



# AM&T

Alliance for Manufacturing & Technology

www.amt-mep.org

## HELPING MANUFACTURERS PLAN, PERFORM, PROFIT & GROW

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**AM&T has been notified that their proposal submitted to the New York Manufacturing Extension Partnership (MEP) competition has been selected for award. AM&T will be designated as the Southern Tier Regional MEP Center**

## AM&T & The Workforce Development Institute (WDI)

**Providing timely support through grants or collaborations for training, planning, or equipment to foster job growth across NYS.**

The Workforce Development Institute (WDI) helps keep jobs and improve the lives of people across NYS by developing regional solutions for workforce, economic, and community development challenges. WDI works regionally to identify targeted strategies that address workforce development opportunities and challenges. These strategies can include partnerships, training and/or funding. WDI's strength is their ability to identify trends, quickly fill gaps not covered by other programs, and then move successful programs throughout the state.

### INTERACTIVE GRANTS PROGRAM

Through a unique grants program, WDI makes investments that lead to workforce development and economic growth. This program is an "interactive" one, where WDI regional staff work directly with a business, union, or other entity to understand the issues at hand, and then help develop a response. This grants program is unique from a few perspectives:

**Hands-on approach:** Through direct contact with the applicant, WDI regional staff get a better sense of future growth and workforce issues.

**Connections/Facilitation:** If additional partners need to be brought in as part of the discussion, WDI regional staff connect with these resources and facilitate discussions.

**Flexibility:** WDI's funding is flexible and can be tailored to meet the needs of the immediate problem or opportunity.

**Streamlined Application Process:** WDI understands that time is money... and jobs. The application process for the WDI grants program is simple and straight forward and designed to help the applicant move quickly on their plans.

### TARGETED SECTORS

Although WDI works in all sectors of the economy, they have a special interest in two growing sectors that hold particular promise in terms of good jobs:

**Manufacturing** - Across NYS, WDI sees manufacturing making a comeback. Companies are retooling/retrenching and making investments in product innovation, equipment, facilities, and the workforce. WDI believes that a healthy manufacturing base is a key driver to growth of the rest of the economy. However, the jobs associated with today's manufacturing are very different from those of previous generations. WDI is interested in seeing these new jobs – with solid wages and career trajectories – grow in NYS.

**Energy** - There is growing recognition that the energy grid needs redesign and greater resiliency. Both an aging-out of the current energy workforce and a shift towards renewable and smart technologies that require new skills are complicating factors from a workforce perspective. These jobs are highly skilled and well paid, and WDI supports their continued growth.

**For more information about what WDI can do for you, please contact:**  
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Alliance for Manufacturing & Technology

## How We Help

- Business Assessments
- Strategic Planning
- Lean Enterprise
- Supervisory Training (TWI)
- Project Management
- ISO/AS Quality Systems
- Sales and Marketing
- New Opportunity Identification and Growth — Markets, Products, Services, Customers

AM&T is a not-for-profit economic development organization that receives significant financial support from the New York State Foundation for Science, Technology and Innovation (NYSTAR), and the National Institute of Standards and Technology (NIST) Manufacturing Extension Partnership (MEP). AM&T is a NYSTAR® designated Regional Technology Development Center for the Southern Tier and is one of nearly 50 MEPs located across the country. AM&T works directly with regional companies to increase their competitiveness and profitability.

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MEP • MANUFACTURING  
EXTENSION PARTNERSHIP



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# A New Call of Duty for Returning Veterans

*Dec 28, 2015 IW Staff—  
IndustryWeek*

Started by a 15-year Navy veteran, Workshops for Warriors provides 16 months of free training for post 9/11 vets interested in advanced manufacturing. Even better: the group has a 100% job placement rate.

Last week, 46 U.S. veterans graduated from a trade school program in San Diego with not just a diploma in hand, but jobs awaiting them in advanced manufacturing.

The newly minted CNC machinists, CAD/CAM programmers and welders made up the largest graduating class yet at Workshops for Warriors, a nonprofit that provides a free 16-month training program in welding and fabrication for veterans transitioning into civilian life.

Graduates are placed at manufacturing companies large and small—many of them right in San Diego, a manufacturing hub where their skills are in high demand.

Since its founding, Workshops for Warriors has placed all of its graduates in jobs with starting salaries typically around \$50,000. Even those who complete only part of the program often land skilled jobs that pay a living wage, says founder Hernàn Luis y Prado, a veteran himself.

Prado served 15 years in the Navy, with combat tours in Afghanistan and Iraq. Seeing more of his fellow

service members “die of suicide and drugs in San Diego... than bombs and bullets in Baghdad” compelled him to start the organization in 2008.

“If we want to help veterans, we need to have a secure civilian path that they can be trained into,” Prado said in a statement on the organization’s website.

Most students in the program are post 9/11 veterans, ranging in age from 22 to 35 and transitioning out of the armed forces sooner than they expected due to military drawdowns or major injuries. In San Diego alone, more than 40,000 veterans transition out of service each year.

Students can earn credentials from industry organizations including the National Institute for Metalworking Skills, Mastercam University (computer-aided manufacturing), SolidWorks (computer-aided design) and the American Welding Society.

Since 2011, 238 veterans have been trained on-site in the program, receiving close to 600 third-party nationally recognized credentials.

Workshop for Warriors’ next 16-month session began January 4. Students choose either the welding or machining track, training on a long list of up-to-date equipment. Courses include computer-aided design, machinery repair and maintenance, CNC and manual machining and turning, and welding and fabrication.



# 3 Tax Changes Manufacturers Will Love

by Brian Berning & Rick Schreiber, BDO

The holiday season is here once again and good taxpayers have been eagerly awaiting decisions from Congress to bring bundles of tax extenders and joy. As was the case last year, and as many analysts predicted, Congress arrived just in the nick of time to extend tax provisions, bringing tidings of fiscal cheer. The bill, which was unveiled after weeks of negotiation, is expected to provide about \$650 billion in total tax relief.

Manufacturing and distribution (M&D) companies were particularly excited for Congress to arrive with tax extenders this holiday season because the package was so generous last year, and their holiday haul did not disappoint. The following are among the biggest, shiniest tax extenders M&D companies found under the tree this year.

## 1. The Work Opportunity Tax Credit ("WOTC") – Code section 51

The WOTC, which Congress renewed for five years, is projected to cost the Federal government \$1.4 billion in treasury revenues over a 10-year budget window, making it one of the more expensive tax extenders in Congress' bundle.

The WOTC is a non-refundable wage credit intended to increase job opportunities for certain categories of disadvantaged individuals. WOTC-eligible hires include certain welfare recipients, ex-felons and veterans.

For most eligible hires that remain on a company's payroll for at least 400 hours, an employer can claim an income tax credit equal to 40 percent of wages paid during the worker's first year of employment up to a certain wage maximum. For example, the wage maximum

for most WOTC-eligible hires is \$6,000, for a total credit of \$2,400, but the wage maximum can be much higher for certain veteran workers.

Recent studies have shown that the WOTC increased wage income of disabled veterans and increased employment among long-term welfare recipients overall.

## 2. Section 179 Expensing Limitations – Code section 179

Section 179 is a mechanism by which smaller companies are able to expense (deduct immediately) the cost of investments in equipment rather than depreciate them over time. The Section 179 provision in this year's package permanently extends the 2010-2014 small business expensing limitations and phase-out amounts.

Many had debated whether the stimulus was necessary to keep around. Small businesses can breathe a sigh of relief now that the higher thresholds, at \$500,000 and \$2 million, have been made permanent.

Once a company's investment reaches at least \$2 million, the amount eligible is reduced dollar-for-dollar for investments in equipment over \$2 million, up to the investment amount of \$500,000. Thus, once a company's investment reaches \$2.5 million, no deduction is allowed.

Previously, the threshold had been \$25,000 with a phase-out beginning at \$200,000 (i.e., no deduction would be allowed when investment is over \$225,000).

## 3. Research and Development Credit ("R&D Credit") – Code section 41

Perhaps the most positive portion of this year's extender package is Congress' permanent extension of

the R&D Credit tax provision. Long in existence, it had previously been extended numerous times, lapsed for one year and even been extended retroactively.

Generally, the R&D Credit provides an income tax credit for a certain amount by which qualified research expenses exceed a base amount.

There are typically two different methods for calculating the R&D Credit: one determines the base amount using gross receipts and the other determines the base amount using a three-year look-back for average R&D spending.

Qualified research expenses must be experimental for the purpose of discovering information that is technological in nature and used in the development of a new or improved product, process, computer software technique, formula or invention that is to be leased, licensed or used by the company.

The only thing holding the R&D credit back from a permanent extension had been its hefty price tag of nearly \$180 billion. Both parties, as well as most economists, agree that there is an economic justification for subsidizing R&D spending. Studies show that not only does R&D spending benefit the private firm in terms of return from innovation but it also seems to benefit society as a whole. From the perspective of a private firm, there is no way to capture the entire return from innovation because such innovation will provide valuable information to others in the marketplace who will exploit it, regardless of patents and secrecy. The R&D Credit seems to compensate innovative taxpayers for the loss of that return.

*(continued on page 5)*

# Not Much of a Bounce Back For Printed Circuit Board Industry

## Manufacturing & Technology News

The North American printed circuit board industry is having difficulty recovering. "The estimated size of the North American printed circuit board market declined in 2014 for the fourth consecutive year," according to the IPC—Association Connecting Electronics Industries.

In 2000, the North American printed circuit board (PCB) industry generated \$10.9 billion in annual revenue. By 2014, total revenue for the industry dropped to \$2.736 billion, down from \$2.806 billion in 2013. The global market for PCBs reached \$60.2 billion in 2014, up from \$59.4 billion in 2013.

The North American industry share of the world market was 4.5 percent.

"Companies based in Taiwan, Japan and South Korea are responsible for more than two-thirds of world PCB production," says IPC director of market research Sharon Starr. "These and other companies around the world are powering the impressive growth of PCB production in southeast Asia." The biggest U.S. market for printed circuit boards is now aerospace and defense, surpassing communications in 2014.

IPC forecasts modest growth for domestic PCB production from 2015 through 2017.

# Let It Snow – Curious Lessons in Change Leadership

by J. A. Rodriguez

There they are — the beautiful colors of fall showcased by a seasonal cool breeze that subtly foretells the arrival of an imposing climatic change.

One falls, then two, and then too many to count; the trees relinquish their leaves, their energy factories, in response to a shortened day, a lengthened night and an ever predictable event in the coming months.

A cold winter is surely ahead for which proper planning and operational readiness are a survival necessity. This they understand.

The tree's branches are implementation devices, delivering on the organizational vision. When resources are high, productivity reaches maximum potential. Precious energy is then generated, stored and diverted towards the fulfillment of growth, thereby satisfying the tree's mission.

When resources are critically low, productivity gives way to survivability. It is then that strategic actions play a key role, often dramatically, to assure the future growth and sustainment of the tree. Nature always makes the necessary compromises while maintaining the certainty of goal achievement in its line of sight.

In leadership, it also is critical to recognize early when brighter days succumb to darker ones. The sooner the leader understands what is happening, the clearer the vision, the better the decision-making process, the faster the recovery period. What worked six months ago likely is not the best option for adequately addressing what is happening now nor what

is going to happen in the not too distant future.

Business environments and organizational effectiveness, like the seasons, are dynamic commodities. When carefully analyzed and considered, they both expose a breezeway that often leads to a host of solid decisions, the performance of which often exceeds expectations.

Great leaders possess this keen situational awareness and respond by preparing their organizations for major challenges before they occur, before anyone notices. They do so by maximizing resource allocation, by minimizing bottom line detractors and by empowering their organization to make the right decisions at the right time and for the right reasons.

So, as your morning alarm clock signals yet another opportunity for success, think about how to monitor the climatic temperature of your organization. Take a curious glance at that great big old maple tree on the way to work and ponder how it strategically and successfully survived the threat and prospect of change throughout its many formidable seasons.

Harvest these lessons and focus on the vision required to lead your organization towards delivering a pallet of spectacular color to every challenge, every time. In this way, spring and summer always will prepare your team (your branches) for the eventual fall and winter, both personally and professionally.

Let it snow.

# How Do You Set Improvement Goals for Manufacturing Operations?

by Larry Fast

**QUESTION:** Do you have any suggestions about how to establish improvement goals? For example, I want to see a 10% or 20% or 30% reduction in cycle times this year.

**ANSWER:** My view is that it is especially important in the first few years of the Lean Revolution that the leadership set **bold** objectives.

My experience is that a modest goal to improve anything by 5% to 10% will cause most people to simply focus enough and work enough hours to make the numbers happen. *They won't have to change how they think, how they work or how they behave. They also won't work with much urgency.* These are four of the most critical things that must happen to get the Continuous Improvement initiative going in earnest to both radically improve performance and start the culture change that we seek.

For example, if reducing changeover times is a major priority, I always expected a 75% reduction right out of the box. Why? Because there is no way a team can reduce cycle times by that much simply by better focus and working more hours.

*"If you provide the necessary resources and support, your people will respond and rise to your higher expectations."*

They have to think differently about how to approach the challenge by understanding the process in detail. They have to work differently using

more precise data that allows a Pareto-ization of the priorities. They have to behave differently as they'll need a cross-functional team including machine operators to help and to accomplish it with urgency.

The team will have to also develop another important trait, persistence!

Which would you rather have—a 25% improvement goal and accomplishes 28% or a 75% improvement goal that "only" yields 67% improvement but that jump starts the new way we're going to manage the business?

**Bold** objectives force outside-the-box thinking, a data-driven approach and a different way of accomplishing important work in a more collaborative way. In fact, in the changeover time reduction example, it's likely to take multiple kaizen events before finally accomplishing the objective.

Further, **bold** objectives create far more urgency than a boss that simply tries to create urgency with words of exhortation. In short, **bold** objectives cause our people to take the "leap of faith" that the new way of working is superior to the traditional paradigm.

Here's another example that comes to mind. In both companies where I served as the senior manufacturing leader, I set the first **bold** objective to reduce scrap by 50% because that was the biggest process improvement/cost reduction opportunity in both businesses at the time. It took three years to accomplish this in both companies, but that was OK.

We learned so much more about our processes and uncovered root cause issues that were hidden from us historically because we didn't have the data necessary to put a spotlight on many of the underlying root causes of process failures. We were trying to execute at too high a level and ended up putting salve on the symptoms but didn't get to a detailed enough level to really solve the problem.

I'm sure we could have gotten a 5% to 10% a year scrap reduction by thinking, working and behaving the traditional way. But that would have delayed the start of the real revolution by three years.

On the other hand, for functional objectives that do not require the same scarce resources necessary to solve the big problems of the business, I'm fine with the more traditional objective setting of the 5% or 10% improvements. But where there are game-changing opportunities that materially affect the income statement, the balance sheet, the customer service report and the culture change, I encourage all manufacturing leaders to **BE BOLD** with your objective setting.

If you provide the necessary resources and support, your people will respond and rise to your higher expectations. Don't become the constraint to improvements in your organization. Be sure that your own expectations are high enough to lead the revolution.

*(continued from page 3)*

Looking forward, with the credit's annual uncertainty gone, companies will be able to engage in better long-term planning for research projects, which can only increase the credit's effectiveness.

This year, manufacturers hung their stockings by the chimney with care in hopes that Congress' tax package would bring a few shiny new gifts. While the bill brought a number of fiscal treats, it also ripped off a few economic bandages that had benefited manufacturers, like bonus depreciation.

However, the removal of short-term economic stimuli serves as a bellwether of the nation's stronger economic footing. With that in mind, and these tax provisions get checked off their wish lists, manufacturers can be well on their way to feeling the holiday cheer all year long.



## Benefits of Becoming an AM&T Associate

- Four free hours of consulting services.
- Your company's profile will be featured in the "Associates' Corner" of our monthly newsletter, which is distributed throughout eight counties: Broome, Chemung, Chenango, Delaware, Schuyler, Steuben, Tompkins, and Tioga. Also, the newsletter is featured on our website giving your company worldwide exposure.
- Discounted fees at AM&T sponsored seminars & workshops.
- A free Performance Benchmark and Transformation Planner (\$2,500 value).
- A link to your company's website from ours.
- Assistance with Technology Transfer, Funding Sources, Venture Capital Investment, Networking, Research & Development Programs, etc.
- Highlighted in the "Made in the Southern Tier" directory of manufacturers.

Call Jim Cunningham at 607-725-1225 to ask about becoming an associate.

More information at [www.amt-mep.org](http://www.amt-mep.org)

## Associates' Corner



Transonic Systems Inc. is the worldwide industry leader in the manufacture and marketing of biomedical flow measurement devices. Its biomedical products measure and confirm liquid flow during surgery, post-surgery, hemodialysis and in research studies.

The Company was founded in 1983 by Cornelius Drost, who as a Sr. Research Associate at the NYS College of Veterinary Medicine at Cornell University invented the transit-time ultrasound flowmeter. Transonic measurement superiority was quickly recognized and, in less than a decade, scientific literature cited Transonic transit-time ultrasound as the "Gold Standard" against which other technologies were validated. The first transit-time ultrasound flowprobes measured volume flow in vessels in large animals such as the sheep. Flowprobes have now become so small that scientists can measure the volume of flow through hair-sized renal/femoral arteries in mice.

Over the years Transonic has expanded its product lines into a broad spectrum of applications. Cardiac surgeons use Transonic to

check flow in their bypass grafts. Neurosurgeons use Transonic to avoid intraoperative strokes during aneurysm or bypass surgeries. Transplant surgeons rely on Transonic measurements to check their work. In dialysis units Transonic Hemodialysis Monitors help improve dialysis delivery. Transonic measurements are integral in ground-breaking research that leads to medical advances such as the artificial heart. Transonic devices are also used in bioprocess control, and as "Transonic inside" original equipment devices. From the laboratory to the operating room, Transonic Systems provides accurate, intuitive, and reliable tools to measure flow.

Customer service, sales, marketing, R&D, finance, administration and manufacturing are based at the Company's 33,000 square-foot headquarters in Ithaca, NY. European and Asian divisions in the Netherlands, Taiwan and Japan augment the worldwide marketing and distribution of Transonic products. The Company currently employs 130+ people.

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



# Associates' Corner



ENSCO Avionics, Inc. is a provider of safety/mission-critical avionics engineering solutions to Commercial and Military aerospace customers in the Southern Tier of NY, across the nation, and internationally.

Avionics engineering solutions feature:

- Software (DO-178B/C) and Programmable Hardware (DO-254) development, integration, test and certification.
- Vision Systems Solutions utilizing synthetic, enhanced and combined vision technologies to solve Situational Awareness (SA) challenges.

- IData® Tool Suite — A Cross-platform software development toolkit for creating and deploying Human Machine Interface (HMI) applications.
- IGL — A high performance and efficient OpenGL® SC (Safety-Critical) software GPU.

Core engineering capabilities include:

- DO-178B, DO-178C, DO-254, SEAL & MIL-STD subject matter expertise.
- Unique Vision Systems Solutions that feature IData® and IGL for enhanced situational awareness through dynamic visual displays.

ENSCO Avionics, Inc. is a Wholly Owned Subsidiary of ENSCO, Inc. with over 200 engineers and headquartered in Endicott, NY. ENSCO Avionics is an AS9100C, ISO 9001:2008 certified company.

For more information on ENSCO Avionics' engineering services please contact:

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## Around the Southern Tier

Jan 19	Economic Forecast Breakfast - Greater Binghamton Chamber - Holiday Inn - 607-772-8860
Jan 19	Small Business Administration Roundtable - Corning Area Chamber - 607-936-4686
Feb 6	Women's Entrepreneurship & Leadership Conference - Cornell University - <a href="mailto:ariana@revithaca.com">ariana@revithaca.com</a>
Feb 17	SBIR Event - IncubatorWorks - Corning - 607-725-1225 - AM&T Jim Cunningham
Feb 18	Economic Forecast Breakfast - Commerce Chenango - 607-334-1400
May 25	Cornell Center for Materials Research – 2016 Symposium - Cornell University

Visit <http://amt-mep.org/index.php/news-and-events/training-and-events/> for additional events

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## HELPING MANUFACTURERS PLAN, PERFORM, PROFIT & GROW

We are a team of experienced, skilled consultants and trainers dedicated to helping manufacturers in the Southern Tier of NY plan, perform, profit & grow. Our goal is to have manufacturers remain, grow and prosper in the Southern Tier.

AM&T uses a comprehensive, overall business approach to create significant and long-lasting business improvements. Our experience is that individual improvement methodologies will provide some measurable benefits on their own, but it is the combination of them across the whole value chain that will lead to dramatic gains.

### WE HELP BUSINESS LEADERS:

- Assess their current state
- Articulate and define their desired future state
- Train their workforce in improvement methodologies
- Implement process improvements across the whole value chain
- Identify new opportunities
- Achieve and sustain growth and breakaway results

### AM&T DELIVERS:

Third-party surveys for 2010-2015 reported impacts of:

- 2,839 jobs created or retained
- \$516 million in increased or retained sales
- \$15 million in cost savings
- \$35 million in investments
- \$749 million total impact
- 4.8 out of 5.0 Customer Satisfaction

### OUR SKILLS:

- Business Assessments
- Strategic Planning
- Lean Enterprise
- Supervisory Training (TWI)
- Project Management
- ISO/AS Quality Systems
- Sales and Marketing
- New Opportunity Identification and Growth — Markets, Products, Services, Customers

Our integrated, comprehensive approach, applied to the whole value chain, can make a difference. We are "hands-on", roll-up-your-sleeves people and we're passionate about manufacturing.

**Call Jim Cunningham at 607-725-1225 to ask how we can help.**