Trade conflict between the US and China has accelerated towards the brink of trade war .

A recent Trump executive order preventing US companies from working with “adversaries” (China fits this description) was hammered home by a ban on selling US high-tech products to Chinese tech company Huawei .

Read more: ***Blocking Huawei from Australia means slower and delayed 5G – and for what?***

Australia too has put a halt on 5G infrastructure coming from China .

But this is about more than just which company’s poles and wires will provide internet for your phone and movie downloads in the future.

Choices the US, Australia and other nations make around how they set up 5G will determine how we use technology for collaboration, innovation and global business.

Huawei’s 5G is becoming a global standard

5G is the fifth generation network for mobile connectivity. It has been described as “game changing” due to high speeds and high capacity, and provision of superior service to high numbers of users.

5G relies on standardisation – the technical specifications used in mobile networks – supported

by patents and licensing agreements.

In mobile networks, standard essential patents (SEPs) are those patents that any company will have to license when implementing 5G. History suggests companies holding SEPs benefit significantly from royalties.

Data from April 2019 shows China, collectively, owns over one-third of the world's SEPs for 5G.

China lost its opportunity in 1G and 2G, learned an expensive lesson from its failed 3G standard, and achieved substantial catch-up in 4G . It is determined to lead in 5G.

Chinese tech companies such as Huawei and ZTE understand that transition to 5G opens a window of opportunity for them to achieve this goal. To do this they need to build followers – and momentum is already moving in this regard.

By the end of March 2019, Huawei had reportedly been awarded 40 5G commercial contracts from carriers around the world (including 23 from Europe, six from the Asia Pacific, ten from the Middle East and one from Africa).

The battle of radio spectra

In addition to standardisation, radio spectrum is another critical factor in 5G. Radio spectrum is a limited resource that is used for communications from Earth to space.

Spectrum allocation is at the heart of 5G competition.

Huawei's 5G technology has been developed for mid-band spectrums which are available for commercial use in many countries, including Australia.

The best plan for Australia is that mid-band solutions be used to cover the bulk of 5G networks, with high-band technologies to provide complementary coverage in densely populated areas.

The US has limited access to mid-band spectrums for commercial 5G, as most in this range are for defence use. So the US developed its 5G technologies for high-band spectrums – which presents that country with a dilemma.

It is not easy for the US to switch from high-band to mid-band 5G in a short time. And it's not likely the rest of the world will give up using mid-band solutions, which provide wider coverage and require less investment in infrastructure.

A short-term answer is for the US to push its allies to jointly exclude Huawei from their 5G networks. This might be sought to protect the US from 5G "isolation", and perhaps have other commercial or political implications – or a combination of these factors.

Read more: ***US ban on Huawei likely following Trump cybersecurity crackdown – and Australia is on board***

The consequence is that Australia, as one of those allies, would likely need to spend more money on base stations and the necessary infrastructure and wait a longer time for a fully operational 5G system.

For example, a Huawei 5G base station is only one-third the size of its 4G equivalents and weighs only 20 kilograms: it's easier to install, and the technology is at least 18 months ahead of its competitors such as Nokia
. This advantage is lost if Australia continues to block Huawei.

Australia's fourth mobile telco, TPG, argues that there is "no credible case" to rollout its 5G as

planned without Huawei .

Read more: ***Stakes are high as US ups the ante on trade dispute with China***

Fractured globalisation?

5G will support many applications such as industry automation, self-driving cars, massive machine-to-machine communications, internet of things , smart cities and more.

This means the growth of 5G will accelerate development of an ecosystem in which different countries can co-exist and co-develop, supported by interconnected and interdependent supply chain networks.

Such ecosystems are built on mobile network infrastructures, upon which are layered technology platforms for manufacturing, medical treatments and payments (for example) and then applications for working, studying and living.

For example, in the future this sort of system might be used by Australian and Chinese academics and industry experts to work together on innovations related to health care, environmental protection or industrial automation.

But this may fall down if the involved countries build their 5G infrastructures differently.

Australia’s final 5G plan could have profound implications for Australia’s economic development into the future.

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