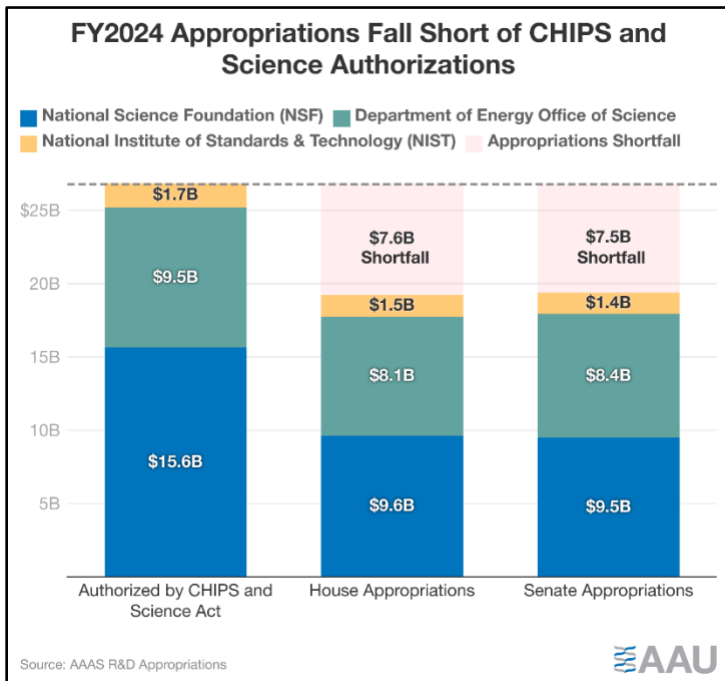


***Congress set forth a bold vision last year when it passed the CHIPS and Science Act, recognizing that funding the research efforts of the National Science Foundation (NSF) and the Department of Energy's Office of Science (DOE SC) is critical to remaining at the forefront of science and innovation in areas (such as artificial intelligence, quantum, wireless technologies, and bioengineering) which are vital to the nation's economic and national security.***



To make this vision a reality, we must act now. Despite authorizing significant funding increases as a part of the CHIPS and Science Act, Congress has not yet appropriated most of that funding. And time to fulfill the vision for science set forth in the act for the coming year is now running short. ***We urge Congress to support NSF and DOE SC programs in research, education, scientific equipment, and infrastructure by increasing funding in FY 2024 consistent with the amounts authorized in the CHIPS and Science Act.***

***What's at stake: The United States risks losing its status as the global leader in science and innovation.***

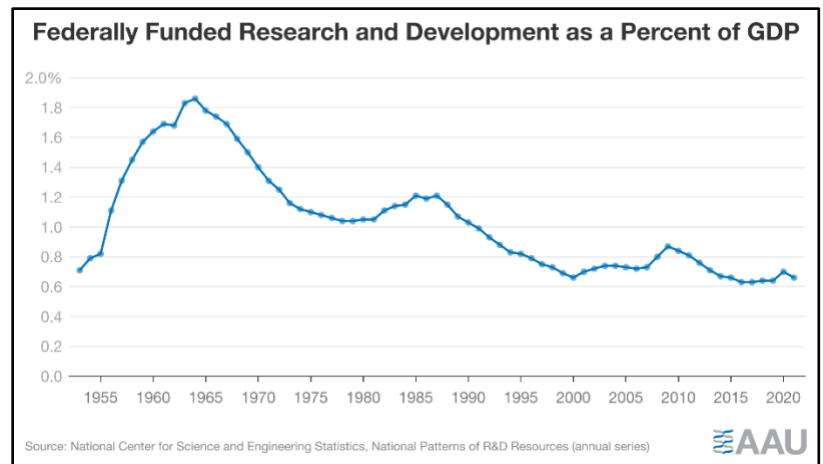
The foundational knowledge that these science agencies produce undergirds the nation's economic and national security. NSF and DOE SC support critical areas of scientific research in areas including artificial intelligence, robotics, quantum information sciences, cybersecurity, microelectronics, nuclear fusion, energy sciences, and biotechnology.

Past research and scientific facilities supported by these two research agencies has resulted in critical breakthroughs such as the Internet, Magnetic Resonance Imaging (MRI), GPS, Internet search engine technology, major advances in battery storage and renewable energy technology, and new drugs and medical diagnostic tools. These and other scientific and technological advances have fueled our economy, improved public health, and underpinned our national security for the last 70-plus years. The investments made in research at these agencies has also been critical for training the future STEM workforce that will be essential if the U.S. is to maintain its global competitiveness.

But we cannot rest on our laurels as competitor nations step up. ***The United States is at a 45-year low in our investments in R&D as a share of GDP.*** Even as U.S. government funding for fundamental scientific research has dropped significantly, other nations have increased their investments in research.

## Key Facts:

- In the mid-1960s, the overall share of GDP that the federal government invested in R&D was approximately 2%. Since then, this share has declined to less than 1%; at the same time other countries such as China have increased their R&D investments as a share of GDP. While our economy has grown, our country has not valued federal R&D as we did historically.



- From 2000 to 2020, China has had the highest rate of growth of any country in public and private R&D spending at an astounding 1,669%.
- From 2000 to 2020, China's share of total global R&D expenditures (public and private) rose from 4.9 percent to 24.8 percent; during the same period, the U.S. share fell from 39.9 percent to 30.7 percent. We are in critical danger of losing dominance in many emerging technology sectors. China is already pushing the U.S. in wireless communications, advanced materials, quantum sensing, biotechnology, advanced robotics and other key areas.
- The latest [National Science Board Science and Engineering Indicators report](#) shows China's annual increase of R&D spending has averaged 10.6 percent over the last decade, while the United States' annual average increase was only 5.4 percent over the same period.
- Despite the vision put forward in the CHIPS and Science Act to increase government investments in American science, actual FY 2023 funding levels fell almost \$3 billion dollars short of the science funding targets set forth in CHIPS and Science. FY24 looks even worse, with proposals so far in both chambers falling more than \$7 billion short of the Act's authorized amounts.
- The United States is facing major workforce shortages in critical technologies – such as 600,000 unfilled cybersecurity positions – and our needs will only grow. For instance, it is expected that we will need 3 million additional workers in AI by 2026.
- The United States must grow its domestic talent base. Currently over half of doctoral students in key science and engineering fields are foreign-born. One of America's great strengths is our ability to attract the best and brightest students from abroad, but we also need to make sure that we are leveraging our home-grown talent through investments in education and research.

***Now is the time for Congress to surge investments in NSF and DOE SC research and educational programs. With those resources we will retain the ability to out-innovate others and lead the world. Funding American science at the smart, reasonable levels Congress authorized in CHIPS and Science will ensure our future economic competitiveness and national security.***