

The Benefits of Manufacturing Jobs

Executive Summary - ESA Report

The role of the manufacturing sector in the U.S. economy is more prominent than is suggested solely by its output or number of workers. It is a cornerstone of innovation in our economy: manufacturing firms fund most domestic corporate research and development (R&D), and the resulting innovations and productivity growth improve our standard of living. Manufacturing also drives U.S. exports and is crucial for a strong national defense.

The current economic recovery has witnessed a welcome return in manufacturing job growth. Since its January 2010 low to April 2012, manufacturing employment has expanded by 489,000 jobs or 4 percent—the strongest cyclical rebound since the dual recessions in the early 1980s. From mid-2009 through the end of February 2012, the number of job openings surged by over 200 percent, to 253,000 openings. Coupled with attrition in the coming years from Baby Boomer retirements, this bodes well for continued hiring opportunities in the manufacturing sector.

The rebound in manufacturing is important, not only as a sign of renewed strength, but also because manufacturing jobs are often cited as “good jobs:” they pay well, provide good benefits, and manufacturing workers are less likely to quit than workers in other private sector industries. In fact, analysis finds evidence in support of these claims. Specifically, this report shows that:

- On average, hourly wages and salaries for manufacturing jobs were \$29.75 an hour in 2010 compared to \$27.47 an hour for non-manufacturing jobs. Total hourly compensation, which includes employer-

provided benefits, was \$38.27 for workers in manufacturing jobs and \$32.84 for workers in non-manufacturing jobs, a 17 percent premium.

- Even after controlling for demographic, geographic, and job characteristics, manufacturing jobs maintained significant wage and benefit premiums.
- The educational attainment of the manufacturing workforce is rising steadily. In 2011, 53 percent of all manufacturing workers had at least some college education, up from 43 percent in 1994.
- The innovative manufacturing sector relies more heavily on STEM (science, technology, engineering and mathematics) education than the non-manufacturing sectors. In 2011, nearly 1 out of 3 (32 percent) of college-educated manufacturing workers had a STEM job, compared to 10 percent in non-manufacturing sectors.

Higher educational attainment for manufacturing workers carries higher premiums, and the size of the premium, including or excluding benefits, increase consistently with educational attainment.

Furthermore, the compensation premium has risen over the past decade across all levels of educational attainment.

In sum, manufacturing jobs provide benefits to workers with higher overall compensation than other sectors, and to the economy through innovation that boosts our nation's standard of living.



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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Empire State Development
Division of Science, Technology & Innovation

What We've Been Up To...

- Completed current state Value Stream Maps (VSM) for one company and analyzed the processes to identify best practices, non-valued added activities, gaps and deficiencies. The analysis will be used to develop a future state VSM for standardizing processes.
- Conducted a four-hour Lean Thinking training session for 6 employees and then conducted a 3-day "order to delivery" value stream mapping event on a major product family. It is anticipated that when implemented, the plan will result in a significant reduction in lead times, inventory, and floor space, and an increase in productivity.
- Conducted Training-Within-Industry (TWI) Job Relations training at one company to assist their supervisors with improving employee relations and handling change and conflict.
- Conducted Basic Project Management training at a company to educate key personnel on the use of tools and techniques for initiating, planning, executing, and controlling service-based projects.
- Presented ISO 9001:2008 briefings to Management and general workforce of a company who has made the decision to pursue certification. Began development of operating procedures which will form the basis for their 2nd level documentation.
- At company request, participated in a two-day ISO 9001:2008 re-certification audit.
- Performed AS9100 Rev C internal audits at two clients who have achieved certification.
- Assisted a company in conceptualizing a strategic business partnership that was key in business expansion, created a plan to articulate key points, and mentored them in negotiating a successful partnership.
- Assisted an inventor of patented medical devices in business plan development, applying for grant assistance, obtaining assistance from NIH, market identification and development, partnering with manufacturers, and will continue into implementation phase.
- Provided advice to inventors and would-be entrepreneurs during a multi-day workshop for pre-seed companies. Assisted teams in creating pragmatic assessments of the viability of six entrepreneurs' business plans, including market research, financial projects, and likelihood of attracting venture capital.
- Met one-on-one with multiple high-tech entrepreneurs to provide start-up advice and recommendations on a variety of subjects, including technical assessment of envisioned product/service, sources of funding, intellectual property, market research and idea viability, professional service providers, etc.

Leadership and The Power of Listening

by Mike Myatt

Great leaders are great listeners, and therefore my message today is a simple one – talk less and listen more. The best leaders are proactive, strategic, and intuitive listeners. They recognize knowledge and wisdom are not gained by talking, but by listening. Have you ever walked into an important meeting and wondered who the smartest person in the room was? If you mull this over for a moment you'll find the smartest person in the room is not the one doing all the talking – it's the person doing all the listening.

You'll also notice that when intelligent people do speak-up, it's not to ramble-on incoherently or incessantly, but usually to ask a question so they can elicit even more information. The quiet confidence of true leaders has much greater resolve than the bombastic displays of the arrogant.

Following are 6 tips for becoming a better listener:

1. It's not about you:

Stop worrying about what you're going to say and focus on what's being said. Don't listen to have your opinions validated or your ego stroked, listen to be challenged and to learn something new. You're not always right, so stop pretending you know everything and humble yourself to others. If you

desire to be listened to, then give others the courtesy of listening to them.

2. You should never be too busy to listen:

Anyone can add value to your world if you're willing to listen. How many times have you dismissed someone because of their station or title when what you should have done was listen? Wisdom doesn't just come from peers and those above you – it can come from anywhere at anytime, but only if you're willing to listen. Expand your sphere of influence and learn from those with different perspectives and experiences – you'll be glad you did.

3. Listen to non-verbals:

People say as much (if not more) with their actions, inactions, body language, facial expressions, etc., as they do with their verbal communications. Don't be lulled into thinking because someone isn't saying something they're not communicating. In fact, most people won't overtly verbalize opposition or disagreement, but they will almost always deliver a very clear message with their non-verbals.

4. Listen for opportunity:

Intuitive listeners are looking for the story behind the message, and the opportunity beyond the issue. Listening is about discovery, and discovery can

not only impact the present, but it can also influence the future. Opportunities rarely come from talking, but they quite frequently come from observing and listening.

5. Let listening be your calling card:

One of the best compliments you can be paid is to be known as a good listener. Being recognized in this fashion will open doors, surface opportunities, and take you places talking never could. Listening demonstrates that you respect others, and is the first step in building trust and rapport.

6. Recognize the contributions of others:

One of the most often overlooked aspects of listening is thanking others for their contributions. If you glean benefits from listening to someone, thank them. Even if no value is perceived, thank them for their time and input. Never forget to acknowledge those who contribute energy, ideas, actions or results. Few things go as far in building good will as recognizing others.

Allow me to leave you with one final thought to reflect on – if you're ready for advanced listening skills, don't just listen to those who agree with you, but actively seek out dissenting opinions and thoughts.

Business Conditions Pick Up for NY Manufacturers in July

by Rick Seltzer

New York's manufacturing sector bounced back from an early summer slowdown in July, according to a survey released by the Federal Reserve Bank of New York.

The general business conditions index in the New York Fed's July Empire State Manufacturing Survey rose 5.1 points to 7.4. The increase is a reversal in course from June, when the index fell 14.8 points.

In July, 32.1% of survey respondents indicated business conditions improved, compared with 24.8% who said conditions worsened. The final 43.1% reported conditions that stayed the same.

Not all of the survey's current indicators climbed, however. Its new orders index, which measures the number of new orders manufacturers received, turned negative for the first time since November 2011. It fell 4.9 points to -2.7.

Manufacturers also pulled back on their expectations for six months into the future, as the survey's future general business conditions index slipped 2.9 points to 20.2. It has been falling steadily since January.

Still, the future general business conditions index is firmly in positive territory. In July, 37.5% of survey respondents predicted better conditions in six months, while just 17.3% anticipated worse conditions. The remaining respondents expect conditions to remain the same.

The New York Fed polls a set pool of about 200 New York manufacturing executives for its monthly survey. About 100 executives typically respond, and the Fed seasonally adjusts data.

Sustaining, Leadership, and Why?

By Kevin Meyer

A good friend of mine recently sent me a photo of what his team found while cleaning one of their production areas:

Yes, a certificate lauding completion of various 5S activities... except the last one: sustain. And from the mess in the background of the picture I can see what happened.

Sustaining improvement – lean or otherwise – is difficult. How many of us are on a diet... again? Needing to clean the garage... again? In fact, sorting and straightening and all that is really the easy part. Doing it day after day is tough.

Three sources of the difficulty come to mind. The first is the lack of a plan to sustain the improvement. How often will it be done? How will it be monitored? 5S is often sustained through audits and daily checklists, even after it becomes ingrained in expectation and even culture.

But such plans are meaningless if there isn't also leadership commitment. Are managers and supervisors holding themselves and others accountable to the sustaining plan? What happens when the plan isn't followed?

However, ultimately there won't be leadership



commitment if there isn't a solid understanding of why the improvement program is happening in the first place. I've seen innumerable organizations, including mine, go down the path of "we must do this or that program"... without understanding why. I even know of one organization that I won't identify (cough... mine... cough) that once long ago had a goal to implement two lean tools per year. We learned our lesson. What is the problem or opportunity, what is the desired future state, and what is the best tool or program to achieve that future state?

To sustain an improvement program you need a solid plan. For that plan to be effective you need leadership commitment. For there to be leadership commitment there needs to be a solid reason and understanding of why the improvement is needed – and important – in the first place. The power of Why.

Actions to Ignite Never-Ending Innovation

By Doug Hall

Leadership Actions

- 1. Constancy of Purpose:**
Constancy of Purpose means that the Leader is taking responsibility for the long term future of the organization. The leader is not distracted by the "noise" of today - but rather leading the company in the never ending innovation required to restart the business life cycle with the products, services, customers and markets that can enable good jobs, profitable growth and long term hope for the organization. One challenge with Constancy of Purpose is that it often means that the Leader needs to take responsibility for decisions that will take affect after he or she is retired.
- 2. Meaningfully Unique:**
Every organization - for profit or non-profit - exists on a continuum running from commodity to monopoly. The simple way to determine where you are on this continuum is to compare the price customers are willing to pay for your offering versus competitive offers. It's the leader's job to lead the organization in a process of never ending change - to transform commodity offerings into meaningfully unique ones. Sometimes it's done with a new technology - sometimes it's about hundreds of small innovations that collectively make for a meaningful difference that customers are willing

to pay more money for.
IMPORTANT: If you as CEO don't set the new mindset - that focuses on offering products and services that are so Meaningfully Unique customers will happily pay more - then you will not realize the level of change required to become a culture of Never Ending Innovation.

- 3. Systems Thinking:**
The Leader is responsible for banishing silo thinking and the "blame game." Innovation Leaders use Constancy of Purpose to inspire workers to focus on the long term focus not petty fights, egos or whining. As Dr. Deming found - 94% of problems are due to the system - just 6% are due to the people. If people are failing on a continuing basis - make a systemic improvement to their tools, training and methods of operation. Only the leader can "be the bigger person" - and lead the culture in a search for solutions instead of a search for the guilty.

Worker Actions

To achieve Constancy of purpose resulting in good jobs and growth opportunities the worker needs to commit to three things.

- 1. Stimulus Mining:**
Stimulus Mining is about continual learning and the acquisition of new knowledge. It's about studying, searching, finding new ways of thinking, new options

and, new wisdom for how to approach the work. Stimulus takes many forms - from Customer Insights to Competitive Benchmarking to Technology Mining and Future mining to anticipate future opportunities.

- 2. Diversify Thinking:**
Diversify Thinking is about cooperation and collaboration. It's about rising above the personal ego to the higher order Constancy of Purpose of the organization. It's about a willingness to listen and learn from others. It's a willingness to simultaneously engineer total solutions. It's a focus on what's right for the good of the total system - not simply what's right for your department, division or personal gain.
- 3. Drive Out Fear:**
This is the hardest of all of the six principles. What makes it hard is that it requires a willingness to say "I don't know, I need help and I fail a lot". Admitting these three simple things is difficult for adults whose self image is based on -- knowing the answers, not needing to ask for help and never failing. The easy way to Drive Out Fear is to embrace and celebrate the Deming cycle of Plan, Do, Study, Act or as we call it - Fail FAST Fail CHEAP. Fast and cheap cycles of learning drive away fear and build courage to take action on the kinds of Meaningfully Unique ideas that enable Constancy of Purpose.



Alliance for Manufacturing & Technology

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

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

More information at www.amt-mep.org

Associates' Corner

Astrocom Electronics began in 1961 with three employees, and today produces their communications equipment in a modern plant in Oneonta, NY, with more than 65,000 square feet of design and manufacturing space. The Astrocom staff has the means and ability to develop and produce superior communications equipment for a sophisticated market.



Astrocom Electronics was founded on the concept of specialized electronic design and manufacturing using the newest techniques and ideas in producing communications equipment to better service their customers. That concept continues today and enables Astrocom to provide such equipment to space programs, the military, municipal police departments, and industry in a worldwide market.

One of the keystones of success at Astrocom in developing and manufacturing outstanding communications equipment is its use of lean manufacturing techniques. One of the uses for these techniques at Astrocom is for quick modification of existing designs and/or drawings in response to customer needs.

The production capabilities of Astrocom combine all the efforts and talents of engineering design, R&D and quality control systems to

produce the products that make Astrocom the innovators in communications. As with all Astrocom employees, production workers are carefully selected and trained to perform the accurate and demanding work to produce quality products. Every individual must know and do his job accurately to achieve the end product.

In 2008 Astrocom's management indicated that they believed it was advisable to pursue certification to the ISO 9001:2008 quality system to add to the quality of their products.

Starting in February 2008 Astrocom began the process to meet the ISO 9001:2008 standard. Using AM&T and DLS Quality Technology Associates, Inc. (DLS) in August 2009 Astrocom was successful in becoming certified to the ISO 9001:2008 standard.

Astrocom's proven methods, coupled with the active and enthusiastic search for the newest and best ideas of communication, will continue to make Astrocom products the standard by which others are judged.

For more information, visit: www.astrocom-electronics.com or, contact: Doug Lifgren at 607-432-1930 doug.lifgren@astrocom-electronics.com

Associates' Corner

Vergason Technology, Inc. (VTI®) is a leading provider of vacuum-based processes, equipment and components for surface treatments, and provides toll coating services producing metal, ceramic and polymeric thin film coatings.

Founded by Gary Vergason in 1986, VTI has grown to an internationally recognized leader in vacuum coatings and equipment with nearly 200 coating systems installed world-wide.



VTI uses thermal evaporation, cathodic arc vapor deposition, magnetron sputtering and plasma-enhanced chemical vapor deposition to produce a wide variety of tribological, decorative, reflective and electronic shielding coatings for the automotive, aerospace, medical, electronic and

manufacturing markets. Coating thicknesses range from 20 angstroms to tens of microns.

VTI carries ISO 9001:2008, ITAR and Federal Firearms registrations.

For more information, contact:

Gary Vergason or Mark Fitch at 607.589.4429 or visit www.vergason.com

Free Energy Audits

Manufacturers - if you occupy more than 50,000 sq. ft. and are interested in a "light-duty" energy audit at no cost, call Mike Meador at AM&T, 607-342-3208. Includes utility bill comparisons to other similar buildings, a site visit and recommendations on lighter-duty improvements.

Around the Southern Tier

Aug 09	SBC Network Luncheon - Greater Binghamton Chamber - 607-772-8860
Aug 21	Small Business Health Care Tax Credit - Tompkins CC - 607-273-7080
Sep 05	Small Business Training Part 1 - SBDC Binghamton - 607-777-4024
Sep 12	Small Business Training Part 2 - SBDC Binghamton - 607-777-4024
Sep 13	Eggs & Issues - Redeveloping Our Urban Centers - Greater Binghamton Chamber - 607-772-8860
Sep 19	Small Business Training Part 3 - SBDC Binghamton - 607-777-4024
Sep 26	Making Networking Work for You - Tioga County Chamber - 607-687-2020
Oct 04	Tioga Business Trade Show - Tioga County Chamber - 607-687-2020
Oct 09-10	2012 Electronics Packaging Symposium - Binghamton University - http://www2.binghamton.edu/ieec/symposium2012/index.html
Oct 24	Social Media and My Business - Tioga County Chamber - 607-687-2020

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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 CAN HELP YOU:

- Assess your current state
- Articulate and define the desired future state
- Train your 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:

A third-party survey for 2006-2011 found:

- 2,956 jobs created or retained
- \$608 million in increased or retained sales
- \$17.1 million in cost savings
- 137:1 return on investment
- \$818 million total impact
- 4.7 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.