



Emily S. DeRocco, President, The Manufacturing Institute  
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Thank you. It's a pleasure to be back in Florida and with so many manufacturers, economic developers, and educators committed to building the next generation workforce for Florida's manufacturers.

For those of you who are not familiar with my organization, The Manufacturing Institute is the research and solutions affiliate of the National Association of Manufacturers. The Institute conducts research on a host of issues facing U.S. manufacturers and designs and implements solutions focused on building an educated and skilled workforce and accelerating innovation in manufacturing.

Over the past few months, manufacturing has enjoyed something of a national spotlight. Organizations all across Washington, from the White House and Congress to major think tanks and government agencies, have been discussing the manufacturing industry and what America must do to maintain and grow its manufacturing base. Savvy governors are on the hunt as well, looking to attract manufacturers ~ as the true wealth creators ~ to their states.

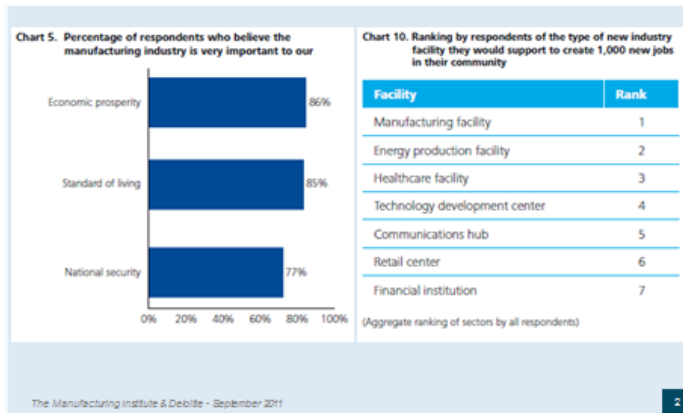
Manufacturing is certainly deserving of the recognition it is now receiving because it is an industry that is truly vital to our economic security. No other industry creates more value or has a higher multiplier effect, and this results in a 53 percent compensation premium for manufacturing workers nationwide with a similar premium here in Florida.

Manufacturing is also the leader in generating wealth from overseas, contributing 57 percent of the total value of U.S. exports and an incredible 85 percent of Florida's total exports.

Of course, manufacturing also plays a vital role in our national security, building the equipment, machines, and armor that equip and protect our servicemen and women.

[Public Perception Slide]

## The Public Supports Manufacturing



The American public understands how important manufacturing is to our country. Each year we conduct a public perception survey to understand how Americans feel about our industry. Not only do they believe that manufacturing is critical to our economic and national security, but when given a choice of selecting any industry to create 1,000 jobs in their backyard, the number one choice is manufacturing.

This is all good news and I believe we are truly at the beginning of a renaissance of manufacturing in the United States. But six months worth of good stories does not undo 3 decades of negativity. The steady drumbeat of “manufacturing is dying” stories and reports caused real and lasting damage to the image of our industry.

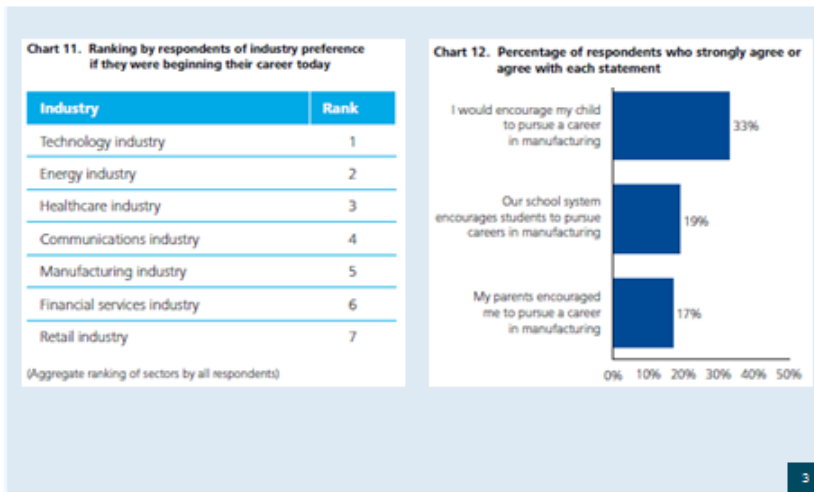
Nowhere have the effects of that damage been greater than on the manufacturing workforce. American society used to greatly value and respect men who built things with their hands. This continued through the 20<sup>th</sup> century as high school graduates sought work at the local factory and college graduates dreamed of becoming rocket scientists.

That began to change in the 70s and 80s though as parents instead began to dream of their children as doctors or lawyers or Wall Street bankers, and guidance counselors pushed students away from manufacturing careers and towards “college-appropriate” careers.

In most of our states, school systems responded to this shift in societal priorities and values by reducing or eliminating the once ubiquitous vocational programs available to high school students. Fewer and fewer students were learning the skills needed to enter manufacturing careers or experiencing the excitement and sense of accomplishment that comes from building and making things.

[2<sup>nd</sup> Public Perception Slide]

## Manufacturing Jobs for Someone Else



Unfortunately, this too is reflected in our public perception survey. Less than 20% of Americans said that their parents or their school system encouraged them to pursue a career in manufacturing. And when asked what industry they would choose if they could start their careers today, manufacturing was near the bottom.

There are lots of reasons for why manufacturing isn't viewed as a great career choice but one in particular that the Institute has chosen to address is the fact that most Americans don't really understand what manufacturing is anymore.

To help promote the new reality of manufacturing, we are using our Dream It. Do It. career awareness and recruitment initiative to showcase creative programs from across the country. From the Summer of Manufacturing in Pennsylvania's Lehigh Valley and the Making it Real Bus Tour across North Carolina, to the Ambassadors Program in Northeast Ohio and the Dream Team in Nebraska, these programs are changing how residents see manufacturing and opening manufacturing careers to high school students.

And tomorrow, I think Al Stimac and perhaps Governor Scott are going to have something to say about the Dream It Do It initiative.

Changing the public's understanding of jobs in manufacturing is not only critical to maintain support for the industry, but also to replenish what has been a shrinking pipeline of talent.

Perhaps it is just a coincidence that as manufacturing disappeared from schools, a general malaise settled over public education in the U.S. High school drop out rates soared to over 30% of students. Graduates lacked the basic reading, writing, and mathematics skills needed in society. Enrollment in remediation courses at higher education increased, burdening higher education with a sort of “under preparation tax.” And employers noted a decline in the basic workplace requirements like punctuality and work ethic.

The cumulative effect of these shifts was to dramatically reduce the size and quality of the pipeline of workers entering manufacturing. Unfortunately, this could not have happened at a worse time for U.S. manufacturers.

Beginning in the late 1970s and early 1980s and accelerating after the collapse of the Soviet Union and the introduction of the internet, foreign manufacturers, particularly from East Asia, expanded and began to compete directly with U.S. firms. This began a difficult and very painful transformation of the U.S. manufacturing sector.

The manufacturing sector that emerged from that transformation was completely different from its predecessor. Computer controlled robots and machines now produced and moved goods. Clean suits were as common as hard hats. And workers were now responsible for the programming and maintenance of the machines. What had traditionally been a low-skill, routinized workplace was now a highly skilled, customized and integrated workplace.

Manufacturers were also under pressure to innovate. To remain competitive, they either had to regularly create and produce new products or find new and better ways of making their existing products. This added a creativity and critical thinking aspect to manufacturing jobs, further distinguishing traditional manufacturing from advanced manufacturing.

Not surprisingly, it was around this time that manufacturers began to report a skills gap. They were unable to find workers who were qualified to step in and contribute to their operations. This was a real threat because U.S. manufacturers were banking on their ability to produce high value goods and stay ahead of their competitors through innovation. Without a skilled workforce though, their innovation engine would grind to a halt.

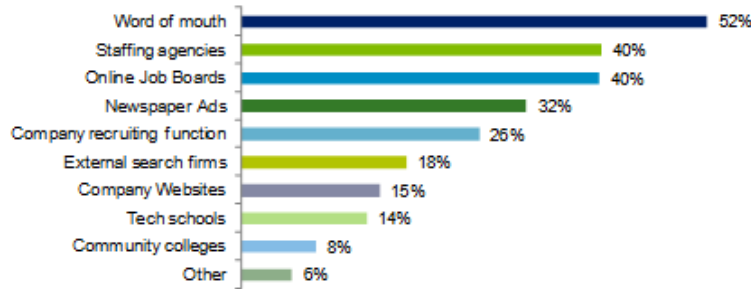
Now, to be fair, manufacturers were as much responsible for this situation as students, parents, and schools. During the leaning process, many companies cut their training budgets to a minimum, eliminating the traditional, months-long training programs that new hires would enter. Few manufacturers had a choice in this regard though, because the cost of such programs was now prohibitive in the global economy.

[Workforce Strategies Slide]

## Manufacturers Need New Workforce Strategies



### Top sources for new employees



Where manufacturers erred was in not transforming their hiring practices to respond to their overall business transformation. Today, the most common approach to filling positions is basically to ask a current employee if his brother-in-law is looking for a new job. And the second most common approach is to post an opening either on-line or with Manpower and hope for the best. And next on the list is newspaper ads. How many people under 25 do you know that read the newspaper?

For the past decade or so, manufacturers have managed to get by with this approach through a combination of productivity enhancements, poaching from other manufacturers, and luck. But manufacturers' ability to work around the skills gap has just about come to an end.

[Skills Gap Slide]

## The Skills Gap in Manufacturing



- 82% of manufacturers report a moderate-to-serious skills gap in skilled production.
- 74% of manufacturers report that this skills gap has negatively impacted their company's ability to expand operations.
- 69% of manufacturers expect the skills shortage in skilled production to worsen in the next 3-5 years.
- 5% of all jobs in manufacturing unfilled due to lack of qualified workers.

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In a survey that the Institute just completed, over 80% of manufacturers reported a moderate-to-serious shortage in skilled production workers. 80%. Nearly 75% of manufacturers say that this shortage has negatively impacted their ability to expand, costing us an incredible number of jobs at a time when jobs are desperately needed.

This has led to a situation where 5% of all jobs in manufacturing are unfilled because companies cannot find workers with the right skills. In real terms, that is 600,000 open jobs today in manufacturing.

Those are some frightening results and make clear the threat that a lack of a skilled workforce poses to manufacturers.

In response to this crisis, The Manufacturing Institute has developed and is implementing solutions that will position the U.S. to “grow our own” talent.

The core premise of our solution is that, in manufacturing, we have standards for every imaginable input and output. Whether it is the composition of steel, the tolerance of machines, or the failure rate of a part, manufacturers can give the details to three decimal points. So we created a system that allows manufacturers to be as rigorous in the standards they apply to their most important asset – human capital.

[Founding Partner Slide]

## Founding Partners & Certifications

- ACT
  - National Career Readiness Certificate
- Manufacturing Skill Standards Council
  - Certified Production Technician
- American Welding Society
  - Welding Certifications (8 different credentials)
- National Institute for Metalworking Skills
  - Machining, Metalforming, and CNC (52 different credentials)
- Society of Manufacturing Engineers
  - Certified Manufacturing Technologist
  - Certified Manufacturing Engineer

Many of you are probably familiar with industry credentials like Certified Welder or NIMS Level 1 or MSSC. Some of these have been around for a while and have started to become accepted by companies as a means of certifying the skills of current or future employees.

What the Institute has done is take those credentials that are both industry recognized and nationally portable, paired them with ACT's career readiness credential that shows someone has the basic math, reading, and problem solving skills needed for any job, and created an entry-level educational pathway that can lead to any sector in the manufacturing industry.

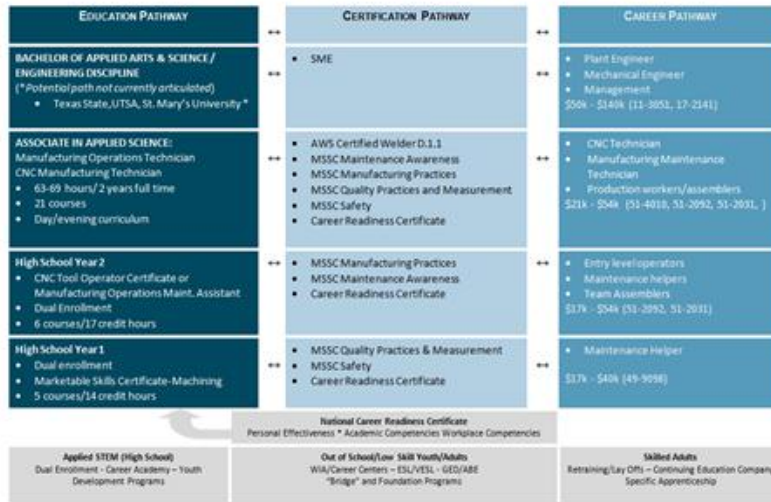
Two important features of our system are that (1) manufacturers are driving the education reform but (2) we are not asking manufacturers to pay for it. U.S. manufacturers already face a significant structural cost disadvantage in comparison to the rest of the world and we will not ask them to absorb the cost of dealing with the failures of our education system. Instead, we have found willing partners – primarily among the country's community and technical colleges.

Many community colleges already have manufacturing-related programs of study. For starters, we've asked that community colleges now incorporate our endorsed credentials into those programs so that manufacturers have a consistency in the quality of skills produced in each community college.

The work with these community colleges is now driving down to impact high school programs and up to the four-year colleges and universities. Our goal is to build an entire manufacturing talent supply chain.

[Alamo Pathway Slide]

ALIGNING EDUCATION, CERTIFICATION, AND CAREER PATHWAYS  
 ADVANCED TECHNOLOGY MANUFACTURING ACADEMIES AT THE ALAMO COLLEGES

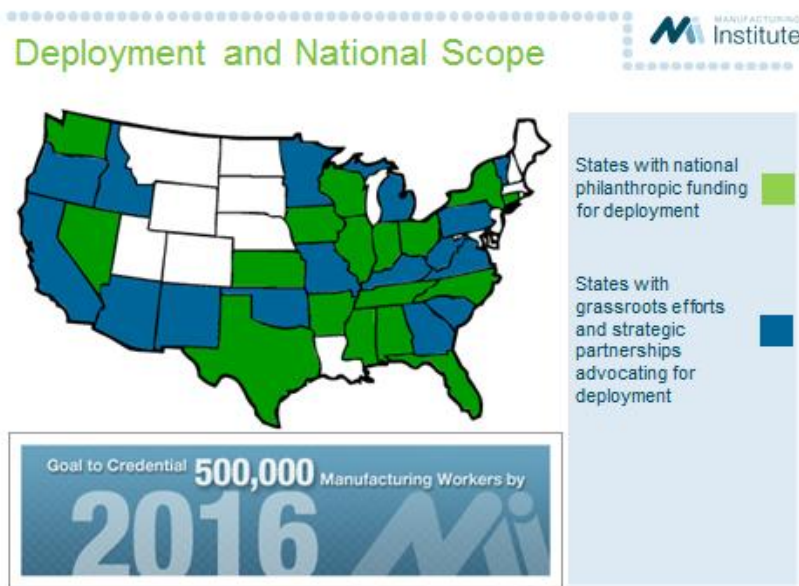


This is allowing us to align the traditional education pathways with the career pathways in manufacturing, using industry-recognized credentials as the bridge connecting the two. The example you see here is from Alamo Colleges in San Antonio and shows the pathway connections, particularly between high schools and community colleges.

What's significant about these pathways is that students can now clearly see the connection between school, jobs, and money and make informed decisions about how long they should stay in school. And by integrating these courses into for-credit programs, students can easily leave post-secondary school for the workforce and when they decide to return, they can pick-up right where they left off and take the next step up the education and career ladder. There are very few industries that provide that kind of career and education clarity to a student.

Couple that with the fact that (1) manufacturers are hiring welders, CNC machinists, and other production talent faster than community colleges can produce them; (2) manufacturers provide a higher average wage than most industries; and (3) the lack of hiring by other industries, and what started as a pilot in only 4 community colleges less than two years ago is now being sought after by hundreds of community colleges and enjoying full enrollment where it is already available.

[Map Slide]



Which brings us to the work in Florida.

Tomorrow, the Governor is going to talk about his economic priorities for the coming year. Several of these, including bolstering STEM education and focusing on reemployment, are directly related to our work and, indeed, our stackable set of credentials integrated into education programs can be the solution to the priorities that the Governor will outline. This is an opportunity we cannot afford to miss and we are in a position to act.

Florida was one of thirteen states to receive a small grant from the Lumina Foundation to build the leadership team that would integrate these credentials into educational pathways. Over the past year, MAF has convened several employer forums and pushed manufacturers to recognize this new opportunity to build our human capital supply chain. The Banner Center and the FLATE Center have catalogued the manufacturing education programs across the state and developed the engineering technology pathway. It is now time to take the next step.

Appropriate high schools and community colleges need to take these credentials and integrate them into their programs of study. This will result in the development of the pathways to build the supply of skilled workers – the technical workforce – that many manufacturing and energy employers so desperately need.

Action also must come from manufacturers. Companies need to start using skill certifications in their hiring process. This means recognizing and preferring credentials in your job postings and telling your high schools and community colleges that you want graduates who have industry certifications. By demonstrating the demand for skilled workers, manufacturers are now driving the reforms in education so critical to our nation's future.

And together, the leadership team, including many of you in this room, will have to bridge between supply and demand and ensure that manufacturers find the workers they require and individuals find the jobs that they need.

Fortunately, we have a new product that is going to help you do just that.

[Pipeline Slide]



In partnership with a company called Futures, we have created an online tool called the U.S. Manufacturing Pipeline. It will provide the information for individuals to learn about careers available in advanced manufacturing, locate the schools and programs that teach the right skills, and find available jobs at manufacturers in every region of the country.

And for manufacturers, it will be the place to find the certified, skilled workers that you need to close the skills gap and expand your operations. For example, Pipeline will allow individual companies seeking certified welders to send a message to any individuals who have a welding credential and live within, say, 25 miles of your facility, and invite them to apply for an open position. It really is a powerful tool that can change the way manufacturers find and recruit talent.

Within the next few weeks, the Department of Defense will be working with us to put tens of thousands of Guard and Reserve personnel returning from Iraq and Afghanistan on the U.S. Manufacturing Pipeline. We will translate their MOS, help them fill any skills gaps to credentials, and connect them to manufacturers.

I'm certainly excited about this and believe we are very close to a National Talent Solution for manufacturing. Our manufacturers need the skilled workforce to compete. Our citizens need good jobs. Florida needs to be positioned as a lead state in supporting their resident manufacturers - and offering manufacturers looking to site new facilities and create new jobs - the commitment of a credentialed talent pool to drive their business success. And our country needs manufacturing for this to be another great American century.

Thank you for the opportunity to join you today and I'm happy to take any questions.