



## TAKE THE 5x5 PLEDGE TODAY

***Pledge \$5 per employee for the next 5 years to ensure the  
STRENGTH OF MANUFACTURING TOMORROW.***

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### ***THE NUMBERS ARE SCARY... but YOU can change them.***

There's a skill gap in manufacturing. Companies in southwestern Pennsylvania cannot find qualified workers to fill their open positions. In fact, companies have said that they usually only find one qualified candidate for every five job openings. The problem is compounded by the rapidly retiring Baby Boomer generation. According to the Allegheny Conference on Community Development and Catalyst Connection, 40% of the manufacturing workforce will be at retirement age within the next 5 years.

So what's this all mean? It's no secret that staffing challenges impact manufacturer output. Without a full team, companies can't increase orders or meet new product demand. The short term solution to the lack of talented candidates: increased employee overtime hours to meet current client orders. This is only a band-aid solution and ultimately decreases manufacturers' sustainable profitability. We need to find talented young people to fill the workforce pipeline.

The link between worker shortage and profitability is very real. Undoubtedly, you've felt the pinch, but have you looked at the hard numbers? Did you know that a national study by CareerBuilder discovered manufacturing companies forgo \$23,000 in revenue per unfilled position? Nearly half of companies also attribute missing financial targets and a reduction in innovation to the workforce shortage, according to a survey by the American Institute of CPAs.

### ***The Problem is PERCEPTION***

When asked in a recent survey, 90% of parents recognized that a strong manufacturing base is critical to the US economy, however, only about a third of those parents thought that manufacturing was a good career pathway for THEIR child. Why is this number so low when all educators, business leaders and politicians are promoting STEM (Science, Technology, Engineering and Math) careers?

***What we have is a perception problem.*** A recent survey from the Carnegie Science Center in partnership with Chevron and Nova Chemicals found that only 12% of families in Southwestern Pennsylvania considered manufacturing as a STEM career. The general public doesn't understand TODAY'S manufacturing. There is a general misconception that manufacturing is cogs, wheels and assembly lines. It's time to raise awareness about the high-tech world of modern manufacturing. There's a need to educate our neighbors about what a CNC machine is and how it works. We need to explain the level of engineering that goes into designing tooling and precision parts.

But the perception problem doesn't stop there. For generations, we've measured career preparedness by a college degree, but there is more than one pathway to educate a qualified candidate for these high-tech, high-demand manufacturing positions. In fact, a recent Gallup survey found that only 11% of business leaders say that they are confident that college graduates are prepared for the workforce. Conversely, 96% of chief academic officers of colleges and universities indicate that they are somewhat or very confident that they are preparing student for success in the workplace.

BotsIQ has emerged to change perceptions—meeting the needs of industry and offering fulfilling career options for the next generation of American workers. Here's where you come in.

***With your 5x5 pledge, we can change perceptions and build the skills that build a workforce.***

## What is BotsIQ & What are we doing about the future of Manufacturing?

In 2005, The Pittsburgh Chapter of the National Tooling & Machining Association led a collaborative effort to bring a robotics program to our area. Working together, business, industry, trade organizations, education, and economic & workforce development agencies in Southwestern Pennsylvania created BotsIQ. The BotsIQ program is a high school robotics competition that challenges students to design and build 15lb bots to compete in a gladiator-style competition. The robotics competition is something the students can get excited about, but in actuality, they are learning those critical skills that industry is looking for: engineering, math, science, project management and communications. BotsIQ is educating the next generation for the high-skill positions that manufacturers are so desperate to fill.

BotsIQ aims to:

- (1) Spark student interest in engineering and manufacturing
- (2) Encourage students to acquire the technical and 21<sup>st</sup> century skills local industry needs
- (3) Educate students about manufacturing companies and the technically skilled jobs they offer
- (4) Lead students toward the pathways of manufacturing careers

BotsIQ is proud to claim more than 4,000 high school participants since our inception. These students learn about emerging technologies, problem solving, and working in teams. Additionally, BotsIQ teams teach students about project management and communications. As in industry, each team is required to submit documentation detailing every aspect of the bot building process. The teams' documentation binder points weigh heavily in the crowning of the competition's Grand Champion. **BotsIQ's collaboration between industry and educators sets us apart. Industry mentors help students gain the skills and experience that industry employers and post-secondary school recruiters are looking for.**

BotsIQ has been tremendously successful in our initial mission, but there's still work to do. Moving forward, our focus is on teaching students and their influencers more about the pathways to rewarding manufacturing careers and building strategic partnerships between manufacturing companies and universities and trade schools. We're highlighting how BotsIQ builds the skills that lead to apprenticeships and degrees. We want to attract, prepare and empower the next generation of manufacturers. The simple truth: manufacturing provides rewarding career opportunities and well-staffed companies become thriving companies. That's good for our region, our state and our country.

***With your pledge of \$5 per employee for 5 years, we can fund these efforts and build a workforce that will not only recoup your investment but deliver dividends for years to come.***

To fund the BotsIQ 5x5 Campaign, please contact  
Bill Padnos, Executive Director, at 412/258-6629 or padnos@ncsquared.com.

**Contributions to the BotsIQ 5X5 Campaign are tax deductible.**

Checks should be made out to "Pittsburgh Chapter National Tooling & Machining Foundation" with BotsIQ 5x5 in the memo line and mailed to: SWPA BotsIQ, 305 E. Carson Street, Pittsburgh, PA 15219

**WITH YOUR SUPPORT, BOTSIQ WILL BUILD A  
WORKFORCE FOR YOUR COMPANY'S FUTURE.**



## **Take the Pledge, but don't stop there:**

- Create your own workforce talent pipeline and register to be an Industry Advisor for a BotsIQ team. This is a great first step in developing a long-lasting relationship with the school, faculty and students.
- Encourage employees to volunteer at the Southwestern PA BotsIQ Preliminaries and Finals Competitions.
- Seek out special projects that will give students a real-life and applied learning experience.
- Invite local student to tour your facilities and talk about the benefits of careers in manufacturing and technical trades.
- Consider whether you can offer apprenticeships in collaboration with the Pittsburgh Chapter National Tooling & Machining Association or other local training programs.