The Myth of the Tech Race

“The Chinese government is fighting a generational fight to surpass our country in economic and technological leadership,” warns FBI Director Christopher Wray. “To surpass America, they need to make leaps in cutting-edge technologies.” Ominous statements such as these now echo all across Washington, D.C. Beyond the trade war, the United States and China are locked in an even deeper, more protracted struggle over technology.

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zero-sum mentality often underlying fundamental difference challenges the scientific research, the foundation and fintech – the US remains the US. Whereas China excels in applying technology is different from that of the Chinese ambitions, most analysts have missed an important fact: Yet for all the Western paranoia over Back to Basics

In the West, the term "technology" evokes images of super-intelligent, dazzling inventions like flying cars and thinking robots. During the Cold War, the most vivid sign of technological prowess was the Soviet Union's launch of satellites into space – the so-called "space race" moment. But in emerging markets, which have lower average income levels and a lack of basic infrastructure, "technology" is regarded not just as a pragmatic tool. Consider the ubiquitous example of mobile phones, a relatively simple device that even the poor can afford to buy. With a phone, one can make calls, access information, borrow micro-funds, and hawk merchandise. The diffusion of this modest technology can surprisingly spur growth across the economy.

In the West, the term "technology" evokes images of super-intelligent, dazzling inventions like flying cars and thinking robots. The ability to launch, brand, and quickly compete up in Shenzhen in recent years is an upending the traditional model of competition. The rise of Shenzhen's hardware ecosystem has had a global impact. Startups in any country can now create their own brands, produce them in small batches in the city, and quickly than anywhere else. Entrepreneurs from around the world can create products more cheaply and quickly than anywhere else. The rise of Shenzhen's hardware ecosystem has had a global impact. Startups in any country can now create their own brands, produce them in small batches in the city, and sell them to niche markets. One example is Wiko, a smartphone company founded and based in France, whose products are made in Shenzhen. Within two years, reports of "Chinese factories for French homes" have spread. The rise of Shenzhen has produced more unicorns than any other city in the world. Consider the composition of each country's tech "unicorns" (private startups with a valuation of at least $1 billion). According to a 2018 Credit Suisse report, only the US has produced more unicorns than China. But the largest share of Chinese unicorns are "made in China" and have not been exported abroad.

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This creative movement emerged with scant attention, let alone support, from brand strategists in Beijing. Similarly, the realities of bottom-up Chinese innovation rarely reach the halls of power in Washington, nor do they feature much in mainstream Western media. Instead, analysts continue to describe China's technological ascent in Cold War terms. A recent commentary in Forbes is a case in point: "This is indeed a Sputnik moment for the US, a wake-up call for the US just as it was when the Soviet Union launched its first satellite, the Sputnik I, and beat the USA into space."

Stepping Back from the Brink

But the China of 2020 is nothing like the Soviet Union of the post-World War II era. Nor is technology a zero-sum game, where only one country can hit a given target first and "win." A more balanced assessment of Chinese and US strengths and weaknesses would go a long way toward mitigating an unnecessarily acrimonious and costly rivalry.

Leaders on both sides should understand that countries can and do have different comparative advantages in technology. China excels in commercialization and applied innovation because it has a massive domestic market and few or no established players in emerging industries. These conditions provide fertile ground for decentralized experimentation. Moreover, as is true in many fast-growing emerging economies, the Chinese private sector is driven by "a culture of hyper-competition," as one tech businessperson put it to me. China today is a place where entrepreneurs aspire to make big money fast.

Unparalleled US leadership in basic scientific research, on the other hand, rests on a longstanding institutional foundation that is reinforced by a culture of freedom to pursue original ideas. Moreover, the US tech sector continues to reap the benefits of the government's deliberate investments in basic science during the post-war era. According to Venkatraman Ramakrishnan, the director of the Office of Scientific Research and Development under President Franklin D. Roosevelt, US science policy during that period was premised on the belief that "basic research is the pacemaker of technological progress," and that it should be "performed without thought of practical application or of national action."

By understanding and accepting divergent national competitive advantages, policymakers in both countries can start to move away from zero-sum competition and toward cooperation. For the world as a whole, the most consequential area of potential US-China collaboration is in cutting carbon emissions. As John Helveston of George Washington University and Jonas Nahm of Johns Hopkins University note, the US produces many times more patents in clean-energy technologies than China does, but Chinese manufacturers have established a competitive advantage in "commercialization, scale up, and cost reduction" in this same domain. Combining these strengths could achieve significant price reductions and accelerate the pace at which these critical technologies become commercially viable.

Défendre 2.0

Moreover, Chinese and US policymakers should not overestimate what industrial policy can achieve. The West has been too busy wringing its hands over China's top-down innovation initiatives that few have stopped to question whether such policies actually work. In fact, state-led innovation has some drawbacks. In a 2019 study with Nan Xia of the University of Southern California, "The Limits of Commanding Innovation," we analyzed the impact of the government's 2006 campaign to promote indigenous innovation. We found that while the quantity of patents registered in China rose dramatically between 2006 and 2015, the share of novel patents (a common measure of the quality of innovation) declined.

State action can accelerate science and innovation, but only if the right measures are taken. In general, governments should support basic research that would otherwise struggle to attract commercial funding, while also investing in infrastructure and other public goods that private companies cannot or will not provide for themselves.

The Chinese government's efforts at promoting innovation have been most successful when focused on infrastructure provision. The construction of a nationwide broadband network, by boosting Internet penetration and connection speed, paved the way for the subsequent boom in e-commerce. On the other hand, when apparent R&D "wins" in high-end technologies intervenes in corporate decisions, such efforts tend to backfire.

Finally, rather than fixate on "containing" a perceived enemy, US and Chinese leaders should harness competitive pressures as a source of innovation and motivation for self-renewal. To be sure, there is no question that China wants to move up the technology value chain, and that the US should be vigilant in monitoring China's acquisition of advanced technological capabilities that have security implications. Complaints about Chinese intellectual property theft also are not unwarranted.

In all of these domains and others, China has pledged to strengthen IP protections as a part of the "phase one" trade deal with the US signed in January 2020. But tit-for-tat escalation is not the right way to respond. I recently attended a conference where someone asked why the US hasn't matched China's Thousand Talents Program to recruit top scientists and technologists. Why should it? With its world-class universities and generally open immigration policy, America has been the world's top talent recruiter for more than a century.

Know Thyself

The first thing the US can and should do in response to China's ambitions is to maintain its own core strengths. In 2017, the US government's spending on basic science and technology research comprised just 1.7% of the federal budget, or half the level in the 1960s. And in the last decade alone, state governments have cut funding for public institutions of higher education by $9 billion. Across the country, public schools are struggling with funding shortages and stagnant or falling teacher salaries.

Meanwhile, fearing Chinese influence, the US government has launched investigations into American or US-based scientists of Chinese descent. As the journal Nature warns, "Some fear the rising tensions could lead to an exodus of researchers with Chinese backgrounds from US institutions."

Similarly, at a recent forum hosted by Stanford University, Asian-Americans voiced concerns about potential ethnic targeting — a practice that undermines the bedrock of democracy and recalls darker moments in America's past. Fortunately, there have also been some restraint. Last year, more than 200 scholars and foreign-policy experts in the US published an open letter arguing that "China is not an enemy. Even if the US insists on treating China as a foe, it should be informed about the different and novel forms that technological innovation takes in the twenty-first century. Cold War analogies confuse more than clarify. In truth, the biggest threat to both American and Chinese economic strength comes from within each country. Given the extraordinary stakes of the growing Sino-American rivalry, the rest of the world can only hope that leaders on both sides will find common ground and turn the competition into a force for fixing problems at home."

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