown Hotel  
2430 Pennsylvania Ave. NW  
Washington, DC 20037  
Phone: 202-955-6400  
Rate: \$299 per night (plus tax)

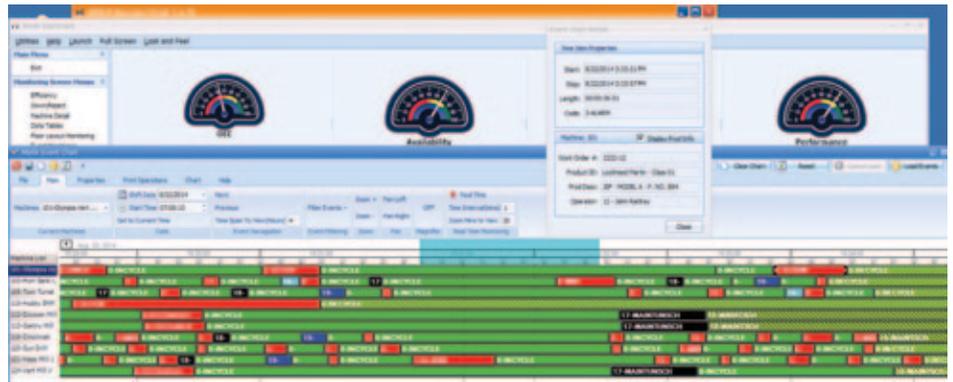
To make your hotel reservation, please call 202-955-6400 and reference One Voice 2016. Deadline to make reservations in our group room block is March 11. Rooms reserved after this date are subject to space and rate availability.

that the herd is starting to move.

So how do manufacturing companies adopt IIoT? It starts on the shop floor with technology that equips industrial machines with the necessary interfaces for connecting, collecting and analysing manufacturing data. To do this they need a proven framework for plant-wide and multi-plant communications. That framework will in turn provide actionable information for machine operators, factory managers, engineers, production managers and senior management to dramatically improve productivity and profit.

Kuss Filtration Inc., a global filtration product OEM, has embraced IIoT with MERLIN Enterprise Edition for a multi-plant rollout of Industrial Internet of Things (IIoT) software. MERLIN will be used in Kuss factories in the USA, China, and Brazil. The purchase includes 43 licenses of MERLIN and is a follow-on to a 10-license sale in June of 2015.

MERLIN is an IIoT shop-floor-to-top-floor communications platform that connects industrial machines and provides manufacturing analytics in real time. Specifically, MERLIN delivers a 10%-50% average productivity increase, and earns 20%-plus profit improvement based on just a 10% increase in Overall Equipment Effectiveness (OEE).



It consistently achieves payback in less than four months with an Internal Rate of Return (IRR) greater than 300%, and connects to any machine, old or new, utilizing native MTConnect, other protocols or MERLIN hardware adapters for older machines.

“Kuss is committed to quality through our operating management system and use of Six Sigma and Lean Manufacturing techniques, which has earned us the ISO/TS 16949 certification in addition to many awards and recognitions for design, innovation and product excellence,” says Kuss Filtration’s President and CEO Hasnain Merchant. “MEMEX’s MERLIN has proven itself, and now we intend to enhance our manufacturing excellence and profitability with MERLIN in three of our factories.”

Kuss will use MERLIN to extend its reputation for unparalleled quality and innovation. The company has over 60 years of experience providing air and liquid filtration solutions to a diverse global market. Today, Kuss Filtration is comprised of six locations in the U.S., Brazil, Europe and China strategically placed to service its growing global customer base.

“Kuss Filtration is a great example of a world-class company embracing the power of our MERLIN communications platform,” says MEMEX CEO David McPhail. “MERLIN proves that the Industrial Internet of Things isn’t a theory. IIoT is an implement-now competitive advantage for the smartest factories on the planet.”



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## TERESA BEACH-SHELOW, PRESIDENT OF SUPERIOR JOINING TECHNOLOGIES, INC.

### TELL US ABOUT YOUR COMPANY:

As President of a Woman Owned Small Business, I wear a multitude of hats to drive our company with innovation, growth and profitability. My husband, Thom, and I started Superior Joining Technologies (SJTI) in our garage in Rochelle 24 years ago. SJTI is an AS9100 registered firm specializing in “Micro-TIG” and “Micro-Laser” welding, 3D Multi-Axis Laser cutting and welding, Fluorescent Dye Penetrant and Magnetic Particle Inspection and is a FAA Repair Station. We have NADCAP accreditation for our Non Destructive Testing Services and are NADCAP compliant for T.I.G. Welding.

### WHAT BROUGHT YOU INTO THE MANUFACTURING INDUSTRY?

I came from banking, but Thom worked in the industry and would discuss it at the dinner table in the evenings with the family. On vacations, we would often tour businesses and observe various manufacturing processes. It so excited us that my daughter and I both entered this field. This training has helped me promote our company, connect with other manufacturing companies for success and understand our current workforce issues.

### WHAT MOST INTERESTS YOU ABOUT THE INDUSTRY?

Manufacturing, in some way, is part of everything we touch on a daily basis. I love seeing the most basic to the highest-tech processes, from beginning to end. It really is an art as well as a skill, and it never ceases to amaze me how our company or companies I know solve problems around the world.

### WHAT HAS YOUR EXPERIENCE IN THE INDUSTRY BEEN, AND HAS YOUR GENDER PLAYED A ROLE?

Often, I am the only woman at the table; however, I am still at the table since I add value, ideas and solutions to the conversation. I encourage women to be active and participate in industry groups, and I look forward to the day when gender isn't an issue. I have helped foster groups and events to do this, such as WOTM, WIM, etc.

### HOW HAVE YOU SEEN THE INDUSTRY EVOLVE SINCE BEING A PART OF IT?

It has become lean, automated and safer. Opportunities are endless; whether it is the ability to provide jobs whereby the employee can earn a living wage or the ever-changing, ever-growing innovative processes to improve accuracy and efficiency. Two areas of change that our company is focusing on now for the future are 3D Printing and the Internet of Things.

### HOW DO YOU HOPE TO SEE THE INDUSTRY EVOLVE IN THE NEXT DECADE?

As we start to use big data and 3D printing, my hope is that established companies can embrace these processes to make better decisions, boost quality and output and solve problems faster, regardless of size. I hope small companies can join large

companies in adopting these so they will not be left behind. In a three step process, companies need to learn the processes, embrace them and grow.

### WHAT ADVICE DO YOU HAVE FOR EMERGING LEADERS AND FEMALE STUDENTS INTERESTED IN MANUFACTURING AND STEM CAREERS?

One, network as much as possible to learn of the vast array of manufacturing techniques and opportunities; Two, tour as many manufacturing companies as you can to see the different processes used for the same result; And three, collaborate with others in the industry to create best practices and innovative solutions.

### WHAT NEW TRENDS DO YOU SEE IN THE INDUSTRY?

Automation and 3D printing are the new trends. As we invest in these, we need to embrace training our employees, helping them evolve, otherwise, they will move on. Something new is the Internet of Things, which we are trying to use in marketing initially.

### HOW DOES YOUR COMPANY SUPPORT INDUSTRY INITIATIVES, SUCH AS WORKFORCE DEVELOPMENT?

We always have young people on our staff. We work hard to attract them to the manufacturing industry by providing shop tours, a Lunch and Learn series, sponsoring Manufacturing Day and its ancillary events, the local Robotics initiative and NIU Sports teams, among others.

We also partnered to create Manufacturing Camps for the youth which is now managed by Nuts, Bolts & Thingamajigs. These camps have been a successful way of introducing middle and high school students to the fascinating, high-tech career

choices available to them in today's automated manufacturing industry. In 2016, there will be 46 camps!

### ARE YOU INVOLVED IN GROUPS OR ASSOCIATIONS FOR WOMEN IN MANUFACTURING?

Twelve years ago, I was one of the founders of Women of Today's Manufacturing (WOTM) and still remain active in it. I have served as Chair of The Technology & Manufacturing Association Women's Committee for two years; I am a member of the Rockford Chamber of Commerce Manufacturing Council, Women in Manufacturing (WiM), and the local NTMA, the Rock River Valley Tooling and Machining Association.

### WHAT BROUGHT YOUR COMPANY TO THE NTMA AND HOW ARE YOU ACTIVE WITHIN THE ASSOCIATION?

In 2009, SJTI bought a Trumpf multi-axis laser so we joined NTMA for educational purposes, workforce development ideas, sales and to explore other opportunities. Over the years, I have participated in the events in Washington D.C.

### FINAL THOUGHTS:

I am truly passionate about getting young adults interested in manufacturing, not only as a career but to be excited about the processes, innovations and respect for the industry. Manufacturing is the backbone of everything we touch.



*If you would like to be featured in our NTMA Women in Manufacturing series, contact Nikki Hunt at [nhunt@ntma.org](mailto:nhunt@ntma.org) for more information.*

# LEADERSHIP LAB FOR WOMEN IN MANUFACTURING



Women in Manufacturing (WiM) and Case Western Reserve University's (CWRU) Weatherhead School of Management have collaborated to produce the "Leadership Lab for Women in Manufacturing."

The Leadership Lab for Women in Manufacturing will provide participants the opportunity to leverage their own strengths to achieve in the workplace. This eight-day program will provide manufacturing women in mid-to-high level leadership roles with executive education that concentrates on issues pertinent to women working in male dominated fields and is presented with a specific focus on the field of manufacturing. The program includes three sessions covering topics such as "Women in Manufacturing: Bias Barriers and Opportunities," "High-impact Leadership for

Women in Manufacturing," and "Skills and Strategies for Leading the Way Forward in Manufacturing."

"WiM is thrilled to be partnering with Case Western Reserve's Weatherhead School of Management to offer this outstanding program to our members," says WiM President Allison Grealis. "As the only national trade association dedicated to providing year-round support to women in manufacturing careers, WiM is always looking for new ways to help our members thrive. The Leadership Lab for Women in Manufacturing program is an example of our ongoing commitment to women's leadership in the manufacturing sector today and into the future."

Leadership Lab for Women in Manufacturing builds on the success of the

CWRU's Leadership Lab for Women that was created in 2014 to provide professional and leadership development for women in male-dominated occupations. Registration rates for the Leadership Lab for Women in Manufacturing program are dependent upon the size of the company, and scholarship opportunities may be available from WiM if certain eligibility requirements are met. This program is generously supported by the GE Foundation, whose funding will allow women who work in small to mid-size manufacturing companies to participate. For more information, visit our website <http://www.womeninmanufacturing.org>.



## WHEN THE COOLANT BECOMES A LIQUID TOOL

Blaser Swisslube's first product in 1936 was a shoe polish sold door-to-door at local farmhouses; but today, the independent Swiss company is well-known for developing high-quality metalworking and grinding fluids. Customers all over the world use Blaser's coolants to produce a range of parts — tiny parts for watch-making, demanding parts for the medical industry, huge structural elements for the aircraft industry, and mass-produced critical automotive parts.

Since its founding by Willy Blaser in Switzerland, Blaser Swisslube has been a family-owned business. Second-generation Peter Blaser made the decision in 1973 to start producing metalworking fluids for industrial machining, setting the path for Blaser's future success in the industry as a leader in coolant technology.

Blaser has been active in the U.S. for more than 30 years. The sales office opened in 1981 followed by a production plant in Goshen, New York, the location of the Blaser Swisslube's headquarters for North and South America and was the first plant outside of Switzerland.

Blaser is one of the first companies that

brought a bio-concept product to the market. The products of Blaser's Blasocut line are 100-percent bactericide-free, meaning they are both skin and environmentally friendly. Over the years, the company has adapted to the always-changing processing conditions, such as machines, tools, and processing parameters, and the once-small business has grown into a global player serving over 60 countries all over the world. Marc Blaser (third generation) took the helm in 2011 as CEO of now around 600 employees worldwide.

With their ultra-modern Technology Center at the Headquarters in Hasle-Rüegsau (Switzerland), Blaser has the possibility to test their latest developments and recreate the versatile machining operations of its customers and partners. Beside their Technology Center, which is unique in the Industry, Blaser occupies a Laboratory with around 70 researching chemists and laboratory technicians on over 37,000 sq. ft. The Laboratory is equipped with the latest state-of-the-art devices.

The goal of Blaser Swisslube's is to opti-



mize its customers' manufacturing processes with the Liquid Tool and to improve their economic efficiency, productivity and machining quality. In close cooperation with the customers and based on a holistic view of the manufacturing process, Blaser Swisslube presents the possibilities to fully exploit the potential of machines and tools by using the right metalworking fluid which becomes a Liquid Tool. This promise is backed by excellent products, customized services, competent experts and its long experience in the metalworking industry. For more information, please visit [www.blaser.com](http://www.blaser.com).



# NTMA Technology Tour 2016

## Japan



APRIL 17-24, 2016

National Associate Members BIG KAISER Precision Tooling, Mazak, Memex, and Blaser Swisslube will host a 6-day tour for NTMA members to manufacturing facilities in Japan.

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### Japan Tour Schedule

Date	Day	Activity	Accommodation
17-April	Sunday	US Departures / Monday arrivals to NGO (Nagoya Int'l Airport)	n/a
18-April	Monday	Day 1 - Arrivals to Nagoya / Welcome Dinner (TBD based on arrivals)	Nagoya - TBD
19-April	Tuesday	Day 2 - Visit MAZAK facilities Minokamo and Minokamo 2 Tour MAZAK Optonics	Nagoya - TBD
20-April	Wednesday	Day 3 - MEMEX demonstration "Data-Driven Manufacturing" Mazak Headquarters Tour   Visit Mazak Museum of Art in Nagoya Depart PM by coach to Kyoto (2 hrs)	Grand Prince Hotel, Kyoto
21-April	Thursday	Day 4 - Kinkaku-ji (Golden Pavilion at Deer Park) Shopping at Handicraft Center   Visit Nijo Castle (home of the shogun) Continue by coach to Awaji Island	XIV, Awaji
22-April	Friday	Day 5 - Tour BIG Daishowa's/ BIG KAISER's manufacturing plants Blaser "Liquid Tool" presentation & machining demonstrations	XIV, Awaji
23-April	Saturday	Day 6 - Depart Awaji by coach to Osaka - Free time in Osaka	Swissotel
24-April	Sunday	Day 7 - Departures to U.S. from Kansai Int'l Airport (KIX) or Osaka Itami Airport. Same day arrivals to U.S. destinations	n/a



NTMA Tech Tour 2016 is a special opportunity for NTMA members to learn, network and tour manufacturing facilities in Japan. While challenges in manufacturing are universal, methods applied in other parts of the world can bring unique insight and ideas to improve your own operations. Break away from your routine for one week and get inspired during NTMA Tech Tour 2016 - Japan!

#### REGISTRATION AND PRICING INFO:

Administration Fee: \$495

\*\* Payment deadline: March 15, 2016

#### For Registration Contact:

Brittany Belko

bbelko@ntma.org

Maximun capacity is 25

#### Facility Tours: Your hosting National Associate Members include:

Mazak Corporation, MEMEX, BIG Daishowa (BIG KAISER), and Blaser Swisslube

#### The Hosting Companies will provide:

- Complimentary ground transportation in Japan
- Hotel accommodations
- Sightseeing activities
- Most meals

#### Flight Information:

- Participants should book their own flight departing the U.S. on Sunday, April 17, arriving Chūbu Centrair International Airport in Nagoya (NGO) on Monday, April 18.
- Select a return flight departing Sunday, April 24, from Kansai International Airport in Osaka (KIX) or Osaka Itami Airport (ITM)



# NIMS RELEASES NEW ONLINE TOOL TO CONNECT COMPETENCIES TO CREDENTIALS TO CAREERS

As the industry standard for training and skill validation in precision manufacturing, NIMS offers over 50 credentials that verify skills in a variety of job functions and processes. But, how do these credentials relate to the specific jobs and skills in-demand across the industry?

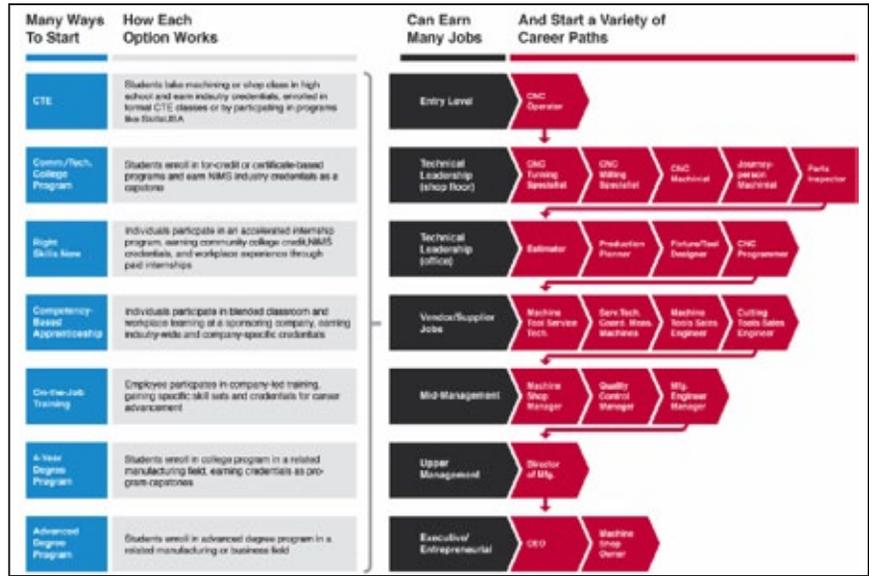
To answer that question, the NIMS team created the NIMS Career Pathway Tool to help employers, job seekers, and educators understand the numerous career pathways in the industry and what NIMS credentials really mean - how they help ensure skills at a variety of levels and how they can be earned to enter and advance in careers.

### HOW DOES THE PATHWAY TOOL HELP?

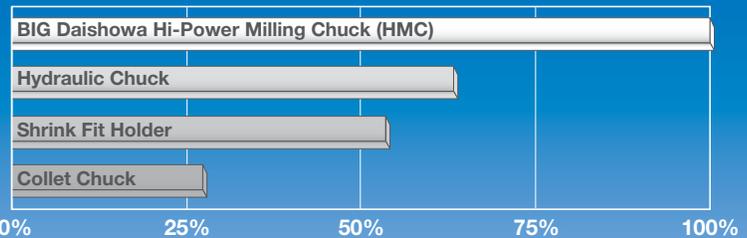
- Employers can use it to enhance hiring practices, develop better job postings, and incorporate NIMS credentials into training operations.
- Educators can use this tool to design their curriculum, aligned with industry standards and directly linked to nationally recognized credentials.

- Students can use this information to plan their career path by learning which credentials fit their personal career goals and to better translate their respective skills sets developed in their training program.

For more information, visit [nimsready.org/pathway/](http://nimsready.org/pathway/).



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**YOUR SETUP AND CHANGEOVER  
TIMES ARE NEXT TO NOTHING.  
YOU'RE RUNNING 24/7 WITH EASE.  
NO WONDER THROUGHPUT  
NUMBERS ARE OFF THE CHARTS.**

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Modular, automated pallet systems and 24/7 machining capabilities are opening whole new doors of productivity. And opportunity. With the Makino MMC2 and MAS A5 cell controller, you know you're working with the industry standard for virtually eliminating setup and changeover times. While helping you manage what matters most: production schedules, costs and throughput.

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can help you compete globally.  
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**WHEN YOU MAKE WHAT MATTERS**



# AUTOMATION: MAN VS. MACHINE OR MAN AND MACHINE

WEIGHING THE REALITIES OF WORKFORCE, TECHNOLOGY, AND HUMAN SAFETY IN MODERN INDUSTRY.  
ORIGINALLY PRINTED IN AUTOMATION WORLD

American folklore is home to many tales, some of which describe how people often view automation, i.e., as man vs. machine. For example, in the story of Paul Bunyan, the eponymous lumberjack is confronted by a chainsaw salesman who tells him he must “get with the times, become modern,” thus leading to the big contest at the core of the story. The chainsaw salesman narrowly defeats Paul Bunyan and Paul moves on, reportedly to Alaska.

Did Paul really need to move to Alaska? Could he not have adopted the chainsaw and become even more productive? Paul’s knowledge of the forest and the work of a lumberjack must have offered some value that could not be captured by the salesman and his chainsaw. Instead of the big contest being framed as man vs. machine, could we not introduce automated controls solutions as “man and machine?”

Consider how manufacturing has benefited from technological innovations. Automated control systems have been used on everything from simple stand-alone machines to highly complex processes. Automation has helped drive out inefficiencies by reducing manual labor, increasing throughput, providing a safer work environment, producing more consistent and reliable results, and other gains that might not otherwise have been attained. Today, the collection and analysis of data is offering even greater insight into manufacturing processes, facilitating continued improvements and delivering increased company profits.

We also need to look at the many factors that lead to the need for automated control solutions. Labor cost and regulatory standards are significant factors. In countries with a high cost of labor you tend to see more automation. The same is true in countries that have stringent regulatory requirements. Europe, having both, is a good example and is often seen as a leader in automation practices and standards. Human error is another significant factor. Human errors can result in inefficiencies, loss of production, invalid data and even more serious consequences when it involves safety. In fact, human error has been shown to be the largest contributor to accidents and disasters.

Some may argue that, thus far, I have presented a better case for the “man vs. ma-

chine” argument than “man and machine.” But first, let’s consider a few other factors— notably the widening skills gap faced by manufacturers and the human component of industry.

**“SUCCESSFUL AUTOMATED CONTROL SOLUTIONS NEED TO INVOLVE MORE THAN HARDWARE, SOFTWARE AND EQUIPMENT. WE MUST CONSIDER THE HUMAN COMPONENT AND BE ABLE TO CAPTURE THE STRENGTHS OF EACH.”**

In 2011, more than 600,000 jobs went unfilled due to the skills gap. This is a common topic across industry and is of great concern to U.S. manufacturers. Contributing factors to this continuing problem include: the 2.7 million baby boomers that will be leaving the work force, continued economic improvements, growth in manufacturing, and re-shoring. Over the next decade an estimated 3.5 million jobs will become available and it is expected that nearly two million of them will go unfilled. Innovations in automation will play a substantial role in allowing manufacturers to remain competitive despite this gap.

Looking at the human component of industry, while it is true that human error is a primary cause contributing to accidents and disasters, it is also true that humans have the ability to reason and are better able to adapt to changes than an automated system. There

is much to be said about an experienced operator with a keen sense of observation who can detect a problem and whose quick reaction and creative problem solving has saved the production run—not once, but time and time again. Such abilities highlight invaluable human skills that are learned over time and cannot be duplicated in an automated solution. Automated control systems are simply too complex and engineers are not able to take into account every possible scenario that might be encountered.

The challenge then is to find a balance between minimizing human error and maximizing system performance while keeping the operator proactively involved in the process. Successful automated control solutions need to involve more than hardware, software and equipment. We must consider the human component and be able to capture the strengths of each.

While some can argue that the current state of industry is best represented as “man vs. machine” or “man and machine,” the reality moving forward will more likely be characterized as “man with machine.” Humans will remain an essential part of the manufacturing process and the key to success in any automated controls solution.



## SAVE THE DATE

**04.27.2016**  
Akron, OH

**REGISTRATION**  
Early Bird \$300 (Deadline 4/6/16)  
Member \$375  
Non-Member \$500

**NTMA FINANCIAL MANAGERS ROUNDTABLE**  
Akron, OH  
Wednesday, April 27th, 2016

- Economy & Market Updates
- Tax Landscape Update
- Key Metrics for Performance Dashboard
- Effective Budgeting
- Costing and Overhead Allocation Methods

**SPONSORED BY**  
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**Tuesday, April 26 - Networking Reception**

For registration information or questions contact:  
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# BUILDING WITH AN EYE TOWARDS THE FUTURE

AS THEIR PILOT APPRENTICESHIP INITIATIVE TAKES OFF, PHILADELPHIA/DELAWARE VALLEY CHAPTER PRESIDENT JOHN SHEGDA DISCUSSES GETTING TO THIS POINT AND WHAT THE FUTURE HOLDS.



John Shegda, owner of M&S Grinding and NTMA Philadelphia/Delaware Valley Chapter president, observed what many Chapters across the country see in their regions: despite being heavy with manufacturing, a lack of qualified emerging leaders in the area was causing companies to fall off, in turn hurting the Chapter and shrinking Philadelphia's precision growth.

"The Philadelphia/Delaware Valley Chapter region and southeastern Pennsylvania as a whole have not communicated very well," says Shegda. "With different states, different counties, a big city, it breeds a lot of resentment and tends to have

regional apprenticeship program effort. "It kind of grew and took its own life on from there. We began regularly speaking to the Department of Labor and the local Workforce Development Boards as well as the community colleges," says Shegda. "The community colleges work as a community and share resources together; it's about six or seven schools total all around this region, which is great because there's this network that already exists from an educational standpoint."

"Once we started asking the questions, we began to realize that everything we would need – all of the resources, all of the programs – to pull off a fully-regional apprenticeship program, with the NTMA as the central sponsor, was already in place and working. The issue was that these programs and resources just were not connected or had not communicated before with one another. It became our job to make connections and ask people if they mind talking to others, and that was kind of what January conference meeting was about."



people default to just taking care of their own. The whole region doesn't generally act together." After years of talking about it, the Philadelphia/Delaware Valley Chapter recently took the much needed steps to bring the surrounding manufactures together with the common goal of piloting an apprenticeship program initiative.

"While other regions around the country have done well with putting apprenticeship programs and initiatives in place, we haven't done a great job here in Philadelphia of this. After Herb Homeyer was here in November, we kind of looked at putting an initial, small pilot program together for apprenticeships, thinking of maybe ten people in one tech school. When we mentioned we were looking to use an NTMA model, Herb suggested that we talk to Mark Lashinske in Arizona. They were able to help provide us the program they use, and help us as a starting point."

Shegda used the informational packet and curriculum guidelines Lashinske provided as a spring board to approach the Department of Labor. With a few changes to the program to make it applicable to Pennsylvania, Shegda was able to initiate conversations around a

## THE MEETING

Before inviting local manufactures to hear their plan, Shegda and his team spoke to NIMS to discuss resources and visited college-level and technical high school training centers for facilities. Having put the network together, the last piece was holding the meeting and attracting as many manufacturers as possible. "We knew we needed to direct that meeting towards the manufacturer, because it's one thing for it to be put in place and go into the manufacturers and say "look we did this for you," but it's completely different, and necessary, to have the manufacturers realize that this needs to be done and asking for it," says Shegda. "It is much more important that the manufacturer be pulling the program,



rather than it being pushed to them."

**"IT IS MUCH MORE IMPORTANT THAT THE MANUFACTURER BE PULLING THE PROGRAM, RATHER THAN IT BEING PUSHED TO THEM."**

With Dave Tilstone and Ken McCreight in attendance, the meeting was designed to show the manufacturers the feasibility and structure of a regional apprenticeship program. "All manufacturers know that they need training and a good pool of talent – it's everyone's complaint across the country, that there aren't enough good employees to hire. We showed them we could put all our pieces together and successfully train incoming employees. The systems were all there and working, the last piece was them; they had to ante up with a slight monetary, but mostly time commitment, to make this work."

At the end of the two-hour meeting, Shegda gave his call to action, asking companies to commit. "We needed to see a certain number of these companies committing to this. Out of the 67 attending companies, 45 signed up during the meeting, with another 15 that were unable to attend also committing after. "We were hoping for 30; we figured that would be enough of a majority and a showing for us to want to continue with this and push it forward."

## THE NEXT STEPS

Prior to using a training center, Shegda and his team must register them as educational members of NTMA to access the NTMA-U curriculum. Currently, two of the four participating community colleges are NTMA members. A board of educators and manufacturers will then decide on the course work and testing points using a combination of NTMA-U curriculum along with the curriculum from the schools. They are also working to finalize the Department of Labor information. The plan is to have a pre-apprenticeship program in place by September to funnel eligible apprentices into the official program.

"We're working now with the local Workforce Development Board to find potential apprentices who are currently unemployed or under-employed," Shegda says. "The Board would take that group and send them to community college where they

would go through mechanical testing, drug testing, and be submitted to interviews with manufacturers. The manufacturers then have the chance to give input into whether a candidate would do well in the industry. They boil that initial group down to about 10 to 15 candidates, and these finalists go through the program fully paid by the state. They get pre-apprenticeship training with some shop math, blue print reading and high-level touching NTMA instruction, such as mill work and grinding, as well as some non-NTMA skills like sheet metal and welding. Companies involved with the program will then be able to hire and enter them into the apprenticeship program, likely with some subsidized help from the state.”

**“THEY GET PRE-APPRENTICESHIP TRAINING WITH SOME SHOP MATH, BLUE PRINT READING AND HIGH-LEVEL TOUCHING NTMA INSTRUCTION, SUCH AS MILL WORK AND GRINDING...”**

The intention is to get two or three pilot programs up and running across the region this year, with ultimately creating six to eight programs in the next two to three years. All programs will be administrated by a third party manager in order to greatly reduce the paperwork for the manufacturer.

The biggest key, Shegda says, is that the employers are involved; Manufacturers have to be willing to interview candidates and offer shop tours. The end result will not only help the region by offering well-paying jobs, but also increase enrollment to community colleges and technical centers and send good workers into local companies.

#### THE FEEDBACK

Already since the meeting, nonmember companies have inquired about NTMA memberships, something Shegda is hopeful will turn into growth, awareness and sustainability for the already highly active Philadelphia/Delaware Valley Chapter.

“It really shows that these companies see the value that was presented to them and the value of the apprenticeship model that we’re looking to put in place,” Shegda says. “We think that a great side-benefit to the program will be the growth of the chapter. Because we showed a good value of NTMA, we have already had some strong inquiries for membership. NTMA brings a lot to the table, and many companies didn’t realize this – we just had to wake them up to the fact.” With the majority of manufactures present at the meeting already signed on for the initiative, Shegda believes others will quickly come on board once the pilot programs are in place.

As for apprentice candidates, Shegda

## LINKEDIN WITH MANUFACTURING: THE B2B BENEFITS OF ONLINE MARKETING WEBINAR

Did you know 80% of Social Media B2B leads are generated through LinkedIn? Learn how you can position your brand to engage with this audience!

Join us Wednesday, April 6th at 2:00 PM EST as we discuss the importance and benefits of maintaining a social media presence for B2B manufacturers.

Jason Plavic, Strategic Partner with Advance Ohio, will discuss what social media means for B2B manufacturers, how marketers are using these new platforms, and how to create and measure a successful marketing campaign with LinkedIn.

Jason Plavic is a digital marketing expert with 12+ years of experience managing, consulting and implementing compre-

hensive marketing strategies to champion multi-channel growth for B2B companies. His social media experience ranges from the largest Fortune 50 companies all the way to local businesses. During his professional career, Jason has been responsible for helping multiple B2B companies and associations generate new business and grow brand awareness.

Join us and learn if your company is committing any of Jason’s “5 Mistakes Manufactures Make on Social Media” and how to correct them! To register, visit <http://bit.ly/1R4qmL3>. For more information, contact Nikki Hunt at [nhunt@ntma.org](mailto:nhunt@ntma.org).



**“NTMA BRINGS A LOT TO THE TABLE, AND MANY COMPANIES DIDN’T REALIZE THIS – WE JUST HAD TO WAKE THEM UP TO THE FACT.”**

doesn’t foresee a shortage any time soon. “At M&S Grinding, the average employee age is 31, so we’re a young crew. In a little over the last year, we’ve hired four people out of these pre-apprenticeship programs. Out of our 35 person crew, eight of our employees want to be involved in this initiative so they can get higher learning, evolve their skills, and ultimately earn accreditations towards college credit – not only through the NTMA-U and their relationship with the University of Akron, but locally for associates degrees and ultimately a bachelors degree in engineering technology from either Temple University or Drexel University. It’s offering a lot of opportunity pathways for development that will keep engagement in the workers, so our employees, and hopefully new people entering the program, are really excited for it.”

#### THE FUTURE

According the Shegda, this initiative is only step one. “We’re hoping to have 10 to 20 apprentices fully in the program by fall. What we want to do is build it with an eye towards the future,” he says. “Once we build the structure and have the system running, all it would take is a curriculum change to



have an apprenticeship program ready-made for whatever’s next. We’re trying to build this with the best interest of the region in mind to offer the best roads for all of manufacturing. We have great resources here and feel that there’s a real high chance of success to getting this up and operational.”

And that’s a sentiment Dave Tilstone shares, as well, saying, “I have not visited any region in the U.S. that has such readily available and qualified resources for an apprenticeship program. The energy and commitment from attendees at the meeting was quite remarkable and should provide a strong platform to get the program started. I was especially pleased with the large turn out of manufacturers with a large majority committing to participate. NTMA is proud to be part of this effort.”





# TURNING WORKFORCE DEVELOPMENT INTO YOUR PERSONAL MISSION

BY BILL PADNOS,  
NTMA DIRECTOR OF YOUTH ENGAGEMENT

### WHAT IS WORKFORCE DEVELOPMENT?

The best and most concise definition I saw for workforce development comes from *Workforce Development in Developing Countries: A Framework for Benchmarking* by Robert McGough, Jee-Pang Tan and Alexandria Valerio of the World Bank:

“Workforce development serves a dual function; enabling individuals to acquire knowledge, skills and attitudes for gainful employment or improved work performance; and providing employers with an effective means to communicate and meet their demand for skills.”

That definition of workforce development perfectly describes NTMA’s National Robotics League (NRL).

The NRL is a platform for students to acquire the technical and soft skills needed for a career in manufacturing while enabling NTMA member companies with the opportunity to communicate directly to their local high schools on their



workforce skill needs. In other words: NRL = Manufacturing Workforce Development.

Workforce development does not exist in a vacuum; employers must be active participants in the process. Students will only learn the skills that you need for your future employees if you are a part of the knowledge acquisition process. Students will only understand your company culture when they are able to interact with you and your employees at your facility over an extend period of time and will then want to work for you.

Workforce development is about engaging potential employees (high school students) and creating talent supply pipelines before you even need to hire a new employee. Workforce development is

not about posting and praying that a high-quality, unemployed applicant just happens to be driving by your facility and stops when they see your help wanted sign. If you add up the time and expense it took for you to print and hang the help wanted

sign, to place the ad in the local paper and online job board, to read all of the resumes, to interview the candidates, to make the hire, to fire the hire and to then hire your second choice, it would be less than the cost of being an NRL Industry Advisor. Not to mention, being an advisor is a whole lot more fun!

Manufacturers want their employees to be problem-solvers, but allowed for the skills gap to grow over the past 25 years. In 1990, the National Center on Education and the Economy started to ring the alarm of this problem with its report, *The American Workforce – America’s Choice: High Skills or Low Wages*. Today, these types of reports are coming out fast and furious. It is in fashion to talk about the skills gap.

It is time to turn workforce development into your own personal mission and not a problem for someone else to solve. The NTMA is sponsoring a Manufacturing Workforce Development Roundtable on Friday, May 20 at the California University of Pennsylvania. This event happens to be at the same time and location of the NRL 2016 Competition. This is a great opportunity to learn from industry experts on ways that they are development their workforce while witnessing the future in action.



# MAKE A DATE FOR DESTRUCTION!

Join us for an action packed event that will test students' ingenuity as they go head to head with their own mechanical creations in duels of robot combat.

This event, brought to you by the National Tooling and Machining Association, demonstrates how this powerful program is aligning industry and education to introduce students to the benefits of a high-tech career.



*THE PREMIER NATIONAL  
ROBOTICS COMBAT LEAGUE*

**National  
Competition:  
May 20-21, 2016  
California University  
of Pennsylvania**



**GONRL.ORG**



# ATMA CELEBRATES NEWLY APPOINTED OFFICE

More than seventy members, associate members and guests gathered for the Arizona Tooling Machining Association's January Dinner Meeting, where Dave Tilstone gave the oath of office to Arizona Chapter President Mark Lashinske, Vice President Kevin Beach, Director John Anglin, Director, Director Ilene Price, Director Gary Watkins and Trustee David Lair.

Newly appointed Chapter President Mark Lashinske delivered an insightful speech sharing the Chapter's mission, visions, value and goals, including aligning members with the NTMA One Voice lobbying group. Lashinske opened by posing the question, "Why? Why are we here? Why are we in business? And more importantly, why do we spend so much of our time, energy and money doing what we love?"



The new board and plans aim to kick start a revival for the Chapter, which has been experiencing a lull in membership and activity. Among the new goals for the Chapter is planning monthly meetings, creating an electronic posting board, developing H.R. and workplace environment handbooks and advice and creating pathways for training a skilled workforce. "We make a difference in the making of things, taking something from nothing to something of value," Lashinske says. "We create wealth in believing that we can. I believe in this Association, I believe in our Members, and more importantly, I believe in our employees and families."

The evening also recognized the newest ATMA Journeyman Certificate recipients for the Arizona Precision Manufacturing Apprenticeship Program (AzPMAP), presented to apprentices James Cropper and Michael Bessette. The Journeyman Certificates for CNC Lathe, Mill, and Programming were presented to Cropper

and Bessette by Mark Lashinske, Jim Wall, representing NIMS, and William Higgins, Arizona State Apprenticeship Program. During their apprenticeship, Cropper and Bessette did on-the-job training with AzPMAP Member Company, Modern Industries, and attended Mesa Community College through scholarship funds from the Gene Haas Foundation. Congratulations to Cropper and Bessette



From right to left: Arizona Chapter President Mark Lashinske, Nancy Yahraus, past Chairman Dan Yahraus, Jeannie Lashinske and Angela Lashinske

on their certification and the new Arizona Chapter office.



## SAVE THE DATE

05.20.2016  
California, PA

REGISTRATION  
Early Bird \$300  
(Deadline 4/29/16)  
Member \$375  
Non-Member \$500



California, PA

NTMA WORKFORCE DEVELOPMENT ROUNDTABLE

Friday, May 20th, 2016

- Managing the Talent Pipeline
- Sleep Better at Night: Turn Workforce Recruitment Into Your Biggest Asset
- Leverage Generational & Cultural Difference to Get the Most Out of Your Workforce
- Maximize ROI: Use Industry Standards and Continuing Education to Engage and Retain Employees
- Prepare Your Shop for the Future: Will You Be Able to Compete in the Marketplace 5 Years From Now?

Thursday, May 19 - Networking Reception

For registration information or questions contact:  
Brittany Belko • bbelko@ntma.org • 216-264-2848

# YEAR END TAX DEVELOPMENTS WILL IMPACT NMTA MEMBERS

BY BILL SMITH AND PHIL ZAMAN, CBIZ MHM NATIONAL TAX OFFICE



The “Protecting Americans from Tax Hikes Act of 2015” (“PATH Act”), signed by President Obama on December 18, 2015, for the first time permanently enacting a number of the tax breaks generally dubbed the “Extenders” because of the need to extend them year after year. This represents the opportunity for an extended period of certainty for businesses that rely on these tax incentives but have to wait until December of each year to make business and personal decisions affected by them.

## PERMANENTLY EXTENDED

Several provisions important to the manufacturing industry which had expired at the end of 2014 not only were reinstated, but were extended permanently. Furthermore, some provisions have been enhanced significantly from their previous incarnations.

Increased Section 179 Expensing Election – The Section 179 immediate expensing election had plummeted from \$500,000 in 2014 to \$25,000 in 2015. With the PATH Act, businesses with adequate taxable income can immediately deduct up to \$500,000 of qualified tangible property (including off-the-shelf computer software) in 2015 and all subsequent tax years. The Section 179 deduction begins to phase out when total qualified purchases for the year exceed \$2 million. Several enhancements to the Section 179 deduction take effect in 2016:

- The \$250,000 cap on qualified real property (consisting of qualified leasehold improvements, qualified restaurant property and qualified retail improvement property) no longer applies;
- Air conditioning and heating units will be eligible property; and
- The \$500,000 and \$2 million limits both are indexed for inflation.

15-year Straight Line Cost Recovery – Traditionally depreciated over 39 years, qualified leasehold improvements, qualified restaurant property and qualified retail improvement now permanently can be depreciated over 15 years on a straight-line basis. Improvements must be made to the interior of non-residential real property more than three years after the building was placed in service. Qualifying restaurant and retail improvements can include improvements to owner-occupied or leased space while qualifying leasehold improvements may only include leased space (related party leases do not qualify).

The PATH Act also permanently reduced the recognition period for built-in gains of S corporations from 10 to five years. This is a benefit to any company that has converted from a C corporation to an S corporation, and anyone holding real estate in a C corporation can consider converting to an S corporation if you plan to hold the appreciated real estate for more than five years.

## EXTENDED THROUGH 2019

While not extended permanently, some business provisions received a healthy five-year extension through 2019:

*Bonus Depreciation* – Taxpayers can once again elect to take additional first-year (“bonus”) depreciation on qualifying asset purchases through December 31, 2019. The bonus depreciation percentage, however, decreases in the later years as follows:

As in previous iterations of the provision, qualifying assets generally include new tangible personal property, off-the-shelf computer software and qualified leasehold improve-

Placed in Service During	Bonus Depreciation Percentage
2015	50%
2016	50%
2017	50%
2018	40%
2019	30%

ments. Qualified restaurant or retail property do not qualify for bonus depreciation in 2015 unless the property also meets the definition of qualified leasehold improvements. Beginning with property placed in service in 2016, however, bonus depreciation may be claimed on an addition or improvement to the interior of any nonresidential real property. The PATH Act also reinstates the corresponding election to accelerate AMT credits in lieu of claiming bonus depreciation, increasing the amount of AMT credits that can be claimed beginning in 2016.

## EXTENDED THROUGH 2016

Not to be left out, some of the narrower or less popular business provisions were extended through 2016. Though the long-term prospects for these provisions are unclear, the multi-year extension at least gives taxpayers who can benefit from the provisions the opportunity to do so. Provisions extended through 2016 of most interest to the manu-

facturing industry include the energy efficient commercial buildings deduction. Several other energy incentives were also extended.

## AFFORDABLE CARE ACT CHANGES

In the FY 2016 Omnibus, signed the same day as the PATH Act, significant changes were made to the so called “Cadillac Tax.” Originally enacted as a 40% non-deductible excise tax on high-cost, employer-sponsored health coverage for health benefits exceeding \$10,200 self-only coverage and \$27,500 for all others. The Cadillac Tax was set to become active in 2018. It covers:

- Self-funded and fully insured
- Retiree coverage
- Employer and employee premium contributions
- Flex accounts and HSAs

The FY 2016 Omnibus delays implementation to 2020, and makes the tax deductible against income. The deductibility is particularly important, because the excise tax essentially eliminated the tax benefit of being able to deduct the premiums. For example, if a business paid \$100 in premiums subject to the Cadillac Tax, it’s after tax cost would only approximately \$60 because the premiums are deductible. The Cadillac Tax added that \$40 back on the company’s ultimate tax bill.

The IRS requires employers to report certain information regarding the ACA to both the IRS and to its own employees annually or face significant penalties (penalties could be waived for 2015 if a good faith effort to comply could be demonstrated). The forms are:

## FORM 1094-C.

Requests identifying information about whether is an “applicable large employer”, a member of an aggregated group, the number of 1095-C forms sent to employees, and the type of coverages offered to employees. It requires a month-by-month tally of whether Minimum Essential Coverage was offered.

## FORM 1095-C.

Similar in a way to a Form W-2, this form is sent to a company’s employees and tells the employee whether, among other things, he is eligible for premium tax credits.

The IRS has now provided relief by delaying the due dates for filing and providing the above Forms. Forms that are filed with IRS (Form 1094-C and 1095-C) by now are due on May 31, 2016 (June 30 if electronically

SEE “TAX” NEXT PAGE

# Meet Our National Associate Member:



## with Vice President of Marketing Tom Sheridan

### WHO IS ROYAL PRODUCTS?

“We are a manufacturer of precision machine tool performance accessories. We make accessories that are designed to be installed on CNC lathes, mills, grinders, and other types of machine tools to make them more productive. We’re kind of like a speed shop for machine tools.”

### WHEN DID ROYAL PRODUCTS BECOME AN NTMA NATIONAL ASSOCIATE MEMBER?

“We’ve been a member as a manufacturer for many years, but we became active as a National Associate at the 2011 Fall Conference in Colorado Springs.”

### WHAT DREW ROYAL PRODUCTS TO BECOME AN NTMA NATIONAL ASSOCIATE?

“We became more involved as a result of the personal relationship between the owner of our company, Allan Curran, and Dave Tilstone. Dave felt that as both a supplier and a manufacturer, Royal has a lot to offer to the NTMA membership.”

### WHAT IS TITAN: AMERICAN BUILT, AND HOW IS ROYAL PRODUCTS INVOLVED?

“Titan Gilroy represents what NTMA stands for; he owns a job shop and is extremely dedicated to promoting American manufacturing. In fact, he told me that prior to starting his own shop, he took NTMA courses to learn how to program. He turned his love for our country and his passion for manufacturing into the television show, *Titan: American Built*. We reached out to Titan, explained how our products are used to make American manufacturers more productive, told him we love what he’s doing and believe in the message, and were interested in exploring how we could support his efforts in some way. To our surprise, he responded that he knew Royal Products and was already using some of our accessories in his shop.

As the sponsorship contract was being drawn up, we explored what Royal could do in terms of supplying additional product to optimize the types of jobs he was running, as well as how they could be woven into a storyline that would be interesting to his viewers. We had several conversations with Titan and his shop supervisor, Travis Jarrett, to decide how we could best help them become more productive. Once the products were decided upon, we shipped them out to his shop and a date was set for the shoot.

A key element that Titan wanted to incorporate into the shoot was one of our six demo vans, which worked out well because we keep one of our vans permanently stationed on the West Coast. Allan and I flew out to California without really knowing what to expect, and without any script whatsoever. We had to arrive at Titan’s shop by 7am because he wanted to make sure the sun was at the right angle as the van drove onto the scene. That little detail helped us relax because it sent the message that we were in good hands and Titan knew exactly what he was doing. When we arrived, we met Titan and his film crew, and within minutes we were filming our “arrival.”

The entire day was a whirlwind experience – you go through the whole process and learn what really goes into creating a television show. Something that I was surprised to discover is that Titan handles the entire process in-house – the film crew, production staff and editors are all direct employees. Titan has a great vision and explained that keeping creative control over each program is something that is very important to him. One of his concerns from the outset was making sure that the program stayed true to manufacturing and would help his viewers understand and appreciate everything that goes into turning a piece of raw metal into a precision, finished part.

Throughout the day, pretty much all of the filming was adlib. Titan would lead the conversation and ask some questions, and we would respond. After a short time, you pretty much forget that the cameras are even there.

Before meeting Titan in person, I had this idea of what he’d be like based upon what I’d seen on TV. On the show he’s this big imposing presence, former boxer, very

strong personality. But when you meet him in person, even though he’s huge physically, you’re instantly struck by the fact that he’s much gentler than the guy you thought you knew from TV. It also becomes clear very quickly that he’s extremely bright. One of the things that impressed me most as he toured us around his shop and showed us some the complicated parts he was making is that he’s a machinist first, and a television star second.”

### WHAT DREW ROYAL PRODUCTS TO BE A PART OF TITAN: AMERICAN BUILT?

“Allan had seen one of the early episodes and decided that it was something



Allan Curran and Tom Sheridan visit Titan Gilroy (far left), star of the reality television show *Titan: American Built*.

Royal Products should help support. Again, since we love Titan’s message and what he’s doing, and the fact that Royal is also an American manufacturer, we knew that we wanted to be part of this. Before meeting him, we were unsure about how much of Titan was TV, and how much of Titan was a job shop. Of course once we met him and many of his employees, and saw all of the serious work they were doing for some very serious customers, it was clear that this was a real American manufacturer who also happens to have a TV show.”

### WHAT PRODUCTS/SERVICES CAN ROYAL PRODUCTS OFFER NTMA MEMBERS?

“Essentially we specialize in four main

CONTINUED ON NEXT PAGE

areas; workholding, tooling, automation, and environmental products. Anybody who wants to run their machines faster, increase throughput or run lights-out can look to Royal Products.”

#### WHAT INDUSTRY INITIATIVES DO ROYAL PRODUCTS SUPPORT/HOW?

“Royal Products has been a sponsor of the NRL in the past. We participate in a lot of machine tool dealer open houses, which often times include a student component on the last day and we’ll always try to stick around and support that effort to teach the students. We also do our best to support technical schools when they come to us looking for products. Indirectly, our sponsorship with Titan and his tremendous outreach to schools helps get these messages out, as well.”

#### WHERE CAN NTMA MEMBERS MEET ROYAL PRODUCTS IN 2016?

“We always attend and sponsor both the MFG Meeting and the NTMA Fall Conference. This will also be our third

year sponsoring the NTMA Southwest Regional Conference.”

#### ONE LAST THING...

“Royal’s participation with NTMA is significant because we’re a manufacturer first. The fact that we happen to manufacture products that other members can use is a nice secondary benefit. First and foremost, we’re an American manufacturer. We’re a company that is truly dedicated to continuous improvement, and we use every product we manufacture in our own shop. We try to bring what we learn and what we do to the membership to help make them as productive and strong as possible as American manufacturers. We truly believe that manufacturing is the key to keeping this country strong, and we’re dedicated to doing that any way we can.” For more information, visit [www.royalprod.com](http://www.royalprod.com).



#### “TAX” CONTINUED

filed). Employees must be provided a copy of Form 1095-C by March 31, 2016. Notice 2016-4 explains why the filing of individual tax returns will not need to be delayed by these extensions.

Starting in 2013, the ACA imposed an excise tax on any manufacturer, producer or importer of certain medical devices equal to 2.3 percent of the price for which the medical device is sold. A taxable medical device means any “device”—as defined in section 201(h) of the Federal Food Drug and Cosmetic Act (FDC Act or FFDC Act)—intended for humans. The FY 2016 Omnibus imposes a moratorium on the excise tax for sales in 2016 and 2017.

There were many other changes that could affect your 2015 tax returns and how you plan strategically for your acquisitions and other important business decisions as you move forward. For more information about taxes and how these changes may impact you, please contact your local CBIZ MHM professional.



## INDIANA CHAPTER HOSTS ANNUAL INTMA HIGH SCHOOL MACHINING COMPETITION



#### FIRST PLACE WINNER

Trenton Harter, Southern Indiana Career and Technical Center (pictured)

Instructor: Jim Niehaus

#### 2ND PLACE WINNER

John Fisher, Prosser School of Technology

Instructor: Frank McPhillips

#### 3RD PLACE WINNER

Cole Morgan, Columbus North High School

Instructor: Dan Ross

#### 4TH PLACE WINNER

Justin Dewees, Columbus North High School

Instructor: Dan Ross

The Indiana Chapter of NTMA held the thirteenth annual INTMA High School Machining Competition in January at Central Nine Career Center in Greenwood, IN. Thirteen high schools and career centers were involved in the competition with a total of 25 students competing from all over the state.

Contestants competed on manual machines. Jim Appleby of Major Tool directed the competition with the assistance of volunteer judges. Steve Overton

of Overton Industries was instrumental in raising contributions to provide prizes for the top four winning students. Jerry Blackerby of S&J Precision designed a traveling trophy for the first place winner’s school’s trophy case. Jerry also led the Education Committee to set up and run the competition. Scott Rizzi of Schaefer Technologies was involved in the mock interviews allowing each of the contestants the opportunity to experience a face-to-face interview. Many

other INTMA members volunteered and supported this outstanding event. Vincennes University and Ivy Tech Community College provided scholarship opportunities for the contest winners. Congratulations to all the winners and participants!



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# FUTURE WORKFORCE STEMS FROM METALQUEST STEM PROGRAM

When a new shipment of Fanuc robots arrived at the MetalQuest facility in Hebron, Nebraska, in preparation for a new automated cell, president Scott Harms knew it was a unique opportunity. Thayer Central High School students visiting the shop as a part of the local STEM program (science, technology, engineering and math) would have a chance to operate a production robot in real life before it was put into service for MetalQuest clients. And that is what STEM business/school partnerships are all about.

For upwards of a decade, MetalQuest has been inviting students to tour the plant, ask questions, and learn about practical ways STEM subjects are used on the job.

“There are so many examples in school where something is taught, but never given a real-world application,” Harms says. “We try to show students exactly how we use what they are learning.” The new equipment was a perfect—and unique—opportunity to do just that. It’s a great example of what industrial shops can do to add to the global workforce development effort.

MetalQuest provides STEM activities in partnership with several schools as far away as 45 miles from Hebron, as well as a group of homeschooled students. MetalQuest personnel conduct STEM activities alongside regular tasks, pairing staff members who do specific jobs with corresponding school curriculum.

Some MetalQuest employees help coordinate activities, some give tours or recruit future employees and others work directly with schools to help develop curriculum. According to Harms, if all staff hours on the STEM program were averaged, the time commitment would amount to less than a couple of hours a week—probably doable for any shop.

The STEM education effort has grown into a nationwide initiative designed to increase the number of workers and teachers who pursue expertise in STEM fields. The United States Department of Commerce projects that STEM occupations will grow by 17% from 2008 to 2018, compared to 9.8% growth for non-STEM occupations.

However, the U.S. Department of Education reports only 16% of American high school seniors proficient in math are interested in a STEM career, and only half of college students studying in STEM areas choose to work in a related career. Furthermore, the U.S. ranks only 29th in math and 22nd in science among industrialized nations.

To facilities like MetalQuest, those statistics translate to fewer qualified employee candidates, and Harms knows it could negatively impact the company’s ability to sustain its hard-earned reputation for excellence. He believes the greatest benefit of participating in a STEM business/school exchange is making jobs more appealing to students. “To me, the biggest advantage is showing people our industry is not a dirty, loud, manual, labor intensive field anymore.”

Even with technological advances and modern manufacturing methods, Harms points out there still are many negative stereotypes about manufacturing. “At MetalQuest, we have a very clean, very well lit, very automated atmosphere that usually blows people away. It never gets old watching people see for the first time a team of industrial robots working together in a coordinated manner. By highlighting technology like this and some of the brainpower it takes to make it happen, hopefully we can put a positive light on what we do and change those perceptions.”

Kristy Lukert, a math teacher at Thayer Central High School, conducts STEM curriculum and coordinates activities with MetalQuest. When the company offered an opportunity to observe its robotics, she and the school recognized the benefit to students and felt it was a worthwhile addition to the curriculum. “My main goal in interacting with companies like MetalQuest is to let my students see that STEM-related fields are right here in our backyard,” Lukert says, “and they don’t need to look to larger cities to find work.”

Lukert’s seventh grade math class has been touring MetalQuest for about five years. The focus of the tours is how math is used in the plant. She said the students’ biggest surprise is how clean everything is. Manufacturing plants have a reputation for being loud and dirty, and MetalQuest’s plant and workers are spotlessly clean. Lukert has enjoyed watching changes in MetalQuest over the years. “Even in a few months’ time between visits, they will have new machines, more robots, and less open space, because they are constantly progressing.”

Even though Thayer Central High School is rural, the school is known for giving students cutting-edge educational opportunities. In addition to STEM partnerships, the school has a 3-D printer and drones, participates in programs such as Science Olympiad, and offers advanced courses such as the robotics class.

Lukert suggests one of the reasons for

the success of the school’s partnership with MetalQuest is the dedication of its president and his team. “Scott and his employees talk with the kids about how math is used in the company at an understandable level for their age. If the kids see how and why we do something, it is more concrete and they can see the big picture, which could lead them to a career choice in a STEM area. Scott is very upfront that STEM skills, as well as interpersonal skills, can lead to a bright future within a small town. It’s easy to see the passion he has for his company and career field.”

For organizations interested in exploring the idea of a STEM partnership, Lukert encourages reaching out to schools in the area to see what’s being offered in curriculum and talking with schools about what might be offered in the future to tie in with the company. In addition to providing tours, access to people, and money if necessary, she recommends offering kids part-time jobs.

Harms suggests that facilities interested in pursuing a STEM program could begin by looking into resources such as SkillsUSA. He emphasizes that developing a workforce for future hiring needs is an industrywide responsibility. “This type of program is very doable, and we are all in this together.”



## IN MEMORIAM

### NEIL SILVER

Neil Silver, 87, of South Bend, IN, passed away December 20th. Neil founded Allied Quality Products in Mishawaka in the 1960’s. Several years later, the company was merged with Allied Screw Products, which eventually was renamed Allied Specialty Precision. Neil joined the NTMA in 1980 and was a lifetime member of SME. He was passionate about the quality of the parts they manufactured for the aerospace industry. In 2005, he sold the business to his daughter, Pam Rubenstein. Neil concentrated on ensuring that Pam would continue operating the company with the same commitment, passion and dedication that he had.

# SMALL BUSINESS SURVEY: HIRING VETS HELPS EMPLOYER

BY TODD YOUNG, CHIEF OPERATING OFFICER OF CENTER FOR AMERICA



Mid-way through the Center for America national employer survey project on veteran hiring, results so far clearly show that small business leaders recognize the value proposition of hiring veterans, Guard members and Reservists.

Response data from 264 employers with fewer than 500 employees from many industries, shows that these employers are highly satisfied with the veterans they have hired. Seventy-seven percent of survey respondents agreed that “veterans prove to be valuable contributors to our organization.” A staggering 86% – nearly nine out of ten – agreed that “military hires can bring valuable skills and training to our organization.”

Eighty percent of survey respondents so far agreed that “family and friends have served in the military, so it is important to support the military.” And, despite ongoing controversies about the military in the U.S. political universe, employers step aside from politics to voice support for military service members: A remarkable 81% agreed that “it is our patriotic duty to hire military candidates.” This reveals a deeply held and widespread conviction that military service is worthy of recognition and support by America’s business owners.

The survey responses also make it clear that many business owners are not translating these opinions into company priorities. While about half of the respondents (53%) said company leadership has “stated a willingness to hire military candidates”, only about one-third (32%) said that “our leadership has stated that this is a high priority.” Another 14% – about one out six respondents – said “our leadership has not addressed military hiring.”

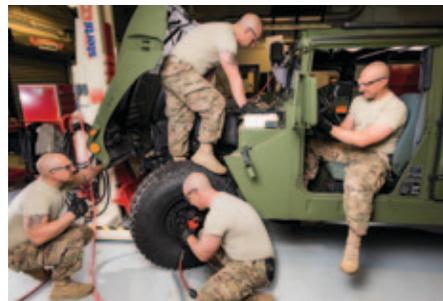
The big gap between those employers citing the positive reasons above for hiring veterans, and those employers saying that their companies have not made veteran hiring a high priority (67% or two-thirds), helps to explain why the number of veterans looking for full-time jobs is staying above one million despite overall drops in unemployment. Since new hires by small business comprise 50% to 70% of all the U.S. new hires every month, veteran hiring by small business is key to any major future reductions in veteran unemployment.

As experienced business leaders know, company staff focus attention on the priorities set by senior leaders. They look for creative ways to accomplish the goals leaders set. They go the “extra mile” when they know that com-

pany leaders will recognize their performance, even if this recognition is simply a sincere “thank you.” Those responsible for hiring become more committed to veteran hiring when they know that the CEO is committed to achieving this goal.

One way company leadership can express its commitment to hiring military candidates is by encouraging their hiring staff to invest time in learning how to do this efficiently and effectively.

The survey results so far tell us that HR and recruiting people face serious time constraints that keep them from connecting with veteran placement counselors in military branches and nonprofit support groups. Many inexperienced HR people prepare job postings that leave out information that would attract veterans and then passively report that “veterans



“Illustration by Sgt. 1st Class Thaddeus Harrington, Maryland National Guard Public Affairs Office

aren’t interested in our jobs.” Our experience shows that most veterans simply don’t know enough about the machining industry to know why they should take the time to apply.

Many recruiting staff don’t take the time to learn what help they should expect from military, nonprofit and state workforce agencies and so don’t manage these relationships well. Many employers place far too much dependency on these referral sources for achieving their veteran hiring goals. Most referral sources are understaffed, don’t know much about the machining industry, and don’t have the time or the skills to turn short job postings into a compelling “recruiting package” to give to military candidates.

Responses to the CFA Employer Survey is uncovering many opportunities to remedy most of the gaps that cause employers to miss out on the benefits of hiring veterans. The bottom line is that when company CEOs make it clear that hiring veterans is a priority, and encourage other leaders in the organiza-

tion to hire veterans, this sets the stage for all those involved in hiring – line managers as well as recruiters – to take the time to learn “what works” and do the networking needed to make this objective easier and faster to accomplish.

Consider the fact that every veteran with an honorable discharge has successfully completed hundreds of thousands of dollars’ worth of state-of-the-art training includes leadership, teamwork, problem solving, sophisticated equipment use and maintenance, as well as specific occupational skills. Veterans are focused on achieving goals, continuous learning, continuous performance improvement and team loyalty. As this survey reflects, business owners know that veterans are worth the effort to recruit them.

## WOULD MORE OF AN EXPLICIT COMMITMENT TO HIRING VETERANS HELP YOUR COMPANY ACHIEVE THIS GOAL?

If you have not yet completed the 10-minute CFA Employer Survey, which NTMA has endorsed, please consider doing so now. Your experiences are important because CFA, in collaboration with many associations including NTMA, will develop free industry-specific resources to help employers like your business achieve greater success in veteran hiring. You can respond anonymously.

Here is the link: [https://www.surveymonkey.com/r/36PW85F\\_CFA](https://www.surveymonkey.com/r/36PW85F_CFA)

Please input the code – N255 – in the first question so we can associate your response with NTMA. Please complete the questionnaire by the end of March.

If you have not taken advantage of CFA’s free Best Practices Guide on military hiring, which provides succinct and practical descriptions of 28 best practices compiled from employers all over the country, please consider downloading and sharing this with your staff. This is a hands-on guide for “do-ers”, easy to browse. It will save your team time and money!

[HTTP://WWW.CENTERFORAMERICA.HTML/BPG.HTML](http://www.CenterForAmerica.html/BPG.html)

Todd Young is chief operating officer of Center for America, the nonprofit coordinating the American Jobs for American Heroes campaign, a national initiatives to help hire veterans, National Guard members and Reservists. <http://www.CenterForAmerica.org/register.html>



# LEAN SCHEDULING: HOW TO APPLY KEY LEAN CONCEPTS TO IMPROVE ON-TIME DELIVERY

BY MARK LILLY, SYNERGY RESOURCES

Many LEAN practitioners say that in order to benefit from “LEAN” manufacturing, you need to reorganize your shop into cells and move toward one piece flow. This can be difficult, if not impractical, for many custom, make-to-order manufacturing shops.

But the foundational concepts of LEAN can be applied in most manufacturing environments without having to physically reorganize the shop or calculate daily takt times.

One of the main concepts in LEAN is the idea of the Value Stream. In “Lean Thinking,” authors Womack and Jones describe the entire value stream of a can of coke: From the bauxite being mined to produce the metal that becomes the can, to the ingredients of the soda being mixed and carbonated and canned and delivered to your grocer’s shelves. The main point is that from start to finish, the entire process of making a can of coke spans more than 10 months, but when you look at the actual ‘touch time’ or time that work is being done to the ore, metal, making the soda, the “value add” time is less than a day! Making a can of coke only takes a few hours, but there is about 10 months of ‘wait time’ or time that material is sitting around waiting for value to be added.

## SEE THE POTENTIAL OF THE VALUE STREAM IN YOUR COMPANY.

Answering a couple simple questions can reveal the tremendous potential that applying Lean’s Value Stream can have in your company.

1. What is the “average” lead time sales people quote to your customers for delivery? “6 to 8 weeks” tends to be a common answer.

2. Of that lead time in question #1 (6-8 weeks), what is the actual “touch-time”? (Time that the job is having value added to it by machines and or people).

We typically hear, in our 6-8 week lead time example, touch-times of a week, sometimes a couple/few days, or even hours!

What’s even more amazing is that in spite of having a lead time of 10, 20 or even 100 times the actual touch-time - seemingly a huge “buffer” of time in which to

finish the job - many companies have only 60-70% on-time delivery performance to their customers. Why is that?

## INTRODUCING LITTLE’S LAW:

Little was a queue theory mathematician who proved what seems to be a fairly intuitive idea. He showed that the more things (or people) that enter a “system” - a bank or grocery store, for example - the longer any one of those things/people will be in the system.

How much stuff are you putting into WIP? It seems to make sense that the sooner you release jobs onto the floor, the sooner they’ll come out the other side, right? Sadly, no. Little proved that if we put more and more jobs into WIP, we are actually guaranteeing that any of that material will be in WIP longer. Most companies can’t help themselves, they’re paying for the machines and people, and flood WIP to make sure everyone and everything is being fully “utilized” and “efficient”, often at the expense of the true needs of their customers (and their backlog from which they will be able to recognize revenue this month!).

Fortunately, Little’s law also holds true in the opposite direction: the fewer items that are in WIP, the faster any one of those items will move through and out of WIP.

## MAKES SENSE, BUT HOW DO WE REDUCE THE AMOUNT IN WIP?

Let’s take the example of the 6-8 week lead time. Suppose the touch-time is 3 days. Assuming we work a 5 day week, that means currently we’re releasing work to the floor with a 27 day or a buffer 9 times the touch time (3 days of work, 27 days until it’s due = 6 weeks).

If there’s less in WIP, and we know per Little’s Law that if there’s less in WIP things will move faster, then we should be comfortable holding back on the release of material at least a week, maybe two or even three. Even if we hold the release of the job back for three full weeks, that will still provide a 12 day buffer (the remaining 3 weeks of the 6, minus the 3 days for the touch-time of the job) in addition to the three to do the work.

This is just part of the answer. What’s critical is that whatever is in WIP is worked

on based on its true priority. Its true priority may be its due date. But a better priority is the amount of relative buffer that’s currently left on any job. This can be referred to as % Buffer Remaining or Buffer Status. When there’s a decision to be made as to “What to work on Next” at any work center or resource, the Buffer Status will decide. Choosing the job with the lowest % Buffer Remaining, will ensure that you’re always choosing to work on the job that is “most in danger of being late”.

The resulting priority system in practice is like you’re expediting every job, but in a controlled, non-chaotic way.

## THE RESULTS:

Companies who’ve implemented Lean Scheduling have seen truly astonishing results. In most cases, there is an initial and dramatic reduction in WIP (freeing up cash, improving cash flow), reduction in actual manufacturing leadtimes, and a resultant ‘bounce’ in On-time Delivery percentages month over month. Going from 60% to 85 or even into the 90’s percent on-time within the first few months is a common occurrence.

## SETTING BUFFER SIZES:

Setting the right buffer size is key. Too high, and you’ll have too much in WIP again. Too low, and you’ll risk being late. Typically, starting with a buffer that is 4 – 6 times the touch-time is a safe starting place. Being able to measure how the buffers are ‘performing’ – are they running high or low – gives the opportunity to further refine the results of tuning the right amount of WIP, and maximizing on-time delivery.

## LEAN SCHEDULING:

Lean scheduling provides manufacturing companies the tools and techniques to ‘right size’ WIP, reduce lead-times, and improve overall company throughput and return on investment.



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The Okuma logo, featuring a stylized 'O' symbol followed by the word 'OKUMA' in a bold, sans-serif font.

# THE BEST WAY TO REPLACE BROKEN STAMPING PRESS PARTS

Every production manager knows how expensive it is when a stamping press isn't working. If the broken press is one of the older American made presses, it can be a real challenge finding replacement parts. If the press was made overseas and is out of warranty, sourcing and installing replacement parts can be a process that involves extensive lead-time and massive costs. The good news is that there's a better solution. Manor Industries has been solving this very problem, and adding value to our customers, for over 60 years by reverse engineering broken, worn, or customer supplied sample parts.

Reverse engineering is the process by which a worn or broken part is developed into a fully dimensioned print. Making a print, however, only solves half of the problem. The part must be manufactured to specifications, and fast. In many cases a pattern and casting is required and then the part must be machined with large capacity lathes and boring mills.

Manor provides this service seamlessly with its parent company, NTMA member Precision Boring Company. Since being

purchased by Precision ten years ago, due in large part to Manor's core competency of reverse engineering, Manor has been steadily growing. With their recent acquisition of an additional 15,000 sq. ft. of manufacturing space, Manor and Precision now have over 50,000 sq. ft. of manufacturing space dedicated exclusively to custom component machining and manufacturing.

Just last month, Precision Boring and Manor Industries helped two customers that operate stamping presses facing broken part issues. The first customer needed a replacement Spline Hub. Manor was able to produce the replacement part in less than 4 weeks from their own print that they reverse engineered 30 years ago! The second customer shipped all the parts from a broken clutch and brake unit. While the OEM of the press could only offer a complete assembly, Manor reverse engineered just the parts that they needed, saving the customer 50% in costs!



Manor Industries expanded location in Clinton Twp, Michigan.

Building on 60 years' experience, Manor Industries has become experts at the art and science of reverse engineering. Their parts catalogue has expanded to over 50,000 prints, all which were produced for major automotive and tier 1 stampers. They're ready to help get your presses back into operation in the most timely and cost effective manner possible. For more information, visit [www.precisionboring.com](http://www.precisionboring.com).



## NTMA SAFETY SURVEY AND AWARD



The NTMA Annual Safety Award Survey is a facsimile of the OSHA Form 300A, Summary of Work-Related Injuries and Illnesses. This NTMA survey is used to present top-performing member companies with an NTMA Safety Award Certificate that can be proudly displayed in their company and in turn emphasize the importance of safety to its employees. The composite data will help NTMA represent the member with OSHA and other regulatory agencies, and it has been reported to help members with their workman's comp rates.

### WHY IS IT BASED ON THE OSHA FORM 300A?

The use of the OSHA Form 300A as the basis of the NTMA Safety Survey had several underlying strategies:

1. It is a system used across all industries in the USA, and allows for calculation of a standardized incidence rate.
2. It requests only the summary information required of covered employers, and thus does not require any additional tabulating.
3. As a true facsimile of the "official" form, our properly completed questionnaire meets the requirement for posting the specified information.
4. It reminds covered NTMA members of the Federal requirement to complete and post the information in their plant. OSHA compliance officers will issue an automatic citation and fine if the required information is not posted during the prescribed period.

### WHEN IS THE SURVEY DISTRIBUTED TO THE MEMBERS?

The NTMA safety survey is distributed to members annually mid February to not only remind the member to post the required information in their plant, but for the convenience of copying the data from the official form to the survey and not have to pull the information out twice.

### HOW IS IT DISTRIBUTED?

The survey is distributed to members electronically through email. If the member prefers to submit a hard copy, they can request a hard copy of the survey or forward a copy of their official OSHA Form 300A.

### WHAT IF A MEMBER HAS MORE THAN ONE LOCATION?

Members must follow the OSHA regulations to keep a separate Log and Summary for each physical location that is expected to be in operation for one year or longer. Only locations that are NTMA members are allowed to participate in the survey.

### WHAT DETERMINES ELIGIBILITY TO RECEIVE THE AWARD?

The information on the completed survey is calculated by using the total deaths and injuries versus the number of man hours worked in the calendar year.

**Deadline for submissions is Friday, April 1st, 2016.**



Now that the new year is under way, it's a great time to take stock of the state of the staffing industry. And thanks to continuing improvements in the U.S. economy and job market, Aerotek is pleased to say that the state of the staffing industry is strong. But strength in the labor market doesn't mean that it's predictable. In fact, notes Michael Bergen, managing partner and global practice head of human resources for Allegis Partners, "The pace of change today is so great we can't reliably predict what the workplace will look like in three years ... Companies are figuring out how to manage economic, technological and cultural change in a world that shifts the second they think have a plan."

Because the world of work is changing so rapidly, it's absolutely essential to be up to date on the latest industry trends. To help you stay ahead of the curve, Aerotek compiled a list of the top five trends you may have missed in 2015 and need to know in 2016:

## 1. TEMP HIRING IS ON THE RISE

According to the Palmer Forecast, 2016 looks bright for contractors seeking temporary employment. Demand for temporary workers in the U.S. is expected to increase 4.2 percent on a seasonally adjusted basis for the first quarter of 2016 when compared with the same period in 2015.

"Our temporary help forecast for the 2016 first quarter continues to demonstrate improvement, with growth slightly accelerating compared with the previous quarter," says Greg Palmer, founder and managing director of G. Palmer & Associates.

In more good news, Career Builder's 2016 U.S. Job Forecast finds that 47 percent of employers plan to hire temporary or contract workers in 2016, up from 46 percent reported in their 2015 survey. Finally, 58 percent of the employers surveyed by Career Builder plan to transition some of their temporary or contract workers to permanent jobs this year.

## 2. THE CANDIDATE EXPERIENCE IS A PRIORITY

By now, you've probably heard that there are more job openings than there are skilled candidates. With companies competing for the best hires, the candidate experience has become a critical aspect of the recruiting business.

"Like it or not, candidates are now able to talk about their recruiting experiences

right away," says Andrew Rusnak, writing for Recruitment ADvisor.

"Sites like Indeed, Glassdoor and LinkedIn have given job seekers the ability to provide not only reviews of their previous employment experiences but also of their experiences during the recruiting and interview processes," says Rusnak. A bad report can turn off prospective candidates, and candidates suffering bad experiences may choose to take their talents and skills to competitors. The data is clear. Career Builder's 2015 Candidate Behavior Study found that:

- Sixty-nine percent of jobseekers say they are less likely to buy from a company they had a bad experience with during the interview process

- Sixty-five percent of jobseekers say they are less likely to buy from a company they did not hear back from after an interview

- Fifty-eight percent of jobseekers say they are less likely to buy from a company they did not hear back from after submitting an application

- Forty-five percent of jobseekers say they are less likely to buy from a company they received a low job offer letter from

- Sixty-nine percent of jobseekers said they were more likely to buy from a company who treated them with respect during the application process

- Sixty-seven percent of jobseekers said they were more likely to buy from a company that provided consistent updates throughout the application process

## 3. ORGANIZATIONS ARE MAKING DIVERSITY A PRIORITY

While efforts at recruiting diverse entry-level and mid-level employees have shown some improvement in recent years, up until now most businesses have lagged behind when it came to having diverse leadership. That is slowly changing. Companies are expanding demographics in their company leadership. Fifty-five percent of employers plan to hire or promote more women for management roles while 53 percent plan to do the same for diverse workers. Forty-seven percent of employers plan to promote workers under the age of 30 into management roles," according to Career Builder's 2016 U.S. Job Forecast.

## 4. IT'S ALL ABOUT SOCIAL MEDIA

Whether you're looking for a job, or looking for candidates to fill a job opening, social media is playing an increasingly large role in

the hiring process. According to a September 2015 study by SHRM in collaboration with Ascendo Resources, "Eighty-seven percent of HR professionals said it was either very or somewhat important for job seekers to have a social media presence on LinkedIn, and 83 percent agreed it was important to be on a relevant professional or association social networking site. In the past year, nearly two-thirds of organizations (65 percent) had hired new employees who were sourced through social media sites."

Meanwhile, the Pew Research Center reports that "Among Americans who have looked for work in the last two years, 79 percent utilized online resources in their most recent job search and 34 percent say these online resources were the most important tool available to them."

Depending upon your line of work, your need for social media skills may extend beyond job-hunting. You may need strong social media skills to be successful in your job once you are hired too, writes John Tarnoff, for Huffington Post. "Social media skills are no longer a 'nice to have,' but a 'need to have' if we're going to be taken seriously in and beyond the job market in a more entrepreneurial, freelancer economy," says Tarnoff.

## 5. ANALYZE THIS!

The ability to interpret data is essential in today's competitive business world. "Analytics can help target a larger customer base by analyzing the demographic of your current customer. They help support projections, and they can increase revenue stream by offering areas to exploit disruptive uses for your products and services," says Stephanie Vozza of Fast Company.

And Sandy Smith, editor of EPS Today agrees that leveraging and maximizing Big Data and applying the correct analytics is crucial for today's companies.

"Organizations need to understand what secrets can be unlocked from their big data sets, what questions to ask, what hypotheses can be tested, apply the proper analysis for the data and provide appropriate interpretations to drive meaningful business decisions," writes Smith.

For more information, visit [www.aerotek.com](http://www.aerotek.com)



There's a place in the world for high-priced, top-of-the-line systems, and there are applications for which nothing else will do. But in today's competitive markets there's a lot to be said for getting the functionality you need without spending more than you have to. When it comes to choosing systems for critical measurement applications cost is always an issue, as it should be. But there are others as well; after all, there's no right price for the wrong system. The key is to find a balance, the best price for the system that meets your needs. In performing that calculation, it is critical to remember that the price tag is only one factor. There are considerations that can have significant financial consequences, directly affecting your total cost of ownership and operation.

## JOB #1: ACCURACY

Obviously accuracy will be a key consideration, though the necessary degree of accuracy can vary with your application. A system's capabilities should match both your current needs and those you may have in the future, but accuracy is not a uni-dimensional metric like horsepower. A system's accuracy depends



**ZEISS CONTURA CMM line has sizes up to 1200 x 2400 x 1000 mm and multiple sensor options**

on how you use it: the sensors that are needed to measure the workpiece, the shape of a workpiece, the angle at which the system has to approach it, the required length of a probe working in deep holes, and more. A lot of factors contribute to a system's accuracy. Its design and construction have significant impact. Resistance to temperature fluctuation, affected by design, material choices, and insulation, ensures that your measurements will be both accurate and consistent and can reduce or eliminate the need for mathematical compensation. It can also allow you to install the system on the shop floor rather than in a costly, often remote or environmentally-controlled lab.

Similarly, the rigidity of system components helps ensure that you are measuring the workpiece rather than flex in the measur-

ing system. Rigidity in fixed components is relatively simple, but gets more challenging in moving elements. The inertia of unnecessarily heavy moving parts can slow down operations.

Finally, consider the measurement technologies available. There are applications in which the most accurate tactile measurements, for example, won't be as effective as optical or laser measurement, or vice versa. If the measurement you'll be doing is specific, limited, and unlikely to change, then a single-function machine may be all you need. On the other hand, if your needs vary (or may change in the future) the ability to support multiple technologies will be critical.

## FLEXIBILITY: THE RIGHT MACHINE FOR THE JOB(S)

Multi-functionality can be beneficial, but can also entail unacceptable compromise. For example, shortly after WWII, an enterprising company introduced a vehicle that could be driven to, and then into and around a body of water. It was the world's very best car-boat; but it wasn't a very good car, and it wasn't a very good boat. Flexible systems can be useful and cost-effective, but you have to be sure you are getting the range and level of functionality you need.

- Consider the maximum measuring volume the machine can accommodate. A too-small system obviously won't handle your bigger parts, but a too-large system takes up space and capital that could be put to better use. Look for a line that lets you "right-size" without sacrificing capabilities you need.

- Consider measuring methods. Tactile and optical techniques each have their place, and if one machine can do both (and do both well) you'll get more effective measurement across the board without having to buy two machines.

- Of course you'll want to accommodate a range of tactile sensors. The wider the range a system can handle, the more flexibility it will provide. Considerations include size of sensors and the angles at which they can operate. You may want to consider scanning heads offering electronic rather than spring buffering for maximum speed and accuracy.

- Active scanning technology allows unknown contours to be scanned; this can be particularly useful for tasks like reverse engineering of parts.

- A sufficiently flexible system will require fewer stylus changes. And when you do change styli, a system with quick-change capability will simplify the operation and save time.

- For optical sensors, consider the granu-

larity of measurement—smaller is better—and look for a choice of measuring ranges to maximize accuracy when measuring parts of different sizes.

- If you think you may need laser scanning for extremely fast measurements of freeform workpieces, look for a system that offers that option.

When considering add-on components to increase system capabilities, keep in mind that they must work together to be effective. While components from different manufacturers can be integrated into a single system, the more manufacturers involved, the more complicated that process can be. This applies both to initial integration and to ongoing operation and support.



**The ability to perform tactile, optical and laser measurements with the same base system can eliminate the cost of multiple machines**

## SPEED: TIME REALLY IS MONEY

In some cases, increased accuracy can be "purchased" by slowing down measuring operations and reducing throughput. That may be acceptable if you have plenty of time, but when throughput is important, you can't afford to sacrifice speed to achieve accuracy. Of course any scanning system will be faster and more accurate than the "spot checks" of a touch-and-go system. But not all scanning systems are alike.

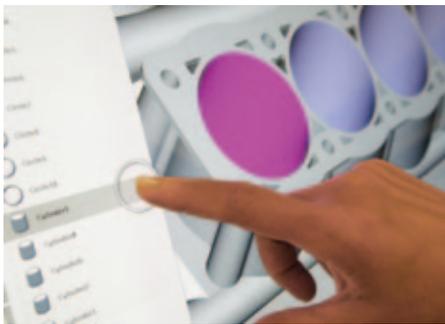
The technologies used by scanning systems vary and can have a huge impact on their speed. Using the right stylus for the application helps ensure accurate results, and when a stylus change is required, quick-change capability keeps things moving. Once scanning has started, a system's ability to "fly over" gaps in a contour can shorten programming time and speed up measurements. This can speed up

SEE "ZEISS" NEXT PAGE

measurements when scanning overboreholes, scanning teeth of a gear wheel, or scanning an interrupted plane. Depending on the measurements being done, these capabilities can significantly shorten per-part run times and in a busy shop can reduce the number of machines needed to handle the workload. As with many “high end” capabilities, this feature was initially available only on the most expensive systems but is now working its way down to more economical systems.

**EFFICIENCY AND EASE OF USE**

Metrology systems are getting smarter all the time, but they are still run by people. The machine’s intelligence, in the form of software, has a significant impact on ease of use and level of experience required of the operator. An intuitive system with a touch screen and user-friendly display requires less training and less expertise of your operators. It can also reduce setup time for experienced and less-experienced users alike.



**Intuitive software interface reduces the need for extensive training and higher-cost labor**

Characteristic-based software allows programmers and operators to easily maneuver through measurement plans. User-oriented features like the ability to visually superimpose actual measurements over design specifications help eliminate both out-of-spec parts and unnecessary scrapping of acceptable parts. And if you use a variety of machines, the ability to use the same software across multiple systems eliminates complexity and cuts training costs.

Efficiency can also be found in some unexpected places. Many systems use compressed air to reduce friction, and while air may be free all around us, the stuff in tanks costs money. An option that reduces compressed air use can quickly pay for itself. And ready availability of factory-trained service can help ensure that problems are addressed quickly and effectively to keep equipment operating and correct faults as quickly as possible.

**IT ALL ADDS UP**

While the price of a system may be the only fully definable cost at the time of purchase,

other considerations mentioned below have financial ramifications.

*Accuracy*

- Accurate identification of conforming and out-of-spec parts maintains quality, protects the integrity of the entire production process, and reduces scrap rates.

- Protection from temperature fluctuation and shop floor conditions allows inline installation, reducing the cost and delay of transporting parts for testing and allowing faster identification and correction of production problems.

*Flexibility*

- Right-sizing of machines eliminates the cost of capacity you don’t need.

- The ability to perform tactile, optical, and laser measurements with the same base system can eliminate the cost of multiple machines.

- The ability to scan unknown contours eliminates the cost of sending parts out for reverse engineering.

- Reduced need for stylus changes or a quick-change capability, and increases throughput.

*Speed*

- Maximized throughput can reduce labor costs and eliminate the need for additional machines to keep up with the workload.

- Slowdowns in a critical process like measurement can slow down processes all down the line.

*Efficiency and Ease of Use*

- Faster programming and visual presentation of results can speed up the start and completion of operations.

- Intuitive software interface reduces the need for training and higher-cost labor.

- Savings on incidentals like compressed air go straight to the bottom line.

- Locally available, factory trained service reduces downtime and keeps systems running at peak efficiency.

**THE BOTTOM LINE**

Buying the most economical system that meets your needs just makes sense, and finding that system need not be complicated. It begins with identifying your present priorities and, as far as possible, anticipating future requirements. Identify the capabilities needed to meet those needs. Add in costs of labor (including setup and operation), possible downtime, air, and other incidentals. And finally, compare your options, preferably not on paper but in close, demanding, hands-on demos. After all, your company’s name will be going on whatever you measure. For more information, visit [www.zeiss.com/metrology](http://www.zeiss.com/metrology).



# 10 WAYS YOU CAN SIMPLIFY YOUR MANUFACTURING

BY LANGLEY MELENDRES OF GLOBAL SHOP SOLUTIONS

Every day I talk to small- and medium-sized manufacturers who are busier than ever. Meetings, customer demands, employee needs and inventory issues can hit each of them daily. And over and over again, I’m asked “How can we simplify?” So here’s a list to get you started on your simplification journey:

**1. SIMPLIFY YOUR SHOP FLOOR COMMUNICATION.**

Faster communication with the shop floor will avoid confusion and get accurate data quickly both to and from the shop. What happens when a machine breaks down, or an operator notices some maintenance that needs to be done? Do they stop what they’re doing and search for someone? Wouldn’t it be easier for them to enter a maintenance request or notes on their workstation that instantly alerts someone? How do the operators know what to work on? Handwritten notes and bulletin boards are often out of date before the ink dries; live data on a screen is the most accurate way to get the shop information. If there are specific notes or files that go with a job, do you hope they’ll look in the job packet; wouldn’t it be easier if important information automatically appeared on screen when they began a job? Providing them with a screen that easily shows and schedules preventative maintenance or quality inspection can help.

**2. SIMPLIFY YOUR MATERIAL HANDLING AND DOCUMENTATION.**

Are you always trying to track down paperwork or trace back transactions to figure out where parts have come from? Do you have piles of certs and have trouble associating them with the receipt they came with, the jobs they were used in, or the orders they ultimately shipped with? How about tracking inventory levels or identifying work in process inventory? The more you can automate material handling and cert documentation, the more time you’ll save for other revenue-generating tasks.

**3. SIMPLIFY YOUR DATA ENTRY.**

Think about all of the systems that are used in your process. Now think about how many times you have to put the same data into more than one of those systems. Do engineers build projects into design software that someone then

has to reenter again into an ERP system? Does your shipping department have to enter shipment information into another system to print off labels or calculate shipping costs? Each of these systems probably has some benefit that isn't offered in the other, but instead of spending time entering data twice, why not make them work together? The more integrated your systems are, the more simplified your process will be and the more time you will save!

#### **4. SIMPLIFY YOUR BUSINESS MANAGEMENT.**

It is easy to be consumed with the small stuff; to get tunnel vision that often obscures the bigger picture. The best way to analyze the health of your business is from a birds eye view. Once areas of improvement have been identified, it is then possible to zoom in on specific areas for improvement. Using tried and true performance indicators populated with your system data will show where you are excelling and where you can improve.

#### **5. SIMPLIFY YOUR CONTINUOUS IMPROVEMENT PLANS.**

Speaking of improvement, when was the last time you took an in-depth look at your processes? Are things being done the way they always have? Has time or technology changed the way things should be handled? Sometimes we get too occupied with getting something done, that we forget to step back and think about how it is getting done. Streamline your manufacturing by analyzing and documenting your processes.

#### **6. SIMPLIFY YOUR COSTING.**

How visible are your manufacturing costs? Raw material costs may have increased a few cents, so purchasing took no notice. You had to change outside service vendors who charge a bit more, but each order is still relatively cheap. Did anyone tell sales? Your margins can slowly diminish without even noticing, and you may not even realize that raw material accounts for 60% of your costs, so finding even a slightly lower priced vendor may make a big impact on

the bottom line. The more information you have, the better your decision making ability will be.

#### **7. SIMPLIFY YOUR SALES PROCESS.**

Wouldn't it be great if business just came to you? Sales is a key component to business, and is most effective when is done with a plan. The more data you have at your fingertips and the more focused your efforts are, the more likely you'll have good results.

#### **8. SIMPLIFY YOUR WORK DAY TO A SINGLE SCREEN.**

The easiest way to simplify processes is to have everything you need in one screen. Having to open new windows, jump back and forth between screens, and rekeying lookup information takes time. Completing multiple tasks in a single system is amazing, but completing multiple tasks in a single screen is ideal.

#### **9. SIMPLIFY YOUR PROCESSES.**

Are there things you have to do over and over again that just take time? If you've ever thought there must be an easier or better way to do something, there just might be! What if you can't get the exact material you need, but can substitute another, or you need to send some jobs to an outside vendor because you're too busy; do you have to touch each job affected by your change? If you do, that's not a very streamlined approach. By simplifying those complex tasks, you can save time and money.

#### **10. SIMPLIFY YOUR EMPLOYEE TRACKING.**

How much time is spent trying to track down employees to have them come sign a document or dig through an employee file at review time? What if you could automatically alert the employee at the workstation the next time they were active? What about a place to track late clock in punches, or make a note if they did something helpful? Simplify your system by having all of your employee information at your fingertips, including automated vacation and sick tracking.

For more tips, visit [www.globalshopsolutions.com](http://www.globalshopsolutions.com).



MANUFACTURING AMERICA'S FUTURE

## **2016 NATIONAL EVENTS AND TECHNICAL SEMINARS**

### **March 23rd**

Employee Management & Benefits Workshop, Indianapolis, IN

### **April 11th-13th**

Legislative Conference, Washington, D.C.

### **April 17th-24th**

Japan Tech Tour

### **April 27th**

Financial Managers Roundtable, Akron, OH

### **May 20th-22nd**

NRL Competition, California, PA

### **May 20th**

Workforce Development Roundtable, California, PA

### **June 8th-10th**

Emerging Leaders Conference, Chicago, IL

### **June 8th**

Financial Managers Roundtable, Denver, CO

### **September 12th-17th**

IMTS, Chicago, IL

### **September 28th**

Sales & Marketing Workshop, Philadelphia, PA

### **October 11th**

Financial Managers Roundtable, Charlotte, NC

### **October 12th-15th**

Fall Conference, Charlotte, NC

### **October 26th**

Plant Managers Roundtable, Boston, MA

### **November 2nd**

Sales & Marketing Workshop, TBD

### **November 2nd-3rd**

Supply Chain Network Fair, TBD

### **November 16th**

Plant Managers Roundtable, Denver, CO

