

# Attacks on the U.S. Innovation Ecosystem Are an Attack on a Wellspring of American Prosperity

July 17, 2025 By Neera Tanden, Ryan Mulholland, and Adam Conner

Fifty-six years ago, on July 20, 1969, the United States landed a man on the moon, [culminating a decade-long race](#) that showcased the ingenuity of America's public sector, its universities, and its thriving private industry. The moon landing was a singular accomplishment in the history of humanity and a triumph of the U.S. innovation ecosystem. The United States' unparalleled science and technology advantage, developed in large part through federally funded research and development (R&D); world-class colleges and universities; and its openness to the best and brightest from anywhere created not just the technologies that define the modern world but also many of the world's most successful companies. Now, the Trump administration is dismantling America's science and innovation lead. The impacts will be felt for decades.

America's lead in innovation is the product of policies spanning decades, with [support of](#) policymakers from [both political parties](#). Public funding for R&D helps generate [billions of dollars'](#) worth of economic activity every year, driving private sector productivity and growth and generating prosperity for communities across the country. By one estimate, postwar federal R&D funding provided returns of [140 percent to 210 percent](#). American firms have commercialized countless technologies—the [Internet](#), [smartphones](#), [GPS](#), rechargeable [lithium-ion batteries](#), and breakthrough medicines—the creation of which was funded, in part, by federal investments in R&D, typically conducted by researchers at the nation's world-class universities. And, according to the [Small Business Administration](#), the smallest businesses receive a larger share of their R&D funds from the federal government than their midsize counterparts.

The Trump administration's unprecedented [war on higher education](#); its [drastic cuts to federal R&D](#); and its [aggression toward immigrants](#) must be understood not as a series of unrelated policies but rather as a concerted assault on America's unparalleled innovation system. To protect the country's edge in science and innovation, it is imperative that all institutions that benefit from the development of new technologies, new ideas, and new products stand up for federally funded research and oppose attacks on this ecosystem.

Put simply, the Trump administration is doing [irreparable damage](#) to the country's economy and its long-term competitiveness in relation to China and others. A recent study found that a 25 percent reduction in public R&D funding would shrink the U.S. economy by [3.8 percent](#)—a contraction comparable to that of the [Great Recession](#). Such a setback would come at a time when China is [increasing its investment](#) in [artificial intelligence](#), [robotics](#), and [other technologies that will define the future](#) rather than cutting it. When other nations are [opening their doors](#) to the world's top researchers, why is the Trump administration pushing away those who could invent, innovate, and commercialize the world's next breakthrough products?

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## Gutting federal R&D

Federal R&D grants from agencies such as the National Institutes of Health (NIH) and the National Science Foundation (NSF) support scientific research, and roughly one-third ([31 percent](#)) of federally funded research is performed at institutions of higher education. That activity, in turn, is a core component of training for graduate students who are the next generation of scientists, technologists, and entrepreneurs. It also contributes to technological advances that spur the development of new products and new companies.

The Trump administration, however, has [gutted federal grants and programs](#) for [R&D](#), including from the U.S. Department of Agriculture (USDA), Department of Energy (DOE), NIH, and NSF. The administration has [fired research agency staff](#); [frozen the process used to award grants](#); canceled [grants](#) already awarded; and [tried to cap the rate](#) for the indirect costs of research at 15 percent. In addition, the administration's fiscal year 2026 budget request included a [roughly 40 percent](#) cut for the [NIH](#) and a [56 percent](#) cut to the [NSF](#). That would be a blow to major sources of investment in basic science and [engineering](#)—research that could [unlock significant returns](#), future treatments for [cancer](#), or new technologies that make our world more secure, more sustainable, and more affordable.

More than [\\$1.8 billion](#) in NIH grants were terminated in a single month. [Total cancelled NIH grants have been estimated at more than \\$3.3 billion in remaining grant funds in \\$8.5 billion worth of cancelled grants](#), with significant economic impact. The Trump administration's cuts have [left](#) potentially lifesaving research [delayed](#), [unfinished](#), or [abandoned](#). Funding freezes have impacted major, ongoing research projects for [Alzheimer's disease and dementia](#), for example, creating disruptions that may delay or even halt the development of new treatments. The NIH cuts are likely to result in fewer new patents and fewer new drug therapies; one estimate valued the resulting future reduction in health at [\\$8 trillion](#).

The impact of the NIH cuts will be felt across the country. [Ninety-four](#) percent of the NIH's \$48 billion budget funds [research](#) at universities, hospitals, research

institutes, biopharmaceutical companies, and laboratories—investments [that touch all 50 states](#). In addition to contributing to research on roughly [99 percent](#) of all drugs approved by the FDA between 2010 and 2019, NIH funding supported [410,000 jobs](#) in 2023. Last year alone, the nearly \$37 billion awarded to researchers by NIH supported about [\\$95 billion](#) in new economic activity nationwide.

The NSF [has canceled more than 1,500 awards](#) worth a total of about \$1.1 billion, according to Urban Institute analysis of data from [Grant Watch](#). The NSF, too, has a similarly outsized impact [in every state](#) and nationally. Innovations initially funded by the NSF have contributed to breakthroughs, new companies, and new types of jobs in computing and other advanced technology fields. NSF-supported research led to the rise of an IT sector that now contributes [\\$2 trillion](#) annually to the U.S. gross domestic product. And all this from an agency with a mere [\\$10 billion](#) budget. Nevertheless, the Trump administration has announced catastrophic cuts to the NSF's budget and that the [NSF headquarters](#) would be displaced by the Department of Housing and Urban Development—with no plans for where NSF staff would be relocated.

Even NASA, an agency that symbolizes American innovation and ingenuity to the world, is facing unprecedented cuts. President Donald Trump's proposed budget [would](#) slash NASA's \$7.3 billion science budget by nearly half and reduce its [overall budget](#) by [24 percent](#), from \$24.8 billion to \$18.8 billion. Already, the administration's actions have diminished staffing. More than 2,000 senior [employees](#)—about [12 percent of NASA's workforce](#)—have already agreed to leave the agency, departures that could impact the agency's ability to send astronauts back to the moon or even to Mars.

This could be just the beginning, as the Trump administration appears to be [preparing a second rescissions package](#) that would cut an additional \$30 billion, including at the National Oceanic and Atmospheric Administration (NOAA), the NSF, and other science-based agencies. And according to the [American Association for the Advancement of Science](#), President Trump's fiscal year 2026 budget proposal would cut federal funding for basic, applied, and developmental research [by 34 percent](#).

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## Public funding is critical to advancing science

[Proponents](#) of the [Trump administration's approach](#) have argued that private investment could replace federally funded R&D, but that would require a sizable influx of new investment. The largest share of funding for [basic research](#)—research aimed at advancing scientific understanding but for which there may not yet be practical application—comes from the federal government. In 2022, 41 percent of the total [\\$130 billion](#) of basic research expenditures in the United States was federally funded while 35 percent was funded by businesses.

Moreover, private firms have incentive to pursue only those projects expected to improve their [bottom line](#). Scientific breakthroughs often generate positive [spillover](#) effects beyond financial returns for their investors, benefiting others who apply or build upon new knowledge or bettering society as a whole. A discovery may ultimately be commercialized by someone else, lead to products in completely different [industries](#), or boost the health or productivity of future generations. Business-driven cost-benefit analysis would not value such spillovers from R&D investments, meaning that an innovation ecosystem composed entirely of for-profit actors would underinvest in scientific research relative to the socially optimal level.

Public support is essential to sustaining scientific research for which the payoff may not be fully captured by the funder or may be decades away. For example, the rapid deployment of [COVID-19 vaccines](#)—the first approved use of mRNA technology—was enabled by [federal programs](#) for late-stage research and product development and earlier federally funded basic research that built upon scientific breakthroughs dating back to the 1960s.

Over decades, the American innovation ecosystem has evolved as a partnership among private industry, early-stage investors, and federally funded research mostly conducted at universities. Greatly reducing the federal funding component of this three-legged stool won't create a more stable innovation environment; it will constrict the pipeline of new ideas and new technologies that enable the rest of the system to flourish.

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## Squeezing universities and colleges

The cuts to federal grants have hit American universities particularly hard, coming amid other attacks from the Trump administration on higher education. As former Secretary of [State Condoleezza Rice recently put it](#), “The scientific research base of the United States of America is the research university. We made that decision 80 years ago. We don't have a plan B.” Her warning underscores the stakes of the current moment: Without sustained federal commitment to our research institutions, the United States risks surrendering the engine of its global leadership.

In addition, it will be virtually impossible for universities to make up for the loss of government-funded R&D—a daunting prospect even for well-endowed private universities. [Endowment funds](#) are generally intended to ensure the long-term sustainability of an institution, not to fund early-stage research or applied science. And the reality is that most universities that conduct research funded by the federal government do not enjoy large endowments. Even if colleges' and universities' private fundraising appeals were to be successful, [it likely would not be enough](#) to replace the millions (or even billions) that they stand to lose as a result of the Trump administration's cuts to federally funded R&D.

Research that is defunded by the federal government will, in most cases, simply stop altogether. For ongoing studies that require consistent funding for several years, even a small interruption in funding can [ruin decades](#) of research. In other cases, scientists will leave for new jobs. Technology transfer from universities to the private sector will slow or cease, destroying a pipeline of economic prosperity for countless communities across the country. In [2023 alone](#), university research (much of which was federally funded) resulted in 7,400 new patents, 9,300 licenses, 700 new products, and more than 900 new startup companies. From 1996 to 2020, university research that was commercialized resulted in over half a million new inventions and contributed [\\$1.9 trillion](#) to the U.S. gross industrial product.

Universities across the country are already cutting staff, imposing hiring freezes, and pulling back on investments in new R&D. Many research universities are likewise limiting graduate admissions, with some even [rescinding offers](#). One [investigation](#) found that nearly half of surveyed institutions with neuroscience programs planned to reduce Ph.D. program admissions. And even for accepted students, affording graduate school will now be far more difficult, as the [One Big Beautiful Bill Act](#) (OBBBA) will cap federal student loans for graduate programs at \$200,000—a level far below the [median cost](#) of graduating from a public, in-state medical school (\$286,454). Under this [newly passed legislation](#), students without a cosigner or with poor credit [may not be able to access](#) the additional private student loans required to attend graduate school, reducing pathways to several industries, including the medical profession—no doubt with knock-on effects to diversity among tomorrow’s cohort of doctors.

Importantly, federally funded R&D that takes place at universities supports more than just technology development; it is a [foundational part of the educational process](#), training undergraduates, graduate students, and others on the latest technologies. This embedded training is invaluable in the high-tech sectors that will underpin U.S. competitiveness for decades to come. At the [University of Michigan](#), for example, students made up nearly 44 percent of the research workforce, and 61 percent of funding for research staff salaries came from the NSF. NSF funding also supports research at [several leading historically Black colleges and universities \(HBCUs\)](#), with grant freezes [badly damaging career pipelines](#) for underrepresented students into the country’s STEM workforce.

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## A Trump-induced brain drain

The administration’s attacks on immigration and immigrants are [driving researchers and top students](#) away from the United States, as many see the current climate as unfriendly to science and to foreigners of all kinds. Foreign students are [growing leery of studying here](#), spooked by cases of graduate students legally present being [threatened with potential deportation](#). According to a March 2025 poll by the

journal *Nature*, [three-quarters of U.S. researchers](#) were considering leaving the United States.

[Other countries](#) are jumping at the opportunity to capitalize on the administration's missteps. [Europe](#) has made a point of recruiting U.S. scientists to its universities. [Spain](#) has attracted applications from leading U.S. researchers. And some Chinese-born scientists in fields such as artificial intelligence, robotics, and nuclear fusion are [heading back to China](#). These departures mean that foreign universities will not only secure new faculty but also the groundbreaking, new technologies that those faculty members will discover and ultimately commercialize.

The potential loss for American prosperity is staggering. The National Foundation for American Policy [found](#) that 25 percent of U.S. billion-dollar startup companies were founded by someone who came to the United States as a foreign student. And immigrants, more broadly, founded [nearly half](#) of the country's Fortune 500 companies, which [generated \\$8.6 trillion in revenue](#) last year alone. Said another way, when a researcher who would have gladly studied and lived in the United States for decades instead decides to move abroad and then discovers the next path-breaking technology, it will be a foreign company and foreign workers that bring it to market and profit from its growth. That will be the legacy of the Trump administration's actions.

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## **Americans do not want our innovation ecosystem dismantled**

The Trump administration's attacks on American innovation are deeply [unpopular](#)—and for good reason. Bipartisan majorities support maintaining federally funded science and medical research at universities. A May [AP-NORC poll](#) found that 6 in 10 U.S. adults supported the use of federal funding for scientific and medical research at higher education institutions. An April poll by [Forbes-Tate](#) found that 85 percent of Americans believed it was important that the United States be the global leader in scientific research and technology. And [scientists](#), [academic leaders](#), and [technology](#) executives are all [warning](#) of the long-term impacts of the administration's actions.

Without federally funded R&D, for example, there might be [no Google](#), which was cofounded by two Stanford graduate students—one a recipient of an [NSF Graduate Fellowship](#). Without NIH funding, the mRNA technologies that quickly provided a vaccine for COVID-19 might not exist. Nor, perhaps, would technology such as satellite television, GPS, CT scans, or LED lights—all of which stem from breakthroughs made by U.S. researchers [funded by NASA](#).

While [courts](#) have temporarily halted some of the Trump administration's earlier attacks on American innovation, the administration's latest [budget shows it is doubling down on its unprecedented](#) cuts to scientific research. Without congressional intervention or more vocal opposition from industry, the administration is likely to continue cutting federal research budgets, diminishing world-class research institutions, and pushing talented researchers out from the United States.

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## Conclusion

The American people and members of the U.S. innovation ecosystem—universities, researchers, investors, and private industry—must do all they can to protect and preserve science and technology in this country. Put simply, America's innovation ecosystem—its commitment to advanced science and technology—does not just support new companies or new technologies. It supports all industries and all people. It is the backbone of the American economy and a pillar of American greatness.

America's place in the world is not defined only by its military might but also its leading-edge innovations. The United States put a [man on the moon](#), [invented a vaccine for COVID-19 in mere months](#), and helped create many of the technologies that consumers around the world now take for granted—many of which are a result of federally funded R&D conducted at universities. The Trump administration's attacks on the country's science and innovation ecosystem are thus a frontal assault on America's identity as the world's innovation leader and on a key source of U.S. industry's competitive advantage. That is not a recipe for American greatness; it is a recipe for long-term decline.