

China's Prolific Investment in Science and Technology Threatens U.S. Global Leadership

U.S. increasingly risks falling behind as China boldly charges ahead on innovation.

China is rapidly emerging as a dominant global force in science and technology, challenging the United States' longstanding leadership. Now, the accelerated growth of China's R&D investment, coupled with its strong commitment to developing STEM talent, threaten to shift the global power balance.

China's [ambition](#) is to be the global tech leader by 2030 and it is aggressively executing steps to build its tech capabilities and overtake the U.S. in critical and emerging technologies. Already, China is a formidable competitor in areas critical for national security, including AI, semiconductors, quantum computing, and biotechnology. And its projected growth is sounding the alarm bell with Americans that U.S. science and technology leadership is in jeopardy.

It's a trend our nation and its leaders can no longer ignore. The U.S. must develop a national science and technology strategy and ramp up federal investment in the cutting-edge technologies that will shape the future to ensure that the U.S. both leads and is home to the new era of innovation.

These charts show that as China boldly charges forward with massive and strategic investment increases in research and development, the U.S. is retreating on its commitment to science and technology and risks falling behind in the global competitiveness race.

A survey in the Science & Technology Action Committee's [State of Science in America report](#) found that **75% of respondents in five workforce sectors believe the U.S. is losing or has already lost global leadership in science and technology, and 60% believe China will be the leader within just five years.**

The U.S. is on the Brink of Ceding Our R&D Investment Lead to China

China's investment in research and development has grown exponentially over the past two decades. In 2021, China spent about **\$668 billion on R&D**, a massive 171% increase from the \$246.5 billion it spent just a decade prior, while U.S. investment grew by just 89% over the same period. If both countries' current rate of R&D spending growth continues, **China will eclipse the U.S. in 2027.**

The [National Science Board's Vision 2030 report](#) noted the critical need for federal investment — in addition to private investment — to fuel the fundamental knowledge and research that will lead to the next scientific breakthrough and allow the U.S. to remain globally competitive.

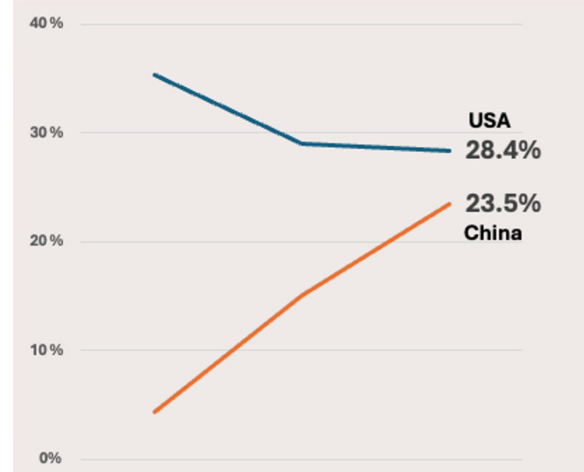
"While industry is well positioned to advance knowledge in targeted fields, **only the federal government can invest across all fields, at scale, and over sufficiently long-time horizons to create new knowledge that will help us to address future security, health, and economic challenges.**"

— National Science Board Vision 2030

While China has aggressively increased its R&D spending, the U.S. has remained relatively stagnant in federal R&D investment, with the private sector making up the difference. This should deeply concern U.S. leaders, as federal investment in fundamental research today leads to the emerging industries of tomorrow.

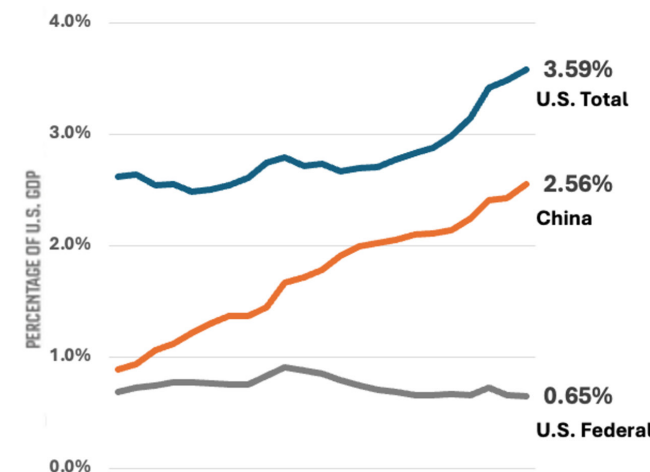
As a result, the U.S. share of global R&D spending between 2000 and 2021 has declined from 35.3% of global R&D to 28.4%, while China's share increased from 4.3% to 23.5%. In addition, as of 2022, U.S. federal R&D spending has decreased to **0.65% of GDP**, down from a peak of 1.9% during the 1960s space race. And, while **overall R&D spending** was 3.59% of GDP in 2022, that increase was wholly funded by private investment.

China's Share of Global R&D Climbs as U.S. Sinks



Source: National Science Board, National Science Foundation. Science and Engineering Indicators 2024: The State of U.S. Science and Engineering.

China Catching Up with U.S. on R&D as Percent of GDP



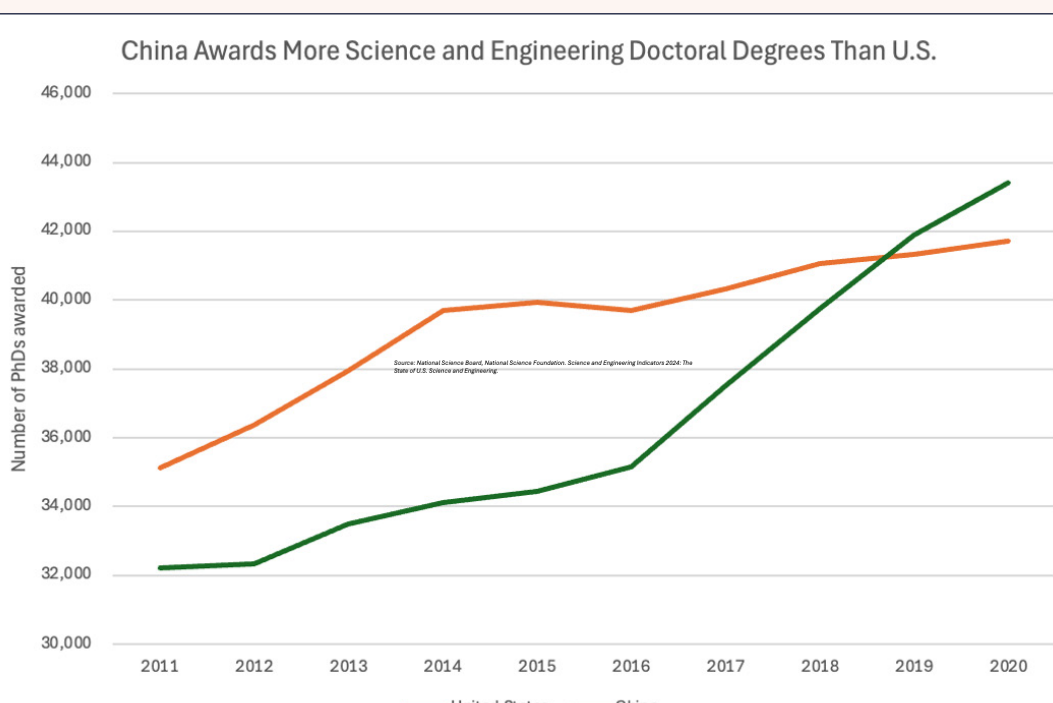
Source: OECD Main Science and Technology Indicators (MSTI) Database, March 2024.

China's rapid increase in R&D spending is part of its broader strategy to enhance its global economic and military competitiveness and increase the world's dependence on its tech in order to gain a geopolitical advantage. **If this trend continues, China could surpass the U.S. in total R&D investment in just a few short years.**

The U.S. must meet this moment with the urgency it requires and quickly revamp federal investment in science and technology that will secure our leadership in the world for decades to come.

China Outpaces U.S. in STEM Talent

China views bolstering its STEM workforce as a [top economic priority](#), second only to strengthening the Communist Party itself. For the first time, China is now awarding more doctoral degrees in science and engineering than the U.S., reflecting a significant shift in global STEM education dynamics.



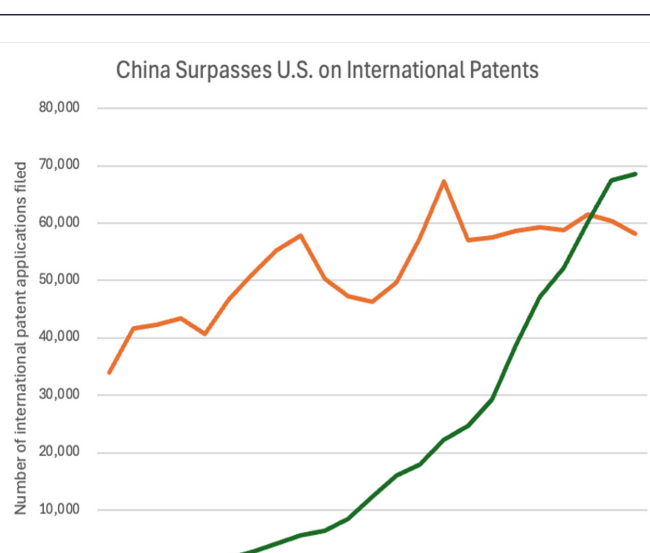
Source: National Science Board, National Science Foundation. Science and Engineering Indicators 2024: The State of U.S. Science and Engineering.

This emphasis on scientific training and education reflects China's focus on building a highly skilled workforce to sustain its rapid growth in science and technology. If the U.S. does not adequately invest in our own STEM pipeline, we may not have the talent needed to sustain our lead in global innovation.

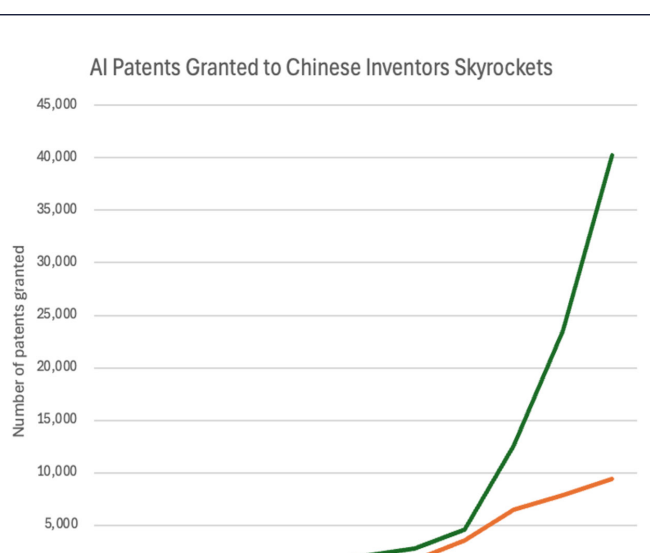
The development of a national science and technology strategy that focuses on the critical importance of STEM education is essential to build a domestic workforce that will advance U.S. innovation and bolster our economic and national security.

China Surpasses U.S. in AI Research, Patents

China is now the global leader in several critical areas of technology. The country has surpassed the U.S. in the [number of international patents filed](#) by Chinese inventors, particularly in the fields of artificial intelligence and electrical engineering.

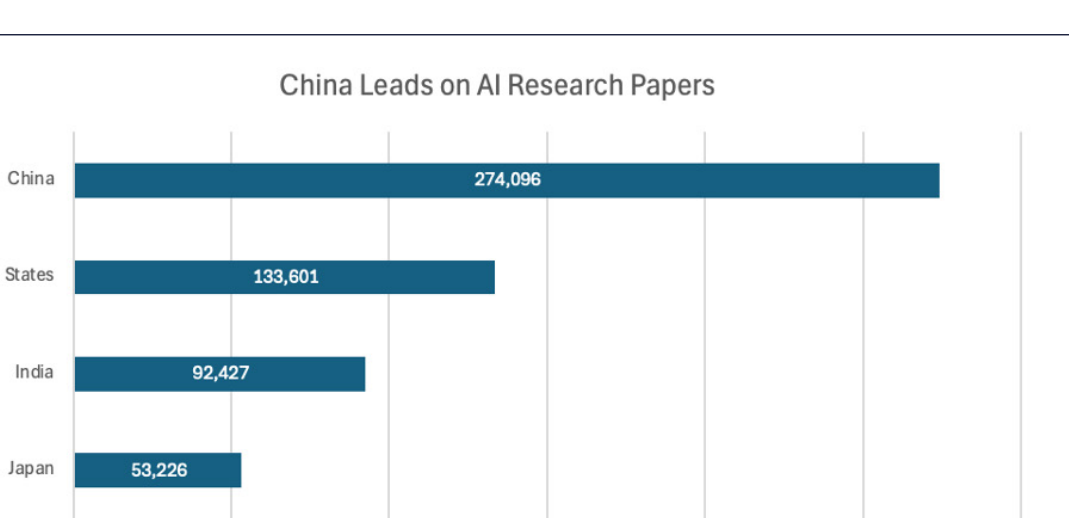


Source: National Science Board, National Science Foundation. Science and Engineering Indicators 2024: The State of U.S. Science and Engineering.



Source: National Science Board, National Science Foundation. 2024. Invention, Knowledge Transfer, and Innovation. Science and Engineering Indicators 2024.

Moreover, China is publishing nearly [double the number of AI research papers](#) than the U.S., indicating a strong commitment to advancing its technological capabilities.



This data underscores the threat to U.S. leadership on a critical intellectual component. **If this trend continues, the U.S. risks losing its competitive edge in the emerging technologies that will define the future.**

AI is one of the most consequential technologies of our time. It is [projected](#) to add \$14 trillion to the global economy by 2030, create millions of jobs, and drive innovation across virtually every sector of the economy. That's why it's critical for the U.S. to ensure that government agencies work hand in hand with the companies that are driving AI advances to foster a thoughtful approach to regulation that does not stifle development.

These charts show that China's bold investment in science and technology is reshaping the global landscape. Without significant U.S. policy shifts and increased federal support for science and technology through both funding and a national strategy, the U.S. risks falling behind in the race for technological supremacy.

