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*Advocacy Clips is a weekly compilation of relevant news articles from around the country on subjects that impact the metalworking industry. These articles are compiled by Bracewell & Giuliani, NTMA and PMAs public relations firm. **Please forward this e-mail to a colleague who may have interest in these topics.***

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A New Kind of Tech Job Emphasizes Skills, Not a College Degree

A New Kind of Tech Job Emphasizes Skills, Not a College Degree

New York Times

By: Steve Lohr

6/28/17

A few years ago, Sean Bridges lived with his mother, Linda, in Wiley Ford, W.Va. Their only income was her monthly Social Security disability check. He applied for work at Walmart and Burger King, but they were not hiring.

Yet while Mr. Bridges had no work history, he had certain skills. He had built and sold some stripped-down personal computers, and he had studied information technology at a community college. When Mr. Bridges heard IBM was hiring at a nearby operations center in 2013, he applied and demonstrated those skills.

Now Mr. Bridges, 25, is a computer security analyst, making \$45,000 a year. In a struggling Appalachian economy, that is enough to provide him with his own apartment, a car, spending money — and career ambitions.

“I got one big break,” he said. “That’s what I needed.”

Mr. Bridges represents a new but promising category in the American labor market: people working in so-called new-collar or middle-skill jobs. As the United States struggles with how to match good jobs to the two-thirds of adults who do not have a four-year college degree, his experience shows how a worker’s skills can be emphasized over traditional hiring filters like college degrees, work history and personal references. And elevating skills over pedigree creates new pathways to employment and tailored training and a gateway to the middle class.

This skills-based jobs approach matters at a time when there is a push to improve the circumstances of those left behind in the American economy, many of whom voted for President Trump.

“We desperately need to revive a second route to the middle class for people without four-year college degrees, as

manufacturing once was,” said Robert Reich, a labor secretary in the Clinton administration who is now a professor at the University of California, Berkeley. “We have to move toward a system that works.”

The skills-based concept is gaining momentum, with nonprofit organizations, schools, state governments and companies, typically in partnerships, beginning to roll out such efforts. On Wednesday, the approach received a strong corporate endorsement from Microsoft, which announced a grant of more than \$25 million to help Skillful, a program to foster skills-oriented hiring, training and education. The initiative, led by the Markle Foundation, began last year in Colorado, and Microsoft’s grant will be used to expand it there and move it into other states.

“We need new approaches, or we’re going to leave more and more people behind in our economy,” said Brad Smith, president of Microsoft.

It is unclear whether a relative handful of skills-centered initiatives can train large numbers of people and alter hiring practices broadly. But the skills-based approach has already yielded some early and encouraging results in the technology industry, which may provide a model for other industries.

These jobs have taken off in tech for two main reasons. For one, computing skills tend to be well defined. Writing code, for example, is a specific task, and success or failure can be tested and measured. At the same time, the demand for tech skills is surging.

One tech project that has expanded rapidly is TechHire, which was created in 2015 and is the flagship program of Opportunity@Work, a nonprofit social enterprise. TechHire provides grants and expertise to train workers around the country and link them to jobs by nurturing local networks of job seekers, trainers and companies.

Researchers at LinkedIn create an annual ranking of the skills most in demand. The most sought-after skills in the United States in 2016 were all tied to technology. In addition to those so-called hard skills, job retraining efforts often include the development of soft skills.

In just two years, TechHire’s network has grown to 72 communities, 237 training organizations and 1,300 employers. It has helped place more than 4,000 workers in jobs.

TechHire’s mission is partly to chip away at “the cultural hegemony of the bachelor’s degree,” said Byron Auguste, president of Opportunity@Work.

Nichole Clark of Paintsville, Ky., heard a radio ad last year for TechHire Eastern Kentucky. The program offered six months of training in software programming that included working with a company while being paid \$400 a week. That was not much less than what Ms. Clark, now 24, was making as a manager at Pizza Hut.

Without a college degree, Ms. Clark said, her horizons seemed confined to low-wage jobs in fast-food restaurants, retail stores or doctors’ offices. The TechHire program, she said, could be “a doorway to a good-paying job, which is everything here.”

Ms. Clark made it through online screening tests and an interview and got into the program. TechHire’s role varies, and it often funds training grants, but in this program it solicited applicants and advised and shared best practices with Interapt, a software development and consulting company. The training stipends were paid for with a \$2.7 million grant from the Appalachian Regional Commission.

After four months of taking all-day classes on the basics of writing software and two months of working in an internship alongside Interapt developers, Ms. Clark was hired by Interapt in May. As a member of the team that performs software quality assurance and testing, she is now paid more than \$40,000 a year, about double what she made at Pizza Hut.

Ms. Clark is growing confident about her employment future. “There are endless roles you can play, if you have these skills,” she said.

In Colorado, Skillful is working to improve the flow of useful information among job seekers, employers, educators, governments and local training groups. The organization focuses on jobs in tech, health care and advanced manufacturing.

Ninety companies have worked with Skillful’s staff and partners to refine and clarify their descriptions of skills. That data has contributed to an online “training finder” tool — built by researchers at LinkedIn — that shows salary

ranges, skills required, training programs and nearby openings for different occupations. (Microsoft acquired LinkedIn, a Skillful partner, last year.)

“We’re trying to use the very forces that are disrupting the economy — technology and data — to drive a labor market that helps all Americans,” said Zoë Baird, chief executive of the Markle Foundation.

Ron Gallegos Jr., 31, has benefited from Skillful’s program. For years, he worked as a facilities manager overseeing cleaning crews in retail locations. Restless, he wanted to pursue a tech career.

Nichole Clark was hired by Interapt in May. She is now paid more than \$40,000 a year, about double what she made managing a Pizza Hut. Credit Luke Sharrett for The New York Times

He had a side gig fixing televisions, gadgets and PCs. But he was self-taught, had no college degree and needed training and credentials.

So in late 2015, Mr. Gallegos quit his job to study full time to gain training and certifications as a computer support technician, and later in network security.

At his local community college, Skillful representatives offered tips on job searches, résumé preparation, financial support and networking. At one event, Mr. Gallegos learned of a state grant available for a security course he wanted to take.

The program’s career coaches also emphasized the so-called soft skills of speaking concisely, working cooperatively and attending industry and professional gatherings to meet people, Mr. Gallegos said.

Not content to just look for jobs, Mr. Gallegos created one for himself, setting up Mile High IT Services last fall. Now he works as a technology-support contractor for small businesses, and his one-man company is gaining traction, with his income exceeding \$50,000 a year.

“It’s all pretty bright for me now,” he said.

In Rocket Center, where rocket engines were once built and some composite materials for American fighter jets are manufactured today, IBM occupies a few buildings and employs 350 people, including Mr. Bridges. They are working on cloud computing, cybersecurity, application development and help desks.

In the last two years, nearly a third of IBM’s new hires there and in a few other locations have not had four-year college degrees. IBM has jointly developed curriculums with the local community college, as well as one-year and two-year courses aligned with the company’s hiring needs.

For companies like IBM, which has 5,000 job openings in the United States, new-collar workers can help it meet its work force needs — and do it inexpensively if those workers are far away from urban centers, where the cost of living and prevailing wages are higher.

“It makes sense for our business, for the job candidates and for the communities,” said Sam Ladah, IBM’s vice president for talent.

The company, which stopped disclosing its American employment in 2007 and regularly cuts jobs in declining businesses, declined to say whether it was increasing its total domestic work force.

But at the West Virginia center, IBM plans to hire up to 250 people this year, including more like Mr. Bridges.

“Now, we’re recruiting for skills,” Mr. Ladah said.

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Parker Hannifin opens center focused on advanced manufacturing exploration [PMA Feature]

Parker Hannifin opens center focused on advanced manufacturing exploration

Crain's Cleveland Business

By: Rachel Abbey McCafferty

6/22/17

Parker Hannifin Corp. recently opened a center in Macedonia focused on advanced manufacturing techniques, like 3D printing or collaborative robotics.

A news release called the space an "advanced manufacturing learning and development center" and described it as a place where engineers can "explore" and learn more about these new technologies.

Craig Maxwell, vice president and chief technology and innovation officer, said the company wanted to leave the definition of advanced manufacturing open-ended, because technology is "changing rapidly." He declined to share the amount Parker invested in the new center, but said it was important to leverage that investment by making it a centralized function that can be shared across the company.

Right now, the center has five full-time employees, and Maxwell said he expects that to likely double in the next year.

The new center has a variety of conventional manufacturing equipment, as well as additive manufacturing equipment for different materials. Parker wanted the ability to do rapid prototyping at the center, as speed is central to Parker's Win Strategy, Maxwell said. (Learn more about the Win Strategy here.)

BRINGING BACK PRODUCTS — AND JOBS The Precision Metalforming Association in Independence has teamed up with Kildeer, Ill.-based Reshoring Initiative to create the National Reshoring Award. One award will be given for buyers and one for sellers, according to a news release.

The awards will be presented at the PMA's Sourcing Solutions procurement event in September.

To be eligible, companies must have brought work from outside North America to North America between Jan. 1, 2012, and Aug. 1, 2017. The release stated that the reshored work can include "products, parts or tooling made primarily by metal forming, fabricating or machining."

In an email, PMA communications director Christie Carmigiano said the deadline for submissions has been extended to Sept. 1.

UMass Amherst unveils high-tech labs [NTMA Feature]

UMass Amherst unveils high-tech labs

Greenfield Recorder

By: Dusty Christensen

7/3/17

More than 100 firms both big and small gathered Friday at the University of Massachusetts Amherst for the grand opening of fancy new laboratories meant to push the advanced manufacturing industry forward in the region.

Located inside the Institute for Applied Science building, which officially opened last year, the advanced manufacturing core facilities labs and their high-tech equipment are open to UMass researchers and any company that wants to rent the space and apparatuses, or pay for proof-of-concept prototypes to be made. Some of the state-of-the-art machines are the only ones publicly available in the entire country.

"This is awesome," said Jim Gosselin, the president of the Westfield-based specialized tool and accessory

company Genevieve Swiss Industries. "It's a great step for our state legislators to recognize the field."

That support from state government came in the form of \$95 million from the Massachusetts Life Sciences Center, a quasi-public agency that oversees a \$1-billion investment initiative proposed in 2007 by then Gov. Deval Patrick and approved by the legislature. To date, the initiative has doled out more than \$429 million in capital infrastructure grants statewide.

Meanwhile, Gov. Charlie Baker threw more support behind those investments earlier this month with a legislative proposal for an additional \$500 million over five years to be managed by the center.

"We're spending more and more money, some of that billion dollars, to help support the growth of manufacturing here," Secretary of Housing and Economic Development Jay Ash told the crowd of manufacturers. "Our strategy is very simple: we're going to find the smartest people who are the best innovators, and we're going to throw lots of money at them."

Ash said a substantial piece of Baker's initiative would be dedicated to increasing the number of internships and apprenticeships in the manufacturing field. The MLSC has already spent \$62 million on, among other things, labs in middle and high schools, subsidizing internships and creating education programs for the state's workforce.

UMass Amherst Provost Katherine Newman spoke after Ash, and made clear the necessity of an increased focus on workforce education. In the field of advanced manufacturing, she said, companies have to be nimble and consistently keep up with rapidly changing technology.

"In order to do that, their workforce has to be continually trained and retrained to meet the demands of the markets," she said. "And that's a challenge."

To that end, Newman said that UMass Amherst is working with regional colleges, technical high schools and tech companies in the Pioneer Valley to organize a research and training initiative, which she called a "manufacturing college" that would provide hands-on apprenticeships and other educational opportunities.

It is that kind of partnership, she said, that will drive the industry forward in the region. So to, the day's speakers said, would the new labs everyone came to see.

In addition to the \$95 million in state money, the university itself invested \$55 million in the facilities, which were on full display Friday as university officials took attendees on tours.

The five laboratories opened to the public Friday serve a large number of purposes that manufacturers will find appealing: roll-to-roll fabrication for nanomanufacturing; 3-D printing for wearable medical devices and biosensors; verification of those types of wearable and point-of-care medical devices; sensor integration; and high-frequency sensor development, including the only publicly available machine that measures frequencies into the terahertz range.

To the untrained eye, the technology resembles space-age tools for esoteric purposes. But those in the advanced manufacturing industry have a very clear sense of how centers like this one at UMass Amherst will benefit their work.

One of those industry leaders at the event was Kristin Carlson, president of both the Westfield firm Peerless Precision and the Western Massachusetts Chapter of the National Tooling and Machining Association.

"Innovation centers play an extremely important role in providing resources to our industry that assist us in improving our processes, exploring new technology, tooling solutions and much more," she said.

Carlson told the story of projects her firm undertook with help from the Connecticut Center for Advanced Technology, a nonprofit innovation center in East Hartford.

For one project, the client wanted a brand new style of part that no other supplier was making. Carlson's firm had to purchase a new machine to make the part, and the client quickly upped their order from 10 pieces at a time to 200.

"We needed to find a way to keep up with the increased demand using technology that was brand new to us," she said.

The center was able to help them improve and optimize the programs they used to make the part, saving the firm valuable money and ensuring the part was of top quality. The company is now shipping thousands of those parts, in various styles, every year.

“I really can not stress enough how beneficial it is to have these innovation centers around for us to take advantage of,” she said. “I’m thrilled to see UMass adding to the resources they have available to assist Peerless Precision, the members of the NTMA and the advanced manufacturing community as a whole.”

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A guide for Washington in filling America’s skilled worker gap

A guide for Washington in filling America’s skilled worker gap

The Hill

By: Thomas J. Duesterberg

7/6/17

Employers are increasingly vocal about the growing shortages of skilled workers across a wide range of industries, especially manufacturing, construction, mining, and some technology sectors. Addressing this growing problem was a major theme in the 2016 election, on which there was rare bipartisan agreement. President Trump and his cabinet are actively using the bully pulpit and executive orders to spur rethinking of skills training programs, such as apprenticeships and vocational education. However, there is less agreement on how to accomplish the objectives.

As Congress begins to work with the administration, hopefully in a broad, bipartisan way, there are some practical principles that can guide its efforts, based on new approaches with proven track records here and in other advanced industrial nations.

First, most federal programs are only marginally effective in addressing the problem, whatever name they are given: vocational education, adjustment assistance, dislocated workers, career and technical education, or job corps. Many programs are expensive and show few lifetime income or employment gains. Generally, fewer than 50 percent of workers or students who enter such programs complete them. There are some 43 separate training programs spread around 13 agencies, costing some \$17 billion or more, yet there is little interaction or coordination among the providers. Trump’s recent executive order on apprenticeships is a good start toward evaluating existing programs, consolidating the better ones, and eliminating those that are ineffective.

Second, serious consideration should be given to moving federal involvement toward block grants to states. Most of the creative and effective programs are launched at the state and local levels, often in conjunction with local development authorities and employers. Many of the most visible and effective new programs are based on apprenticeships. Although they have been offered for generations in the United States — mostly in building trades, electric power and resource distribution, and heavy industries, like autos and aerospace — apprenticeships are experiencing a much broader expansion into new areas.

Foreign automakers from Germany and Japan have brought with them new types of apprentice programs in recent decades. In South Carolina, a partnership with the state has allowed BMW, the biggest auto exporter to third countries from the United States, and its supplier network to build a training system with local high schools and community colleges. In turn, the state has used this success story to broaden apprenticeships to other industries. Volkswagen has had similar success in Tennessee.

Toyota’s successful program in Kentucky and Indiana has been adopted by more than 300 companies in the region, including GE, because it works so well. Research by academic experts such as Robert Lerman documents the higher lifetime earnings and career satisfaction for those who participate in apprentice programs. Average starting salaries for graduates is around \$60,000.

The third principle is to be proactive rather than reactive. Job retraining is much harder than preparing young students for careers in fields with proven labor shortages. Federal programs tend to be reactive. Older workers need more than technical training to succeed, as many are single parents or have family situations precluding flexible hours or geographic mobility. In the United States, apprenticeships also start much too late: the average

age of apprentices is around 30, and only 20 percent are under the age of 25.

The widely admired German model, which places about 90 percent of its graduates in career-path jobs, including in service industries, has students entering programs around the age of 16. The aspirational goal of U.S. culture is for all students to complete four years of college, so attracting younger students into apprenticeships or other skilled training pathways will require a change in cultural perceptions. Changing standards for federal and state scholarships to include apprenticeships and other forms of skills or vocational education, and allowing older students to use individual retirement accounts (IRAs) to support retraining, might be helpful in changing public perceptions.

The last principle is to include the private sector more deeply and consistently in developing and sustaining skills training programs. Employers are the best source of knowledge on current needs and are best at sensing the future direction of employment trends. Successful models can be emulated as well, like those involving foreign automakers, but also domestic programs such as the aerospace consortium in Washington state or the century-old apprenticeship school run by Huntington Ingalls for its shipyards.

Federal and state governments can encourage such partnerships by providing tax credits, as South Carolina does to help support training by companies. It might also be helpful to consider allowing capitalization of training programs. Companies, too, must show their commitment by investing time and resources in their training programs and promoting the attractiveness of mid-level skills through internships, factory visits, and involvement with K-12 schools.

As of April, there were around 775,000 unfilled jobs in manufacturing, construction, transportation, utilities, and information technology in the United States. If the Trump administration's growth agenda is to succeed, it will require new ways to support skills training. The best ways to meet this need are to consolidate federal programs or turn them into block grants to support the innovative programs developed at the local and regional levels, to be proactive in attracting young students into the sectors most in need, and to include the private sector more fully.

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