

China's Innovation Challenge

Sean Randolph – May 11, 2026

Nine years ago the Bay Area Council Economic Institute produced a landmark report on advances in Chinese innovation. It was long thought that China either copied or stole technology but was weak on innovation - that was the preserve of the United States and the West. We had a different view, however. While China did and does copy and steal technology, we were seeing a growing wave of indigenous technology where China was building innovative business models, providing more effective digital services and creating a generation of highly competitive technology companies.

Fast forward to the present. Less than a decade later China is challenging the United States and the West across a wave of advanced technologies. Its playbook is much the same: government strategies that prioritize key sectors, deep subsidies, investment in research, sustained development of engineering talent, and entrepreneurs who – while increasingly tethered to national goals – are adaptive and creative.

What's new is a concerted drive for self-reliance in advanced technologies and reduced dependence on the West – a goal that has gained increased urgency as strategic and economic conflicts with the U.S. have grown.

Restrictions on the sale of the most sensitive technology to China can slow this process but not stop it. And cutting U.S. companies off from China is a two-edged sword: many are there to access its market but also its innovation. Manufacturing is a draw, but so is R&D.

The U.S. and China are neck-and-neck in AI, with Chinese AI job postings surging from 2.2% to 26.2% of new economy openings in the last year. Quantum communications is another area of strength. Other industries where China is strong include batteries, electric vehicles, robotics, and space. It still lags in advanced semiconductors but even there is advancing. Many of the world's top universities for biotech are now in China, with thousands of new startups entering the market. More biopharma patents were

filed in China last year than in the U.S. and more than a third of worldwide biopharma licensing deals last year involved a Chinese firm. The U.S. still leads but the gap is closing.

Much of China's strength comes not just from R&D but from effective execution – something we could learn from. Silicon Valley commentator Dan Wang observes that “Beijing has been preparing for a Cold War without the eagerness to wage it, while the U.S. seems eager to wage one without being prepared for it.” That feels about right.

How do we answer this challenge?

The best approach is to invest in our own competitiveness. Unfortunately, that's not going well, as current leaders in Washington have often worked to attack universities, undermine science, and discourage immigration, including by scientists and technology workers.

Here's what we're seeing:

The journal Nature reports that 7800 U.S. research grants were cancelled last year as university research was systematically targeted. Many existing grants were terminated mid-course, causing labs to close and research teams to disband. Though Congress later restored many of the administration's cuts, the ripple effects will last for years as the pipeline of young scientists (often hired by industry) shrinks and talent moves overseas.

Senior Chinese scientists and technologists who have worked in the United States for decades are returning home, lured opportunities and incentives but also pushed by what many see as a hostile environment for immigrants. That includes Liang Je, a top computer vision scientist who was responsible for the development of many of Microsoft's leading products. The number of Chinese students studying in the United States has dropped by a third since 2019. Rather than stay to be part of the U.S. economy more are returning home. Increased filing costs and high denial rates are discouraging applications for the high skilled visas that have long been a source of talent for U.S. companies and institutions. The administration's plan to require green

card applicants to file outside the United States adds another barrier to our ability to attract and retain the world's best talent.

It's a pivotal moment. We need to increase our investment in scientific research. We also need to think more about translation – how U.S. funded research gets applied in the private sector (the Energy Department's Genesis initiative to accelerate the deployment of AI through public-private partnerships is an example). Success also means developing and attracting the world's greatest pool of technological talent, including talent from overseas.

Also, we can't do this alone. To meet the challenge the U.S. needs to work with friends and allies, focusing on the critical and emerging technologies of the future. We have frameworks in place. ICET (now called Trust) links the U.S. and Indian technology systems around shared priorities. The Trade and Technology Partnership (TTP) between the United States and Europe was established years ago to build technology partnerships. Both appear moribund but could be revived.

The challenge from China shouldn't be a surprise. The Chinese have scale in engineering, in markets and in data, and a relentless focus on both research and execution – with government playing a strong hand. We should be no less relentless in building on our own advantages – the world's best universities and science infrastructure, its largest consumer market, and a free enterprise system that attracts talent and rewards entrepreneurs.

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