



MAKE SOMETHING NEW

Manufacturing is a cornerstone of North Carolina's economy, and it has been for decades. But it's evolving. The COVID-19 pandemic choked supply chains and altered customer bases, adding business for some manufacturers in the process. Workforce needs, in terms of number of employees and skills, are growing. And new technologies are making factories more like spaceships than Henry Ford's repetitive grind. *Business North Carolina* magazine recently gathered leaders and experts from the industry to discuss these changes, how manufacturers are stepping up to meet them and how they'll affect this important part of the state's economy in the long run.

PANELISTS



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Patrick Jacques

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Robeson Community College



Phil Mintz (moderator)

executive director, N.C. State University
Industry Expansion Solutions; director, North
Carolina Manufacturing Extension Partnership

Forvis, Robeson Community College and Pitt County Economic Development sponsored the discussion, which was moderated by N.C. State's Phil Mintz. It was edited for brevity and clarity.

WHAT ARE THE CURRENT CHALLENGES AND OPPORTUNITIES FOR NORTH CAROLINA'S MANUFACTURING INDUSTRY?

FOSTER: This is the busiest we've been in our 16 years. We saw 300% growth last year, and we doubled the first half of this year compared to last year. While being busy is a good problem to have, it's still a problem that needs to be managed. Lead times are longer in the supply chain. Getting new machines, for example, now takes 12 to 24 weeks, when it used to take four weeks. Hiring has been a challenge since COVID arrived. We are adding robotics and automation to compete with China and other countries, where production costs are less.

PEDLEY: Manufacturing is strong and struggling. Many of our customers make fuel systems for gasoline engines, and they're not buying much right now. Life science and consumer goods seem to have picked up. We're probably as busy

as we've ever been, but we can have big projects that we can't ship because we lack a motor or computer chip, for example, to finish them. It keeps a million-dollar machine from supporting a manufacturer. It seems like it would be easy to find these parts somewhere in the world, but it's not. We use eBay and other nontraditional sources to find them. It's a struggle, but our employees are getting it done.

WOOD: The industry is strong. Our companies are watching their top lines grow, and they're forecasting that to continue. But attracting and retaining talent is difficult. Sourcing materials to make products is difficult. And even if they can be made, the shipping logistics are difficult to coordinate. Flexibility and adaptability are characteristics that I see manufacturers embracing. Their executives have to be optimistic, too. Many times, that optimism carries the day as their company searches for ways to do things differently. It may have been easier in the past, but now they need a different way to get that same answer.

JACQUES: Almost every manufacturer in and near Robeson County needs a large number of employees. Their demand often outpaces what the community college can produce. As the number of jobs increases, community

college enrollment typically decreases. People think they can skip school and go directly to work because of the plentiful opportunities. But we want to retain our students, so they can finish their degree or program, which set up successful futures. So, we're expanding our apprenticeship programs, which allow them to work and study. Many students already have a job, so it's an attractive option compared to a minimum wage job that barely pays the bills. An apprenticeship gives students the opportunity to learn fundamentals in the classroom and polish their skills with on-the-job training. They can apprentice in an industry of their choosing. The college also has discussed scheduling classes for students working traditional second- and third-shift schedules.

PAYNTER: Universities and community colleges need to have their ears to the ground, listening to industry experts. They need to understand the everyday problems that folks face on the factory floor. We need to use old tools in new ways, along with new tools, to solve problems. How can we use technology? How can we use innovative discoveries to address problems? One lesson from the COVID-19 pandemic is that supply chain squeeze is a bigger issue for the global economy than we ever anticipated. How can the university help



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our partners assess the strengths and weaknesses of their supply chain? And what platforms can we help deploy to eliminate cybersecurity vulnerabilities associated with manufacturing? We're in a new era.

HOW CAN THE STATE GROW ITS MANUFACTURING WORKFORCE?

JACQUES: Most people don't have a clear understanding of modern manufacturing. They have no idea how pervasive technology is at the Campbell Soup factory in Maxton, for example. We need to make more people aware of the improved working conditions and pay of modern-day manufacturing jobs. The days of standing on an assembly line, completing the same task over and over, day in and day out, are gone. Manufacturers need people to program, design and build assembly lines, most of which employ robotics. We recently added a mechatronics program, for example, to bulk up automation training in our industrial systems curriculum. We must work hand in hand with local manufacturers to ensure we evolve with them. EV manufacturing, for example, has to be brought into our curriculum, so graduates are prepared to enter that workforce. They need to know about batteries and other EV-specific components.

PAYNTER: North Carolina is a competitive environment for manufacturing for many reasons, including diverse sectors. Eastern North Carolina's strength, for example, resides in its density of pharmaceutical companies. We provide workers specifically to them. But now we have to pivot, equipping workers with skills that are applicable across myriad sectors, including pharmaceutical, automotive and aerospace. The ability to use those skills, such as analytical, collaborative, soft and project management, in different environments is vital. At ECU, we talk a lot about being flexible, nimble and quick, so we

can respond to each of our industry partners' specific needs with curricular and noncurricular learning opportunities. There are adult learners, for example, who can't or won't invest four years in a traditional university education. So, we have options. They can work while they are in the classroom. We can develop credentialing programs that reskill or upskill people. Those offer cutting-edge training and experiences that put workers who complete them in a different category than other equally credentialed job applicants.

PEDLEY: We host an annual open house on National Manufacturing Day, which is the first Friday in October. Hundreds of students from several counties attend. We show them what we do, explaining along the way that modern manufacturing is a good way to make a living. North Carolina is blessed. Its high schools have specialized academies, which focus on preparing students to work in fields such as engineering, hospitality and life science. We call it customized training. It starts in middle and high school and continues into community colleges and universities. We need it more than ever as we grow. We have an apprenticeship program, which can be designed to fit any company. Ours is a two-year program — Automated Equipment Engineer Technician. It's 8,000 hours, a combination of work and classroom time. You can train and offer education to your existing employees. We're excited about all of that.

FOSTER: I've been an adjunct professor at North Carolina A&T State University for 17 years. I get to see students day in, day out for 16 weeks, allowing me to get to know them and pick the best future employees. Can they present to a customer? Do they play nicely in the sandbox with their teammates? We continue to hire graduates from the community colleges, particularly Alamance and Guilford Technical. We're helping build better schools

and students by providing feedback in return. Curriculums need more robotics, for example, because that's what our international customers want. We also work with N.C. State's IES program. It helps with workforce development for our professionals. With all the opportunities coming to North Carolina, companies need a fast-track approach to earning certifications. IES helped us get ISO 14001, which is for environmental, IATF 16949, which is for automotive, and ISO 13485, which is for medical devices, within a year and a half. Without IES, it probably would have taken us three to five years to be certified. IES rounds out all the other programs that help our company be successful. It's important to us, and made us more attractive to some of our existing customers.

WOOD: In our company, the manufacturing vertical is our largest focus. And one of my favorite things to do is visit a factory and watch things being made. It's what America is built on. It's tangible. You can wrap your brain around it. We need to continue to create that level of excitement, driving our students to be involved in something special. It creates opportunities for everyone in the state.

WHAT IS MANUFACTURING'S ROLE IN ECONOMIC DEVELOPMENT?

PAYNTER: Communities need a regional perspective when envisioning economic development. Build a workforce that's willing to commute across county lines. Build partnerships with industry that allow each community to take advantage of its strengths. Large manufacturers need infrastructure such as water and sewer. One community may be able to develop that, while a different community may be better suited to hosting less resource-intensive companies, which make up a manufacturer's supply chain. We need to look at talent as a driver of economic health. As communities develop quality

of life amenities, such as greenways and revitalized downtowns, their goal should be creating places where people want to live and work. It takes a holistic perspective. Partnerships make North Carolina a rich state for business to thrive. Whether it's Pitt County Economic Development, NCEast Alliance, Greenville ENC Alliance or any of the others across North Carolina, we need to work together, considering big- and small-picture strategies. ECU has partnered with four counties — Beaufort, Martin, Hyde and Pitt — to support small businesses and entrepreneurs. Owners of one small business, for example, had all their assets wrapped up in the business, but they were eager to move to something else. So, we helped them figure out how to sell it. We also are investing in RISE29, a Golden LEAF-funded program

that assists entrepreneurs coming out of university. Communities pitch them on why they should be the home to their company. Communities can't view their situation with a deficit mindset, all the things they lack that prevent people from living and working there.

PEDLEY: A regional approach is important. Lee and Chatham counties, for example, collaborated to bring the state's first EV manufacturer, VinFast, to Triangle Innovation Point megasite, where it's expected to create up to 7,500 jobs. In this case it was with sewer and water; they're sharing the associated revenue. That's good to see. It says a lot about our state and how we do things. I remember a sign that hung on the wall years ago. It read, 'Education equals economic development.' The state's educational assets attract many

manufacturers to North Carolina. We have the best universities in the world. We have the best community colleges and the best high schools. That's what it's all about — bringing in resources and training. If a manufacturer wants to learn about ISO, team building or some other skill, our community colleges and universities will set up instruction at your campus.

JACQUES: I've been in education for 30 years. And one thing that I've noticed the past 15 to 20 years is the collaboration between community colleges, universities and businesses in North Carolina. It allows us to build a strong system. When I went through the community college system, all associate degrees were terminal degrees. You earned one and went to work. They didn't lead to

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something else. Now ECU and other universities offer transfer programs, where community college students can build on their associate degree. We're working to add articulation agreements, so more students can further their skills. Education needs to be flexible, embracing what will make us better as a whole. We need to make the improvements that keep us going in the right direction. We work hand in hand with economic developers, government officials and community members as manufacturers look at moving to our region. We assess their needs and identify where we can help, preparing residents to work.

WHY ARE MANUFACTURERS MOVING TO NORTH CAROLINA? WHERE ARE THEY MOVING FROM?

WOOD: We're seeing foreign and domestic investments. I see more foreign investment coming, but the global economy is becoming complicated. Do you want to onshore or offshore sources of products? You need the ability to pivot based on the latest happenings. Many real estate developers and government agencies have done a great job preparing shovel-ready sites. That's easier said than done, especially when multiple tracts of land are in play. But that removes some of the burden from investors, allowing them to come in and decide this is where they want to locate. I was born, raised and continue to live in North Carolina. It's a great state to raise a

family and live, from Murphy to Manteo. You spend a ton of time at work, but you also want things to do outside of work.

FOSTER: COVID has impacted many of our European competitors differently. Some have closed. We're pretty heavy with the European automakers, who were scrambling to find local suppliers at the height of the pandemic. The keyword is localization. Manufacturers in the United States, for example, want a regional supplier. We make parts for Sweden-based Husqvarna, for example, which wants local suppliers for its South Carolina factory. If that's you, and you have quality parts, the capacity to make more and deliver on time, then the sky is the limit. You'll have to stop them and say no more. It's a good problem to have. You can be a bit aggressive, as long as you're cautious. And it trickles



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down to other companies in the state, including Mertek. We approached it pre-COVID as we moved to localize our suppliers. It turned out to be a brilliant move. We would've been in trouble if we chose a foreign supplier. We need more companies like it in the region.

IS IT A GOOD TIME FOR MANUFACTURERS TO EXPAND?

FOSTER: We doubled cleanroom capacity to accommodate biopharmaceutical work last year. This year we're expanding again, adding brick and mortar to our factory to accommodate new business. And we're already talking about our next expansion, which is two years out, for business we've already been awarded. The industry will see more brick-and-mortar additions. It also will see

more strategic partnerships between manufacturers and their suppliers. We're going to fill them up with work, which is a great thing. You'll see other companies post triple-digit growth.

WOOD: It is expensive, but many companies are expanding. You need to know what's needed, be able to forecast and have a plan. There are many people selecting sites, trying to decide where the right place to be is, which often includes proximity to suppliers. There are many incentives for expanding. They can be through various agencies or special tax deductions. I do think there are many companies in expansion mode, even if they're doing it quietly because they are cautiously optimistic about what lies ahead, including inflationary costs and concerns.

JACQUES: Demand for good employees is growing. Higher education, especially community colleges, will need to become more creative to meet that demand. Businesses call me every day, needing to hire 15, 20, 30 or more people. We don't have that many students. Community colleges have done a lot with continuing education, quickly filling skill gaps. We always look for ways to be flexible, working around the needs of students and employers. So, for us, it's how to get those folks, including nontraditional students, who are in their late 20s or early 30s, to return to school to learn additional skills. We're going to have to figure out how to adjust to and meet their needs. That's the tough part. COVID taught us that more classes, or at least parts of them, can be taught online. So, we're offering more blended

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or hybrid courses, when the lecture and day-to-day instruction is done online, and students come to campus a day or two each week for laboratory and hands-on instruction. That helps students maintain a job and cash in on educational benefits.

WHAT IS MANUFACTURING'S FUTURE IN NORTH CAROLINA?

JACQUES: When textiles folded up in Robeson County, it was a dark time without much hope. But slowly, more and more manufacturers have arrived. Robeson and Lumberton have developed an industrial park at the intersection of interstates 74 and 95. Elkay Plumbing Products is building a distribution center there. It's expected to open by the first of next year. Many companies have approached the community college about creating a supply of skilled workers. It's promising. We need to do a better job of preparing students and connecting with industry so our product — workers — are prepared to smoothly transition to the workplace from the classroom.

WOOD: I'm excited where we are, and I hope we continue on that path. Companies' strategies will continue to evolve. Research and development will remain important to manufacturers. Many are taking advantage of a research

and development tax credit. If you're not taking advantage of it, you should. There are tax rule changes coming on research development expenses, too. They're going to start being amortized as opposed to being expenses. Companies have to undertake research and development to remain competitive. But they have to mind the tax landscape, especially when it comes to cashflow and where they can spend their dollars. Technology has been the focus of manufacturing for years. Increasing budgets for technology and research and development will be the mainstay. It's exciting. It's doing something different. It also has the minds of young people. They're graduating from school and searching for something that's cutting edge, different and exciting.

PEDLEY: Manufacturers in the market for automation and robotics are investing less in making parts for fuel-driven cars. They're spending more to make EV parts. There's a shift underway, but we're still making standard parts, and that market seems busy. VinFast's EV plant will be a big difference to the region and state. Many small companies will be needed to support it. We're excited about having that nearby. All in all, automotive seems good.

FOSTER: EV manufacturing is growing. We're working on BMW's X3 hybrid;

most of them are sold in Germany, China, Russia and South Africa. And with Volvo's new factory in South Carolina, we're working on its S60 and XC90. Volvo will only manufacture EVs by 2025. It's a real shift. We won't be doing any gas-powered vehicles, only hybrids or EVs.

MINTZ: We provide a lot of professional development training, but you have to work with people who are innovative and want to improve. That's what makes North Carolina manufacturing really great. I've been doing this work for almost 25 years. It's exciting to see companies start, grow and prosper. I recently received an email from the founder of a Raleigh-based company that makes electric charging stations. He wanted to know how we could help make his company better. It's crazy. We're doing a bit of everything in the state. We're making all kinds of things. One of the wonderful things in this line of work is seeing people make these exciting and innovative things. It keeps me interested and excited about what's happening in North Carolina. ■



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