

www.commerce.nc.gov

DEFENSE ALLIANCE OF NORTH CAROLINA (DANC) SCIENCE & TECHNOLOGY FORUM, JULY 19, 2023



TRACKING INNOVATION IN NC *ADVANCING DEFENSE INNOVATION IN NC*

DR. JOHN HARDIN, EXECUTIVE DIRECTOR
NC BOARD OF SCIENCE, TECHNOLOGY & INNOVATION (BSTI)
NC DEPARTMENT OF COMMERCE

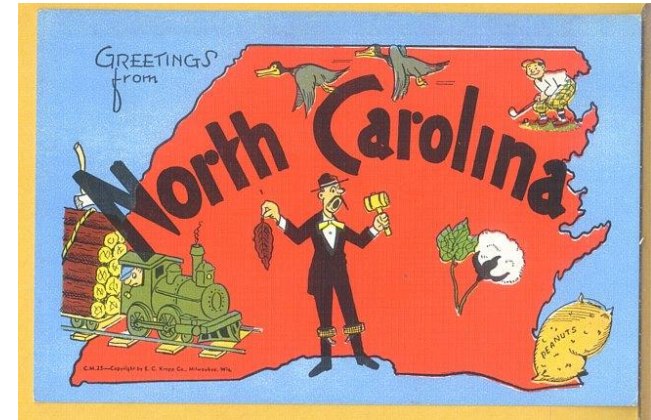


Tracking Innovation in North Carolina

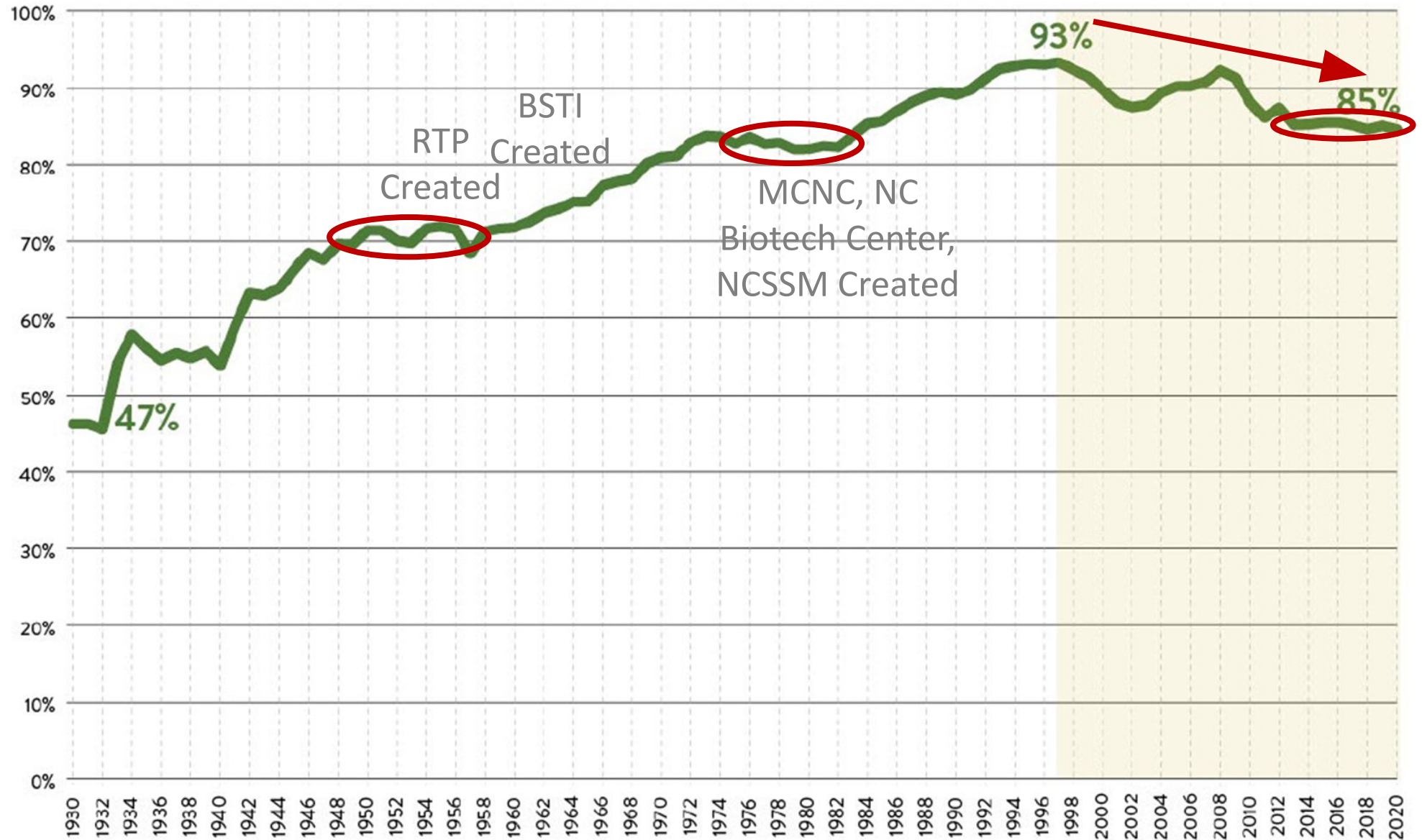
NC's Innovation History

1950s North Carolina:

- Concentration in low-wage primary/crop industries
 - Tobacco, Cotton
 - Furniture
 - Textiles
- Low-wage Jobs
 - 49th in per capita income in the US
- “Brain Drain”
- Needed to diversify & expand economy and make it more innovation-based
(which we did, e.g., RTP, biotech, info tech, nanotech, financial services)



NC Economic Well-Being Over Time

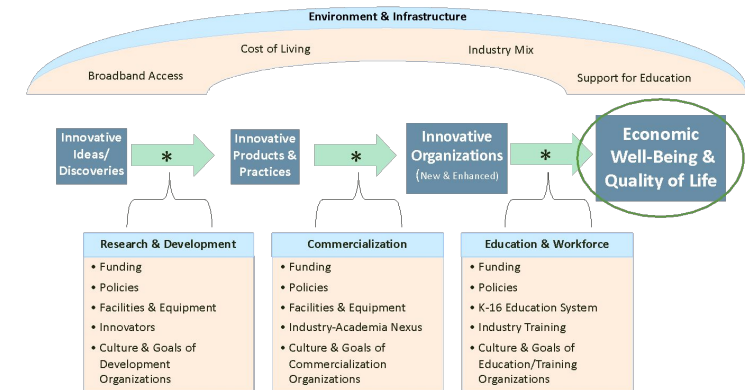


NC Per Capita Income as share of U.S. Per Capita Income, 1930-2020

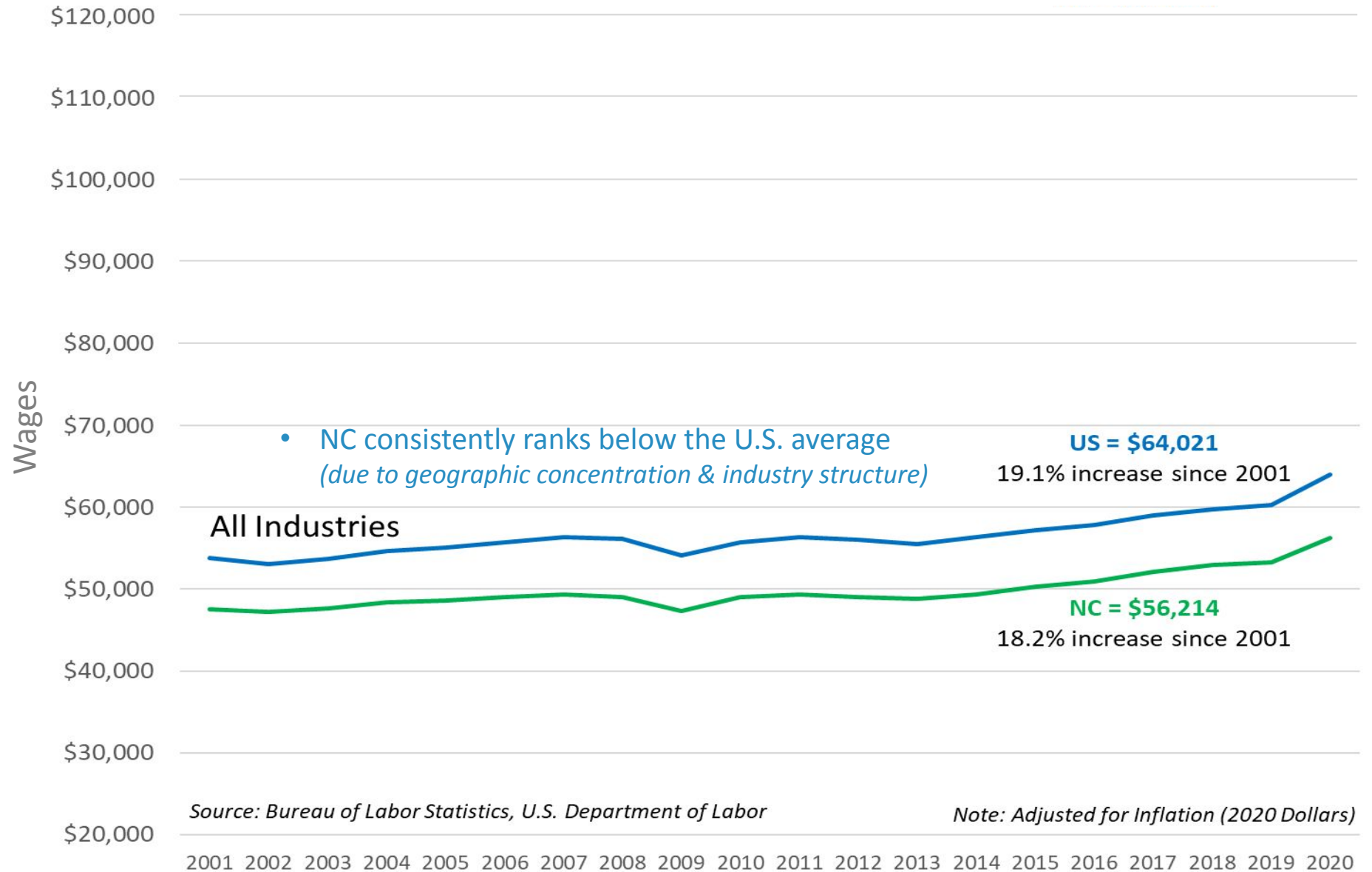
Source: U.S. Bureau of Economic Analysis

Why is Innovation Important?

- Innovation: **Something new that adds value**
- Between one-third and one-half of economic growth in U.S. is attributed to innovation *(Source: U.S. Department of Commerce)*
- Innovation has big (2 – 5x) multiplier effect (across sectors & skill levels)
 - Due to higher wages & higher growth, primarily from high Science, Engineering, and Technology (SET) traded industries *(see next two slides)*
- Innovation occurs most efficiently and effectively in a vibrant, healthy innovation ecosystem *(see slide 8)*

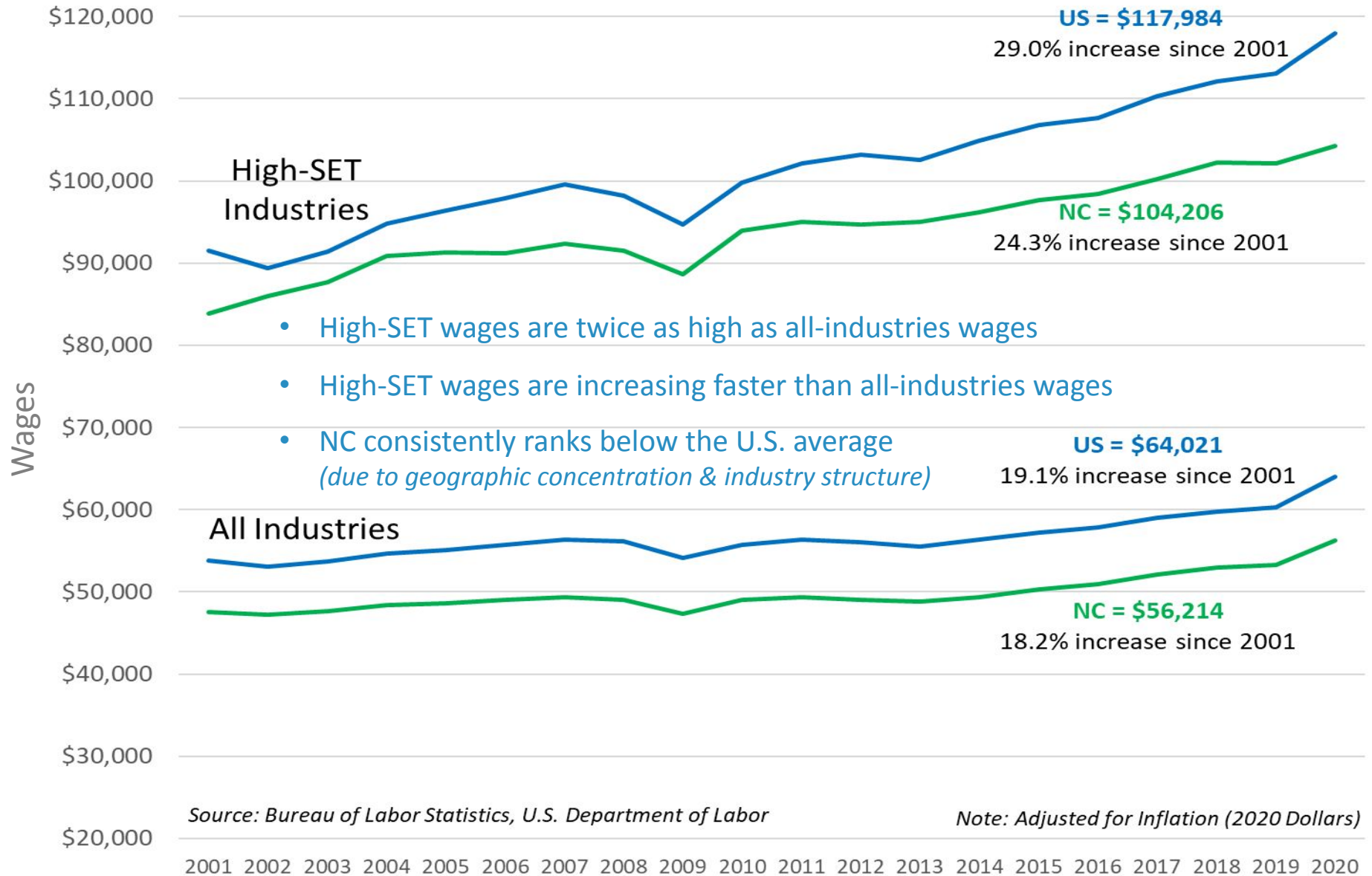


Why is Innovation Important?



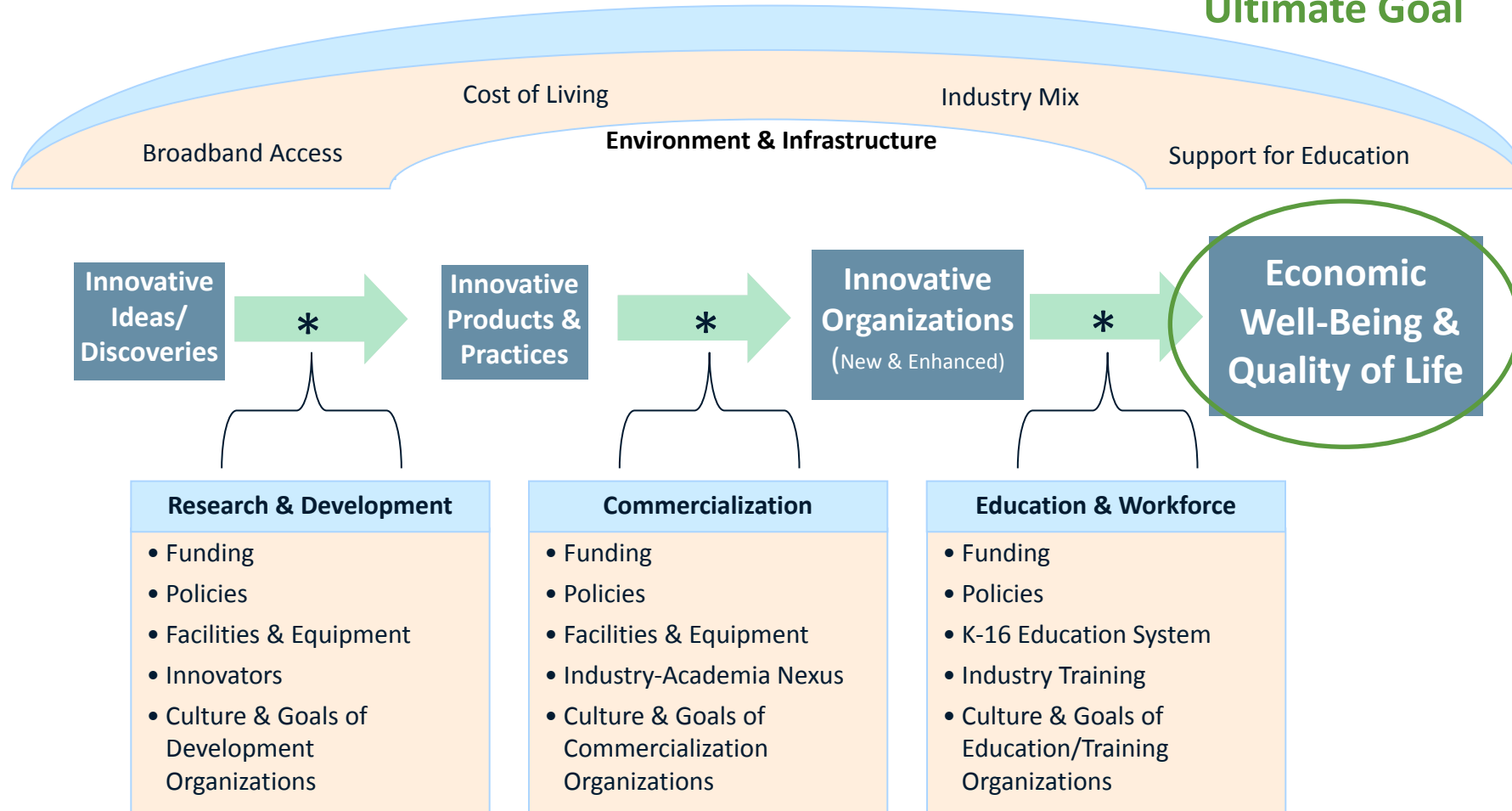
Why is Innovation Important?

Innovation Jobs Pay Higher Wages & Have Higher Growth



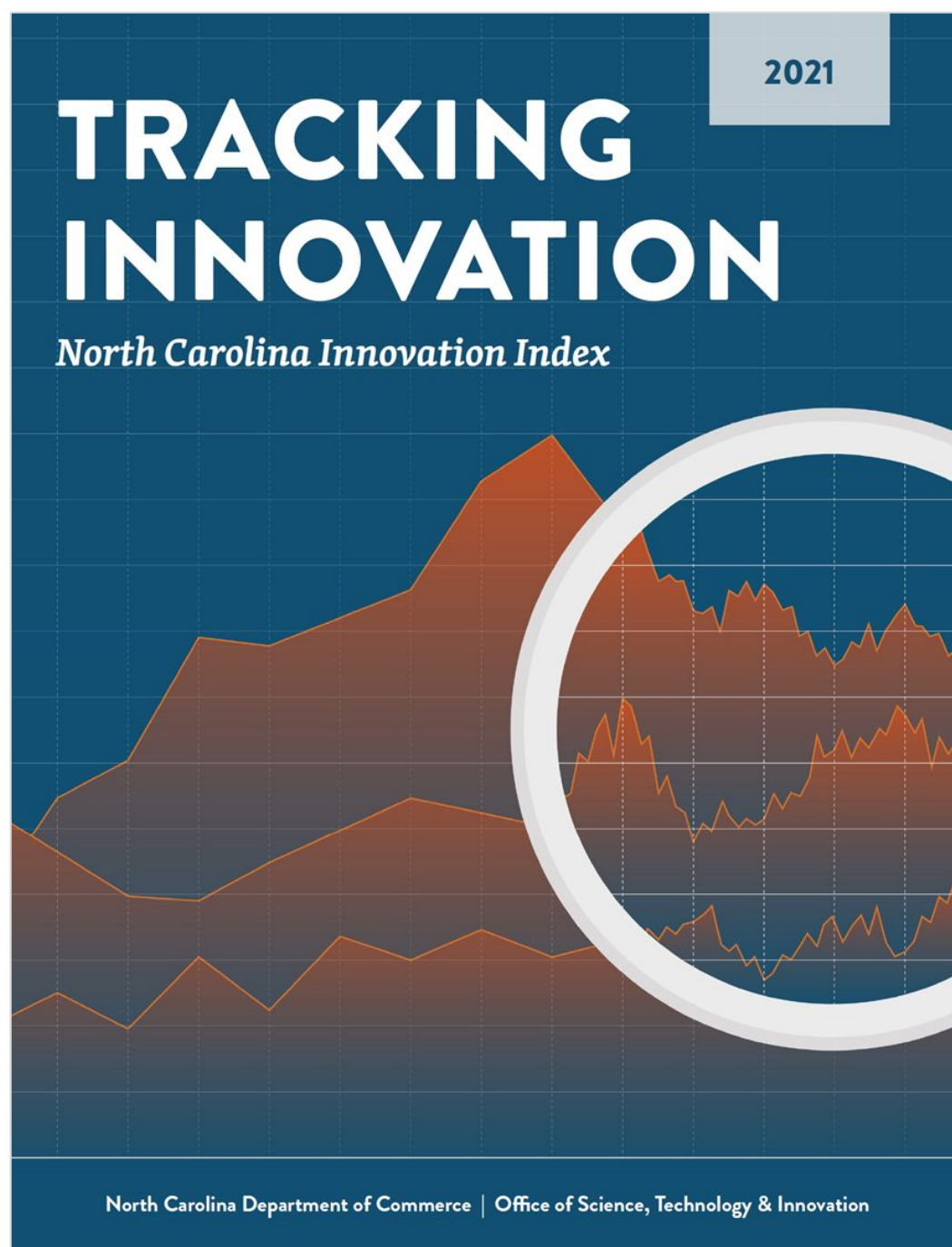
What is an Innovation Ecosystem?

Ultimate Goal



It's a living, breathing, dynamic system that needs continuous care, feeding, and training

There are multiple innovation ecosystems across the state (more on this later)



How do we Measure
the Health of NC's
Innovation
Ecosystem?

115 pages total
39 different measures

“A gripping page-turner!”

~Everyone who has read it

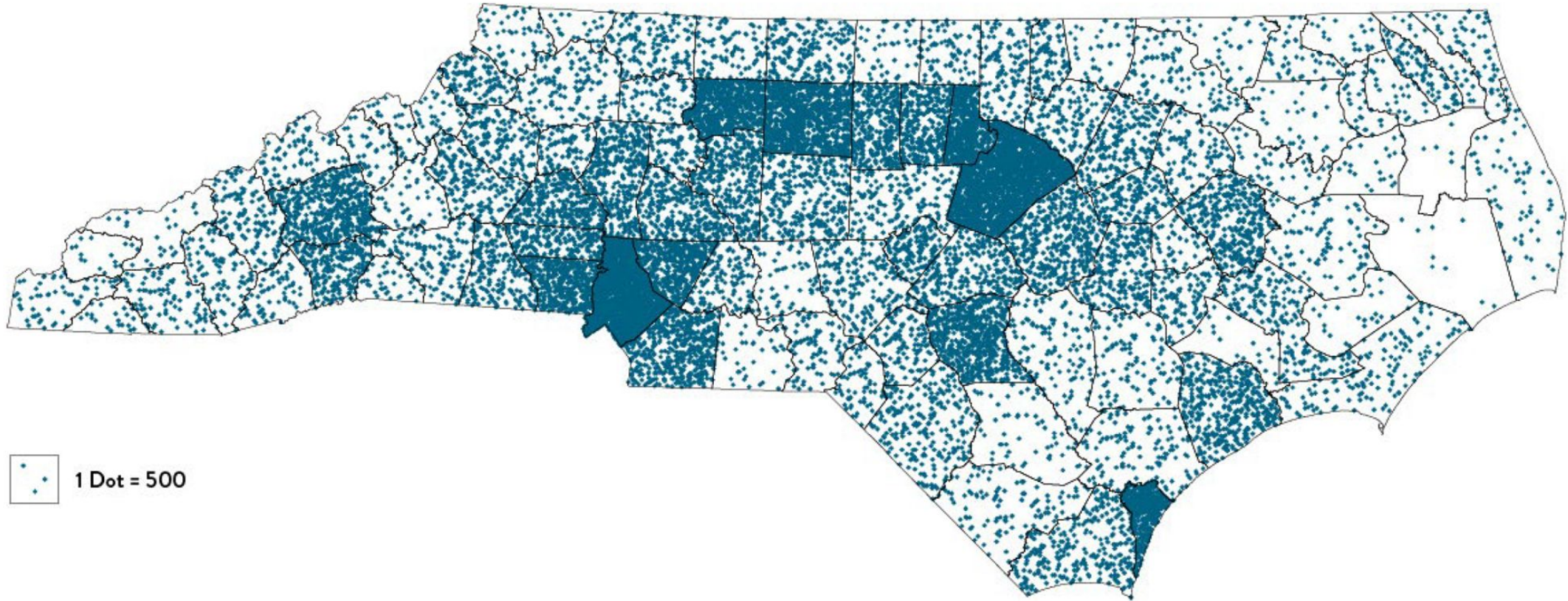
What Does Tracking Innovation 2021 Find?

- NC's highest single measure rank is 5th; lowest is 48th; most common is 23rd; average is 20th
- NC average rank was 23rd in 2017 and 2015, and 24th in 2013
- Since 2000, NC's performance relative to itself:
 - improved on 28 measures
 - declined on 7
 - remained the same on 4
- The same held for the U.S overall

**Overall, NC's innovation ecosystem is moderately healthy,
has improved since the early 2000s,
but at a rate essentially the same as the US overall**

**However, improvements are disproportionately larger (and well above U.S. average)
in counties with high population and/or research universities**

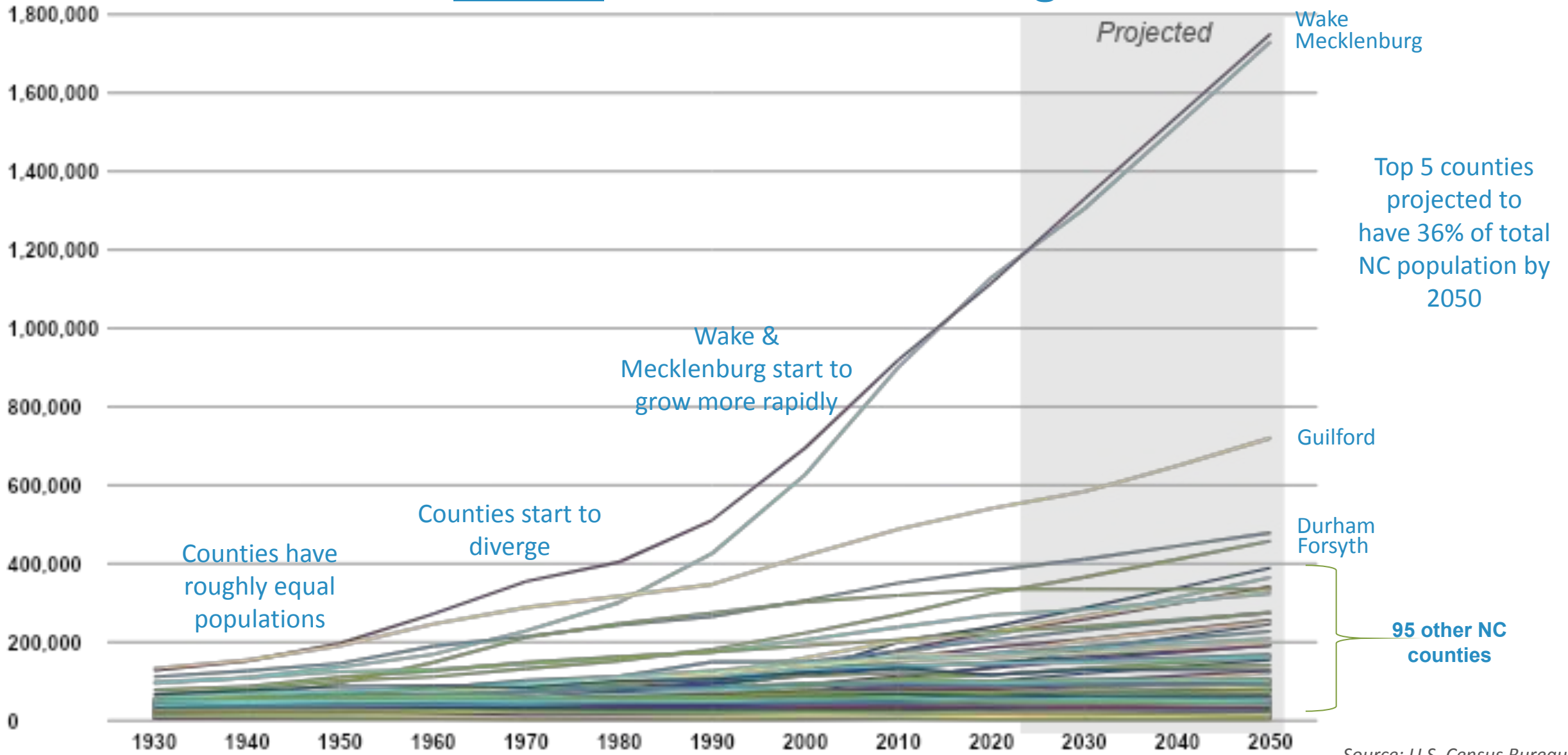
Where do People Live: Population in NC, 2020



- Top 12 counties (out of 100) have just over 50% of population
- Since 2000, those 12 counties have accounted for 72% of population increase
- Since 2000, Wake & Mecklenburg have accounted 38% of population increase

Source: U.S. Census Bureau

Where is Growth Occurring?

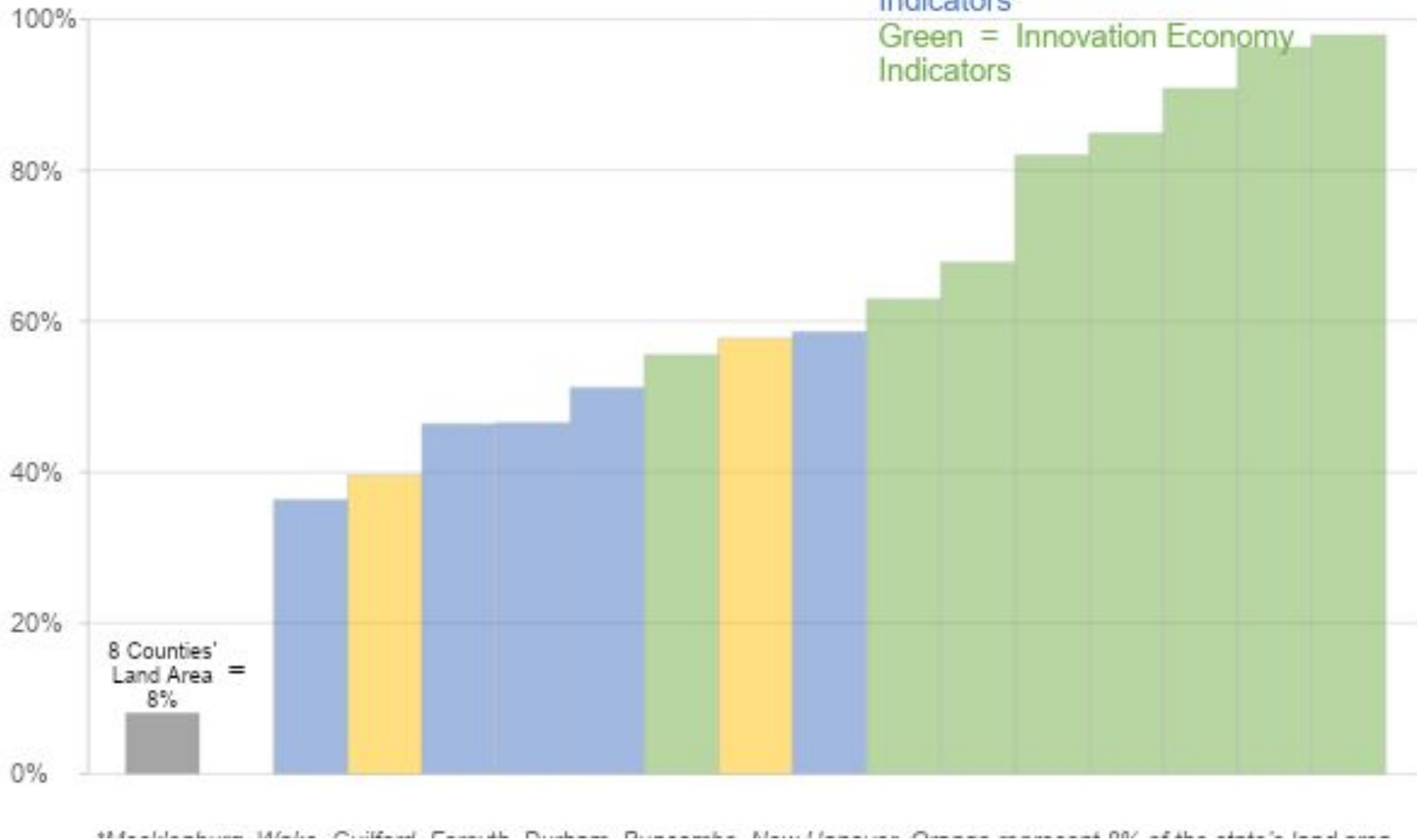


Source: U.S. Census Bureau

Where are NC's Strengths? Multiple Indicators

8 NC Counties* Represent 8% of NC's Land Area but Disproportionately Larger Shares of NC's Population, Economy, and Innovation Assets & Activities

Population, Economy & Innovation are Geographically Concentrated



Sources: National Science Foundation, Neo IP Intellectual Property Law Firm and Magic Number, Inc. Software, Pitchbook, SBIR.Gov, NC Department of Commerce, U.S. Bureau of Economic Analysis, U.S. Census Bureau, U.S. Patent & Trademark Office.

What is the State of Innovation in NC?

North Carolina is a tale of two innovation economies:

- One based primarily in a small number of more research-intensive areas, which have larger populations that are growing rapidly and that have economic and innovation assets, activities, and outcomes well above the U.S. average
- The other based largely in less developed areas, which have much smaller populations that are stable or shrinking and that have economic outcomes well below the U.S. average



Advancing Defense Innovation in North Carolina

NC Significantly Underperforms in Securing DoD Innovative R&D Awards

Specifically: Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR)

Total annual SBIR/STTR funding > \$3.8B; Department of Defense (DoD) is **half of that funding**

Among US states, NC ranked (in 2020):

- 9th in population and 11th in GDP
- 7th for academic R&D, 10th for business R&D
- 3rd for HHS SBIR/STTR grants
- 4th for DoD personnel

yet

- 16th for DoD SBIR/STTR grants (20th historically)
- 22nd in DoD contract spending
- 29th for defense spending as a share of GDP
- 33rd for DoD R&D Contracts

NC Defense Innovation Task Force

- **2021-2022:** BSTI convened task force of defense industry experts to define economic opportunity and develop an actionable strategy, performance measures and timelines
 - Conducted detailed research, survey of NC-based support organizations, and interviews with organizations in states with high DoD funding
- Released *Advancing Defense Innovation* report in April 2022

Available at:

<https://www.commerce.nc.gov/about-us/divisions-programs/science-technology-innovation#ResearchReports-435>



Task Force Findings

- NC has major opportunity to materially increase DoD R&D and innovation funding
- Yet NC is under-coordinated and under-resourced in defense innovation efforts
- Underperformance due to lack of strategic leadership, coordination, funding, and marketing
- Has resulted in substantial unrealized potential to expand innovation ecosystem
- Need high-level State ownership and a strategic, resourced, sustained, and coordinated effort

Task Force Recommendations

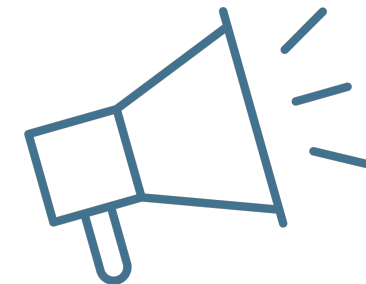
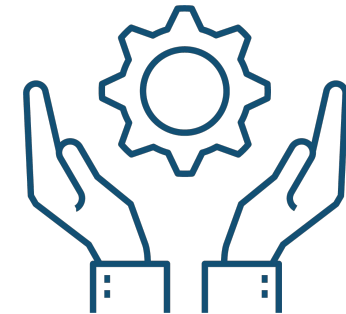
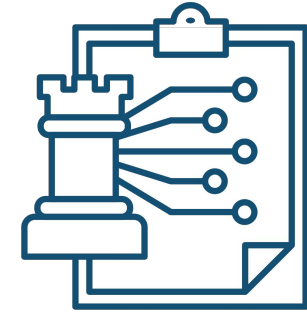
- State Champions should lead a funded, multi-year initiative to expand NC's *defense innovation economy*
- State Champions will coordinate strategic & tactical activities that grow defense innovation via a well-organized and funded network
 - Modeled on NC Military Business Center (NCMBC), but **focused on R&D and innovation**
- multi-year initiative
 - **(\$2-3 million/year annual budget)**

Like the biotechnology sector, with organized state leadership, NC can materially improve its economic outcomes by creating a self-perpetuating defense innovation environment



Defense Innovation Network Structure

- ***NC Defense Strategic Review Council: Strategically*** develop and coordinate research, planning, outreach, and networking activities to marshal NC's defense R&D assets
- ***NC Defense Innovation Accelerator: Tactically*** perform activities supporting defense innovation (e.g., capacity and demand analysis, opportunity distribution, education/training/mentoring, technical assistance) with input from experienced military experts
- ***NC Defense Technology Advocacy Campaign: Broadly*** market NC as a leader in defense and national security innovation, building on the strategic and tactical work of the above two units



Machelle Sanders
NC Secretary of Commerce
NC DIN Co-Champion

Lt. Gen. Walter Gaskin
NC Secretary of Mil. & Vet. Affairs
NC DIN Co-Champion

Situational Supporters

Strategic/Tactical Partners



North Carolina
DEPARTMENT OF MILITARY
AND VETERANS AFFAIRS



Lead Entities



NC DIN Organizations



Expected Outcomes

- **50–100% increase (~\$50M) in federal R&D grants** after one year; continuing increases thereafter
- **Target list** of innovation priorities and industry sectors
- **Defense technology forecast** for promising sectors
- Implement **technology clusters, resource & education networks, and commercial partnerships**
- Implement **marketing campaign** attracting funding and business recruitment and development

Defense Innovation Network

FY 2024-25 Budget Request

NC Defense Innovation Network: (NC DIN) \$5.75M Total Expansion for Biennium

- 34% of funds to support operations/programs of constituent entities
 - 66% of funds for grant programs to foster innovation among defense-related companies
- **FY24: \$3.0M Recurring** (includes \$250K for 1st-year startup/research costs)
 - **FY25: \$2.75M Recurring**



Questions?