

# Using Evidence to Inform U.S. Policies on Science, Technology, and Innovation Competitiveness

The National Center for Science and Engineering Statistics (NCSES) is the official source for objective data on the U.S. science and engineering enterprise. NCSES provides accurate, evidence-based information that can be used to understand the science, technology, and innovation (STI) competitiveness landscapes in the United States and globally.

## SCIENCE, TECHNOLOGY, AND INNOVATION COMPETITIVENESS IN THE UNITED STATES IMPROVES THE ECONOMY AND WELL-BEING

Key indicators of a country's overall well-being include its economic, security, education, and health sectors. U.S. STI can foster growth and transformation in these areas. Increased STI activities can result in increased competitiveness and encourage positive change in the U.S. economy. This can produce advantages like dynamic markets, technological advantages, increased opportunities for training and education, a strengthened science and engineering workforce, and lower prices for goods and services.

### Economy

STI competitiveness encourages a strengthened market and workforce, prompting improvements to national living standards, economic sectors, and infrastructure. Using real-world data to understand trends in production, technology-driven change, and innovation can also lead to policies that support trade and manufacturing output that more accurately meets demand.

### Security

Remaining at the forefront of innovation and technology helps reduce risk in physical spaces and cyberspaces and helps the nation when facing global challenges. STI statistics can provide a snapshot of important components of the nation's security landscape, such as measuring trends in research and development (R&D) funding and performance in critical areas of interest. These insights can inform efforts for transformative breakthroughs on the physical security and the cybersecurity of our nation, including our response to disasters.

### Education

A globally competitive science, technology, engineering, and mathematics (STEM) education system provides a foundation for rewarding careers, including degrees and opportunities for individuals in STI and non-STI fields. Understanding the number and trends of individuals with degrees in STI fields helps policymakers make decisions about investments in research and the STI workforce. Highly educated individuals also drive innovation in critical and emerging technologies, supporting a more competitive position in global industry.

### Health

Competitiveness in STI can drive advancements in critical technologies and systems that support national health care. Using objective data to track U.S. progress and trends in knowledge- and technology-intensive industries in manufacturing and services can help to inform the delivery and quality of health care for the nation.



# NCSES PROVIDES DATA AND ANALYSIS FOR UNDERSTANDING U.S. SCIENCE, TECHNOLOGY, AND INNOVATION COMPETITIVENESS WITHIN AN INTERNATIONAL CONTEXT

NCSES is responsible for collecting and analyzing objective data on several broad areas of interest that provide insights on STI competitiveness. NCSES reports on international comparisons in the following:

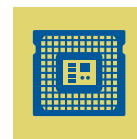
## Science and Technology



Elementary STEM education



Postsecondary STEM education



The U.S. science and engineering workforce



Secondary STEM education



Knowledge- and technology-intensive industries



Trade data (offering insights on U.S. technological advantage in specific areas)

## Innovation Activities



R&D expenditures and investments



Performers and funders of R&D



Intellectual property protection



R&D-to-gross domestic product ratios (a gauge of the intensity of a nation's R&D efforts)



Patents and trademarks



Critical and emerging technologies



Geographic location of R&D (domestic and global)



Knowledge creation and diffusion



Introduction of new products and processes

NCSES's involvement in the development of widely accepted international data standards ensures that resources are comparable and relevant to current practices. Collaboration with groups such as the Organisation for Economic Co-operation and Development helps keep NCSES at the forefront of international data standards while representing the United States and its STI data. Having accurate and globally comparable data can help policymakers assess the effectiveness of certain policies and inform future decisions.



### National Center for Science and Engineering Statistics (NCSES)

For more information about NCSES's products and data collection process, visit <https://nces.nsf.gov>, or explore our Innovation and Global Competitiveness page at <https://nces.nsf.gov/interest-areas/innovation-global-competitiveness>.