

# China's Critical Role in Technology and Geopolitics

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For some time now I have been concerned about the state of American competitiveness looking out a decade ahead. Innovation has been the lifeblood of our economic success, and nowhere has this been more apparent than in information technology since the advent of the Internet and the Smartphone. China has risen from being a largely agricultural economy when Mao died in 1976 to become the second most important economy in the world today. Still, many thought leaders believe its growth, even at modest rates, is unsustainable and that the country is good at copying the technology of others, but not as strong as an innovator of fundamental technologies on its own.

These observers are underestimating not only China's economic momentum, but also the rate of progress they are making in innovation in all types of technology. Based on data compiled by the Industrial and Commercial Bank of China (ICBC), there are 214 private companies in the world valued at \$1 billion or more, known as unicorns. Slightly more than half (108) are, as you would expect, based in the United States, but 55 are in China, with the remaining 51 located in other countries throughout the world, mainly India, South Korea, Germany and the United Kingdom. Of the top ten unicorns, China has four (including numbers two and three) and the U.S. has six. According to ICBC, China's innovation has been engineering-based rather than science-based and it is consumer-focused and efficiency-driven. Baidu, Alibaba and Tencent together represent 16% of world net digital advertising revenue and 20% of world net mobile Internet ad revenue. Google and Facebook are the leaders with a combined 43% of net digital and 51% net mobile ad revenue.

In terms of world stock market capitalization, technology companies represent eight, or 40%, of the top 20 companies and two of these (Tencent and Alibaba) are Chinese. Chinese companies have made great strides in consumer applications. There are a billion "WeChat" accounts, Didi (the Uber equivalent in China) booked 1.4 billion rides in 2016 and close to \$3 billion payments were made in China through Internet-based companies in 2016. There are 70 million active shared bike users.

China has 751 million Internet users and 658 million Smartphone users; North America has 242 million on Smartphones. This data is impressive, but what is most meaningful to me is the money China has earmarked for research and development. China will be spending more on research by 2019 than the U.S. In 2014, the last year for which data was compiled by Battelle Memorial Institute, China was spending close to \$300 billion, more than half of the U.S. total of almost \$500 billion. Japan has been pretty flat at \$100 billion since 2000; the U.S. has been gradually rising from \$300 billion in 2000. China was only at \$50 billion in 2000 and, according to the OECD, is expected to be over \$600 billion by 2024, when the U.S. will still be around \$500 billion.

China believes that it has a competitive advantage in innovation, based largely on the strong support the central government is providing to a program that thrusts China into a leadership position in research. China's huge market provides a strong incentive to any company developing an idea with commercial potential. Also the cost of doing research in China is lower than it is elsewhere in the world. Finally, for every stage of venture capital there is plenty of money available from both domestic and international investors. There were only 150 early stage investments in 2009; in 2014 there were 1886. Information technology accounted for 68% of early stage commitments; computer-related and electronics accounted for another 20%.

China's investment in research goes beyond information technology. Prior to 2010, the country committed almost \$10 billion to research with biotechnology a focal point. The Chinese biotech industry has been growing at 30% and is valued at over \$10 billion today. There are more than 580 biopharma companies. Chinese scientists have transformed normal adult cells into embryonic stem cells and produced live mice from these lab-produced cells. There are two major state funding sources – the State High-Tech Development Program and the Basic Research Program. China is the third largest filer of patents, after the United States and Japan.

U.S. companies have been investing in Chinese biotech companies including, for example, Merck, Pfizer and Eli Lilly. Originally, Chinese firms provided contract services for foreign biotech companies that wanted to take advantage of their highly skilled labor and lower costs. As a result of the Thousand Talents Program, which provides grants and tax breaks to Chinese-born academics who return home to work after being educated abroad, original research has escalated.

Regulatory reform has also helped by facilitating the movement of drugs from the laboratory to the clinic. Chinese drug manufacturers, however, continue to fail Food and Drug Administration inspections. A Chinese biotech company cannot go public to raise capital unless it is profitable, and while Chinese venture capital pools have grown rapidly, they still lag behind their U.S. counterparts in terms of funds available for entrepreneurial biotech companies.

Earlier this year when I visited China, I was struck by the optimism of influential people. There was no talk of a “hard landing” for the economy. Economic growth, which had been over 10% as recently as 2010, had slowed to 6.76% in 2017 and was expected to be 6.4% next year. In my opinion, growth will continue in the mid-single-digit range for some time as China continues to bring workers from the agricultural countryside into the industrial cities. As the absolute size of the economy increases, the growth rate will naturally slow down, but, by my estimate, the Chinese economy will be larger than that of the United States sometime in the 2030s.

Chinese urban employment has been growing at 3.8% per year and over one-third of the country’s population is now employed in cities. Policymakers have an annual target of creating jobs for 11 million people. They will not be able to sustain that level of job growth through the expansion of the traditional industrial sector, and that is why innovation is so important. Not only are they investing heavily in traditional research and development, but they are also acquiring natural resources in Africa for future industrial needs. The policymakers have a long term plan for the country’s growth and they are willing to invest the money now to make sure their objectives are met. This gives them an advantage over more mature economies like Europe and the United States that are coping with budget deficits, deferred maintenance and decaying infrastructure. The basic components of the economy continue to show impressive expansion. Passenger vehicle sales are up 77% over 2011; airline passengers up 78%; electricity consumption up 35%; and container throughput up 43%. My thanks to Don Straszheim and his team at Evercore ISI for providing this data.

China’s major accomplishment during the past decade has been to shift the balance of its economy from manufacturing and infrastructure to consumer goods and services. No economy can sustain its growth if it is heavily dependent on its industrial base, which requires heavy capital investment, incurring debt and export growth. The consumer is essential to a healthy and continued expansion. A decade ago the consumer sector accounted for less than 40% of Chinese GDP; today it is more than 50% and climbing. Quite an accomplishment. The big problem China has to deal with is the movement of capital out of the country, both by companies investing abroad and individuals anxious to have some of their assets overseas. The government is making an effort to control the outflow.

An issue of concern for many investors is the level of Chinese debt, which has risen from 149% to 269% of GDP over the past decade. Increasing debt has accounted for two percentage points of China’s 7.25% growth from 2012 to 2016. There is also the worry that there are a number of non-performing loans on the books of the banks and “shadow” banks, but the adverse effects of these has been deferred by the country’s growth.

We are likely to see renewed economic vigor from China as an aftereffect of the 19th Party Congress which took place in October. Xi Jinping will solidify his power as a result of the support given to him at the session. The One Belt, One Road program, designed to extend China’s economic reach across all of Asia, will help sustain China’s growth. The contrast with the United States is clear. China has a strong central planning function focused on the long term and its authoritarian structure allows it to implement its programs effectively. The United States has difficulty getting even its short-term initiatives through Congress. China has benefited from general market and economic conditions which remain favorable throughout the world. There are few excesses that would indicate a bear market or a recession is likely to occur in the next eighteen months. The one event that could change all that is a military confrontation between the United States and North Korea, and unfortunately, the odds of that happening are increasing day by day.

There is no way China would not be somehow affected by this confrontation. China could, however, play a critical role in preventing hostilities by imposing sanctions that would cut off North Korea from Chinese fuel and food. China accounts for over 90% of North Korea’s trade according to the International Monetary Fund. So far, China has been reluctant to antagonize North Korea because it likes having a quasi-Communist buffer between itself and a democratic South Korea. China is the only country with any significant leverage over North Korea, so its cooperation in any negotiations aiming to prevent an armed conflict is essential.

The North Korean nuclear program has been a problem for the West for several decades. Many times in the past, the United States and other countries have reached a settlement in which North Korea agrees to suspend its nuclear development program in exchange for a financial consideration. Months go by and North Korea violates the agreement and starts its nuclear program again. Graham Allison, director of the Belfer Center at the Kennedy School at Harvard, has drawn a lesson from the Cuban missile crisis of 1962: “If you are not prepared to risk war, even nuclear war, an adroit adversary can get you to back down in successive confrontations.” The Cuban missile crisis is not a perfect parallel, but in that case John F. Kennedy had two alternatives: he could bomb the Russian missile sites on the island, or he could create a naval embargo and also offer to remove U.S. missiles from Turkey as a bargaining chip. The embargo and the missile

removal worked, and the Russians withdrew their weapons from Cuba. The hope today would be for China to stop the shipment of food and fuel to North Korea, but that does not seem likely to happen at this time.

The difference between Asian concepts and our own may be philosophical. According to Samuel Huntington, who wrote *The Clash of Civilizations and the Remaking of World Order*, Confucian values are based on authority, hierarchy, the subordination of individual rights and interests, the importance of consensus, the avoidance of confrontation, "saving face," and the supremacy of the state over society and society over the individual. Americans value liberty, equality, democracy and individualism. According to Huntington, we tend to distrust government, oppose authority, promote checks and balances, encourage competition and sanctify human rights. The confrontation with North Korea is generally characterized as a face-off between two impetuous and unpredictable leaders, but there may be something more philosophical going on here and it may have implications for the long-term relationship between China and the United States. In Graham Allison's new book, *Destined for War: Can America and China Escape Thucydides's Trap?*, he refers to the conflict between Athens and Sparta caused by the rise of the former. Henry Kissinger wrote on the dust jacket of the book, "I can only hope that the U.S.-China relationship becomes the fifth case to resolve itself peacefully, rather than the thirteenth to result in war." The rise of China as a leader in technology may be a critical factor in this important geopolitical competition. I am grateful to my good friend Kiril Sokoloff of 13D Research for reminding me of the insights of Huntington and Allison.

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