Manufacturers Resource Center
MRC
Manufacturing Success

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America's Skilled Labor Shortage
Growing Careers in Manufacturing

Submitted by
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Manufacturers Resource Center

The Manufacturers Resource Center (MRC) is a non-profit economic development organization chartered in 1988 to help improve the financial performance and competitiveness of manufacturing companies in mid-eastern Pennsylvania. MRC is one of seven statewide Industrial Resource Centers funded in part by the Pennsylvania Department of Community & Economic Development. In 1994 the Center was also certified as an affiliate of the National Institute of Standards & Technology, Manufacturing Extension Partnership (NIST-MEP), a nationwide organization of 60 centers that help create and sustain manufacturing jobs, increase profits, and provide innovation strategies to small and mid-sized manufacturers.

Over the years the Manufacturers Resource Center has worked with hundreds of manufacturers in our region, and during this time we saw how manufacturers had to change to stay competitive with global economies.

Small and mid-sized companies must find niches that will differentiate themselves from their competition, e. g., faster time to market, unique technologies, or having tighter tolerances and controls. As they say, "if you are not unique, you'd better be cheap!" and being cheaper is a hard strategy today with foreign competition.

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Today manufacturing has higher productivity growth than any other sector because of innovation, automation, a commitment to LEAN Principles, and a better educated workforce. President Obama acknowledged this summer that if we want a robust, growing economy, we need a robust, growing manufacturing sector.

Today in Pennsylvania, the manufacturing sector is the largest source of Gross State Product and is the 4th largest employment sector. Manufacturing pays higher wages and has a higher multiplier (leveraging) effect than any other sector in our economy. Manufacturing has been leading the U.S. economy out of this recession and Washington is finally talking about reshoring and "buy American."

But, with all these trends there is an alarming problem we are now seeing in that manufacturing companies across many industries are having a very difficult time filling the critical middle-skilled jobs that are vital for growth. Middle-skill jobs are defined as positions that require more than a high school education but less than a four-year degree. These jobs make up 25% of all manufacturing employment. Examples include people who set up or maintain the automated machinery, machinists, and welders. I know companies in our region are now slowing down their growth because they can't find the right people for these jobs.

Harry Moser, founder of the Reshoring Initiative, says it is estimated that approximately 8% of the manufacturing workforce is lost each year due to

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retirement, promotion, career changes, or health reasons. So we lose about 20,000 to 25,000 skilled machinists per year. In contrast, only about 8,000 per year receive sufficient machining training in high school, community colleges and apprentice programs. This means in order to just stay even, we need to more than double the effort. The main reason for this shortage of talent is a poor public image of manufacturing and manufacturing careers. In a report last year from Deloitte and the Manufacturing Institute, it found that 78% of the U.S. public believed that manufacturing is important to U.S. prosperity, but only 30% would encourage a child to pursue a manufacturing career. It also found that only 22% of the public felt the school system actually encourages students to pursue careers in manufacturing.

This poor image is due to a combination of factors, such as these incorrect beliefs that manufacturing is dirty, noisy and unsafe; or a student needs a four year degree to have a well-paying career; or manufacturing is dead and the future is in service and software industries; or most of manufacturing will be offshored to low paying countries.

The advanced manufacturing industry of today requires a technical workforce with math and science skills. In a July article in USA Today, it stated, "Jobs in the science, technology, engineering and math fields pay an average of 26% more than other occupations, and they grew three times faster in the past 10 years."

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Today I would like to tell you about an initiative called the **Summer of Manufacturing** which has just been launched in the Lehigh Valley to help improve the image of manufacturing and to develop the much needed pipeline of skilled manufacturing workers so critical for the growth of the region. This initiative has been hailed as a "National Model" by NAM – The National Association of Manufacturers.

The idea started about two (2) years ago when I toured a traveling display in Harrisburg called "***How People Make Things***" which was inspired by the Mister Rogers Factory Tours. This exhibit is a one-of-a-kind, make & take experience in which visitors, usually children and parents, discover how some of their favorite things are made and have them make things for themselves. Visitors can explore the entire manufacturing process for making golf carts, ice cream cups, baseball bats and gloves, toy cars, crayons, and other products. I came back to Allentown and pitched the idea to the DaVinci Science Center as a way to showcase the local manufacturing base in the Greater Lehigh Valley and to highlight new manufacturing career opportunities.

The DaVinci Science Center is an independent non-profit organization in Allentown that has inspired enthusiasm for science since 1992. The DaVinci Center experience engages minds of all ages with science and mathematics. The Center offers a vibrant 10,000 square foot exhibit floor and nearly three dozen programs for visitors of all ages, students, educators and community groups from eastern Pennsylvania and western New Jersey.

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We brainstormed that we could expand the idea to include public tours of local manufacturers throughout the summer and have a regional Manufacturing Summit which would be made up of manufacturing executives and educational leaders from the high schools, community colleges, and universities to talk about how to improve the image of manufacturing and to discuss opportunities to get more students excited about math and science. The initiative goals included raising awareness of the power and vibrancy manufacturing has in today's world, the cutting edge that manufacturing of the future has, and the skills young people will need to build a fulfilling and well-paid career.

On June 3rd the initiative went public with a kick-off event for 200 invited guests. In addition to the "How People Make Things" exhibit, there were 10 interactive displays from local manufacturing companies who also helped financially to bring the program to our region.

On August 11th nearly 100 industry leaders, elected officials and educators attended the Manufacturing Summit at Cedar Crest College in Allentown. Opening remarks were presented by U.S. Representative Charles Dent of Pennsylvania's 15th Congressional District. The keynote speaker was Emily DeRocco, President of The Manufacturing Institute, Washington, DC, and Senior Vice President of the National Association of Manufacturers (NAM). She applauded the DaVinci Science Center and its Summer of Manufacturing partners calling their initiative a model to be followed in communities across the nation.

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She said such efforts are of critical importance to national strength and security. DeRocco said this particular educational effort is unique because it has been driven by a non-profit science center with strong industry support and that ***"Manufacturing is not going to be successful in the future unless we can encourage more young people to pursue careers in our industry. One way of doing that is to introduce students to the amazing feats of manufacturing. The DaVinci Science Center and its Summer of Manufacturing gives students a window into that world. This is truly a national model and one that I hope can be replicated around the country to reignite students' imaginations and a passion for manufacturing."***

Next on the agenda was a Manufacturing CEO Roundtable with six (6) local CEOs discussing skills shortages and how it is affecting companies and their growth today. This hour-long discussion included lively questions from the audience about the challenges facing manufacturing and education today.

The Roundtable was followed by four (4) smaller breakout sessions to talk about solutions and next steps in improving these critical problems. One of the examples of a solution that was discussed is a partnership this year between a local manufacturer, B. Braun Medical, and Catasauqua High School. Approximately 120 ninth grade students participated in a unique career awareness course taught at the high school by B. Braun employees to help students consider different career fields and what they may want to do after graduation. This was so successful that plans are now being developed to share the program with other high schools.

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We must do a better job educating job seekers, students, guidance counselors and parents about the new family sustaining and "cool" high tech careers available now in manufacturing. This is what we are now doing at the Pennsylvania DaVinci Science Center. Hopefully we can use the "How People Make Things" exhibit and this model to unlock the interest and potentials that are found in manufacturing.

The hard part is still to come. This initiative can't be dropped. We must keep the communication lines open between the manufacturing companies and the schools to work out solutions to these difficult problems. Interest in math and science at a young age is where it all begins. When I was young we had the Space Race which triggered my interest in math and science, and hopefully we can do the same this summer and fall at the DaVinci Science Center.

People ask me, "What is the future for manufacturing in our country?" and I say, "Manufacturing is the future of our country." It rests on a resurgence of innovation in manufacturing which demands that we now address the challenges to educate the next generation with 21st Century skills that will create a world-class workforce. Educate them and the jobs will come!!