

US-CHINA TECHNOLOGY COMPETITION: IMPACTING A RULES-BASED ORDER

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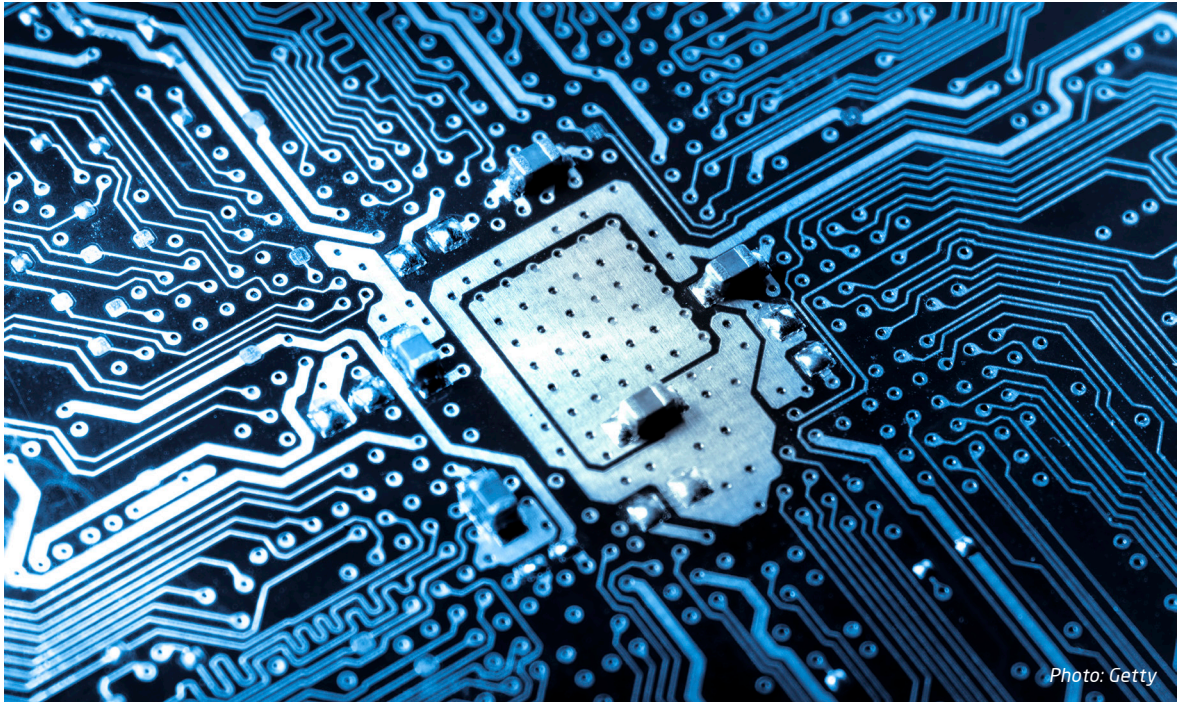
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Executive summary

- The United States' long-standing decentralised, industry-led approach to technology standards development is being challenged by China and may have serious economic consequences.
- China's industrial policies to secure leadership in emerging technologies include a well-resourced, state-led strategic approach to the development of technical standards.
- For Beijing, efforts to increase activity and effectiveness in international standards organisations are beginning to bear fruit, notably in the development of 5G network standards, a trend that is likely to continue in artificial intelligence (AI) and Internet of Things (IoT).
- Accordingly, US-China technology competition is now playing out across multiple standards bodies as an expanded arena of contest, but does not represent a choice between distinct groups of technologies.
- While national security considerations have become the main entry point for the wider policy community to engage with technology standards, this overshadows the operational challenges facing technology firms, industry bodies and officials involved in standards development.
- A narrower US digital trade agenda and China's enthusiastic pursuit of new international standards has created a sense of uncertainty across international rule-setting on new technologies.
- While competition between the United States and China is likely to continue, policy developments in major emerging markets like India will take on increased importance in shaping international digital activity.
- It is in Australia's economic interests to continue to work with partners and advocate for a balanced and transparent approach to rule-setting in the development of emerging technology and global digital trade.

Introduction



There has been a fundamental, bipartisan shift in the United States concerning the role and impact of China on the economy, especially as it relates to the future of digital and high-tech sectors. The list of concerns is long but increasingly familiar, including forced technology transfer, onerous cybersecurity policies, data localisation, subsidies provided to state-owned or connected firms, and China-specific technical standards.¹ ‘Competition’ is now the shorthand for the state of the world’s most consequential bilateral relationship.

This US-China confrontation over technology involves economic, security and political issues that are difficult to untangle. It is clear, however, that the ability to continue leading the global development and capitalisation of emerging technologies is central to the United States’ future economic growth and prosperity. This includes aspects of 5G, the Internet of Things (IoT) and artificial intelligence (AI) — all of which feature in China’s headline industrial policy, Made in China 2025. These sophisticated, data-driven technologies also have national security implications and applications, leading the Trump administration to place them at the

forefront of its “America first” agenda. One aspect of that agenda that has received relatively little attention is the way in which standards — as opposed to the technologies themselves — have become a forum for US-China competition.²

Standards are sometimes described as the connective tissue between technology and the market, providing specifications for products, services and systems.³ China’s active, strategic and state-centric approach to developing standards for emerging technologies has seen it become an increasingly effective participant in international standards setting organisations. Standards that support the establishment of a fifth-generation cellular network — commonly known as 5G — have become a yardstick for that success. In contrast to China, the US standards community is a group of industry-led entities that have historically had little to do with government. While standards sit outside traditional foreign and even trade policy questions in Washington, the breadth of US national interests in emerging technologies has begun to change that policy landscape.

Examining the impact of US-China competition on international technology standards is important for countries such as Australia that participate in the development of rules governing economic behaviour and depend on the existence of those same rules for their own national prosperity. The evolution of standards, international trade agreements and regulatory settings governing emerging technologies and their use is an expanding area of activity in the international rules-based order. The next two decades will see substantial growth in digital activity across the Indo-Pacific region. Australia and Australian business' ability to transact among these digital economies will be as dependent on transparent, balanced and open digital rules as they have been for traditional goods and services.

These structural questions have strategic consequences because of the centrality of economic issues in the emerging US-China geopolitical competition.⁴ The term 'geo-economics' has gained traction as a way to characterise the use of economic tools for strategic ends,⁵ and emerging technologies are at the heart of this 21st century strategic competition. They represent vast and transformative economic potential, but raise complex questions about internet governance and the role of the state in the digital economy.

The question of whether there will be a 'bifurcated internet' between China, on one side, and the United States and likeminded countries on the other⁶ captures the sense that technological globalisation is at a turning point. A binary choice between the United States and China when it comes to rules governing new technologies is an over-simplification. What it does speak to, however, is the intensity of focus in the United States on China, and, in the case of technology standards, the increasingly politicised environment that surrounds these highly technical discussions.

The US focus on China also leaves less space for attention on developments in other major economies and regions that will also shape the future global digital economy.

This report outlines the role of technical standards in emerging technologies and examines China's approach — and increasing success — in securing outcomes in international standards. Although 5G has become a focal point for this debate, standards development will be equally important in other emerging technologies, including AI and IoT. The following pages will examine how the United States' long-standing industry-centric approach to standards development finds itself under pressure in an increasingly contested space which it will find challenging to continue leading. The geo-economic implications of US-China competition in standards setting become clearer when set alongside the change of focus in US trade policy. The report identifies some of the key issues that countries like Australia will have to navigate in addressing the impact of US-China technology competition on the development of new international rules relating to emerging technologies.

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Technical standards and emerging technologies

What are technical standards?

Standards are 'voluntary documents that set out specifications, procedures and technical guidelines to ensure products, services and systems are safe, consistent and reliable'.⁷ Technical standards are a subset of standards activity that 'establish norms and requirements for technical systems, specifying standard engineering criteria, methodologies or processes'.⁸ Technical standards are of increasing value to the operation of a digitised global economy, which relies on the interoperability and compatibility of technology.⁹ They help create economies of scale by ensuring that goods and services are able to be sold across multiple markets.

Standards can be formal or de facto.¹⁰ A de facto standard develops because of market dominance. The ubiquity of the Microsoft Office platform in the 1990s is a useful example of a de facto standard.¹¹ In contrast, formal standards are developed, set and approved by a standard setting organisation. For an analysis of competition in the development of formal international standards for emerging technologies the most relevant areas of standards activity relate to 5G, the Internet of Things (IoT), artificial intelligence (AI) and internet governance.¹²

How and where are they set?

Formal standards applying to technologies are set in a range of organisations. The use of international standards for products has a long-standing place in World Trade Organization (WTO) architecture, including through the Technical Barriers to Trade (TBT) agreement; but there is less clarity around many internet-enabled technologies, which blur the line between goods and services.¹³ The leading international bodies establishing standards for digital technologies include the International Organization for Standardization and International Electrotechnical Commission Joint Technical Committee for information technology standards (ISO/IEC JTC1). Both the ISO and IEC are non-government, member-based organisations that develop standards through a consensus process. Each ISO member is represented by a national standards body that may be industry-led or government.

Treaty-based organisations also play a role in formal standard-setting, primarily through the International Telecommunications Union (ITU). As a treaty-level organisation, the ITU stands out from most other standards making entities. Industry members and organisations are permitted as Sector Members and can participate in the ITU's standards making arm (ITU-T), but only member states set the ITU's strategic direction and budget. Standards making forms a part of the ITU's agenda where it issues standards through recommendations.

A further group of technical standards setting organisations are industry consortia, such as the World Wide Web Consortia (W3C) and the Internet Engineering Taskforce (IETF).¹⁴ Many are based in the United States, such as the Institute of Electrical and Electronics Engineers (IEEE), and identify as international standard setting bodies by virtue of their compliance with TBT principles.¹⁵ The Third Generation Partnership Project (3GPP) is an umbrella body that produces technical specifications for wireless technologies, including 5G. These are negotiated between the national telecommunications standards associations which form its membership.

These bodies — and this list is nowhere near exhaustive — give a sense of the many layers of the international standards ecosystem that has evolved over a number of decades.¹⁶ In recent years, China has prioritised and taken a more active role in the global technology standards setting process.

Beijing has viewed standards as both a barrier and, more recently, as an enabler to its economic transformation from low value-added assembly production lines to high-tech products and services.

Why is standard-setting becoming more competitive?

Standards can be described as the connective tissue between technology and the market, providing specifications for products, services, and systems. While discussions of standards are often highly technical, they are becoming more politicised because their strategic and economic implications are so significant.

Beijing has viewed standards as both a barrier and, more recently, as an enabler to its economic transformation from low valued-added assembly production lines to high-tech products and services. Emerging technologies like 5G, the Internet of Things (IoT) and Artificial Intelligence (AI) will be integral to high-tech products and services, and to the future of the global economy as a whole. The standards that inform the use and adoption of these new technologies will shape the playing field of global technology competition for years to come.

Ultimately, technological globalisation is in flux. The evolution of standards, trade agreements and regulatory settings governing emerging technologies and their use is an expanding area of activity that has significant implications for the global economy, the international rules-based order and the prosperity of countries like Australia.

Source: United States Studies Centre

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China's approach to standards setting

China has undertaken a sustained effort to upgrade its ICT industries from low value-added assembly production lines to high-tech products and services. For Beijing, standards have been seen as both a barrier and, more recently, as an enabler to that economic transformation. Standards often incorporate patented technology, creating a lucrative stream of royalty fees for the entity that owns the patent (i.e. the intellectual property incorporated in the standard). In the case of China's ICT industry, the companies owning patents incorporated in standards (known as 'standards essential patents') have largely been foreign. A motivation for the development of indigenous technology standards in China was to create alternatives to the use of expensive foreign patents.¹⁷

China's efforts from the mid-2000s to develop unique standards in information and communication technologies (such as WAPI, an alternative to Wi-Fi and CBHD, an alternative to DVDs) were met with limited commercial success, largely because they were only incrementally different to dominant existing technologies.¹⁸ These standards were neither adopted

at scale domestically nor able to capture international markets which had already matured toward existing technology. Some attributed that failure to an erroneous belief by Chinese policymakers that Chinese markets were large enough to support ICT products developed with China-unique technology standards.¹⁹ China's market has grown considerably since that period, but other factors have also come into play that have made China's approach to standards setting more effective.

Three factors have since changed China's prioritisation and capability regarding standard setting. The first is China's explicit focus on the state-subsidised regional development strategy, the Belt and Road Initiative (BRI). The 'Digital Silk Road' component of the BRI is the least detailed element of China's export-focussed loans-and-infrastructure scheme.²⁰ It has nevertheless sparked analysis about how China's efforts to create export markets — and, by default, to create demand — for Chinese infrastructure extends to digital networks.²¹ For example, Chinese companies are estimated to have installed internet and mobile network equipment in at least 38 countries, although not all fall within BRI countries.²² Provided a project



Huang Kunming, head of the Publicity Department of the Communist Party of China Central Committee, speaks at the 1st Digital China Summit, April 2018 (Getty)

was sufficiently large, BRI's exports could result in Chinese technology becoming the de facto standard in a country or region which had undertaken a BRI project. This, in turn, has the potential to enhance support for Chinese-backed standards at relevant international forums.

The second factor is the volume of standards in Chinese policymaking. In recent years, China has issued more than 300 national standards related to cybersecurity and requirements relating to the secure and controllable use of ICT technology.²³ Some of these are specific technical standards, but others, such as the personal information security standard, are closer to domestic regulation.²⁴ It is not clear what proportion of China's domestic cybersecurity standards inform Beijing's approach to formal international standard setting. It does appear, however, that China's domestic standardisation practices are evolving and diversifying to meet the needs of China's rapid economic development.²⁵ On the ground, these standards form part of an increasingly regulated ICT sector and broader internet economy, which impact how foreign businesses operate.²⁶

The third factor is timing. Chinese companies have established technological prowess and made substantial investments in a body of new technologies on the horizon — currently 5G, and increasingly IoT and AI — that have the potential to be economically transformative. In the case of 5G, Chinese company Huawei stands out as the only company which is able to provide many of the elements of the technology required to stand up a 5G capability, from chips, to handsets and network infrastructure. By contrast, US firm Qualcomm, another leader in 5G, specialises only in chips. Given their technological prowess, Chinese firms are increasingly well placed to both contribute and advocate for the adoption of technical standards across the entire technology stack of 5G.

At the institutional level, Beijing is devoting time and resources to ensure Chinese representatives and Chinese companies are more active and effective participants in international standards setting forums. Anecdotal observations from standards industry participants recount the large size of official Chinese delegations, and the incentives provided to Chinese representatives to develop standards proposals that are incorporated in working group agendas. Bonuses are reportedly offered to Chinese representatives who are successful in securing a leadership position, for example as the chair of a working group. Standards expertise can legitimately be acquired through corporate acquisitions, which has seen industry representatives changing position on technical issues due to the change of ownership by a parent company. The strategic value placed on international standards by Beijing suggests that this level of resourcing is likely to continue. To advance this process, the Standardisation Administration of China is developing a 'China Standards 2035' strategy.²⁷

5G standards – beginning to deliver on ambition

5G has become shorthand for the next generation of smartphones, though is in fact the fifth generation of cellular networks. How the 5G network will work, and what it can deliver, will rely on standards agreed by domestic and international standards bodies, in conjunction with hardware companies and carriers.²⁸ 5G is considered to be a step change in communications technologies because it offers greater speed, processing ability and low latency, all of which support a greater number of connections to more sophisticated, data-intensive technologies across an entire network. Another distinguishing feature of 5G is that there is little distinction between the 'edge' and the 'core' of the 5G network, meaning that, unlike 4G, it is difficult to quarantine security concerns, or adopt precautions for a single aspect of the network.²⁹

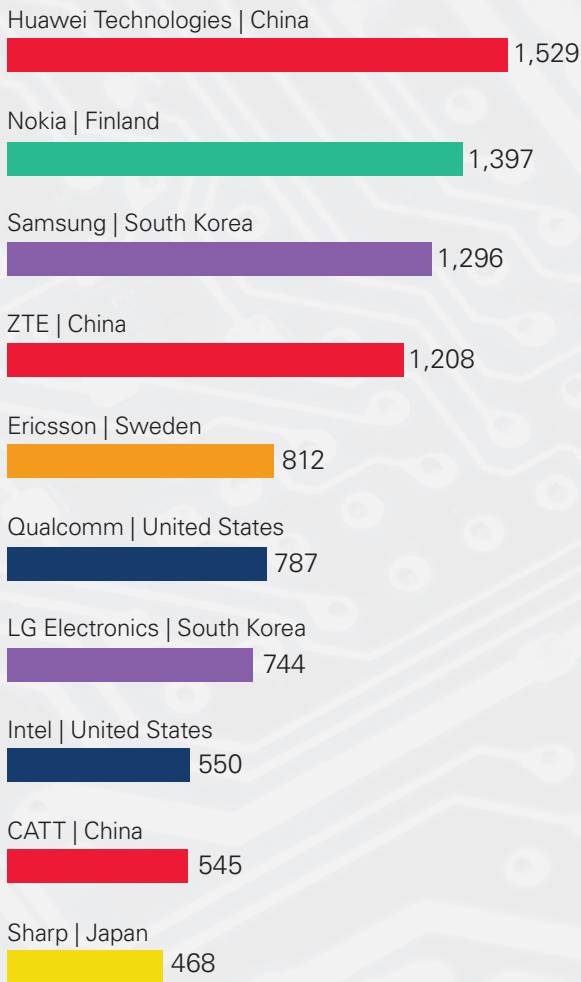
The development of international standards for 5G has been a focus point in China's standards ambitions,³⁰ not least because it represents something of a test case for Chinese leadership in wireless technology, as outlined in Beijing's 'Made in China 2025' agenda. However, in looking at the debate over 5G standards, it is important to distinguish between concerns about security vulnerabilities for network technology,³¹ and the voluntary process that defines international standards setting where proposals are scrutinised and assessed by technical experts in working groups. The technical standards process for various aspects of 5G will continue, notwithstanding a number of governments taking security-based decisions on the involvement of firms in 5G network tenders.³² Those decisions are separate from the ongoing work conducted by international standards bodies and industry consortia. As such, whatever the outcome of national security considerations, the development of standards will remain an essential aspect of the development and use of 5G technology globally.

The 3rd Generation Partnership Project (3GPP) is an umbrella body that develops standards and specifications for cellular telecommunications networks by bringing together seven international telecommunications standards bodies, including from the United States, China, the European Union, Japan, India and Korea.³³ 3GPP has been developing certain 5G standards since 2015.³⁴ In June 2018, Huawei's involvement in the conclusion of a 5G system standard in 3GPP caught media attention, sparking questions about an international 'race' for 'control' of 5G.³⁵ While important, this standard was only one element of a larger process taking place in 3GPP and other standards bodies.³⁶ The eventual suite of 5G standards will be international, representing an amalgam of technologies from companies based in the United States, China, Europe, Japan and Korea.³⁷ It is anticipated Chinese companies will secure a greater percentage of standards in 5G than they did in 4G, vindicating the effort and investment by Beijing and Chinese companies in developing 5G technology.

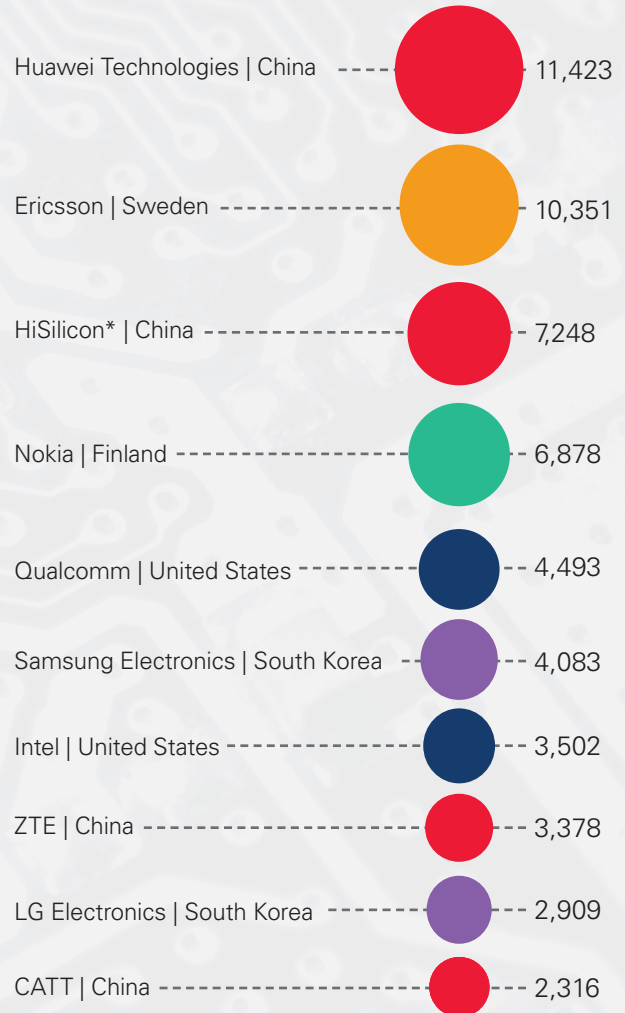
5G standards matter because they have direct commercial implications for the companies that stand to benefit from them — not least Huawei, Qualcomm and others. The economic stakes are therefore considerable. Companies that secure an element of patented technology in a 5G standard that becomes widely adopted can expect substantial revenues. 3G and 4G standards were hard fought for the same reason. China is projected to account for 41 per cent of global 5G connections by 2025, and the Chinese Government has assessed that the 5G market could account for 3.2 per cent of Chinese GDP in the same timeframe.³⁸

Figure 1: Leading global companies in 5G patents and technical standards

Number of standard-essential patents as of 4 Feb 2019



Number of 5G standards proposed as of 12 Dec 2018



*HiSilicon is a subsidiary of Huawei

Source: Dan Strumpf 'Where China Dominates in 5G Technology', Wall Street Journal, 26 February 2019, available at: <https://www.wsj.com/articles/where-china-dominates-in-5g-technology-11551236701>

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Artificial intelligence and beyond



The development of 5G has sensitised governments to the security implications of emerging technologies and sparked a degree of interest in the way in which China has become an active and effective participant in international standards development. But 5G represents only one aspect of a larger group of emerging technologies towards which both China and the United States have articulated leadership ambitions. Looking ahead, this competition will impact a wider range of forums charged with developing standards and rules applying to emerging technologies.

Rule-setting on AI technologies is at a more nascent stage than 5G, both domestically and internationally. AI is a hard-to-define set of developing technologies³⁹ with overlapping fields of potential civil and military applications. There is a growing global competition around data sets and talent, and the implications of deployable AI applications are raising novel questions about domestic regulation.⁴⁰ In 2017, China issued an Artificial Intelligence Development Plan (AIDP) with the explicit objective of securing Chinese global leadership in AI by 2030. As Paul Triolo and Jimmy Goodrich explain, the AIDP focusses on enhancing Chinese capacity in 'areas of key AI-research and core technology' where it currently sits behind the United

States and others.⁴¹ The AIDP also calls for China to play a leading role in setting international standards for AI technologies. In support of the AIDP, the Standards Administration of China (SAC) produced a white paper on AI standards in early 2018.⁴²

China reportedly presented its AI standards outline at the first meeting of the ISO/IEC joint subcommittee responsible for AI standards (JTC1 SC42) in April 2018. Beijing hosted SC42's first meeting after a robust contest for the SC42 secretariat role was secured by the US standards body ANSI.⁴³ The ISO/IEC is a consensus forum in which standards are developed transparently with documentation for future reference. On one hand, China's participation in the ISO/IEC (and elsewhere) in the development of international standards is precisely the kind of participation in rule-setting behaviour that commentators have urged China to take.⁴⁴ On the other hand, there is a view that China's standards-setting agenda on AI is getting ahead of the technology, especially when compared with the United States' preferred bottom-up approach. In other words, Beijing attaches a value to influencing the pace and scope of AI standards discussions that goes beyond the technical and commercial merit of a proposed standard.

A central defining difference between China and the United States is that the former tends to adopt a top-down, state-driven approach to policymaking and industrial ownership on technology, while the latter prefers a bottom-up, open, stakeholder driven approach. These differences matter because they play a key part in how the United States, China, and all countries approach rule-making in relation to emerging technologies. As part of its efforts to develop a leadership role in international standards, China is prosecuting its interests in the forums that best suit its interests. There is nothing novel in this calculation: the choice of forum — based on its scope, membership composition, and voting processes — is as much a part of standards setting as it is for any other international kind of rule-making.

These differences have played out in the ITU over a number of years as part of a debate over the extent to which its traditional telecommunications mandate should be expanded to include new communications technologies and, more recently, internet governance matters.⁴⁵ The expansion of the ITU's mandate to include internet governance is favoured by countries like China that support a greater role for the state in emerging technologies.⁴⁶ It is less appealing to countries that follow a multi-stakeholder approach to internet governance, such as the United States and Australia.

In recent years, the ITU through its members has also worked to broaden the scope of standards development to cover new areas of ICT and their applications, consistent with the strategic and economic objectives of countries such as (but not only) China. Bringing internet-related standards discussions into the ITU is consistent with China's — and some other countries' — interests in a strong state role in internet governance. Moreover, the ITU has also debated the potential expansion of the operations of the ITU's standards arm (ITU-T) to establish a laboratory testing recognition scheme for ITU standards. This highly technical area is noteworthy because it signals the potential for ITU standards and their assessment to become an alternative to those developed in the ISO/IEC. This would run up against a long-standing agreement between the two bodies not to duplicate standards work. In practical terms, if the ITU-T scheme gained sufficient traction over time, the existence of duplicate sets of international standards could raise compliance costs for business seeking to participate in multiple markets.

Can the United States compete effectively?

An October 2018 research report on China's IoT prepared on behalf of the US-China Economic and Security Review Commission bluntly stated 'China is currently leveraging a more coordinated and comprehensive strategy than the United States to influence relevant standards for the IoT, and US entities are often absent from key international standardization processes'.⁴⁷ Both the ITU, and the United States' relative absence from the ITU, has been criticised in various quarters over the years.⁴⁸ Although the ISO/IEC has traditionally been seen as an effective forum for US (and also EU) interests, the increased level of activity and engagement by Beijing and Chinese companies has changed that landscape. The report characterises IoT as an increasingly mature technological ecosystem, underpinned by AI, cloud computing and 5G.⁴⁹

A concerted US response to competition in the international standards landscape is complicated by the nature of its domestic standards community. It is a large, decentralised, competitive grouping that relies on a bottom-up, market-driven approach to standardisation. The comparatively slow pace of standard setting in an institution such as the ITU-T (and even the ISO/IEC)

often makes it unappealing to firms seeking quick-to-market solutions for emerging technologies that can be developed through a consortia model. There is little incentive for collaboration between consortia, or even participation by major companies in formal standards setting. For example, until recently Google did not participate in the US standards community; and it was arguably incentivised to make a change due to the increased focus on the development of standards relating to privacy and transparency. Within companies, those responsible for technical standards are often far removed from the executive or government relations teams.

As the same report notes, 'US pre-eminence in technology development [at the international level] has for many years meant that the United States has essentially set global technical standards, but this has meant that the United States has often used this de facto standards setting power in place of participating in global standards development'.⁵⁰ This criticism of US practice dates back decades — the report's authors refer to a 1990 OECD report — although there are some more recent examples of US firms taking late-in-the-



Photo: Getty

day decisions to engage with international standards bodies. For instance, Microsoft's decision to join the ISO some years ago was reportedly triggered by the international standardisation of open source documents which meant that its interests and proprietary software were better served by being part of the development of that specific standard. The difference between then and now is that China is taking a comprehensive and considered approach to standards setting — and has the industrial strength in emerging technologies to make that approach effective.

Notwithstanding the commission's criticism, the focus on US-China competition in the standards community is a sensitive issue from a business perspective. Many US technology companies have a global presence, and a global manufacturing and investment footprint that stretches across the United States, China and beyond. They may not find it useful or feasible to take part in a bilateral competition in a global market. Nor do they necessarily wish to publicly articulate their concerns about Chinese cybersecurity standards, for example, lest they find that the application of those standards is then made more difficult for their business operations — even if that is the cumulative effect.⁵¹ Crucially, when it comes to policy considerations, the absence of a data privacy framework in the United States (notwithstanding sectoral and industry-led privacy protections) may mean that government and the policy community are not well placed to deal with the nexus between standards, regulation, security and commerce.

Amid these challenges, the United States may need to find a way to take a more active role in identifying and articulating where it does have a preferred approach. The US' National Institute of Standards and Technology (NIST) or an affiliated entity could be asked to examine the standards community and its international interactions in a more holistic and pro-active fashion than is usually possible in the competitive US landscape. This is not to suggest that the United States needs to change its industry-driven approach, or adopt national plans in the fashion of China. However, there is value in stepping back and assessing whether US industry may require additional support to be at the table, and whether there are international standards setting dialogues on emerging technology which warrant policy attention by the federal government. It would also help address a perception by members of the international standards community that the United States is not present in certain forums.

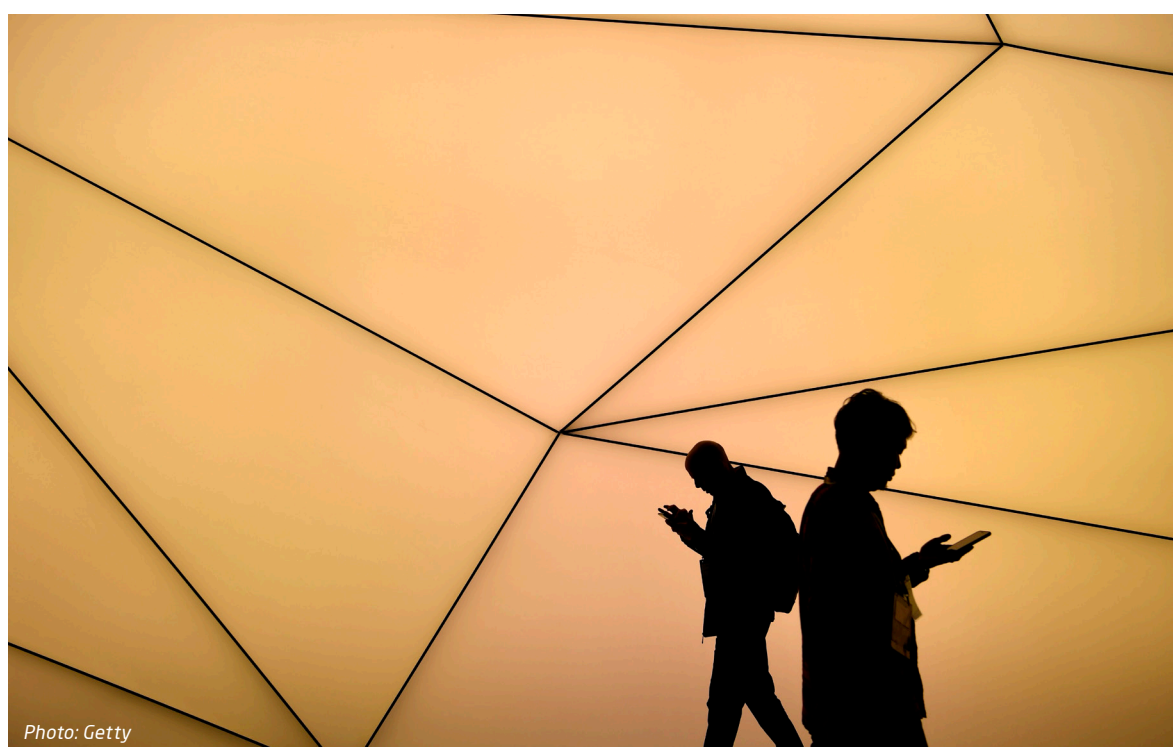
Digital rules, strategic considerations

The geo-economic implications of US-China competition in standards setting for countries such as Australia become apparent when set alongside another key development in international rule-making on digital technology: the change of focus in US trade policy.

Trade agreements are the leading fora for setting international rules on digital issues. The United States is credited with identifying and articulating the need for new concepts to enable digital trade, the best known of which relate to the movement of data across borders and prohibiting sweeping requirements to store data locally.⁵² These rules attempt to balance the need for governments to maintain public policy-based regulation about the handling of data — such as privacy — with the increasingly central role of data in global economic activity. It has proved to be a complex exercise, particularly as countries introduce or update their data protection laws in response to the prevalence of digital technology or perceive opportunities to mandate the establishment of a local data processing industry. Trade agreements do not incorporate standards on data, but they may cross reference the use of international

standards or include statements that reiterate their value in facilitating international trade. In other words, there is a complementarity between trade agreements and international standards.

With that complementarity in mind, Washington's withdrawal from what is now the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) saw the United States step away from what had been a key objective: the establishment of a regional framework on digital trade. The withdrawal of the United States from the CPTPP has not taken digital trade rules off the US trade agenda — the strong outcomes on digital trade in the United States-Mexico-Canada Agreement (USMCA) are testament to their ongoing importance. But its departure from the CPTPP, alongside overarching concerns about the functioning of the World Trade Organization (WTO), and Washington's focus on bilateral trade policy agendas — has taken the United States out of the driver's seat on regional and global digital trade rules (notwithstanding its participation in e-commerce discussions occurring among a subset of WTO members).⁵³

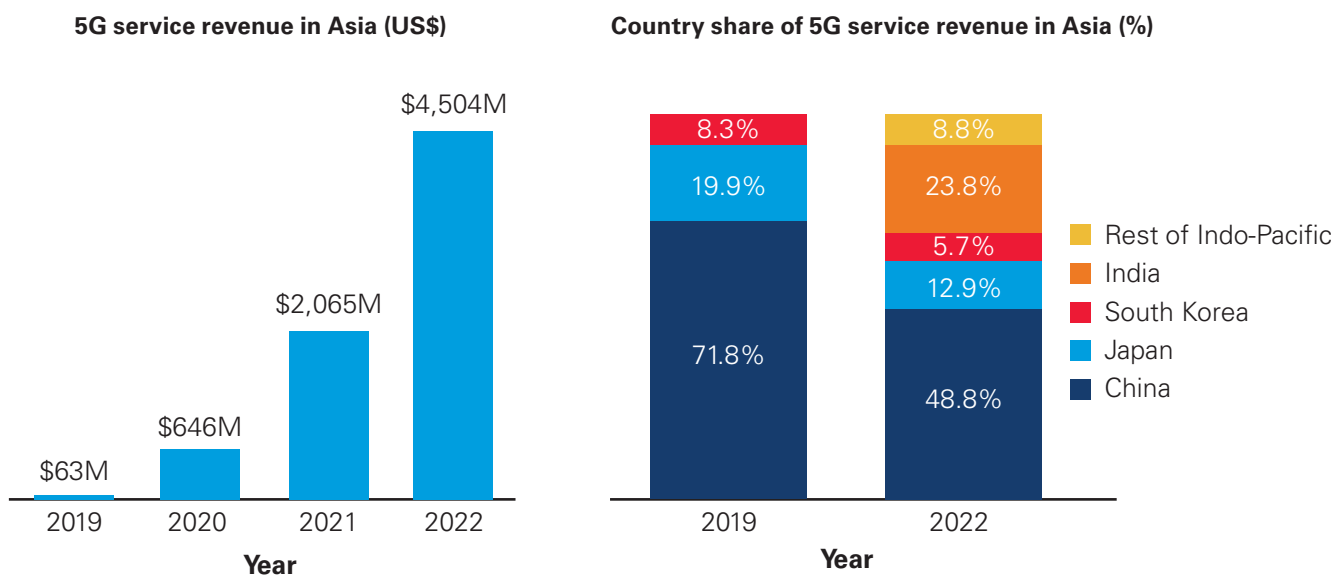


The net effect of a narrower US focus in securing digital trade outcomes and China’s enthusiastic pursuit of international standards has created a sense of contest and uncertainty across international rule-setting on new technologies. For some, this is an extension of the ‘Balkanisation’ of the internet that has taken place in recent years as major economies have adopted different, and sometimes incompatible, regulatory settings on the treatment of data.⁵⁴ There is no obvious replacement for the United States’ forward-leaning stance on global digital trade. It is not China, which does not share the United States’ desire to set wide-reaching commitments on data. And while Japan and the European Union — as well Australia and number of others — are active voices, there are differences in their approaches that make binding commitments challenging to secure.

In the absence of global leadership, policy developments in major emerging markets will take on increased importance in shaping international digital activity. India, which is projected to be the world’s most populous country and the third largest economy

by 2035, is chief among these.⁵⁵ India provides large volumes of ICT services to the United States,⁵⁶ and serves the EU data processing market. It is currently grappling with precedent, protectionism and economic potential as it develops key digital policy settings, including a draft data protection bill that incorporates aspects of both the EU General Data Protection Framework (GDPR) and China’s Cyber Security law.⁵⁷ India is also moving ahead with an ambitious 5G roll-out plan. It is making decisions that balance the need for technology that is priced to the Indian market with a desire to foster domestic manufacturing growth, while keeping an eye on security considerations. The factors influencing India’s domestic policy settings mirror some of the contested dialogue at the international level, but India’s rapidly expanding and data-rich economy is also large enough to project influence — including on the future global market in emerging technologies. This should not be overlooked in the focus on the United States and China.

Figure 2: 5G growth in the Indo-Pacific



Source: Frost & Sullivan and Principal Global, *Asia: Leading the race to 5G*, 1 February 2018, available at: <https://www.principalglobal.com/knowledge/insights/asia-leading-race-5g>

Implications of technology standards competition for Australia

Standards are not well understood by the policy community, particularly those that are focused on the US-China relationship. Standards represent an important aspect of global technology competition, and one that has grown in significance in light of China's decision to take a more active role. Nevertheless, the messy, multi-layered standards ecosystem should not be reduced to a forum for bilateral competition. Countries like Australia must be increasingly conscious of, and seek to navigate, the impact and potential fallout of US-China technology competition on the development of international rules relating to emerging technologies.

One key element of this competition for Australia is the way that standards are characterised. There is a difference between China's broad use of the term 'standards' and the narrower meaning it has in a standards-setting organisation. China has developed numerous domestic technology standards and

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contributes actively to standards discussions in the international standards community. Yet, not all of its policy statements on standards find their way into international forums. Beijing uses the general concept of standards to state its ambition to set rules, norms and market behaviour that will improve the prospects of Chinese technology being adopted

on a large scale. It is a unifying rhetoric that forms part of China's economic development agenda. In an era of competition, that rhetoric resonates more loudly in the United States and elsewhere.

A second standout feature is that national security considerations has become the entry point for the wider policy community to engage with technology standards. The broader the concept of national security becomes, the harder it is to identify areas where economic issues can be prosecuted by international rule-setting. And yet, the standards ecosystem is a large, diverse and (sometimes loosely) interconnected community. A narrow focus detracts from the ground-level challenges facing technology firms, industry bodies and officials involved in standards, including managing consensus in different bodies, keeping industry engaged in a process that can take years to deliver results, and ensuring the overall quality of standards outcomes. Robust standards proposals depend on quality R&D, which in turn requires funding and resources. One positive from increased attention on standards, if managed correctly, is the potential for a deeper understanding about what technical standards are, and a corresponding opportunity to place greater value on them as part of emerging technology rule-setting and their role in facilitating digital trade.

The third implication is that US-China technology competition is creating an expanded arena of contest, rather than a choice between distinct technologies. This can be overlooked in the overarching narrative of US-China competition, which suggests that there are sides to be chosen and choices to be made between differing visions of the digital economy. Such a view is an oversimplification. The United States is an active member of the international standards community, but it has also — through its industry dominance — been able to rely on de facto standard setting through market size. The increasing size of China's technology sector will continue to place pressure on US industry, even as the development of new technologies creates opportunities for economic growth. This bilateral contest will continue in both formal and de facto settings — through rule-making and market power — and there is no indication that it will have an imminent end point.

Policy recommendations

Improved coordination between US standards organisations, industry and the federal government would assist the United States in prosecuting its ambitions to retain a leadership role in the development and commercialisation of emerging technologies. To facilitate this, Washington should take a more active role in international standards-development and signal the value of international rule-setting in addressing growing technology competition.

Australia should develop a sharper understanding of the interconnected issues between standards, digital trade and internet governance by holding a regular dialogue between the domestic standards community, industry representatives and relevant parts of the Australian Government. Such dialogue would serve to share knowledge and highlight the role of standards in emerging technologies, and developments impacting Australian business.

In light of the contested nature of technology standard-setting, there is increasing value for Australia in supporting efforts, like those by Standards Australia,⁵⁸ to build engagement with regional standards organisations within ASEAN and across the Indo-Pacific. This engagement could be extended, for example, by mapping key standards impacting digital trade and the development of emerging technologies in major markets. There may be potential for capacity-building to enhance the role of regulators and officials in developing and using standards. The delivery model should partner with regional standards entities where possible.

Australian policymakers need to be better equipped to deal with the increasing complexity of the interface between technology, trade, standards and security. That knowledge gap could be addressed by additional resourcing to support efforts to exchange best-practices among Indo-Pacific economies on regulatory developments and industry approaches, particularly in policy areas relevant to emerging technologies, such as privacy, data and telecommunications.

Finally, it is in Australia's national interests to work with partners and advocate for a balanced and transparent approach to rule-setting in the development of emerging technology and global digital trade. Given the central role of emerging technologies in driving economic growth and development, the existence and development of mutually-agreed on international rules on standards will take on growing importance in the coming years.

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