Preparing middle-class workers for middle-skill jobs

by Mark Garrison (/people/mark-garrison)  
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Many great jobs don’t require bachelor’s degrees.

American manufacturing isn’t dead.

Some Americans will find those two statements preposterous, a perception nourished by a society that steers students toward four-year degrees from a young age, as well as vivid memories of shuttered factories and outsourced jobs.

But many Americans aren’t surprised at all by that pair of assertions. They’re the ones working in "middle-skill jobs" -- those requiring more than a high school diploma, but less than a four-year degree. High-tech manufacturing jobs are growing and pay good wages. These middle-skill jobs will support middle-class lives, but America’s education and training system isn’t doing a great job of getting people ready for them. There’s now a growing push from educators, industry and policymakers to do better.

One can see this up close at GlobalFoundries (http://www.globalfoundries.com/about/about-globalfoundries), a semiconductor manufacturing facility in Malta, New York, just north of Albany. Many people think of manufacturing as dirty work, but this is the cleanest place most people will visit in their lives, cleaner than an operating room.
Workers zip into the clean suits and layers of gloves, boots and masks required for the cleanroom environment where they make the semiconductors inside smartphones, appliances, cars and more. They have to, because in the tiny universe of a microchip, a fallen eyelash is like a truckload of toxic waste. With everyone covered up, coworkers tell each other apart by their eyes.

“I think it’s fun to see everybody else right there with you looking equally weird and different with their get-up on,” says technician Megan Boettner.

The suits may be a bit spooky, but the pay can be quite good.

“An individual with an associate’s degree, the industry standard is about $40,000-$60,000 a year starting, depending on education and skills,” says technical training manager Don Garrison. “Within 2-4 years, they can see a pretty substantial increment, even up to like 20 percent.”

He’s hiring 400 technicians this year. But there aren’t enough people with the right skills in upstate New York. Recruiting elsewhere is expensive and doesn’t always work out. If GlobalFoundries hires someone from Arizona or Texas, which have established semiconductor industries, it’s on the hook for moving expenses. And some of those hires don’t stay, for any number of reasons, including the frosty upstate weather.

“After about one or two winters... we have some people that just say, ‘Hey, this isn’t for me,’” Garrison says.

A shallow local talent pool is also a big problem for New York leaders, who spent a fortune on incentives to get GlobalFoundries to build its multi-billion dollar facility here.

“New York’s intention was to provide employment to residents,” says Michael N’dolo, vice president at the economic development firm Camoin Associates (http://www.camoinassociates.com/). “The direct hiring at the site itself, it has been a little bit of a disappointment.”

Turning that around requires a bigger and better educational pipeline. Student Paul Sisson is in it. We talked with him as he was grabbing a snack at a supermarket coffee shop just down the road from GlobalFoundries. Sisson used to work on the other side of that transaction, in bakeries and restaurant kitchens. He worked 12 hour days, six days a week, sometimes more. It didn’t earn him as much as he’d like.

“The most that I have ever made in an entire year was $28,000,” Sisson says.

He’s now at Hudson Valley Community College, getting an associate’s degree in semiconductors. Set in a cluster of high-tech businesses, including GlobalFoundries, its tech-focused campus (https://www.hvcc.edu/tecsmart/) is on the front lines of the effort to get more local workers into middle skill jobs.

It’s not what comes to mind when many people think of community college. It’s a new, energy efficient building, with impressive labs packed with high-tech equipment.

And the students aren’t whom many people might expect in a two-year degree program. About half already have bachelor’s degrees.
“We’ve always thought that a four-year degree is the answer to get a good paying job,” says associate dean Penny Hill. “Now, as we’re experiencing, it’s not always the right answer.”

The semiconductor degree program is growing, but not fast enough. It only turns out around a couple dozen grads a year. But nearly all will have job offers, which is what Hill and local companies stress in their campaign to entice more students.

And there’s more at stake here than just future job openings. Building a robust middle skill job pipeline is critical nationwide.

“Productivity and performance of our manufacturing sector is driven by these middle skill jobs and so they’re just very important for the performance of the economy,” says MIT management professor Paul Osterman, who studies the labor market. “If we don’t make investments in our training and education system, it’s gonna be very problematic.”

Back in Hudson Valley’s campus semiconductor lab, students get hands-on training working in a cleanroom. Paul Sisson is among the students moving shiny round semiconductor wafers among various machines, including some powerful furnaces, burning brilliant orange.

They’re basically high-tech ovens, three times hotter the ones Sisson used in his restaurant days. He gets a little kick out of the irony. Sisson’s investment in a middle-skills degree should net him a far greater paycheck than he got in the grueling chaos of the kitchen.

“I can make more than double using my mind, instead of breaking my body,” he says.

America’s high-tech manufacturers will need far more people like him. Improving the education and training pipeline and getting more people in it is the challenge industry, educators and political leaders face.


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**About the author**

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A Hudson Valley Community College student, reflected in a semiconductor wafer in the campus lab in Malta, New York.