



US President Joe Biden speaking to China's President Xi Jinping at a virtual summit from the Roosevelt Room of the White House in Washington in November last year. The world needs the United States and China to cooperate where necessary, and to compete where appropriate, say the writers. PHOTO: AGENCE FRANCE-PRESSE

The lose-lose tech war

The increasingly bitter rivalry between the United States and China ultimately will leave both countries – and the world – worse off. While competition is unavoidable and even beneficial in some areas, comprehensive efforts to derail each other's progress stand little chance of success, and will likely backfire.

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The Sino-American geopolitical rivalry is growing increasingly bitter, with Russia's war in Ukraine only the latest source of schism. The mutual antagonism is deepening, with little effort on either side to stem the deterioration in the bilateral relationship.

It doesn't have to be this way. To maintain global peace, and to address humanity's urgent collective challenges, the United States and China need to find discrete areas where they can pursue cooperation and reverse the rot in their relationship. Science and technology – particularly as they relate to climate change – offer the best prospects for renewed cooperation. To take advantage of such opportunities, however, both sides will first need to reassess fundamental assumptions and lower the temperature of their rhetoric.

On the American side, too many political leaders and commentators believe that an economic decoupling from China will cripple its ability to catch up, let alone surpass, the US as the world's leading economy. The dynamism that China has exhibited for the past four decades suggests otherwise. As Professor Graham Allison of Harvard University and his co-authors note in a recent Belfer Center paper: "In some races, it has already become No. 1. In others, on current trajectories, it will overtake the US within the next decade."

Not so long ago, China was widely regarded as hopelessly backward and unable to innovate. It was a place where cheap labour was used to manufacture goods for Western consumers. Recalling the US National Academies of Sciences, Engineering and Medicine's 1999 preview of the decades ahead, Prof Allison points

out that it missed the elephant in the room. In its envisioned future, "China hardly mattered. Reflecting the conventional wisdom of the era, *Time Magazine's* special issue 'Beyond 2000' asserted confidently: 'China cannot grow into an industrial giant in the 21st century. Its population is too large and its gross domestic product too small.'"

Not so today. As Prof Allison notes: "China's rapid rise to challenge US dominance of technology's commanding heights has captured America's attention."

On the Chinese side, there are many who believe that the country is now capable of going it alone. They think China has already learnt all that it needed to learn from the West and the wider world. Home-grown innovations, in their view, combined with the strength of China's governing structures, will be enough to sustain the country's upward trajectory.

Chinese who think this way should recall their country's own history. It was a refusal to learn from the outside world, coupled with the belief that Chinese institutions were superior to all others, that helped to bring about the country's long decline from its position as the world's wealthiest and most advanced society.

THE IRRESISTIBLE RISE

It is worth remembering that for decades, up until around 2016, the US and most of the world welcomed and encouraged China's rise. Chinese growth was considered peaceful and widely beneficial. The southern city of Shenzhen (just across the border from Hong Kong) was a backwater fishing village as recently as the early 1990s; now, it can justifiably claim to be the world's "next Silicon Valley".

Moreover, universities in China have climbed in global rankings and are elbowing their way into the top echelons. China's top universities offer salaries and research funding that are

competitive with top US universities. Tempting sinecures have lured many within the Chinese academic diaspora to return home. And China also continues to produce top students, some of whom pursue their graduate studies in the US. One recent study shows that Tsinghua University in Beijing ranks second in the world in producing computer-science professors at top US universities.

These developments – nearly unimaginable a decade or so ago – become more comprehensible when one views them from a broader historical perspective. For most of the last 2,000 years, up until around 1820, China and India comprised the world's two largest economies, accounting for about half of global output. That makes the past two centuries of Western dominance something of a historical aberration, whereas a Chinese and Indian economic resurgence may be regarded as a return to the natural order of things.

Chinese and Indian history, indeed, are replete with scientific discovery and technological innovation, including gunpowder, the compass, paper making, and much else. China's contemporary advances should be seen in a similar light. There is no doubt that the Chinese can create and innovate, and that no amount of external suppression will stop them from doing so. Only muddled and stifling policies within China can do that.

RULES OF THE ROAD

Unfortunately, many today do not view China's technological rise in such sanguine terms. In the West, there is a strong suspicion that China has risen only because it stole Western technology. In July 2020, FBI director Christopher Wray even went so far as to describe Chinese counterintelligence and espionage operations as the "greatest long-term threat" to the US economy, representing one of the largest transfers of wealth in human history.

While such theft surely occurs, the fact is that many countries – both now and historically – have "stolen" technology. The great Chinese inventions of previous centuries were "stolen" by everyone, most notably Westerners. Equally, the US "stole" European inventions such as the steam engine, electricity, and rocket propulsion.

As Mr Charles Morris, author of *The Dawn Of Innovation*, writes, the early Americans "had no

respect for British intellectual-property protections. They had fought for independence to escape the mother country's suffocating economic restrictions. In their eyes, British technology barriers were a pseudo-colonial ploy to force the US to serve as a ready source of raw materials and as a captive market for low-end manufactures". In the end, the world benefited from this attitude. Everyone would have been worse off if selfish national interests had prevented the transformative inventions of the Industrial Revolution from spreading.

But, of course, there is a difference between what China has done in recent decades and what the US did in the nineteenth century, because the US had no legal agreements with the United Kingdom over intellectual property. China, by contrast, agreed to abide by the World Trade Organisation's IP rules, but the West has claimed that China has not abided by them. This is a major reason for the West's declining trust in China's willingness to honour its commitments – a loss of confidence that began during US President Barack Obama's administration and was amplified by Donald Trump's.

THE TECH BARRICADES

Still, the situation is redeemable. The US became the chief defender of IP rights after surpassing the UK; so, too, could China. Now that it has become a technological superpower, it has a strong interest in upholding WTO rules and established global norms. One of the most common complaints from US firms in China is that they are victims of coercive technology "transfers". The Chinese government has the capacity to crack down on this practice, thereby helping to rebuild trust and provide a foundation for future cooperation.

For its part, the US should recognise that there is another angle to the IP dispute. While it can legitimately claim that the IP developed by Chinese scientists in the US would not be possible without the support of the US research ecosystem, the Chinese can argue that the largest transfer of IP has been from China to the US. For years, China has been investing in the primary and secondary education of hundreds of thousands of Chinese students who then study, graduate, and work in the US. This brain drain may not involve IP in the legal sense, but it is certainly still a form of intellectual transfer.

Another widening chasm

between the US and China was epitomised by the "Huawei affair". During Mr Donald Trump's presidency, the US added the Chinese tech giant to the list of foreign companies with which US firms are forbidden to do business; and Canada, at America's request, arrested Huawei's chief financial officer, who also happened to be the daughter of the company's founder, on charges stemming from alleged violations of US sanctions on Iran. Whereas the US sees Huawei as a national security risk – and its 5G hardware as a Trojan horse – China sees the controversy as a purely political effort to prevent one of its national champions from becoming a dominant global player.

Obviously, some barriers to cooperation will remain in place. While the US continues to lock out Huawei, Google and Facebook's unwillingness to comply with strict Chinese censorship laws makes it inconceivable that they will be allowed to operate in China. But the impossibility of cooperation in some areas need not preclude cooperation generally. The US and China each have world-leading laboratories for monitoring and studying climate change, and neither country's national security would be threatened by allowing these labs to collaborate. Indeed, they should be encouraged to do so.

A SELF-INFLICTED WOUND?

The US response to China's technological progress could end up hurting the US itself. Blockading China's tech sector is unlikely to work – and may even backfire. It has been more than a decade since Congress barred Nasa, the US space agency, from "coordinating any joint scientific activity with China". Nonetheless, China has since made major advances in space research and astronomy, including launching a moon rover, making a Mars landing, and unveiling the world's largest radio astronomy telescope (Fast).

More broadly, US sanctions have strengthened China's determination to develop its own technology, and the numbers are in its favour. In addition to a population four times larger than that of the US, it has a long history of national and cultural unity and purpose, a strong work ethic, numerous science, technology, engineering and mathematics (Stem) graduates, and burgeoning research infrastructure.

Draconian US measures are already discouraging Chinese talent from coming to the US and

are encouraging those in the US to leave; a recent survey shows that 40 per cent of Chinese scientists and engineers in the US are now considering such a move. The Department of Justice's "China initiative", led by the DoJ's National Security Division, has been particularly harmful. Most of its high-profile prosecutions have resulted in acquittals, and most of the charges it has brought are not even for espionage or IP theft, but rather for failures to disclose information properly on US federal grant paperwork. The US is not doing itself any favours when its government explicitly urges US research universities and companies to cut all ties with China. Such measures are simply bad for science, to which the US contributes but also from which it benefits.

In fact, efforts to silo science in this way tend to fail. After all, most US academic research ends up in publicly available publications, and US-based scientists regularly participate in global scientific conferences and webinars. Attempting to halt scientific engagement with China will not stop scientific knowledge from reaching China.

What it could do is cost the US the moral high ground. Others around the world will ask whether they will be next if they also succeed in developing their economies. They will recall Japan's experience in the 1980s, the Soviet Union's in the early 1990s, and now China's. And since most developing-country leaders prioritise the economy and living standards over political ideology, they will engage with whichever country helps them to achieve those goals.

COMMON PROBLEMS

The world's most pressing problems are global, not national. They will require not just competition but also cooperation. Two of the most obvious are Covid-19 and climate change. Neither problem observes national boundaries, and both demand human ingenuity.

In the case of the pandemic, scientists around the world cooperated by sharing vital information – from the first genetic sequencing of the Sars-Cov-2 virus in China to data on how Covid-19 affects humans and responds to treatments. But the pandemic also drove competition. Different countries and companies tried different approaches to vaccines, and in so doing, they mitigated the risks of failure that are common with vaccine development. The vaccine race should be viewed not as a national contest for supremacy but as a quest for knowledge and solutions.

The same goes for climate change – a problem that cannot be addressed by any one country or bloc. The whole world must cooperate, but there will also be beneficial competition to develop and scale up the green technologies of the future. In the case of the Sino-American relationship, the challenge is for both sides to avoid politicising the issue or tying cooperation to the disposition of other disputes. Chinese and US leaders should work to strengthen their joint declaration, made at last year's United Nations Climate Change Conference, to enhance cooperation on climate change. And any such cooperation should be unconditional.

This is not the first time the US has faced external competition, nor will it be the last. The American response to Sputnik in the 1950s should serve as a model for the situation today: The US recognised the competition, invested in its own capabilities, built up its own strengths, and also pursued scientific partnerships with the Soviet Union. As a result, the US created the conditions for achieving global dominance in technology.

The world needs the US and China to cooperate where necessary, and to compete where appropriate. The position taken by US President Joe Biden's administration is that "we must compete when we should, cooperate when we can, and contain when we must". Humanity will be worse off if politics overrides all other issues, and if Sino-American scientific and technological cooperation suffers for it. © PROJECTSYNDICATE.

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