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Banning Huawei's 5G won't halt China's tech revolution – China's hi-tech firms are reaching technological frontiers

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China's hi-tech firms are challenging the west's belief in the free market's ability to innovate.

The US military is one of the most powerful forces of state-financed technological innovation in the world. It has produced such important innovations as the internet, GPS technologies and LCD screens. But outside the military's immediate technological needs, the US political economy is largely a "free market" system in which venture capitalists and private banks are often the only source of funding for innovations. We are now seeing the unravelling of this laissez-faire attitude, as China has for the first time outpaced the US with its development of 5G technology.

Public funding for private-sector innovations is sometimes forthcoming, but nowhere near the scale China used to develop Huawei's 5G technology. Huge amounts of funding from the Chinese Development Bank (CDB) and Export-Import Bank - two of the three banks devoted to bankrolling state policies - allowed Huawei to outcompete established firms such as Nokia and Ericsson in price, and later in the quality of their products. As one employee of Alcatel-Lucent, the telecommunications subsidiary of Nokia, said at the start of this process in 2005: "We won't die at the hands of Huawei; if we die, it will be at the hands of China Development Bank."

China's hi-tech firms are reaching technological frontiers by violating many contemporary beliefs and principles around free-market innovation

The telecommunications giant's credit from the CDB totalled \$30bn between 2004 and 2009, allowing the company to expand markets and spend \$4.5bn on research and development in 2012 alone. Overseas, the Export-Import Bank has offered roughly \$2.9bn of loans to 49 Huawei projects in 22 African countries since 2004 [1].

Simultaneously, under China's "go global" policy, Beijing offered subsidies and credits to companies entering overseas energy markets or buying foreign technologies. Huawei's network of 38 joint innovation centres and 14 research and development centres is a testament to this. These centres are dotted all over the world, predominantly built in more technologically developed countries, with a view to collaborating with local businesses and thus tailoring their products to those markets more effectively. Only last year, Huawei opened a joint innovation centre in London.

The success in developing 5G technology must be understood within the context of this long-term strategy and support. Chinese technological innovation took its greatest strides forward under the Hu Jintao administration of 2003-2013. The administration established targets to achieve 2.5% of GDP expenditure on research and development activities, focused on firms and universities across

the country. China's 2019 lunar landing on the far side of the moon is no doubt also a product of this focus.

Alongside state investment from the CDB, from 2006 onwards China moved away from its policy of facilitating investments made by foreign companies, in the hope that it would lead to a trickle down of knowledge and technologies. The problem with leaving trickle down to occur from foreign direct investments was that private companies didn't willingly share intellectual property; to do so would be tantamount to sacrificing profits. Even though international companies invest a lot in manufacturing in China, most of it has been for processed components, which generates minimal profits.

The Chinese government started forcing foreign companies to share a certain amount of designs, code and technological knowhow with a Chinese collaborating firm [2] if they wished to continue operations in China's market of 1.3 billion potential customers. The policy change created joint ventures between western tech leaders and their Chinese equivalent firms [3].

The Barack Obama administration blocked numerous attempts by Chinese tech companies to buy western technology firms as they sought to acquire the intellectual property involved [4]. In 2018, the Donald Trump administration took action against China's policy of trading market access for intellectual property, deeming it an affront to free-market principles, and issued a wave of trade tariffs on China. This was not a huge policy shift, though.

In the case of Huawei, Trump banned the 5G network from operating in the US and is discussing ways in which competitors such as Nokia and Ericsson could be funded; the US is essentially taking a page directly out of China's subsidy playbook and violating the free-market principles it claimed to hold dear. To complicate matters, just last week the Pentagon stepped into the fray [5], defending US tech companies' right to sell to Huawei, lest they lose the money they themselves need to innovate.

The proposed quick fix of banning Chinese technology in western countries may offer a degree of increased security, depending on the equipment and networks in question. More broadly though, such tools will do little to interrupt the ongoing economic and innovation achievements of China's technology leaders. China's hi-tech firms are reaching technological frontiers by violating many contemporary beliefs and principles around free-market innovation. The trading of market access for technological knowhow and the concerted financing of national champions have been vital elements of their success.

As far as the west is concerned, the horse has likely already bolted on who will be selling the first 5G equipment globally. However, if the US hopes to produce viable competitors to companies such as Huawei in the future, it might more seriously consider the value of a national development bank and the importance of international collaborations. This is a conversation around the economics of innovation whose time has come, and the stakes couldn't be higher.

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P.S.

• The Guardian. Thu 30 Jan 2020 11.07 GMT Last modified on Fri 31 Jan 2020 11.37 GMT:

<https://www.theguardian.com/commentisfree/2020/jan/30/banning-huawei-5g-china-tech-revolution-free-market>

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Footnotes

[1] <http://www.sais-cari.org>

[2] <http://voxchina.org/show-3-115.html>

[3] <https://promarket.org/chinas-international-joint-venture-policy-effective-diffusing-technology/>

[4] <https://www.nytimes.com/2016/02/18/business/dealbook/china-fairchild-semiconductor-bid-rejected.html>

[5] <https://www.wsj.com/articles/pentagon-blocks-clampdown-on-huawei-sales-11579870801>