



**Where PA
Businesses
Go to Grow**

Skilled Workforce Shortage Could Stifle Pennsylvania's Growing Manufacturing Industry *What Are The Options?*

Case Studies Conducted and Written by
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Executive Overview

With \$71.0 billion in economic activity, manufacturing is the largest industry in Pennsylvania, representing 13.6% of the gross state product (GSP). According to the Pittsburgh Regional Alliance (PRA), the State experienced a 6.6% increase in its manufacturing GSP from 2009-2010, slightly lower than the United States on a whole at 7.9%. However, according to the Department of Labor & Industry, Pennsylvania is facing a critical shortage of skilled manufacturing workers. With a state growing in this industry, we must find a way to remedy the shortage of skilled laborers to keep pace with Pennsylvania's increased productivity.

One of the most protracted problems that small and mid-sized manufacturers face is the lack of (new) skilled workers to operate their facilities. The low number of new workers entering the industry, coupled with the growth in manufacturing, has left a staggering gap of available skilled workers. The most pressing problems now and for the near-future are finding skilled workers, developing and updating their skills, and/or finding new entry-level workers with the aptitude to train for manufacturing positions.

Along with a lack of new skilled workers, we are also faced with problems associated with the current State workforce training programs. For instance, there are too many workforce training programs, and many are not effective. Programs are limited in what they can offer in many ways, and oftentimes the training is too generic and not always suitable for specific needs of individual manufacturers.

Therefore, the key questions become:

- How can employers "manufacture" skilled talent?
- Where can they go to find skilled talent if they cannot grow it from within?
- What training programs exist to help with the shortage and where can employers go to access these training programs?

This white paper was directed to those members of Pennsylvania government who are seeking to improve State workforce development training programs. It is a compilation of comments from SMC manufacturing members to the following questions:

- In your opinion and experience, what are some of the better workforce development programs in the State?
- In your opinion and experience, what are some of the least effective workforce development programs in the State?
- What is your opinion of the Pennsylvania STEM (Science, Technology, Engineering, and Math) initiative, a program instituted by the National Governor's Association and the Team Pennsylvania Foundation? <http://www.psea.org/general.aspx?id=5361>

SMC Business Councils believes lawmakers should focus on solving problems with existing training programs rather than spending additional funds on new programs.

In response to the above statement from our 2013 State Position papers, SMC was asked by Senator Kim Ward, Co-Chair, Senate Manufacturing Caucus, to gather member input on existing programs.

Case Studies



Company 1

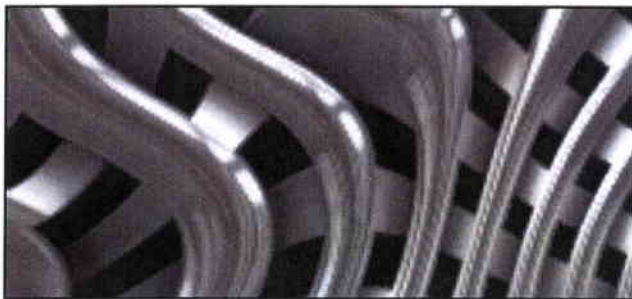
Product: Tungsten carbide preform

Number of Employees: 115

Respondent: Treasurer

General Comments

Their manufacturing process is somewhat unique. They have better success with internal training.



Company 2

Product: Precision spring and wire forms

Number of Employees: 49

Respondent: Owner

General Comments

It is very difficult to find out about the many different training programs.

Program: **Re-engineering Advanced Manufacturing Careers, U.S. Department of Labor (H1B)***

Description of training/program: On-the-Job (OJT) training for new hires from the ranks of the unemployed.

Ease of use: Easy. She works through New Century Careers to interview candidates. She fills out a form.

Advantages: She can even work through a temporary service; they will fill out the paperwork and the funding is split. (as of 7.12.2013 this provision is in question).

Maximum funding: The total available is \$10,000 per person. After the initial funding is used, and after six months, the employer is eligible to apply for third-party training worth \$5,000.

Rating: Excellent

*See the end of document for additional information about this program provided by New Century Careers.

Program: **WEDnet**

Description of training/program: In-house or third-party training for incumbent workers. She has sent workers to Community College of Allegheny County (CCAC) for blueprint reading and computer classes. She has been using WEDnet for years, often for retraining office staff or training workers on CNC machines.

Target audience: The person must be a State resident.

Ease of use: The application process is difficult. She uses CCAC to help her complete the application. The wording on the application is critical. The application is so complicated that her regular office staff can't do it.

Problems with program: Employers are only eligible to receive funds for 3 out of 5 years, even if there are unused funds.

Maximum funding: Training money is available in the following amounts:

\$450 per employee for basic employee training.

\$850 per employee for IT training.

The maximum amount per person is \$1,300 per year. The most one employer can hope to receive is around \$10,000 per year or \$6,000 for basic training and \$3,000 for IT training. The training must be completed in one year. The average amount employers receive is \$10,000 although they can apply for \$30,000.

How to improve: Make funds available every year, not just 3 out of 5 years. Simplify the application.

Rating: Good

Program: Summer intern training.

Description of training/program: Training provided via hands-on experience whereas students work and get familiar with the processes by spending time at the facility and learning from a mentor.

Ease of use: Easy. She uses Innovation Works and Catalyst Connection.

Problems with program: Employers may not get funded every year.

Maximum funding: \$1,800 per year for one intern.

Rating: Good.

Program: CareerLink

Description of training/program: She registers her company and posts positions online.

Problems with program: She receives many applications, but there are not many qualified candidates.

Rating: Poor.

Program: Keystone Works

Problems with program: She called the Three Rivers Workforce Investment Board (WIB) several times to learn about that program, but they did not respond.

Program: Manufacturing Tax Credits for Research and Development (Federal)

Problems with Program: She knows manufacturers who are afraid to use this program for fear of getting audited and incurring fees from accountants and attorneys. Extensive documentation is required. The employer must get at least \$70,000 back or it's not worth the effort.

Program: The BotsIQ Program

Problems with program: She likes this program and has sponsored numerous teams over the years. Schools want to come to visit her company sometimes, but they can't get the funding for buses.



Company 3

Product: Hydraulic cylinder remanufacturers

Number of Employees: 30

Respondent: President

General Comments

His general comment is that the government should let him keep his money and train his own workers.

His company is very specialized so often he uses OJT, training people internally or by bringing in a third party and paying for it himself.

He also cited the following general problems:

- The technical school students do not have hands-on training. People typically go to work, then go to night classes and practice on their own.
- They are not familiar with manual lathe operation; they are taught mainly on CNC machines so they cannot tell what the lathe is doing by the sound of the lathe "chattering," a critical skill for the kind of work performed at his company.
- There are not enough young people learning manual machining and they are very hard to find. They often train their own people, but there is a steep learning curve. His company eventually will have to move to CNC machines even though it will be less efficient.
- Blue-collar workers are needed in the areas of mechanics, machine operators, and machinists.

Program: Pennsylvania Youth Apprenticeship program at the York County Technical School (operated in the 1990s).

Description of training/program: It was a two-year program; the students were in the classroom for one month and then in the plant for one month. Students received the benefit of hands-on training.

Target audience: High school students interested in the trades.

Problems with program: Guidance counselors encourage students to go to college. They changed the curriculum to a semester standard and it became a catch-all program for students without direction.

Rating: Excellent



Company 4

Product: Sales, service and design of hydraulic components and systems

Number of Employees: 20

Respondent: Human Resources Director

General Comments

She has no good method to find out about workforce training programs. She networks, but programs she finds are hit or miss. There should be a central website where all the programs are located.

She is using New Century Careers for the first time. Their training is very specific. Her problem is that there are not enough entry-level hydraulic workers. New Century Careers helps with funding for workers, both new and incumbent. They have free training for machine welders, grant money and funding for other things.

Program: WEDnet

Ease of use: CCAC trained her to complete the application and she feels it is not overly complex.

Other: She has been using WEDnet funds for 5 years to do customized training with a third-party and/or send people out for training. WEDnet training is very general.

Rating: Good.

Program: COMPLETE (Pennsylvania Department of Labor and Industry)

Program purpose: Subsidies are limited to manufacturing firms from a nine-county region that enroll incumbent employees for training.

Description of training/program: Covers up to 50% (or a maximum of \$500) toward the training costs for qualified workers. A wide variety of courses are available. Subsidies are limited to manufacturing firms from the WIB areas.

Ease of use: She submits the hours through the local WIB.

Rating: Good.

Program: Re-engineering Advanced Manufacturing Careers, U.S. Department of Labor (H1B)*

Description of training/program: The Re-engineering Advanced Manufacturing Careers, U.S. Department of Labor (H1B) is offered through the Manufacturing Industry Partnership of Southwest Pennsylvania.

Ease of use: The employee had to be interviewed and meet eligibility requirements. Fifty percent of the wages are paid for 1,000 hours. A plan is submitted to New Century Careers and then they check back at the end of six months.

*See the end of document for additional information about this program provided by New Century Careers.

Program: CareerLink

Description of training/program: This is an online resource for companies looking to search for candidates for open positions.

Problems with program: CareerLink doesn't work. Resumes come in from all over the State and they are poor.

Rating: Poor.

Program: STEM Programs

Description of training/program: She is a dedicated Human Resources person and her particular area of interest is workforce development. She visits schools with a staff person from Catalyst Connection and speaks with students about manufacturing careers.

Problems with program: In general, she feels there is much greater focus now in middle schools and even elementary schools that are now pushing STEM programs. Her children have a STEM lab in their elementary school. The Guidance Counselors need to explain that there are options available out there other than just college for students.

Program: Keystone Works

Problems with program: She is not aware of that program.



Company 5

Product: Custom chemical manufacturer

Number of Employees: 39

Respondent: President & CEO

General Comments

OJT is important to his company because they are so specialized. Workers must be trained and incentivized to become mechanics and maintenance people, such as plant electrical workers, plumbers and tradesman.

His labor shortage is due to shale gas development. Those companies are taking the maintenance workers. It causes a domino effect; one employer ends up taking another employee from another employer. He has to pay workers more and that is driving the costs up for his company.

His company uses funding from both WEDnet and the Material Sciences Industry Partnership. This company's workforce training is provided by a specialist in the field of chemical manufacturing.

His candidates must pass a drug screen, intelligence tests, a national criminal background check, and have an operator's skill set that includes an aptitude and interest to work with plumbing, pumps, parts, and electrical work.

After five years of training, new workers are often enticed away with pay increases of 15% or greater. He must hire two extra operators in order to cover the expected attrition rate. That was not a problem several years ago.

He interviewed a chemist who had not used a screwdriver until the age of 21.



Company 6

Product: Metal spinning and forming

Number of Employees: 40

Respondent: Manager

General Comments

They have used New Century Careers and CCAC. Respondent is a graduate of the U.S. Naval Academy and works with the Navy League Pittsburgh Council. He has seen the effect of the STEM program on students and is very impressed.



Company 7

Product: Tool and die maker

Number of Employees: 500

Respondent: Human Resources Director

General Comments

Before his current job, he worked in a similar position in a steel company. His previous company wanted to expand their business in Pennsylvania.

Whenever he has called government agencies, he found that they were not eager to respond because his company was a traditional manufacturer. The perception is that those in government are more interested in high-tech companies.

His previous company received very little assistance or encouragement from State government, so they relocated out of state in Youngstown and then in Alabama.

The difference between Pennsylvania and Alabama when inquiring about help with relocation was quite stark. He said people do not move to Alabama just because of "right-to-work" laws. Alabama government officials helped them find a location, gave administrative support, found vendors and office space. His company rehabilitated an older building and the government helped them.

He did not mention tax incentives, but was impressed with their customer service.

This respondent feels that it is a struggle to locate training programs and he does not know how to find out about them. He never receives any communications and was not aware of the Keystone Works program.

The bureaucracy attached to the programs is overwhelming. He sits on a local WIB. He said at a typical board meeting, there could be 20 manufacturers, 20 representatives from government and job services, and 20 guests. The group is unwieldy and has gotten bogged down by administrative work. There is a staggering amount of material to read before the meeting. They recently wrote a plan to create jobs and it was more than 140 pages long.

Ultimately, this participant felt that government should let small manufacturers retain profits to train their workers.

Program: WEDnet

Description of training/program: The respondent has had many years of experience in the steel industry and has primarily used WEDnet since its inception. His comments were similar to the comments of the other respondents.

Problems with program: It can only be used 3 out of 5 years. That is a drawback for smaller companies who are trying to establish and grow their businesses. They may be unable to self-fund their own training.

Ease of use: The application is complicated and the wording is critical; "You must be your own grant writer." He has used the local community college for assistance and the WIB. He understands that it is a challenge meeting the administrative requirements and knows it is far easier for a large company like his. It must be kept simple so that a small business owner, who fills multiple roles, can complete the application.

Program: CareerLink

Problems with program: It is a mix of good and bad. They have a stigma to fight because employers think they do not have quality applicants. He agrees the caliber of candidates is not very good. Normally his hit ratio when hiring is one out of ten applicants, but when using CareerLink, he must do more interviews.

Analysis: What Works and What Doesn't

As you review the comments and answers provided by the various manufacturing company representatives, you get a feeling of great distress over the finding skill workers and programs to assist in finding those workers. They have a very difficult time learning about the programs as well as how to best utilize them. Many responses indicated that they used a wide range of tools to assist in their training and hiring because they found that a single inflexible solution was not the best way to find the talent they needed.

Several cited the need for internal OJT and rejected the various programs, asking government to not "burden me with additional bureaucracy; let me keep my profit and educate employees myself." Others, however, spent their efforts on training and hiring by using the various training and programs out there, including WEDnet, the BotsIQ Program, COMPLETE, Re-engineering Advanced Manufacturing Careers, U.S. Department of Labor (H1B), and CareerLink, to serve their employment purposes.

It was noted by a couple of the participants that Keystone Works and CareerLinks were not the best resources for them. It was also stated that the BotsIQ Program is a wonderful experience and resource, many students are not aware of manufacturing mainly because Guidance Counselors do not explain to students that college is not the only path to success.

While accountability is important, programs must not be overly complicated or difficult to administer. Many of the respondents expressed distress over the amount of paperwork and time that goes into signing up for programs that could help their companies. Respondents found that the extra work made the difficult task of finding skilled workers nearly impossible.

Of course, having difficulty with administering the programs was a major concern. As one of the respondents noted, "There are more than 90 state programs. The bureaucracy of administering the programs is prohibitive to small companies."

Conclusion

In Pennsylvania, a total of 1,685,631 jobs are supported by the manufacturing industry, and that industry is fueled by a highly skilled workforce. In recent years, though, due to the low number of new workers entering the industry and manufacturing growth, we have been left with a staggering gap of available skilled workers. The most pressing problems now and for the near-future are finding those highly skilled workers, developing and updating their skills, and/or finding new entry-level workers with the aptitude to train for manufacturing positions.