Skills Gap

This MFG Day: Shrink the Skills Gap, Hire Apprentices

Don Sears | Oct 02, 2018

From MFG Day events to pre-apprenticeship programs, the manufacturing industry is taking advantage of available resources to introduce, find and build the next generation of skilled machinists. We spoke with several nonprofits dedicated to helping the cause—including one program dedicated to the aerospace industry.

With many experienced machinists and engineers expected to be moving into retirement, a looming labor shortage appears inevitable. In 2016, the average age of highly skilled manufacturing workers was ***56 years old***. Separate studies from ***Deloitte*** and ***The Boston Consulting Group*** may differ on the short-term labor impact—but longer term, both firms reach the same conclusion: The skills shortage is coming—and companies need to act.

How will manufacturers replenish and develop future generations of their much-needed workforce? One way is through the adoption of apprenticeship programs. The other is via awareness efforts that expose and promote manufacturing to future job seekers.

Tooling U-SME, a nonprofit manufacturing training organization, states in its ***white paper*** "Apprenticeships: Modernizing a Proven Workforce Development Strategy":

"Nearly nine out of 10 (88 percent) say that their company is having problems finding skilled workers in manufacturing. With the widening skills gap, apprentices are a positive solution with a measurable return on investment."

A number of nonprofit organizations are actively helping manufacturers find potential employees to close the skills gap by offering manufacturing and machinist apprenticeships. We recently spoke with leaders from the Manufacturers Association of Central New York, the South Bay Workforce Investment Board and Tooling U-SME on apprenticeship efforts and trends that are underway today.

Apprenticeship Spotlight: Aerospace

In February 2018, the nation's first registered apprenticeship program that focused solely on aerospace engineering ***was launched*** by the South Bay Workforce Investment Board in partnership with an alliance of aerospace manufacturers that includes Northrop Grumman Corp. and others. The "Aero-Flex" program entails pre-apprentices and registered apprentices working toward degrees while obtaining on-the-job training and coursework with local technical colleges.

"This process started about two years ago," says Chris Cagle, regional affairs manager for SBWIB. "There is an organization here called AMP SoCal, the Advanced Manufacturing Partnership of Southern California, that is run by the University of Southern California that gave us seed money to initially start a pre-apprenticeship program focusing on companies that were affected by U.S. Defense Department cuts."

Normally, workforce boards only focus on regional and local issues, but in this case, employers were looking to scale this kind of program anywhere they have offices in the country, Cagle explains. Being able to scale and be layered on top of existing internship programs made it very attractive to more aerospace companies in Southern California and helped get the program off the ground.

The pre-apprenticeship program will graduate 100 students, and it allows them to discover which area of aerospace may be a good fit—and essentially prepares them for a potential registered apprenticeship. Students can be at any level, high school or college, and attend 8- to 12-week programs that can earn them $500 stipends for participating and successfully completing the program. The pre-apprenticeship program is not isolated to engineering, but those interested and determined competent by employers can move on to the engineering program.

Beyond Northrop Grumman, manufacturers in the program also include Impresa Aerospace, L3 Electron Devices, Magnetika, Space Vector Corp., TEN TECH, Verisurf, and Zodiac Water and Waste Aero Systems. SBWIB works with Tooling U-SME on a gamut of online coursework—and offers flexibility for the companies to tailor their learning programs toward the needs of their business units and departments—and interests of the students.

"With this pre-apprenticeship interaction, companies can start to build relationships with students and develop a workforce pipeline," says Cagle. "It can go from being exploratory and unpaid toward becoming a registered apprentice where there is agreement for earn and learn."

A Closer Look at Manufacturing and Machinist Apprenticeships: Past and Present

To get a better sense of where we are today, we asked nonprofit leaders about the evolution of apprenticeships. A more traditional model had been focused on time-based competencies—but today's

models are focused much more on accelerating and validating competencies so workers can contribute to an organization as quickly as possible, explains Jeannine Kunz, vice president at Tooling U-SME.

“The tried-and-true model was knowledge-based plus experiential-based learning, where an apprentice has a classroom environment, but then they also have a structured internship or cooperative work right inside of a company,” says Kunz.

The big difference between the old model and the new model is that it did not really validate the competency level of a worker based on industry standards. Ultimately, you want to get an apprentice functioning, working and making appropriate wages for the skill level, Kunz explains—and that means aligning the necessary knowledge and skill requirements of the business more closely.

“Twenty-five years ago it was predominantly large manufacturers who ran their own apprenticeship programs,” says Martha Ponge, director of apprenticeships for MACNY. “In Rochester, we had Carrier, GE, Kodak and others who all had very large and successful apprenticeship programs. They were big companies with dedicated personnel who ran the programs.”

Today, about 95 percent of employers in central New York are under 100 employees, so it’s a very different human resources landscape—and requires models that work well with localized needs, Ponge explains. The region’s industry makeup is diverse: About a third of apprentices in the central New York area are CNC machinists; in the Hudson region, 30 percent are automation technicians; and in Rochester, there is a concentrated base of precision optics technicians and mold makers working with plastics.

To better understand the skills gap and where we are today, read "IMTS 2018: Finding Hope in the Manufacturing Skills Gap."

Training Costs and Incentives for Machinist Apprenticeships

MACNY, through legislative state funding, exists to support, advocate and promote manufacturing—and works closely with Tooling U-SME on apprenticeship programs for New York state. Through grants and incentive programs, MACNY helps offset training and development costs for apprenticeship programs, and it helps attract new talent for 300 companies. MACNY also is part of an alliance of manufacturing associations that work with 1,000 companies.

Training costs generally run $7,000 to $10,000 per apprentice—which “can be expensive for small and medium-sized businesses,” says Ponge. MACNY helps make it less costly and offers economies of scale with grants of $5,000 that can also be combined with Empire State Tax Credits that can add another $2,500 per apprentice as they move to new certified skill sets.

New York is not alone in these efforts, Ponge and Tooling U-SME say. Ponge attends national workforce development conferences to learn best practices and successful apprenticeship implementations in other states across the nation.

Apprenticeship Types: Apprenticeships, Registered Apprenticeships and Pre-Apprenticeships

Between local, state and federal grants and other financial offsets, industry associations and consortiums are helping support today’s “earn and learn” apprenticeships in concert with the private sector. MACNY’s Ponge puts it this way: Rather than each individual company trying to do it on their own, why not come to a central, consolidated group that can help streamline the process—and that specializes in understanding Department of Labor requirements and certification needs of apprenticeship programs.

According to Tooling U-SME, there are a variety of apprenticeship models being used today: Those that are run by companies on their own, those that are registered with the U.S. Department of Labor, and those that focus on potential apprentices who show an inclination toward manufacturing work—but have very few skills yet.

An official registered apprenticeship program can be sponsored by an individual business or an employer association and is sanctioned by the DOL. Apprentices earn a "Completion of Registered Apprenticeship" certificate, which is a nationally recognized credential that validates proficiency.

An apprenticeship program is done by companies, but usually in partnership with a local community college or technical school—and is combined with structured on-the-job training, or "OJT." Apprentices may complete the program with certificates or a degree. Pre-apprenticeships are just as they sound: They are designed to help get potential registered apprentices prepared for that work and typically start at the high school level. It may involve classroom and online learning.

"A pre-apprenticeship program is an exploratory period for a manufacturer," says Chris Cagle, regional affairs manager for the South Bay Workforce Investment Board in Los Angeles. "There is not a commitment by the employer to hire and functions essentially as an added value to an internship program."

MFG Day: An Introduction to Pre-Apprenticeships and the Manufacturing Industry

If you were to think of manufacturing workplace development as a big funnel where the bottom end of it is an actual hired, skilled and trained employee, at the very top—perhaps sitting just outside the funnel—would sit awareness for manufacturing jobs.

Manufacturing Day, commonly referred to as "MFG Day," begins on the first Friday in October every year and has been around for the past nine years. It's sponsored by the National Association of Manufacturers. Many manufacturing companies participate by bringing students in from local schools and introducing them to their specific industry segment, their machinery and their technologies—offering students a window into advanced manufacturing and a potential path toward employment. There are nearly 2,100 MFG Day events happening in 2018 that will likely engage over 200,000 students, based on previous years' numbers.

"Manufacturing Day should really be called 'Manufacturing Month,'" says Cagle. "There are lots of events going on all of October in the South Bay (of Los Angeles) area, including a big one at Northrop Grumman."

The same is true around the country. In central New York, Raymond Corp., a forklift maker in Greene, New York, and a MACNY member, has a ***very big event*** on Oct. 12 where it buses in over 200 students every year, according to Ponge.

Find out everything you need to know to get prepared and host an event at: ***mfgday.com***.

Does your company participate in MFG Day or apprenticeships? Tell your peers.

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