BROADER IMPACTS:

An Analysis of Media Coverage of the National Science Foundation

(January 2025–January 2026)

Economic Competitiveness and Innovation

Analysis of Media Coverage

This analysis examines the sentiment and substance of media coverage of the National Science Foundation in over 3,800 articles published from January 2025 through January 2026. It explores how a range of media sources — magazines, newspapers, and other news outlets as well as television stations, radio stations, and university websites — have portrayed the agency's broader impacts and value amidst budget cuts and project terminations. While media coverage often focuses on the "Intellectual Merit" of scientific achievements, this analysis focuses on NSF's "Broader Impacts" — the tangible benefits to society that matter most to the public including improvements in daily life and stronger communities.

This series is organized around six key Broader Impacts dimensions:

- Economic Competitiveness and Innovation
- National Security
- STEM Education
- Workforce Development
- Societal Well-being
- Research Infrastructure

The findings illustrate that NSF remains a vital engine for maintaining America's strength, fostering innovation, and building a foundation for families to thrive across every state.

Economic Competitiveness and Innovation

Communities and states across the United States prioritize economic prosperity. To maintain our competitive edge, the NSF propels the economy through innovation, regional collaboration, and small business support. These grants contribute directly to American industries by seeding the development of new practices and products that support the growth and development of regional economies.

NSF grants for basic research contribute to the country's technical knowledge and serve as a foundation for national competitiveness. These investments have ultimately had broad impacts, launching fields like 3-D printing, artificial intelligence, advanced materials, biotechnology, blockchain, cybersecurity, data science, microelectronics, MRI technology, Polymerase Chain Reaction (PCR), and quantum computing. STEM research powers nearly 40% of the U.S. economy, fueling high-paying jobs and cutting-edge innovation (Science is US, 2025). At least 268 Nobel laureates first proved themselves through NSF grants. NSF investments cement the United States' position as a global innovation leader.

Public science investment delivers outsized returns — up to 300% — fueling regional innovation, job creation, and U.S. competitiveness.

Economic Competitiveness and Innovation

A May 2025 *Forbes* article highlighted public science investment as a "reliable driver of shared prosperity." Citing the Federal Reserve Bank of Dallas, it noted that nondefense government R&D yields economic returns of 150-300%. NSF-supported researchers drive this process by identifying market needs, developing prototypes, and translating scientific knowledge into functional technologies.

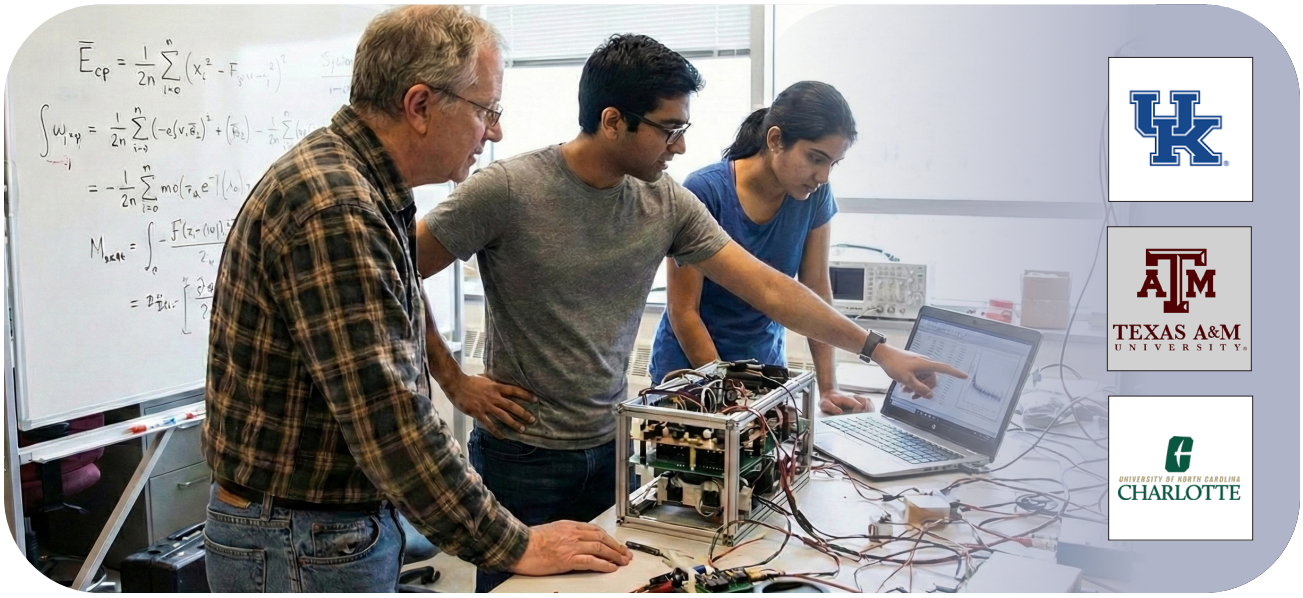
NSF's impact is visible in regions across the country, where grants support "collaborative ecosystems" uniting researchers and local industry. A July 2025 *Forbes article* profiled the Regional Innovation Engines competition, designed to spark growth in areas outside traditional tech hubs. Semifinalists included the University of Kentucky (advanced manufacturing) and Texas A&M University (chemical security and the supply chain).

The University of North Carolina at Charlotte, now a top-15 finalist, reported in September 2025 that its engine unites over 100 partners. Bringing together industry, higher education, and venture capital, this coalition is modernizing the power grid across 36 counties. Their goal: generate scalable transmission advances that strengthen energy security nationwide.

These engines are already impacting Americans. In July 2025, *10/12 Industry Report* highlighted the LSU-led "Future Use of Energy in Louisiana" (FUEL). In its first year, FUEL convened 50 partners to position Louisiana as a global energy leader while creating regional jobs.

NSF also drives direct workforce training. In October 2025, Kentucky's *Lane Report* featured a Kentucky Commercialization Ventures (KCV) project pairing student training with startup support. After seven weeks of instruction, participants enter paid internships. As the KCV Executive Director noted, "Students are prepared for high-paying careers in emerging technology fields and partnering startups benefit from interns with commercialization skills. It's a win-win for Kentucky."

Americans across the political spectrum recognize the importance of investments in science for competitiveness. According to a 2025 national poll from *The Science Coalition:* More than 8 in 10 Americans (85%) believe "it is important for the United States to be the global leader in scientific research and technology." 90% support investments "Developing advanced technologies and products that help drive economic growth and increase wages for American workers."



NSF Moonshots for Powering the Economy

NSF investments have fueled critical 'moonshots' that now shape meaningful aspects of the economy. Eight key examples include:

The Internet: NSF's foresight built NSFNET, the backbone that connected universities and established the protocols for the modern internet long before the commercial sector recognized its value. The internet underpins our digital economy—worth trillions annually—and has fueled the private sector since the mid-1990s.

Google: In 1995, two Stanford graduate students—Larry Page and Sergey Brin—had a novel idea for ranking web pages. It was curiosity-driven science with uncertain commercial potential, perfect for NSF's Digital Libraries Initiative. With an initial grant, their experiment evolved into Google, transforming information access globally and generating trillions of dollars in economic value.

Doppler Radar: In the 1960s, tornadoes struck with virtually no warning. NSF-funded meteorologists were working on Doppler techniques when others doubted its practicality. Decades of research led to the nationwide deployment of Doppler radar, increasing tornado warnings from zero to five to 13 minutes and delivering hundreds of millions in annual economic benefits through disaster mitigation.

Global Positioning System (GPS): NSF-funded teams spent decades refining GPS accuracy, making it useful for earthquake research, geophysics, and surveying. These incremental advances enabled GPS to become an everyday utility worth over $1.4 trillion to the U.S. economy, guiding everything from smartphones to global logistics.

LASIK: The laser in LASIK eye surgery wasn't developed in hospitals but in physics labs funded by NSF. Curiosity-driven efforts blossomed into a multi-billion-dollar medical breakthrough, transforming the quality of life for over 40 million people worldwide.

Graphene: Before industry saw its potential, NSF invested in the potential in graphene—a material only one atom thick. Today, graphene's properties have sparked a global race toward stronger, lighter, and faster electronics and batteries, affirming NSF's judgment to support scientific frontiers before commercial hype.

Artificial Intelligence: Long before AI dominated headlines, NSF invested patiently through "AI winters," when interest and funding waned elsewhere. NSF supported pioneering work on neural networks and data resources like ImageNet, laying the groundwork for today's deep-learning revolution. Without NSF's steady commitment, America might have ceded AI leadership—an industry projected to add up to $13 trillion to the global economy by 2030.

iPhone Components: The lithium-ion batteries powering mobile technology emerged from NSF funded chemistry, powering a global battery market projected to surpass $240 billion by 2030. The touchscreen was developed by an NSF-supported graduate student, an interface acquired by Apple. NSF investments in multi-antenna MIMO technology alone now generate $825 billion annually, sustaining 4.5 million American jobs.

Spotlight: Turning Grass into Cars

Imagine transforming local grass into automotive parts. Through the NSF's Regional Innovation Engine program, researchers at the University of Tennessee, Knoxville, and Auburn University are making this a reality. Now, they have advanced to the final 15 of the competition.

The project, Biobased Rural Innovation for Domestic Growth (BRIDGES) aims to strengthen local industry and farming economies by converting locally grown grasses into manufactured products and chemicals. In *The University of Tennessee Knoxville News*, project co-leader Dr. Nicole Labbé explains that BRIDGES scientists aim to accomplish the seemingly impossible: turn plants into packaging, automotive, and construction materials. She notes that this local "bioeconomy" will provide local rural residents with skills training and access to high-paying jobs. Collaborating with local industry leaders, educators, and economists, they aim to transform Tennessee's economic development.

From grass to cars—the BRIDGES project is reimagining rural innovation by converting local plants into products, jobs, and economic growth.

Spotlight: Enhancing the Soil to Weather Drought

As drought conditions in Kansas and Nebraska threaten agriculture profitability, researchers are looking underground for solutions. Scientists at Kansas State, the University of Nebraska-Lincoln, and Langston University are studying how adding microbes to soil increases water retention through the Microbial Innovations for Climate-Resilient Agriculture (MICRA) project.

MICRA, funded through NSF's Established Program to Stimulate Competitive Research program, is two years into its work to increase the water holding capacity of soil in the Central High Plains. An interdisciplinary group of engineers, mathematicians, agriculture scientists, and social scientists work alongside regional stakeholders to develop feasible solutions for increasing water retention and crop yield. By working together, they are able to translate scientific findings into solutions that fit the realities of agriculture.

Dr. Taro Mieno of the University of Nebraska-Lincoln leads the economic analysis for the team. By modeling crop and soil data, he is quantifying the precise cost-benefit of these microbial treatments. His early findings show that under increasingly poor drought conditions, growing crops in treated soil can translate to an increased crop value of $225/acre. As this project continues, Dr. Mieno and his colleagues will continue to examine how to increase our country's ability to grow food in economically viable ways.

Funded by NSF EPSCoR, MICRA brings together scientists across disciplines to improve soil water-holding capacity and develop climate-resilient, economically viable agriculture.

Spotlight: Reduced Funding for Small Businesses

The NSF's Directorate for Technology, Innovation and Partnership (TIP) is dedicated to accelerating the translation of scientific discovery into economic growth. To achieve this, TIP requires partnerships among researchers, labor, industry, and government. However, in June 2025, the Information Technology and Innovation Foundation (ITIF) noted that lawmakers have appropriated only a fraction of the resources intended for this critical division.

TIP's recent Small Business Innovation Research (SBIR) investments include burn care therapy in Florida, salmon incubation in Alaska, and hydrocephalus treatment in Wisconsin ("water on the brain"). TIP grants are also catalyzing breakthroughs nationwide: from Alzheimer's diagnostic tools in West Virginia to semiconductor training in Utah and accelerated chip design evaluation in Georgia. These projects and others like them are at the heart of increasing American competitiveness and innovation.

WHAT'S AT RISK

- Healthcare breakthroughs
- Environmental restoration
- Workforce development
- Advanced manufacturing
- Semiconductor competitiveness

Through partnerships and small business investment, NSF's TIP Directorate accelerates breakthroughs that strengthen U.S. competitiveness across regions and industries.

Spotlight: The Blockchain Industry Relies on NSF Investment

While the crypto/blockchain industry's growth is evident, its foundation rests on NSF-supported university research. With innovation in the crypto economy growing, efforts devoted to regulatory and legislative reforms are becoming increasingly visible. Less visible, however, is the erosion of funding for the basic computer science research that serves as the industry's bedrock.

CoinDesk published a piece describing this dilemma in June 2025, saying that cuts to the NSF, the main source of funding for computer science research in the country, will defund the scientists doing work on crypto innovation. This has dramatic implications for the economy and U.S. competitiveness. Leading scientists lament the inability to take on new graduate students—the very groups founding leading companies and driving breakthroughs.

These scientists are issuing a warning. "U.S. leadership in crypto won't be secured by policy alone. At the forefront of crypto innovation is science—and U.S. universities have long been its powerhouse."

While crypto regulation gains attention, declining NSF support for foundational computer science research puts the industry's future—and U.S. competitiveness—at risk.

KEY TAKEAWAYS

- Investing in the NSF catalyzes the economy, generating high-yield dividends for America.
- Trillion-dollar industries, from AI to mobile / broadband, grew directly from patient, consistent NSF investments.
- NSF regional innovation engines have the potential to power local economies.
- Decreased funding risks ceding American dominance in critical future sectors, such as blockchain and quantum.
- Maintaining U.S. economic leadership requires sustained and predictable NSF funding.

Conclusion

This analysis of 3,800 articles and broadcast segments published between January 2025 and January 2026 finds significant coverage of NSF's impact on economic competitiveness and innovation.

Coverage emphasizes that transformative breakthroughs often emerge from government-funded basic research specifically because it tolerates uncertainty and longer timelines. Scaling back fundamental research is described as something akin to pulling roots from the economic orchard and still expecting fruit. Many of today's essential technologies were initially nurtured by federal investments in R&D long before they became staples of the economy.

The 1995 National Research Council's "tire-tracks" diagram captures how early federal research funding consistently blooms into world-leading industries.

These economic impacts reflect NSF's approach: fundamental research provides fertile soil where groundbreaking ideas can take root and flourish.

Media analysis suggests significant, wide-spread concerns regarding underinvestment in NSF R&D. Articles indicate that reducing support for foundational research today risks damaging the growth of tomorrow's trillion-dollar industries; NSF research is a crucial investment with extraordinary returns, essential to preserving America's competitive edge and future economic success.

Coverage suggests that at this pivotal moment of intensified global technological competition, America faces a choice: decisively invest in fundamental research to maintain our competitive edge or risk ceding leadership to competitors. Sustained investment in basic science today ensures America's continued innovation, strength, and prosperity tomorrow.

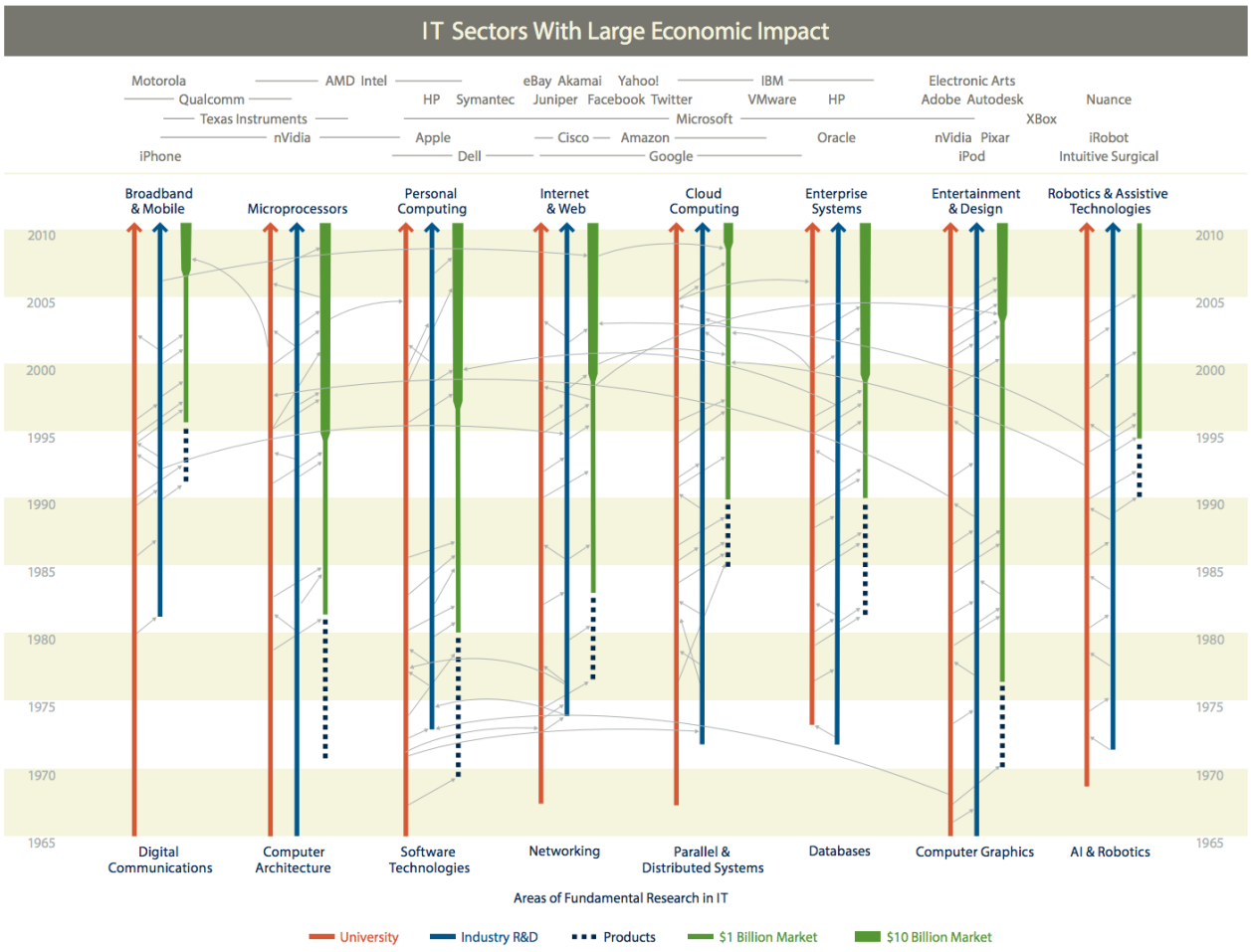


FIGURE I.1 Examples of the contributions of federally supported fundamental research to the creation of IT sectors, firms, and products with large economic impact. SOURCE: Reprinted from National Research Council, 2012, *Continuing Innovation in Information Technology,* The National Academies Press, Washington, D.C.

Figure 1. This updated *"Tire Tracks" diagram illustrates the evolution of federal research into major IT sectors such as broadband, cloud computing, and robotics.*

Attribution: Mark D. Hill is the Gene M. Amdahl and John P. Morgridge Professor Emeritus of Computer Sciences at the University of Wisconsin-Madison.

References

10/12 Industry Report. (2025, July 22). *A snapshot of LSU-led FUEL's first year in operation*. https://www.1012industryreport.com/energy/renewable-energy/a-snapshot-of-lsu-led-fuels-first-year-in-operation/

American Institute of Physics. (2025, May 2). *Funding cuts hit STEM career pipelines*. https://www.aip.org/fyi/funding-cuts-hit-stem-career-pipelines

Boise State University. (2025, September 17). *Faculty win largest National Science Foundation award in university history to create semiconductor workforce center*. https://www.boisestate.edu/news/2025/09/17/faculty-win-largest-national-science-foundation-award-in-university-history-to-create-semiconductor-workforce-center/

CoinDesk. (2025, June 2). *We can't regulate our way to crypto leadership—we still need science*. https://www.coindesk.com/opinion/2025/06/02/we-cant-regulate-our-way-to-crypto-leadership-we-still-need-science

Drake, J. (2025, May 9). *The National Science Foundation is being dismantled. What the economy needs is more investment. Forbes*. https://www.forbes.com/sites/johndrake/2025/05/09/the-national-science-foundation-is-being-dismantled-what-the-economy-needs-is-more-investment/

Green, M. (2025, October 6). *$1M tech internship program at NKU will help students gain today's skills. The Lane Report*. https://www.lanereport.com/184014/2025/10/1m-tech-internship-program-at-nku-will-help-students-gain-todays-skills/

Information Technology & Innovation Foundation. (2025, June 30). *Congress should fully fund NSF TIP Directorate*. https://itif.org/publications/2025/06/30/congress-should-fully-fund-nsf-tip-directorate/

National Science Foundation. (n.d.). *Award no. 2322905*. https://www.nsf.gov/awardsearch/show-award?AWD_ID=2322905

National Science Foundation. (n.d.). *Award no. 2347301*. https://www.nsf.gov/awardsearch/show-award?AWD_ID=2347301

National Science Foundation. (n.d.). *Award no. 2403690*. https://www.nsf.gov/awardsearch/show-award?AWD_ID=2403690

National Science Foundation. (n.d.). *Award no. 2500009*. https://www.nsf.gov/awardsearch/show-award?AWD_ID=2500009

National Science Foundation. (n.d.). *Award no. 2528240*. https://www.nsf.gov/awardsearch/show-award?AWD_ID=2528240

Science is US. (2025, April 3). *One third of Americans work in STEMM jobs accounting for 39% of GDP, according to economic impact study* [Press release]. PR Newswire. https://www.prnewswire.com/news-releases/one-third-of-americans-work-in-stemm-jobs-accounting-for-39-of-gdp-according-to-economic-impact-study-302420136.html

Scientific American. (2025, July 3). *How Trump's federal funding cuts are hurting early-career researchers*. https://www.scientificamerican.com/article/how-trumps-federal-funding-cuts-are-hurting-early-career-researchers-and/

The Chronicle of Higher Education. (2025, July 3). *A lost generation of researchers*. https://www.chronicle.com/article/a-lost-generation-of-researchers

The Science Coalition. (2025, April 30). *New national poll finds strong bipartisan support for federal investments in scientific research*. https://www.sciencecoalition.org/2025/04/30/national-poll/

The University of Tennessee, Knoxville. (2025, September 19). *Research project co-led by UT among finalists in NSF Regional Innovation Engines Program*. UTK News. https://news.utk.edu/2025/09/19/research-project-co-led-by-ut-among-finalists-in-nsf-regional-innovation-engines-program/

University of North Carolina at Charlotte. (2025, September 18). *UNC Charlotte's Carolinas engine for grid modernization advances in national NSF competition*. https://inside.charlotte.edu/2025/09/18/unc-charlottes-carolinas-engine-for-grid-modernization-advances-in-national-nsf-competition/

University of Tennessee, Knoxville. (2025, September 19). *Research project co-led by UT among finalists in NSF Regional Innovation Engines program*. https://news.utk.edu/2025/09/19/research-project-co-led-by-ut-among-finalists-in-nsf-regional-innovation-engines-program/

Wince-Smith, D. L. (2025, July 29). *Revving up the U.S. technology engine*. *Forbes*. https://www.forbes.com/sites/deborahwince-smith/2025/07/29/revving-up-the-us-technology-engine/

About the authors

Dr. Jeanne Century is the founder of Outlier Research & Evaluation at the University of Chicago and a Senior Research Fellow at the University's Data Science Institute. Century's work has almost exclusively focused on advancing equity in education primarily through applied research collaborations with leaders in large and small urban school districts. During her nearly 38-year career, Century has been the principal investigator of numerous federal and foundation research grants focusing on a range of topics including inquiry science instruction, computer science education, STEM schools, sustainability of reform and data science education. Century's primary research focus is on understanding, measuring, and supporting education innovation implementation, spread and endurance through implementation science and component-based research approaches. Century has also conducted numerous evaluations on out-of-school and in-school programs, district and state reform efforts, higher education, teacher preparation, and civic leadership. In addition to research, Century has developed instructional materials, supported professional learning efforts for teachers and administrators and has provided technical assistance and strategic planning for leaders at the school, district, and state levels. Century also has policy experience at all education system levels including serving on a Presidential transition team where she was responsible for STEM education as well as the U.S. Department of Education Agency Review.

Dr. Eric M. Tucker is the President and CEO of the Study Group. He has served as President of Equity by Design, Superintendent and Executive Director of Brooklyn Laboratory Charter Schools, CEO of Friends of Brooklyn LAB, Cofounder of Educating All Learners Alliance, Senior Research Scientist at UCLA Center for Research on Evaluation, Standards, and Student Testing (CRESST), Cofounder and Executive Director of InnovateEDU, director at the Federal Reserve Bank of New York, Executive Director and Chief Academic Officer of the National Association for Urban Debate Leagues, and Founder of the Rhode Island Urban Debate League. As an entrepreneurial, strategic, and impact-focused leader, Dr. Tucker has 25 years of experience building catalytic partnerships in education, securing over $300 million of investments for enterprises and initiatives that have transformed outcomes for diverse learners and educators. Dr. Tucker has expertise in measurement and assessment system innovation, inclusive and advanced R&D, analytics, and human infrastructures for improvement. Dr. Tucker co-edited The Sage Handbook of Measurement and the Handbook for Assessment in the Service of Learning, Volume I, II & III. He earned a doctorate and a masters of science in measurement sciences from the University of Oxford and bachelors degrees from Brown University.

About the Study Group

The Study Group exists to advance the best of artificial intelligence, assessment, and data practice, technology, and policy; uncover future design needs and opportunities for educational systems; and generate recommendations to better meet the needs of students, families, and educators.

Date of Publication

January 2026

Citation

Century, J. & Tucker, E. M. (2026). Broader Impacts: *An Analysis of Media Coverage of the National Science Foundation (January 2025–January 2026): Economic Competitiveness and Innovation.* The Study Group.