

# Manufacturing enters a new age

## Wave of retirements - and high-tech shift - means workers, not jobs, will soon be scarce

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Nearly 38,000 manufacturing jobs have been lost in Greater Cincinnati and Northern Kentucky over the past 10 years, but this industry is far from dying.

Across Greater Cincinnati and Northern Kentucky, manufacturers are producing airplane parts, vinyl windows, prefab bridges, burial caskets and movie-theater popcorn machines. Employment is starting to creep back up, with 5,000 more jobs this year over last. Employers are promoting high-tech positions that can pay up to \$25 an hour, with excellent fringe benefits.

This Labor Day weekend, manufacturers say their main challenge is not a loss of work, but finding sufficient new workers with specialized, high-tech skills. Unless significant gains are made, the industry that helped build the Midwest faces a future labor shortage caused by the exodus of aging employees and an outdated image of unskilled factory work.

"The message we're hearing is that in three to five years, manufacturers here may not be able to find the people they need to be successful," says Ross Meyer, executive director of the Greater Cincinnati Workforce Network, a 2-year-old partnership of employers, agencies and educational institutions formed to improve coordination between the skills workers have and the skills employers need.

At MAG Industrial Automation, a manufacturer of high-tech machine tools in Hebron, about a third of the company's 450 employees are at least 58

years old, says Bill Weir, human resources manager. A couple of years ago, the company, which traces its roots to the old Cincinnati Milling Machine Co. in Oakley, reinstated a long-dormant apprenticeship program to develop the next generation of skilled workers.

A leading supplier of automated composite production equipment for everything from airplanes to wind mills, MAG sees an acute need for skilled field-service technicians, who can go to a customer's plant to set up equipment and diagnose problems.

"You can't find 'em. You can't steal them. You've got to grow them," Weir says.

Weir's concerns are echoed across the industry. In a recent survey of 35,000 employers in 36 countries, Manpower Inc., a global staffing firm, found a lack of skilled trade workers in manufacturing could impede economic growth worldwide.

"Think of it in household terms," says Jeff Rexhausen, associate director of research at the University of Cincinnati's Economics Center for Education and Research. "There are jobs in the household such as cooking and cleaning. But somebody in the household has to earn money outside the household to bring money in."

Manufacturing serves that role for the area economy by producing goods that bring money into the region, he says.

Brains for electronics and programmable controls are more valuable than brawn today at AK Steel's Middletown Works.

"Our technicians today spend a lot of their time behind a computer console in an air-conditioned control room monitoring a \$200 million piece of machinery," says Alan McCoy, spokesman for the company that put up a billboard along University Boulevard this summer to call attention to its need for production and maintenance technicians.

### **The age exodus**

The mill, which employs 1,700 hourly workers, hired about 150 employees over the past year to fill vacancies as it ramped up production as the economy started to improve.

Most workers are age 52 to 55 at the dozen or so area manufacturing companies surveyed by Elijah "Rudy" Rudolph, director of the Workforce Network's Advanced Manufacturing Career Pathway.

"Companies are weathering the storm, but down the road, they realize there's going to be a shortage if they don't start building skill levels," Rudolph says.

It's not just companies with older employees that struggle to find workers with the right skills.

ThyssenKrupp Bilstein of America, a Hamilton manufacturer of automotive shocks, says the average age of that plant's 200 workers is about 41. Still, the company, named one of the area's "Top Workplaces" in a recent survey published in The Enquirer, struggles to find qualified workers.

"A lot of the time it's an issue of fit," says Tom Barnes, human resources manager. "Not

everybody is cut out to work in manufacturing."

Sometimes working in a manufacturing plant is a hard sell.

"People have this image of manufacturing as hot, dirty work," Barnes says. That image doesn't fit with ThyssenKrupp's air-conditioned, scrubbed and orderly manufacturing plant. In today's global market, Barnes says, "Quality is key, and dirt impacts quality."

When it comes to hiring workers, he says, computer skills are critical.

"I tell applicants if they can't send me their resume by e-mail, they're not a good fit to work here," Barnes says.

### **\$26M learning center**

The looming shortage of workers in Northern Kentucky was a prime reason behind construction of Gateway Community and Technical College's new \$26 million Center for Advanced Manufacturing, which opened last month off Mount Zion Road in Florence.

Along with traditional classrooms and labs, the 108,000-square-foot manufacturing center offers degrees and certificate training in one of t

he largest facilities of its kind in the Kentucky Community and Technical College System.

Notably, the center focuses on a relatively new multidisciplinary manufacturing approach called mechatronics.

The concept is that, rather than learning individual disciplines such as mechanical, electrical and computer engineering, students start with a broader view of the manufacturing process and learn how to solve problems as they occur.

Using hands-on modules, students in the center's integrated manufacturing center learn how to diagnose and fix problems introduced by the instructor.

Those critical-thinking skills are increasingly important in manufacturing, executives say.

"The old image of a manufacturing plant as a place where you punched a clock and did what you were told for eight hours without thinking has changed," says Scott Ellsworth, vice president of Tipco Punch, a 30-employee metal-working shop in Hamilton.

"Today, we want employees who can solve problems and can work and communicate with their peers," says Ellsworth, chairman of the Workforce Network's Advanced Manufacturing Career Pathway partnership.

Manufacturing has lost none of its worldwide importance or influence, he adds.

"What's changed is that the world has gotten smaller and more efficient."

### **Innovation at work**

The result is change in how U.S. manufacturers now compete with the rest of the world.

Simple tasks get automated or sent overseas, where the labor is cheaper. Today,

manufacturers are seeking workers who can combine a variety of skills from computers to electronics to hydraulics and pneumatics to operate, maintain and troubleshoot equipment.

A combination of a maturing workforce and more advanced manufacturing technology is fueling changes in how GE Aviation produces jet engines at its Evendale plant.

Along with investing \$34 million in advanced manufacturing systems since 2007 to improve productivity and efficiency, the plant has begun several pilot programs in machining and assembly using teams of 10 to 20 workers, says Rob Fritz, union relations leader for all of GE Aviation's U.S. plants.

Instead of supervisors directing operations, the individual teams assume responsibility for all operations in their areas. The supervisors, who have been renamed "coaches," provide support rather than supervision.

"It's a cultural change here," Fritz says. The work teams have the support of the International Association of Machinists and United Auto Workers, which represent 1,400 workers at the Evendale plant.

### **Training the future**

To improve the level of manufacturing job skills in the area, the Greater Cincinnati Workforce Network is coordinating a regional partnership of employers and educational institutions ranging from Amylin Pharmaceuticals Inc. in West Chester, which is awaiting FDA approval for its new diabetes treatment, to Bond Hill's Woodward High School, which has offered an advanced manufacturing career track to its students since 2003.

Another tool aimed at improving the manufacturing skill base is broader application of a national manufacturing skills certification program to help underemployed and unemployed workers.

The four-week program, overseen by the industry-based Manufacturing Skills Standards Council, offers computer-assisted training in safety, quality, production processes and maintenance awareness.

The Hamilton County Community Action Agency has graduated about 90 workers through the certification program since last year. Steve Schumacher, the agency's training coordinator, says workers who complete the program are averaging hourly wages of \$13.70 compared with \$9 to \$10 before the training.

The certification also has been offered at Butler Tech in Hamilton. A similar Kentucky Manufacturing Skill Standards certificate is offered through Gateway Community and Technical College.

To raise awareness about the need and potential for manufacturing careers, employers and educators also have turned to non-traditional techniques.

At Great Oaks Institute of Technology and Career Development in Sharonville, instructors in the school's electro-mechanical maintenance technician program have created a YouTube video about the program and the jobs they

perform. MAG Industrial Automation is recruiting applicants - especially wounded veterans and women - to its apprenticeship program.

Brad Oswald, 25, of Covington, a second-year apprentice at MAG, is an example of the next-generation worker the company is trying to attract.

A graduate of Elder High School, Oswald says he never gave much thought to college or working in manufacturing until he had a chance to visit MAG's Hebron plant and see the high-tech fighters and wind turbines that its machine tools produce.

"It's pretty neat," says Oswald, who works 40 hours a week at MAG and goes to school four nights a week at Gateway Community and Technical College as part of his apprenticeship to become a machine tool assembly technician.

Oswald says he's thinking about pursuing an engineering degree when he completes his apprenticeship in a year or two.

Weir, MAG's human resources manager, has no problem with that.

"I need engineers, too," he says.



### TOP 5 JOBS

These are the five occupations in highest demand by manufacturing employers participating in career training offered at the Greater Cincinnati Workforce Network. Wages are the latest data from the U.S. Department of Labor, 2008.

**Computer operator/programmer:** Specifically, these workers are proficient in operating computer numerically controlled machines, which produce a wide variety of products from automobile engines to computer keyboards.

**Demand:** These specialists held 157,800 jobs nationally in 2008. Employment overall is expected to grow 4 percent by 2018, as much as 7 percent in the metal and plastic industry.

**Pay:** \$16.03 median hourly wage, ranging up to \$23.84.

**Welder:** Welders apply heat to metal pieces, melting and fusing them to form a permanent bond. Because of its strength, welding is used in shipbuilding, automobile manufacturing and repair, aerospace applications and thousands of other manufacturing activities.

**Demand:** Welders, cutters, solderers and brazers held 412,300 jobs nationally in 2008. Demand for skilled welders is expected to increase.

**Pay:** \$16.13 median hourly wage, ranging up to more

than \$24.

**Bioscience/pharmaceutical technician:** Technicians set up, operate and maintain laboratory instruments, monitor experiments, make observations, calculate and record results. They must keep detailed logs of all work. They monitor manufacturing processes and can ensure quality by testing products for proper proportions of ingredients, for purity, or for strength and durability.

**Demand:** Science technicians held 270,800 jobs in 2008, and overall employment is expected to increase by 12 percent by 2018. Jobs for biological technicians are expected to increase faster, as much as 18 percent.

**Pay:** \$18.46 median hourly wage.

**Team assembler:** These specialists assemble both finished products and the pieces that go into them, using tools, machines and their hands. Products range from airplanes to children's toys. Modern manufacturing systems use robots, computers, programmable motion-control devices and sensing technologies. These systems change how goods are made and the jobs of those who make them.

**Demand:** Assemblers and fabricators held 2 million jobs in 2008. National demand is expected to see little change by 2018, except in specific growing industries such as aircraft products and parts.

**Pay:** \$12.32 median hourly wage, ranging up to more than \$21.

**Electro-mechanical technician:** Complex machines such as large conveyors, robotic welders, lifts and presses need workers to install them and make sure they function properly. Assembling and setting up these machines on the factory floor is the job of millwrights, while industrial machinery mechanics and

machinery maintenance workers maintain and repair these machines.

**Demand:** Industrial machinery mechanics, machinery maintenance workers and millwrights held 408,300 jobs in 2008. Employment is expected to grow 6 percent by 2018.

**Pay:** \$22.87 median hourly wage for millwrights, up to more than \$37.

**Video:** Go to [www.greatoaks.com](http://www.greatoaks.com). Then click on "Adult Career Programs" on the left, then "Electro-Mechanical," also on the left.