



ASSEMBLY REQUIRED

Manufacturing is a pillar of North Carolina's economy. Creating the correct balance of workforce, technology and regulations will ensure it remains strong.

NORTH CAROLINA MANUFACTURING HAS CHANGED. Life sciences, aviation and other high-tech products have surpassed textiles and furniture. But the sector remains important to the state's economy. Washington, D.C.-based National Association of Manufacturers reported that it was responsible for about 20% of North Carolina's output and about 11% of its employment in 2015. Continued adaptation, especially in regards to workforce, regulation and technology, is needed to keep it strong. *BUSINESS NORTH CAROLINA* magazine recently assembled a panel of manufacturing experts to discuss that challenge and identify strategies to meet it.

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ILLUSTRATIONS BY RALPH VOLTZ

The discussion was moderated by Ben Kinney, *BUSINESS NORTH CAROLINA* publisher. Support was provided by N.C. State University Industry Expansion Solutions, DMJ and Smith Moore Leatherwood, whose Greensboro office hosted. The transcript was edited for brevity and clarity.

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WHAT IS THE STATE OF NORTH CAROLINA'S MANUFACTURING INDUSTRY?

MINTZ It is strong. Smaller companies and new technologies are helping the sector grow. There are challenges, including finding enough workers to support growth. More companies are interested in using more technology and fewer workers. We are monitoring that trend, offering training and connections that can help them grow in lieu of a ready workforce.

AUDILET Business has improved. A chemical manufacturer that we represent, for example, has added shifts the past few years. It recently began adding people at the vice president of business development level, which is a great sign. It's one company, but it's representative of positive news across the sector.

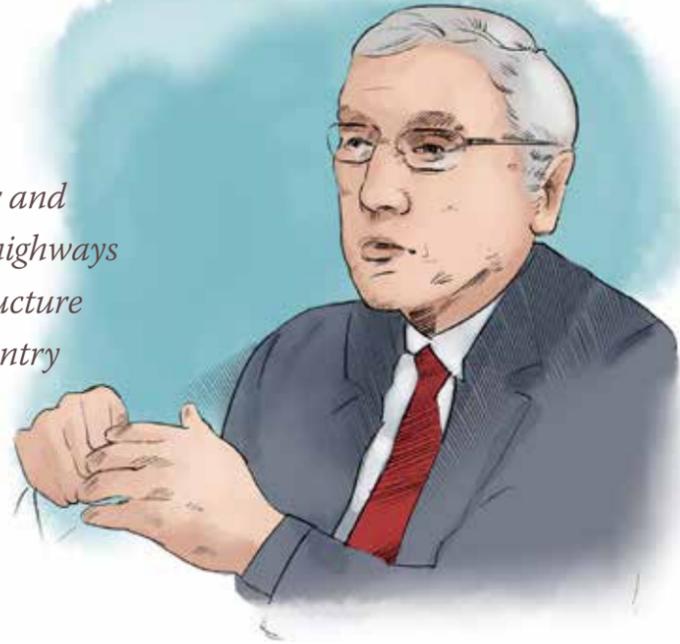
HOW HAS THE SECTOR'S WORKFORCE CHANGED?

BEESON About 300,000 jobs were lost in North Carolina during the Great Recession. Community colleges offered opportunities to learn skills, such as computer use, to people out of work. I had 18-year-old students sitting next to those in their 50s and 60s in commu-

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Washington is moving toward funding better and more infrastructure — roads, bridges, airports, highways and so forth. But the most important infrastructure is people. Nothing else is even close. Our country and our state have not invested enough in people.

LANTY SMITH
Tippet Capital



nity-college classes that I taught. Older students would share work and life experiences. Younger students offered fresh outlooks. Older generations expected to retire from a company that they worked at for 30 years. But 25 years in, they lost their job. They tell their children to avoid manufacturing careers because they believe they weren't treated right. That outlook makes recruiting the next generation of manufacturing workers a challenge. It's starting to change as we work with school systems statewide. Middle-school students are asked to decide what they want to do in the future, such as attending a two-year or four-year school. They select their high-school classes based on that. We actually offer college tours for sixth-, seventh- and eighth-graders.

SLOSMAN We recently participated in a chamber-sponsored job fair, and turnout was low. Millennials want things immediately and without investing much work. They jump from job to job seeking the best deal for right now. Companies have lost vision of the workers over the years, and the workers have lost vision of the company. We need to recapture that.

HOW CAN MANUFACTURERS FIND AND TRAIN WORKERS?

SLOSMAN Asheville's quality of life makes recruiting businesses relatively easy. Many companies admit that's the reason they came, but if they had known how difficult it is to find workers, they wouldn't have moved there. Most are trading employees rather than attracting them. We'll interview three,

and one will show up before moving on a week later. We have two interns starting soon. We want to show them that manufacturing is alive, and it offers well-paying careers. Elected officials want to land the big company whose jobs pay upward of \$50,000 annually. But not everyone has the qualifications for those jobs. Many businesses need people with high-school diplomas. There are still jobs for people without one. More than 80% of new jobs are with small companies, but that doesn't get elected officials' names in the newspapers.

BEESON Employers need people with computer skills and the ability to adapt to changing technology. Community colleges offer certificates, diplomas and associate degrees. Manufacturers quickly scoop up associate-degree graduates to fill their maintenance positions. They need people with technical skills but not necessarily a four-year degree. They want people who are comfortable with automation. Many people think it eliminates all jobs, but manufacturers still need workers to program, maintain and troubleshoot that equipment. Apprenticeships need to start in high school. Students can earn credit for work experience and, depending on the curriculum, classes at both levels. Some of the manufacturing equipment that colleges use for training isn't as new as what's on some factory floors. A college might have 30-year-old equipment because there's no budget to replace it. Not every manufacturer changes its equipment as soon as technology advances, so we have to train workers for

equipment that's 30 years old and 1 year old. That helps make them troubleshooters.

AUBERRY It's exciting when a community college helps a cluster, such as [Jamestown-based] Guilford Technical Community College and the aerospace and aviation companies, including [Greensboro-based] Honda Aircraft Co., at Piedmont Triad International Airport. North Carolina's unemployment has been ticking up, 5.1% in December 2016 from 5% in November and 4.7% in September, according to the U.S. Bureau of Labor Statistics. Jobs are lost in bunches, such as the 350 when [Chicago-based] MillerCoors LLC closed its Eden brewery. They are gained in fives and 10s. We have to keep fighting for every one of them, and the best ammunition is a trained workforce.

SMITH Washington is moving toward funding better and more infrastructure — roads, bridges, airports, highways and so forth. But the most important infrastructure is people. Nothing else is even close. Our country and our state have not invested enough in people. Per-student funding for higher education in North Carolina fell 23.4% from 2008 to 2015, according to [Washington, D.C.-based] Center on Budget and Policy Priorities. It's not that long ago that we prided ourselves in having a university system that was second only to the one in California, where spending dropped 11.1% during that period. That's a significant gap. It's not one-for-one with the quality of what's presented, but money makes a difference.

Funny how the right law firm can yield fewer change orders and better prototypes.

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Companies — manufacturers included — need access to broadband internet. We need to focus on its availability. Many businesses want to put factories in rural regions, but lack of connectivity is a big part of whether or not they do.

PHIL MINTZ

N.C. State University Industry Expansion Solutions

There are about 5 million open jobs in the country. There are many reasons they are unfilled, but the biggest is lack of investment in training people to fill them. North Carolina has to use and invest in its community-college, university and public-school systems. That's where long-term planning is needed. If we had a strong apprentice internship program tied to the community colleges, for example, then you would have less of the mindset that you don't need community-college training when times are good. Manufacturing and other industries would get the workers they need.

WHAT WILL HELP SUSTAIN AND GROW MANUFACTURING?

BEESON The state's community-college system offers workforce training to compa-

nies based on their specific needs. It's managed locally by the community college responsible for the part of the state where the company is located. In most cases, the college's customized-training director leads a meeting with the company. The company has to meet criteria to receive the training at no cost. Most of those center on job growth. Technology or capital investments, along with upgrading workforce skills, qualify companies, too. Projects usually are one to three years. A one-year project might be used for a company that makes a capital investment and needs training for several hires. The cost director assembles a budget, which comes to me before going up the line for a series of approvals. There are times when funds aren't available. So a plan may be altered or the company agrees to share costs.

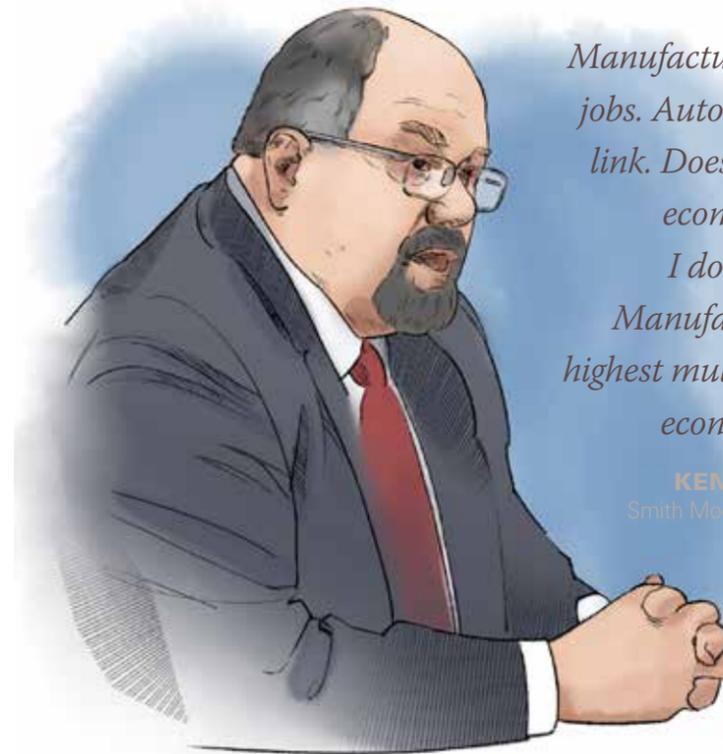
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MINTZ Our manufacturing extension partnership program, which helps companies with innovation, productivity and technology, is nationally recognized. Many states lack something similar. It's probably not enough, but when I talk to my colleagues across the country, they're amazed at what we accomplish.

GILLIS North Carolina's corporate tax rate was 6.9% in 2013. It dropped to 3% Jan. 1. That's a 56.5% reduction. The personal rate was 8.25% from 2001 to 2006. Now it's about 5.5%. That's a 33% reduction. South Carolina's corporate tax rate has always been 5%. Its individual rate is 7%, but it has been reduced to 3% for flow-through entities. Virginia has a 6% corporate rate and a 5.75% individual rate. Companies don't make decisions solely on taxes, but they consider them. North Carolina's tax rates are competitive or more favorable than its neighbors. Apportionment factors have changed, too. North Carolina businesses typically apportion their income in- or out-of-state based on three factors: property, payroll and sales. No matter where you sold your products, if your equipment and manufacturing operations are in North Carolina that would carry a one-third weight toward North Carolina. If your payroll was all in North Carolina, that carries a one-third weight. Sales are weighted based on where they were. In 2016, sales are going to be triple-weighted; in 2017, they're going to be quadruple-weighted. In 2018, the payroll and property factors will be removed. It will be apportionment based on sales. South Carolina, for example, has had a single-factor sales apportionment for manufacturers since 2007. Virginia has had a single-factor sales apportionment for manufacturing since 2004. This will help North Carolina attract businesses.

HOW CAN FEDERAL INITIATIVES, SUCH AS IMPORT DUTIES AND TARIFFS, HELP MANUFACTURERS?

SLOSMAN They may play in our favor for the first time in decades as a result of November's elections. We pay an import duty on rayon — which we can't buy in the U.S. — and use it in our manufacturing. Finished products similar to what we make can be imported from China duty-free. Whose jobs are protected under that arrangement? Raw materials need to



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KENT AUBERRY

Smith Moore Leatherwood LLP

be viewed differently than finished products. There needs to be an incentive to import raw materials used in domestic manufacturing. Import duties on finished products will help rebuild the sector and protect the jobs it creates.

GILLIS Social and business policy is often driven by tax law. New Market Tax Credit is a federal program that offers a 39% credit for business and real-estate investments in low-income communities. Every county in southeastern North Carolina has communities that qualify for this credit.

WHAT STATEWIDE ISSUES ARE AFFECTING MANUFACTURING?

AUBERRY The Triad is seeing growth in logistics, health care and medical devices, but it's hard to see because it happens organically. It's more like a rising sea than a tidal wave. Manufacturing used to equal jobs. Automation dulls that link. Does that change our economic focus? I don't think so. Manufacturing has the highest multiplier effect of any economic driver. So even if the factory announcement doesn't include

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Companies don't make decisions solely on taxes, but they consider them. North Carolina's tax rates are competitive or more favorable than its neighbors.'

MICHAEL GILLIS
DMJ & Co.



hundreds of jobs, that investment is welcome. When the firm pitches work to large — Fortune 1000, Fortune 500 — companies, they drill us on diversity, especially in regards to workforce. It's important to them because of how they view their creative class. It's a key value, from philosophical and business perspectives. In that context, House Bill 2 — the Public Facilities Privacy and Security Act, which requires people to use restrooms and changing facilities that correspond to the sex on their birth certificate — keeps investment from coming to the state. The cause and effect isn't as clear as a musical act canceling a performance, such as Greensboro Coliseum losing its \$100,000 share of ticket sales when Bruce Springsteen decided not to perform in 2016, but it still hurts.

SMITH Public companies are criticized for operating quarter to quarter and not planning for the long term. Our political system is based on two-, four- and six-year offices. That drives short-term focus, especially when the objective is re-election rather than what's best for the public. One of the largest economic events in the state's history is the creation of Research Triangle Park. It was a failed private real-estate deal that was rescued by a small group of people, including Archie Davis, the two-term state senator and Wachovia Bank chairman. They had a strong desire to do what was in the public's best interest. They organized a private-public partnership for the long term by using a not-for-profit corporation. It has been the principal job creator for

North Carolina for last 50 years. People forget that it struggled its first decade. They also forget that most of its startup money was collected statewide. The textile industry and Winston-Salem were two of its largest contributors. RTP's success convinces me that a long-term view is best. It also tells me to emphasize public-private partnership, removing as much politics as possible, and that it's wrong to divide the state, whether that's urban versus rural or Charlotte versus Raleigh. I would like a nonpartisan task force, outfitted with representation from the private sector and the state's universities and community colleges and the best data available, to define what jobs will be available in 10 and 25 years. It will take real interest on the part of state government. The private sector can't do it alone.

GILLIS We've seen more food processors over the past three or four years, including smaller, privately held companies. We have many domestic companies that are food manufacturers. But it's not the only niche manufacturer in the Triad. E-textiles — such as clothing embedded with electronics that monitor body functions — plastic extrusion and metal fabrication also are examples.

MINTZ One of my manufacturing clients told me that productivity is being lost because of a lack of broadband infrastructure and slow internet connections. Companies need access to broadband internet. Many businesses want to put factories in rural regions, but lack of connectivity is a big part of whether or

not they do. Cybersecurity is important, too. We're unsure if all of our manufacturers are taking the necessary precautions. There is help available. [Winston-Salem-based] Forsyth Technical Community College's cybersecurity program, for example, recently received \$156,000 from the National Security Agency for professional development workshops and classes for primary and secondary school students.

WHAT WILL MANUFACTURING LOOK LIKE OVER THE NEXT 20 YEARS?

SMITH U.S. and North Carolina manufacturing will see stable growth and productivity, but the number of jobs will continue to decline. Textiles aren't as labor-intensive as one would believe. The problem was forward of the industry in cut and sew, which is very labor-intensive. So when cut and sew left, then the textile industry declined, too. Automation is the major driver for reducing textile employment. It brings productivity. That's how wealth is created long-term. It isn't going to stop. Artificial intelligence has the same potential. It's the next leg in that evolution.

MINTZ The work didn't go away. It was reinvented, using automation to maintain it. Manufacturing will happen one way or another. More companies are looking for that type of opportunity. Automation investment is becoming more palatable for smaller companies. Robots are less expensive and a viable option that's being considered. ■



The hidden workforce

A partnership between the Department of Public Safety and NC State University's Industry Expansion Solutions is helping to correct the manufacturing sector's skilled-labor shortage.

CEOs cite the shortage of skilled workers as one of their most pressing concerns, so Director of N.C. Correction Enterprises Karen Brown is eager to get the word out: She knows of a highly trained, highly motivated group ready to get to work. They are ex-offenders, released from prison and sent back to their communities for a chance to start productive new lives. Of the 2,000 or so inmates released every month, 45 to 60 of them worked and trained in one of Correction Enterprises' 31 manufacturing facilities across the state.

"In Elizabeth City, we do embroidery, as well as specialized sewing, like safety vests for Department of Transportation," says Brown. "In Nashville, N.C., we make eyeglasses for Medicaid patients." The mission of her organization is twofold: to produce quality goods for the state, and to teach both hard and soft skills — such as interviewing techniques and effective communications — to the inmates it employs.

Beginning in 2016, selected inmates working in 12 of those plants also started to receive specialized training through a new partnership with NC State Industry Expansion Solutions (IES), the client-focused extension unit of the College of Engineering. An IES improvement specialist worked closely with Correction Enterprises staff and inmate employees to train them in "Lean" — a set of principles that teaches workers to identify and eliminate waste and improve processes, resulting in high-quality, low-cost products.

Phil Mintz is the executive director of IES, and says that Lean has delivered huge profits to his organization's clients. "Just in

the period of 2012 to 2016, 81 clients have reported about \$93 million total in economic impact and more than a thousand new or retained jobs," he says. According to Mintz, Lean strategies are frequently used in health care and government as well as manufacturing, when organizations want to streamline processes or score higher on customer satisfaction.

Brown says that the Lean Manufacturing Certificate that participants earn can make the difference between landing a job and not; unfortunately, ex-offenders who don't find work are three times more likely to return to prison than those who

are earning wages. She asks business owners to try hiring just one of Correction Enterprises' graduates. In addition to the Lean thinking they'll add to their workforce, she says, they also can take advantage of federal tax credits and free federal bonding.

"We want to give ex-offenders a chance to be successful," says Brown. "We want to give them a chance to prove themselves — to make themselves into contributing citizens for the state of North Carolina."

— *Miranda Volborth is a professional writer based in Hillsborough.*



Correction Enterprises offers journeyman welding apprenticeships at its metal products plant in Polkton, NC.