

Schumpeter | Chinese tech v American tech

Which of the world's two superpowers has the most powerful technology industry?



AMERICANS, and friends of America, often reassure themselves about its relative decline in the following way. Even if the roads, airports and schools continue to slide, it will retain its lead in the most sophisticated fields for decades. They include defence, elite universities, and, in the business world, technology. Uncle Sam may have ceded the top spot to China in exports in 2007, and manufacturing in 2011, and be on track to lose its lead in absolute GDP by about 2030. But Silicon Valley, the argument goes, is still where the best ideas, smartest money and hungriest entrepreneurs combine with a bang nowhere else can match.

Or is it? American attitudes towards Chinese tech have passed through several stages of denial in the past 20 years. First it was an irrelevance, then Chinese firms were sometimes seen as copycats or as industrial spies, and more recently China has been viewed as a tech Galapagos, where unique species grow that would never make it beyond its shores. Now a fourth stage has begun, marked by fear that China is reaching parity. American tech's age of "imperial arrogance" is ending, says one Silicon Valley figure.

China's tech leaders love visiting California, and invest there, but are no longer awed by it. By market value the Middle Kingdom's giants, Alibaba and Tencent, are in the same league as Alphabet and Facebook. New stars may float their shares in 2018-19, including Didi Chuxing (taxi rides), Ant Financial (payments) and Lufax (wealth management). China's e-commerce sales are double America's and the Chinese send 11 times more money by mobile phones than Americans, who still scribble cheques.

The venture-capital (VC) industry is booming. American visitors return from Beijing, Hangzhou and Shenzhen blown away by the entrepreneurial work ethic. Last year the government decreed that China would lead globally in artificial intelligence (AI) by 2030. The plan covers a startlingly vast range of activities, including developing smart cities and autonomous cars and setting global tech standards. Like Japanese industry in the 1960s, private Chinese firms take this "administrative guidance" seriously.

Being a global tech hegemon has been lucrative for America. Tech firms support 7m jobs at home that pay twice the average wage. Other industries benefit by using technology more actively and becoming more productive: American non-tech firms are 50% more "digitised" than European ones, says McKinsey, a con-

sulting firm. America sets many standards, for example on the design of USB ports, or rules for content online, that the world follows. And the \$180bn of foreign profits that American tech firms mint annually is a boon several times greater than the benefit of having the world's reserve currency.

A loss of these spoils would be costly and demoralising. Is it likely? Schumpeter has compiled ten measures of tech supremacy. The approach owes much to Kai-Fu Lee of Sinovation Ventures, a Chinese VC firm. It uses figures from AllianceBernstein, Bloomberg, CB Insights, Goldman Sachs and McKinsey and includes 3,000 listed, global tech firms, 226 "unicorns", or unlisted firms worth over \$1bn, plus Huawei, a Chinese hardware giant.

The overall conclusion is that China is still behind. Using the median of the yardsticks, its tech industry is 42% as powerful as America's. But it is catching up fast. In 2012 the figure was just 15%.

Start with Chinese tech's weak spots. Its total market value is only 32% of the figure for America's industry. While there are two huge companies and lots of small ones, there are relatively few firms worth between \$50bn and \$200bn. China is puny in semiconductors and business-facing software. Tech products do not yet permeate the industrial economy: Chinese non-tech firms are relatively primitive and only 26% as digitised as American ones.

As for investment, Chinese tech's absolute budget is only 30% as big as that of American tech. And it is still small abroad, with foreign sales of 18% of the total that American firms make. Apple rakes in more abroad in three days than Tencent does in a year.

The gap gets much smaller, however, when you look at the most dynamic parts of the tech industry. In the area of e-commerce and the internet, Chinese firms are collectively 53% as big as America's, measured by market value. China's unicorns, a proxy for the next generation of giants, are in total worth 69% of America's, and its level of VC activity is 85% as big as America's based on money spent since 2016. There is now a rich ecosystem of VC firms buttressed by Alibaba and Tencent, who seed roughly a quarter of VC deals, and by government-backed funds-of-funds.

China is improving at "breakthrough" innovations. Take AI. China's population of AI experts is only 6% of the size of America's (if you include anyone of Chinese ethnicity this rises to 16%) and the best minds still work in the United States, for example at Alphabet. But now the number of cited AI papers by Chinese scientists is already at 89% of the American level. China has piles of data and notable companies in AI specialisms, for example Face++ in facial recognition and iFlytek in speech.

The tectonic plates shift

At the present pace China's tech industry will be at parity with America's in 10-15 years. This will boost the country's productivity and create tech jobs. But the real prize is making far more profits overseas and setting global standards. Here the state's active role may make some countries nervous about relying on Chinese tech firms. One scenario is that national-security worries mean China's and America's tech markets end up being largely closed to each other, leaving everywhere else as a fiercely contested space. This is how the telecoms-equipment industry works, with Huawei imperious around the world but stymied in America.

For Silicon Valley, it is time to get paranoid. Viewed from China, many of its big firms have become comfy monopolists. In the old days all American tech executives had to do to see the world's cutting edge was to walk out the door. Now they must fly to China, too. Let's hope the airports still work. ■