



NC DEPARTMENT
of COMMERCE
LABOR & ECONOMIC
ANALYSIS

The Next Manufacturing Revolution

Best Practices for Growing Manufacturing in NC



Best Practices for Growing Manufacturing in North Carolina

Essentials for Success in Industry 4.0

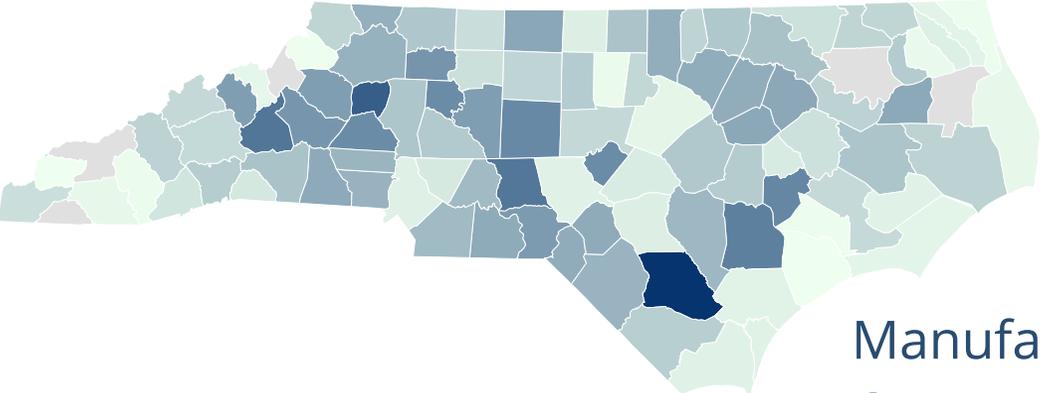


Why Care About Manufacturing?

- **3rd largest employer** industry in NC
 - #1 Healthcare & Social Assistance, #2 Retail
 - 1 in 10 of NC's total jobs are in manufacturing
 - Largest manufacturing employment in Southeast US (#9 nationally)
- **Largest industry** for jobs in **35** counties, **top five** in **67** counties
- Manufacturing contributes nearly **11% of NC's total wages**
 - 51% of Bladen County's total wages
 - Average annual wage = **\$71,000**
- Accounts for nearly **\$1 of every \$7 produced** in NC's economy (GDP)
 - #8 in US in GDP (#1 in Southeast)

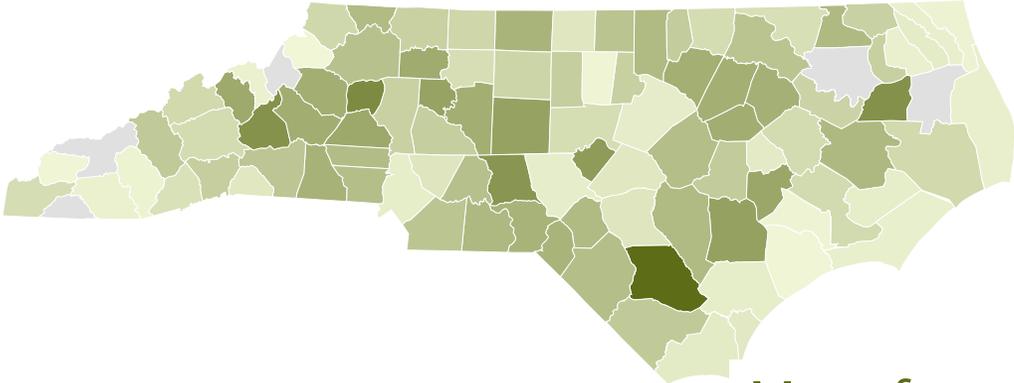
Manufacturing Importance to Rural NC

Manufacturing Share of County **Employment**, 2023



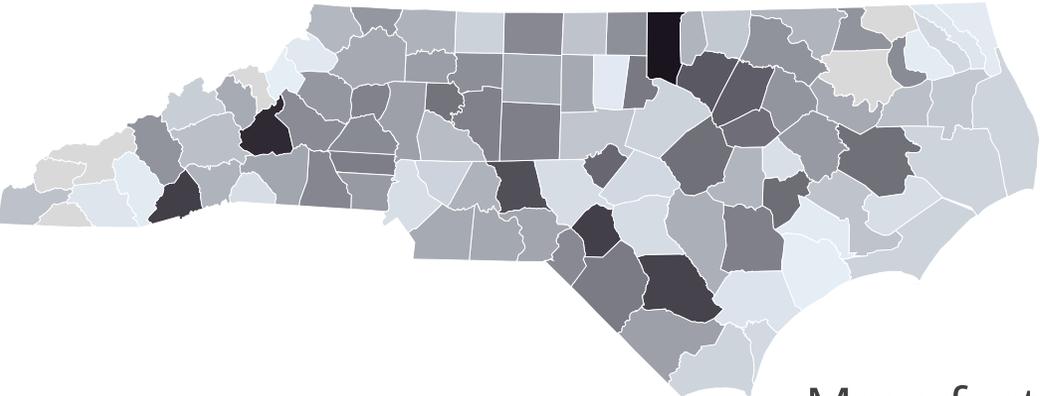
% Employment
1.6% 47.0%

Manufacturing Share of County **Total Wages**, 2023



% of Wages
1.6% 51.2%

Manufacturing Share of Total County **GDP**, 2022



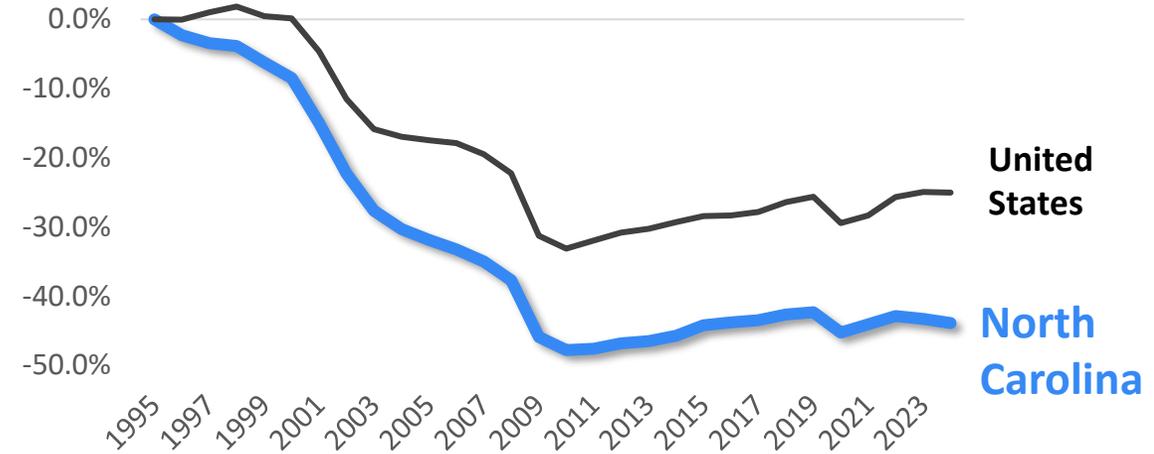
%
1.4% 51.7%

Source: NC Department of Commerce LEAD QCEW, US BEA

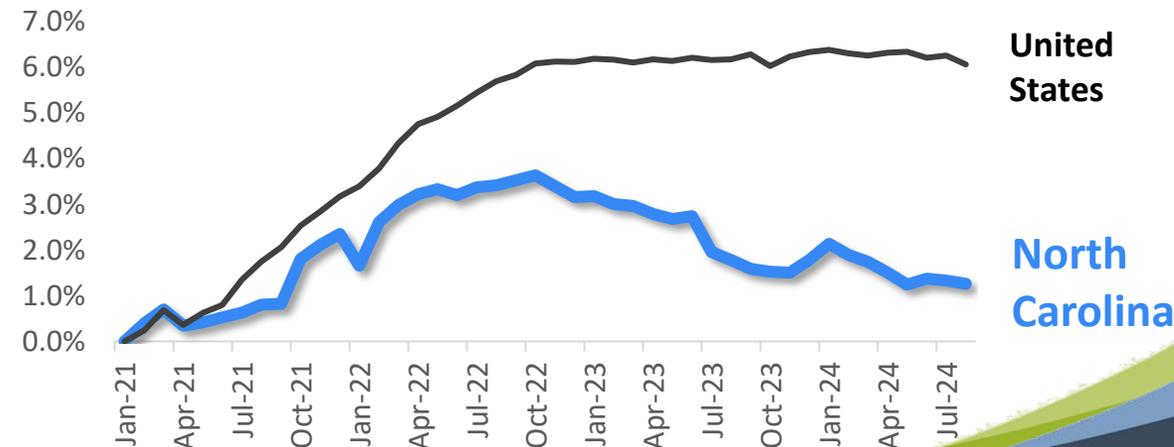
Changes in Manufacturing

- NC employment declined every year 1995-2010
 - between 8,800-80,800 jobs lost each year for 15 years
- Slow growth each year until the pandemic 2010-2019
- Strong manufacturing growth coming out of pandemic
 - Nearly 2-year slow decline in NC

Manufacturing Employment
1995-2023



Manufacturing Employment
Jan 2021-Aug 2024



Not Your Father's Manufacturing

Between 1998-2022:

- NC Manufacturing Jobs (Employment): **-40%**
- Value of NC Manufacturing (Real GDP): **+25%**
- GDP per Worker: **+100%**

Change in Industries

Greatest Changes in What We Produce (Real GDP, 1998-2022)

Greatest Declines	Apparel, leather, & allied products	-86%
	Textile mills & textile product mills	-63%
	Furniture & related products	-48%
	Nonmetallic mineral products	-19%
	Electrical equipment, appliances, parts	-16%
	Paper	-15%
Greatest Growth	Computer & electronic products	859%
	Other transportation equipment	740%
	Primary metal	247%
	Motor vehicles	160%
	Machinery	69%

Change in Industries

Greatest Changes Where We Work (Employment, 1998-2023)

Greatest Declines	Apparel	-91.8%
	Textile Mills	-83.1%
	Textile Product Mills	-77.6%
	Furniture & Related Products	-61.7%
	Computer & Electronic Products	-49.7%
	Electrical Equipment, Appliance, Parts	-47.6%
	Wood Product	-43.7%
Greatest Growth	Food	12.1%
	Plastics & Rubber Products	-7.1%
	Machinery	-10.2%
	Chemical	-11.3%
	Fabricated Metal Products	-11.6%
	Primary Metals	-11.7%

Change in Occupations

Projected fastest growing occupations 2022-2032

(average annual growth rate of occupations primarily working in NC's manufacturing industry)

Computer Numerically Controlled Tool Programmers	2.2%
Industrial Machinery Mechanics	2.0%
Industrial Engineers	1.7%
Chemical Engineers	1.6%
Food Batchmakers	1.4%
Materials Engineers	1.3%
Electrical, Electronic, & Electromechanical Assemblers	1.2%
Fiberglass Laminators and Fabricators	1.1%
Materials Scientists	1.0%
Welders, Cutters, Solderers, & Brazers	1.0%

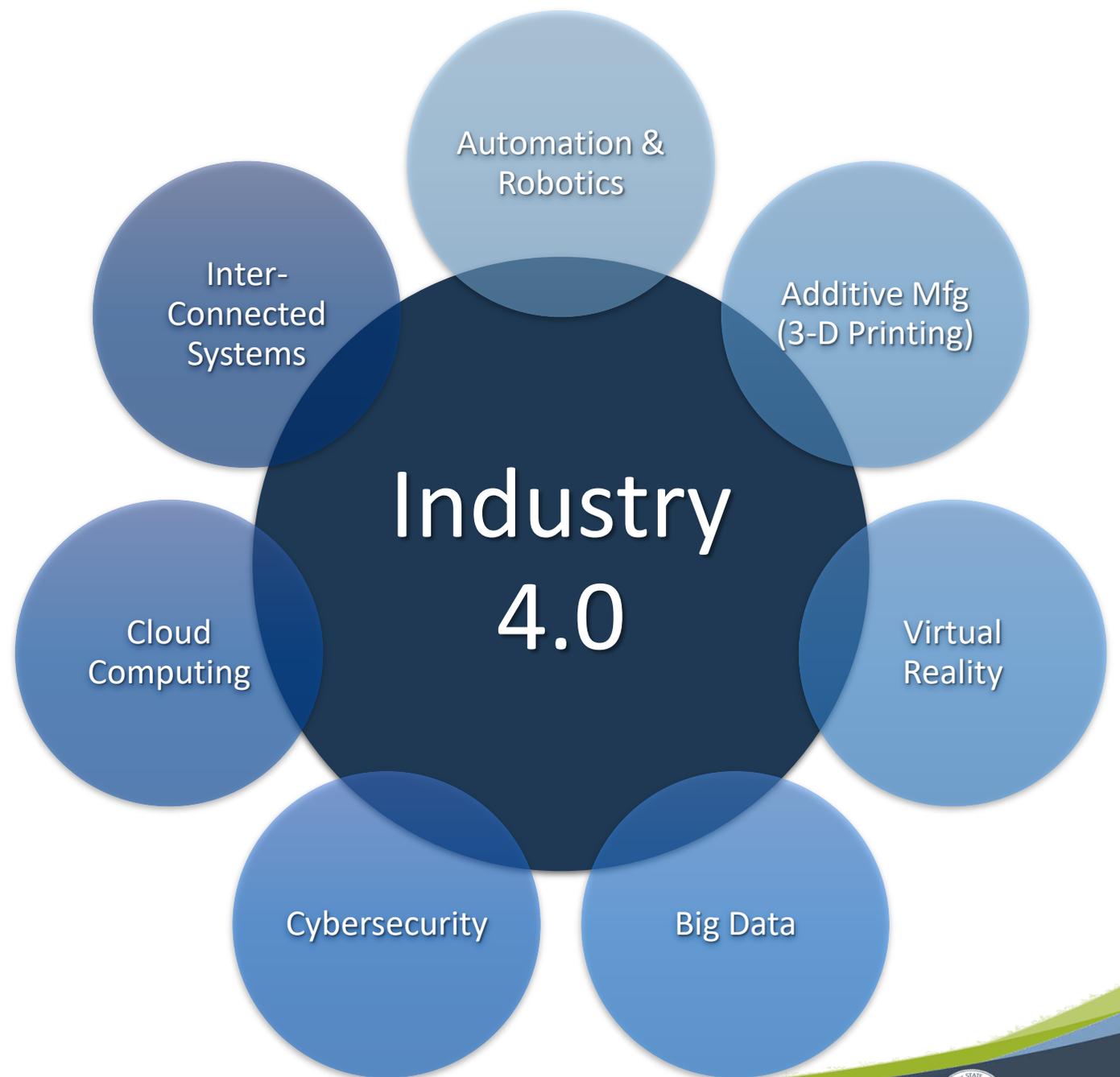
Change in Occupations

Projected fastest growing occupations 2022-2032

(average annual growth rate of occupations primarily working in NC's manufacturing industry)

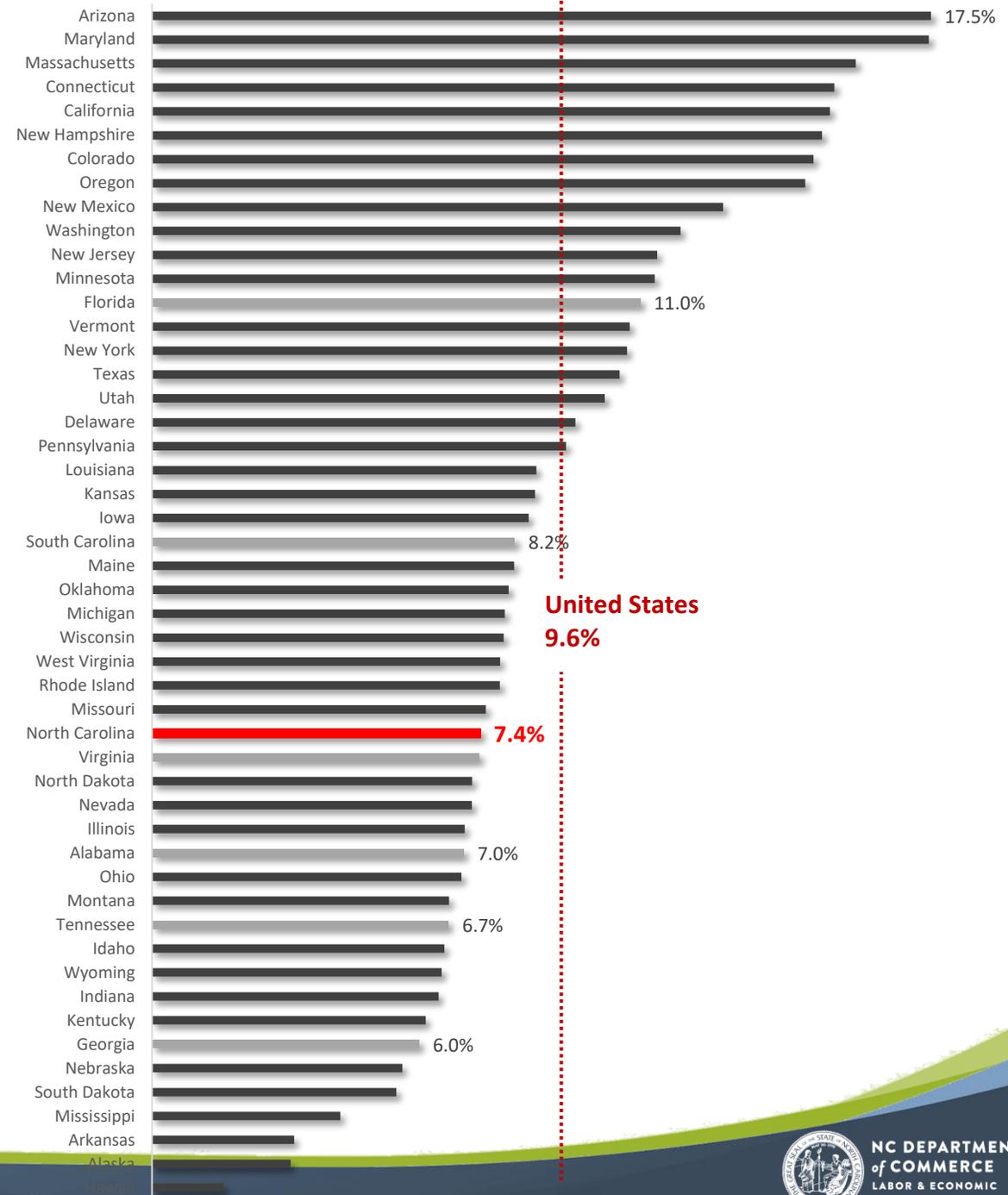
Computer Numerically Controlled Tool Programmers	2.2%
Industrial Machinery Mechanics	2.0%
Industrial Engineers	1.7%
Chemical Engineers	1.6%
Food Batchmakers	1.4%
Materials Engineers	1.3%
Electrical, Electronic, & Electromechanical Assemblers	1.2%
Fiberglass Laminators and Fabricators	1.1%
Materials Scientists	1.0%
Welders, Cutters, Solderers, & Brazers	1.0%

The Future of Manufacturing



NC Lags Behind in Industry 4.0 Jobs

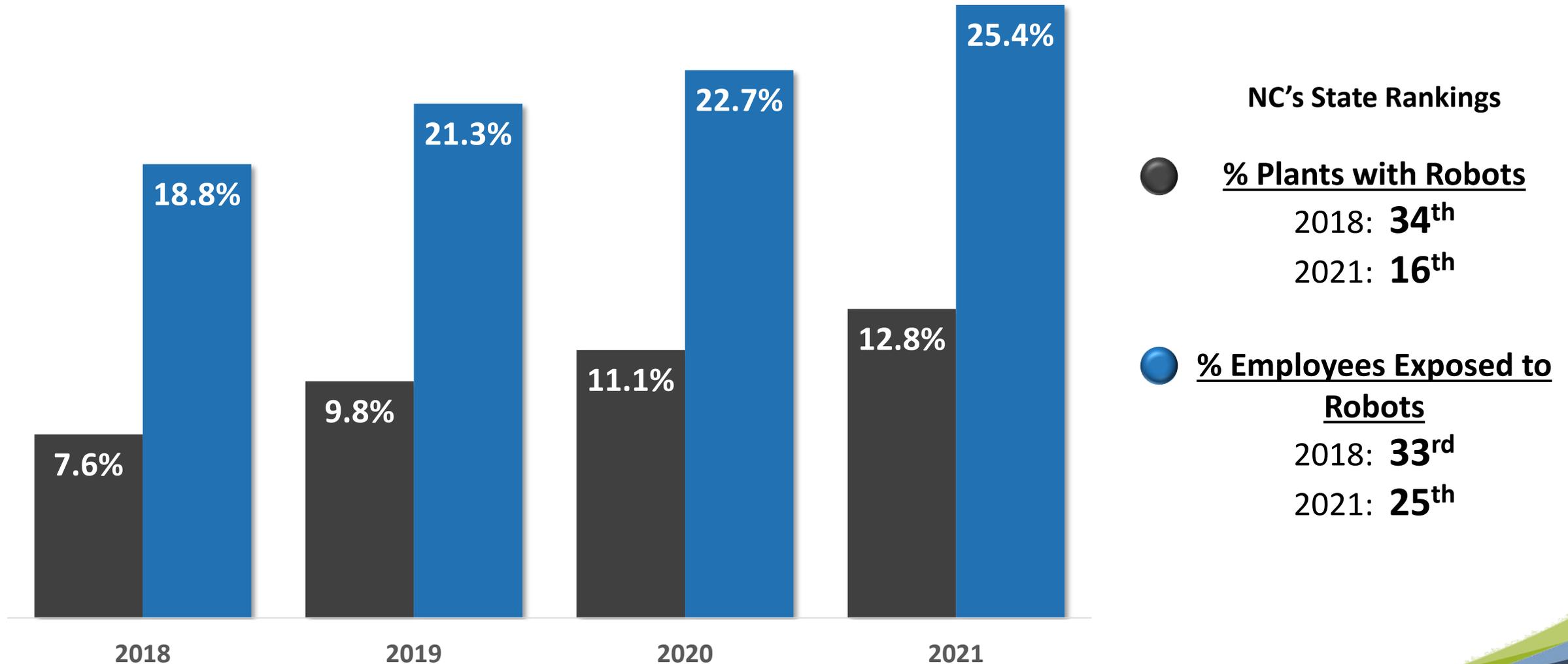
State Share of Industry 4.0 Enabling Jobs in Manufacturing, 2022



Source: US BLS, OEWS

* Computer & Mathematical; Architecture & Engineering; Life, Physical, & Social Science Occupations

NC's Manufacturing Robot Invasion





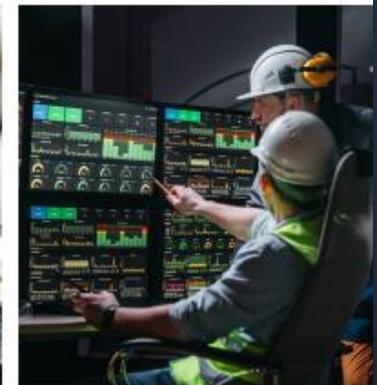
NC DEPARTMENT
of COMMERCE
LABOR & ECONOMIC
ANALYSIS

[www.commerce.nc.gov/
best-practices-growing-
manufacturing-north-
carolina](http://www.commerce.nc.gov/best-practices-growing-manufacturing-north-carolina)



Best Practices for Growing Manufacturing in North Carolina

Essentials for Success in Industry 4.0



NORTH CAROLINA
DEPARTMENT of
COMMERCE

NCMEP
North Carolina
Manufacturing Extension Partnership

Four Keys for Industry Growth

- 1. Supporting Adoption of Industry 4.0 Technologies**
- 2. Developing a Skilled Workforce**
- 3. Supporting Growth and Scale-Up of Small Manufacturers**
- 4. Strengthening Supply Chains**

5 Ways Industry 4.0 Is Revolutionizing Economic Development in NC

1. Redefining "Site Readiness"
2. Forging Stronger Workforce Development Partnerships
3. Supporting Small Manufacturers in the Tech Transition
4. Prioritizing Cybersecurity
5. Incentivizing/Supporting Tech Adoption

5 Ways Industry 4.0 Is Reshaping the Role of Workforce Professionals

1. Greater involvement in Work-Based Learning
2. Closer Relationships with Education & Training Providers
3. Need to Be Occupation & Career Experts
4. Data Skills Required
5. Roll of Workforce Professionals Will Expand

**Not to be
forgotten:
Helping Our
Current
Workforce
Adjust**

Automation & Industry 4.0 will create challenges & *potential* opportunities for today's workforce

- Reduction in labor-intensive, routine jobs
- New jobs won't resemble old ones
 - Require **greater education/training**
 - **Different skills & interests**
 - **More stable, better pay**
- Greatest impact on rural, male-dominated work
- Retraining is critical, but insufficient by itself

LEAD Feed Blog Articles

Automation

Disruption over Destruction: New data helps shed light on the North Carolina labor market's exposure to automation

- www.commerce.nc.gov/blog/2022/10/05/disruption-over-destruction-new-data-helps-shed-light-north-carolina-labor-markets-exposure

Industry level automation exposure in North Carolina and what it means

- www.commerce.nc.gov/blog/2022/12/15/industry-level-automation-exposure-north-carolina-and-what-it-means

Who faces greater exposure to automation?

- www.commerce.nc.gov/news/the-lead-feed/who-faces-greater-exposure-automation-gender

Laying the Groundwork: Strategies to mitigate automation's disruption potential

- www.commerce.nc.gov/news/the-lead-feed/laying-groundwork-strategies-mitigate-automations-disruption-potential

Manufacturing

Not Your Grandfather's Manufacturing: How North Carolina industry has changed since the 1990s

- www.commerce.nc.gov/news/the-lead-feed/not-your-grandfathers-manufacturing

Why Every North Carolinian Should Care About Manufacturing

- www.commerce.nc.gov/news/the-lead-feed/why-every-north-carolinian-should-care-about-manufacturing

NC's Assets to Compete in the 4th Industrial Revolution

- www.commerce.nc.gov/news/the-lead-feed/nc-4th-industrial-revolution

Putting the Recent Manufacturing Slowdown in Context

- www.commerce.nc.gov/news/the-lead-feed/december-2023-nc-economy-watch





NC DEPARTMENT
of COMMERCE
LABOR & ECONOMIC
ANALYSIS

Thank you!

Jeff DeBellis

Director of Economic & Policy Analysis

NC Department of Commerce, LEAD