

Licensing intellectual property in a changing trade environment

The US government is bringing export controls and Committee on Foreign Investment in the United States reviews to bear in its IP confrontation with China. IP executives must become familiar with these and other legal instruments, and how they affect R&D and licensing strategies

By Mark Cohen

Through legislative changes, tariff wars and executive actions, the Trump administration has injected a new urgency into international technology and supply-chain management, particularly between the United States and China. Changes in technology management are occurring in three distinct areas:

- national security regulation, through export controls and foreign investment review;
- liberalisation of China's tech transfer regime arising from accusations against the country's "forced technology transfer" regime; and
- the need to relocate IP assets in light of supply chains disrupted by punitive tariffs.

The changes have been swift. Industry reactions are already manifested in trade statistics.

This article, the first in a two-part series, will address the first big change – the strengthening of national security-related technology regulations and how this affects licensing and other IP activities.

National Defence Authorisation Act 2019 sets the stage

On 13 August 2018 President Trump signed into law the Export Control Reform Act and the Foreign Investment Risk Reduction and Modernisation Act, as part of the John S McCain National Defence Authorisation Act of Fiscal Year 2019. The National Defence Authorisation Act was passed by overwhelming majorities of both parties in Congress and suggests that a new normal is emerging in US-China trade relations. Both the Export Control

Reform Act and the Foreign Investment Risk Reduction and Modernisation Act have the potential to greatly extend the scope and impact of controls over US technologies for export, as well as foreign technology investment in the United States. The passage of the Foreign Investment Risk Reduction and Modernisation Act and the Export Control Reform Act has also been accompanied by a number of regulatory and enforcement actions, including:

- export control measures (eg, limiting technology exports to foreign nationals that may be working in the United States or the placement of companies such as Huawei on the US Entity List to restrict acquisitions of US technology); and
- restrictions on foreign investment (eg, Broadcom's proposed acquisition of Qualcomm or Chinese divestment in the US dating site, Grindr).

The Export Control Reform Act provides statutory authority for the Export Administration Regulations (EAR), which had been repeatedly extended by presidential order. The EAR govern dual use (military/civil) technology not otherwise regulated under other export control regimes (eg, the International Traffic in Arms Regulations administered by the State Department). The EAR are administered by the Bureau of Industry and Security (BIS) at the Department of Commerce.

Generally speaking, the Export Control Reform Act codifies

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longstanding BIS policies and does not change existing procedures or licensing practices that are attached to particular countries and existing regulated technologies. However, the act also mandates that the BIS enacts appropriate regulations over new areas of concern, particularly foundational and emerging technologies.

Controlling emerging technologies

On 19 November 2018 the BIS published an Advanced Notice of Proposed Rulemaking, which seeks to expand export controls over emerging technologies with potential dual-use applications. The technologies broadly cover many areas with significant civilian use, including:

- nanobiology and synthetic biology;
- genomic and genetic engineering;
- AI and machine-learning technology (eg, neural networks and deep learning, computer vision, speech and audio processing, and natural language processing);
- microprocessor technology (eg, systems on a chip);
- additive manufacturing; and
- functional textiles.

Although the list is potentially expansive, the new regulations should still conform to the existing framework of the EAR and the Commerce Control List. There were 232 comments formally submitted regarding the proposed rule, the majority of which expressed concerns about the potential overreach of the expanded export control regime. These concerns may have contributed to delays in enacting a final rule, which many expect to be enacted in the near future. It is hoped by many in the industry that the final rule will reduce these broad categories to more manageable subjects of potential regulation.

Controlling foundational technologies

The administration is expected to separately promulgate rules regarding foundational technologies. The foundational technology regulations will seek to impose controls on dual-use technology upstream from any military application. Foundational technology is distinct from fundamental research of the type conducted by universities, which should remain exempt from export controls pursuant to longstanding BIS practice. The National Defence Authorisation Act 2019 and its legislative history give little guidance on what constitutes 'foundational technology'. The act provides that "the President shall establish and, in coordination with the Secretary [of Commerce], the Secretary of Defense, the Secretary of Energy, the Secretary of State, and the heads of other Federal agencies as appropriate, lead a regular, ongoing interagency process to identify emerging and foundational technologies that — (A) are essential to the national security of the United States; and (B) are not critical technologies described in [other enumerated legislation]."

A public Department of Defence (DoD) report that influenced the drafting of the Export Control Reform Act identified foundational technology risks as involving early-stage technology, including "technologies that later become critical to key military systems, amounting over time to unintentional violations of US export control laws". The DoD study noted that Chinese students studying in the United States may become masters of such technology, thereby resulting in

inadvertent export control violations through deemed exports of the technology within the United States to unlicensed non-US national recipients. A 'deemed export' is defined in the EAR as involving the release of controlled technology to a foreign individual in the United States or abroad or the visual or other inspection of the technology by that individual. It is a type of export that the administration has been limiting both directly, through deemed export licence denials, and indirectly, through other mechanisms such as visa restrictions or limiting participation in government-sponsored research.

Chinese tech firms in the crosshairs

The emerging and foundational technologies mandates are part of other efforts by the administration to ensure export control compliance and limit technology collaboration or restrict technology-intensive exports to China. In 2017 the Commerce Department placed Chinese tech giant ZTE on the Denied Party List, effectively banning most US exports to ZTE due to its false statements to the BIS during settlement discussions in 2016 and its probationary period in 2017 regarding prior export control violations. This was later rescinded in the context of ongoing trade negotiations. In 2018 Fujian Jinhua Integrated Circuit Company, Ltd, which had been accused of stealing trade secrets from Micron to manufacture competing memory chips in China, was placed on the US Entity List. The list contains names of certain foreign parties – including businesses, research institutions, government and private organisations, individuals and other types of legal person – that are subject to specific licence requirements for the export, re-export and/or transfer (in-country) of specified items. In 2019, after negotiations to resolve the US-China trade war failed to materialise, the US government placed Huawei and its subsidiaries on the US Entity List – immediately banning most US technology exports to China. The Huawei ban also extended to a range of collaborative activities, (eg, participation in standards-setting bodies). However, temporary 90-day licences were also granted to support existing products and to participate in standards-setting bodies. Moreover, at the G20 Summit in June 2019, President Trump suggested that some of these sanctions would be waived for US companies. After the Huawei listing, the administration also took the additional step of expanding the entity list by adding five Chinese supercomputing companies to it.

Multilateral and unilateral export controls have been in place for exports to China for decades. However, the practical impact of these export controls was limited. According to BIS data, export controls were implicated in only 2.1% of US exports to China, of which 1.9% were excepted from licensing requirements. The remaining 0.2% of licensed exports had a value of \$299 million in 2017. Approximately 95% of the controlled exports not requiring a licence concerned encryption technology and software, primarily involving encryption technology. The data does not account for transactions that did not consummate due to export control concerns and therefore understates the total volume of affected trade. In addition, many exports are made to China under a range of licensing exceptions which permit the export of controlled items under certain conditions, such as licences for civil uses. Nonetheless, it strains credibility to view controlled exports as contributing significantly

to a \$419 billion trade deficit when licensed transactions constitute only approximately 0.071% of the trade deficit, despite China's claims to the contrary.

Considerations for IP executives

The expansion of export controls to vaguely defined new areas has the potential to affect a range of technology exports as well as deemed exports to Chinese nationals in the United States. Deemed export licences have become essential for hiring Chinese scientists in the United States and ensuring that the country retains a competitive edge. In 2017, 758 deemed export licences were issued to China, out of 1,456 issued worldwide. If the scope of regulated technology expands, HR managers hiring Chinese talent in the United States may need to file for deemed export licences or reassign these employees to non-controlled areas.

US and foreign patents are exempt from US export control laws along with any other technology that has been publicly disclosed (eg, in academic periodicals or in open university lecture halls). Although only the authorised US government agency can make binding determinations regarding the exportability of a technology through a licence application or classification request, patent counsel may be well disposed to make initial determinations regarding the availability of a public or foreign availability exception to a given technology. The public availability exception that the BIS affords includes published patents, books and conference materials. To a patent practitioner, it also overlaps considerably with novelty and prior art considerations in determining whether a patent should be granted.

IP practitioners are most likely to encounter the expanded mandate of the BIS when new regulations are final and they apply for foreign filing licences (FFLs) to file US patent applications overseas. At present, the USPTO has promulgated no new regulations regarding emerging or foundational technologies. These newly regulated technologies could not only affect future patent applications, but also require export licences for existing technology collaboration with China. In addition, these burdens have the potential to alter sequencing for patent applications on technologies developed between the United States and other countries, especially China.

US FFLs are typically issued within three days of application to the USPTO and include licences for accompanying data. By comparison, China's FFL regime may take longer and may not include the accompanying data. The United States will grant licences retroactively where an application has been filed abroad through error and the application does not disclose an invention that would otherwise be prohibited from filing overseas. Under US law, a patent application sent overseas for signature by a foreign co-inventor does not of itself require an export licence. However, FFL regimes vary from country to country, and there are few cases in the courts, contributing to a general sense of uncertainty over how best to sequence a multinational patent application involving foreign inventors. Over several months of discussing FFL practice involving China with counsel in different sectors, I have not yet found a consistent approach towards sequencing US and Chinese FFLs, based on existing regulations.

FFL regulation has long been complicated by the standards that are applied regarding what constitutes

an invention created in a given jurisdiction. US law focuses on an invention "made in" the United States while Chinese law focuses on where the "essence of the technical scheme" of the invention was created. The location of the research rather than the nationality of the inventor appears determinative. For most multinational companies the sequencing of patent applications may be determined by standard operating procedures that were put into place based on the expectations of how research would be conducted. Nonetheless, if FFLs do become more restrictive, companies may consider relocating the final stages of research to one jurisdiction to another in light of regulatory differences among countries. For example, a new pharmaceutical invention that was first conceived of in the United States may involve considerable valuable testing failures in the United States, but the US research may be a necessary predicate for a final successful experiment in China. In this scenario, based on the existing legislative structure, it could make more sense for the Chinese researcher to conduct the final experiments in the United States so that the "essence of the technical scheme" is not made in China. Nonetheless, discussions that I have had with counsel prosecuting pharma patent applications did not reveal any efforts to structure R&D to limit FFL requirements.

"Having a window into another country's technology or creating dependence upon foreign supply can often be more valuable than a wall"

Based on interviews that I conducted with a number of law firms and in-house counsel, applicants for FFLs for research jointly conducted between the United States and China had often first applied for licences in China because of the higher transparency, speed and possibility for retroactive licences in the United States. This may change in light of the more extensive controls being proposed in the United States. Moreover, if the concerned technology has both proprietary and patentable elements, applicants in the future may also wish to sequence their export control applications between the USPTO and the BIS. The USPTO also likely has greater resources to evaluate whether an emerging or foundational technology has been publicly disclosed than the BIS and may therefore render a more informed decision that can facilitate the FFL. A USPTO FFL may thereby also create a favourable precedent for any additional licence that the BIS may require for any proprietary technology.

As a patent is a publicly disclosed document, patent licences should not be subject to US export controls. At least that is the traditional rule. A possible exception to this rule has recently arisen with respect to the placing of Huawei on the US Entity List and after three months banning it from participation in various standards-setting activities. The BIS has thus far declined to address why it should ultimately be in the US national security or economic interests for Huawei not to disclose its otherwise published patents to standardisation bodies. It can be argued that having a putative enemy such as Huawei participate in global standards-setting activities

is actually a good thing, as it requires Huawei to reveal its technological prowess.

Having a window into another country’s technology or creating dependence upon foreign supply can often be more valuable than a wall. An oft-cited example of the former principle is the publication of a report entitled “Method of edge waves in the physical theory of diffraction” by the Russian physicist Pyotr Ufimtsev, which led to the development of the stealth fighter in the United States. An example of the latter principle is that sanctions against sales of US technology to China are also stimulating Chinese efforts to develop their own indigenous replacements, such as for mobile phone central processing units and modems by Huawei and Xiaomi. Hopefully countervailing views of the strategic value of engagement and trade will lead to a more nuanced approach to sanctions over time.

In addition to FFLs, both the United States and China have rules regarding international collaboration and the alienation of locally registered IP rights. China has long had regulatory requirements on overseas

licensing, including new regimes established with the onset of the current trade war, as well as longstanding approval requirements from universities, state-run research arms and the State Assets Administration, that may require approvals for technology transfer. US research funding organisations (eg, the National Science Foundation and the National Institute of Health) may also restrict researchers from accepting foreign funds. Governments, universities and non-profit research organisations may also have rules that limit the types of licence or assignment that may be undertaken. For example, the University of California, Berkeley will not agree to licensing demands which require that the licensee own any improvements to licensed technology as it contravenes university policy promoting the dissemination of knowledge.

My advice regarding export controls at this time is two-fold based on the current fluidity of the regime: monitor new developments and be prepared to carefully restructure sequencing of export licensing, FFLs and any other regulatory approvals in light of these developments.

TABLE 1. CFIUS constituent agencies

CFIUS constituent agencies	Other participating agencies
Department of the Treasury (chair)	Office of Management and Budget
Department of Justice	Council of Economic Advisers
Department of Homeland Security	National Security Council
Department of Commerce	National Economic Council
Department of Defence	Homeland Security Council
Department of State	
Department of Energy	
Office of the US Trade Representative	
Office of Science and Technology Policy	

CFIUS and new restrictions on foreign direct investment

New controls over technology-driven foreign investments in the United States were also adopted by the Foreign Investment Risk Reduction and Modernisation Act. These controls are implemented by the inter-agency Committee on Foreign Investment in the United States (CFIUS). CFIUS is chaired by the Treasury Department, with voting members from eight other agencies and five additional agencies that serve as observers.

CFIUS regulates investments affecting national and economic security, including investments by state actors, investments in critical infrastructure and real estate investments in areas that have national security concerns. Pursuant to the National Defence Authorisation Act 2019, CFIUS regulates technology investments that are co-extensive with US export controls. However, in practice, CFIUS’s technology mandate also extends beyond the scope of Export Control Reform Act-regulated investments as categorised by the BIS Commerce Control List. Examples of such extensive regulation include CFIUS mandating that a Chinese entity, Kunlun Tech Co Ltd, divest its interest in Grindr. In addition, following a review by CFIUS, President Trump completely blocked (without any mitigation agreement or proposal to mitigate) Broadcom’s proposed acquisition of Qualcomm, which was likely due to a desire to maintain a competitive position for the United States and Qualcomm in 5G technology.

Over the years CFIUS has evolved from a mere reporting committee to one which can block or restructure (mitigate) a range of sensitive foreign investments. The evolution of CFIUS has been in large part due to a range of perceived crises.

The most recent amendments to CFIUS, the Foreign Investment Risk Reduction and Modernisation Act, were enacted in part due to warnings reported by the DoD about increasing Chinese investment in sensitive, potentially dual-use technologies. The act gave CFIUS additional resources and structure while at the same time expanding its mandate to technologies covered by the Export Control Reform Act and to a range of transactions, including over non-passive, non-controlling

FIGURE 1. CFIUS timeline



investments in technology companies by venture capital (VC) firms. CFIUS was also directed to seek international coordination of foreign investment restrictions with other countries, which has been taking place.

What role for the USPTO?

While CFIUS decisions include input from a range of technology-oriented US government agencies, there are concerns that the focus on national security issues by CFIUS constituent members may lack an adequate grounding in fast-moving technology areas, including consideration of the adverse effect on US technological competitiveness of investment restrictions. Among the tech agencies that are not significantly involved in determining whether a technology is in the public domain is the USPTO, which has over 8,000 science, technology, engineering and mathematics (STEM)-trained patent examiners and staff in a full range of technical areas, is already involved in export controls through FFLs and is probably best equipped to handle issues involving public disclosure of technologies which overlaps with novelty issues in patent examination. As CFIUS and the BIS emerge as increasingly important technology agencies, they could likely benefit from more interchange with the USPTO regarding foundational and emerging technologies, as well as management tools (eg, methods of classifying and evaluating new technologies and hiring, retention and advancement of STEM talent in the government), regardless of the USPTO's direct involvement in any policy decisions.

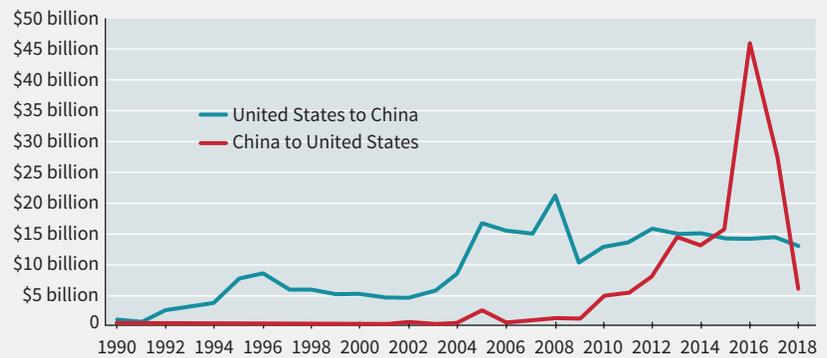
In general, the CFIUS process is divided into two 45-day periods. At the end of the first period, CFIUS can either clear or approve the transaction or inform the parties that it will use the additional 45-day investigation period, during which CFIUS will clear, clear with mitigation or inform the parties that it intends to refer the matter to the president. If the matter is referred to the president, the president has 15 additional days to make a decision. If CFIUS approval is not requested for the transaction and it is determined that sensitive technologies are involved, the president can cause divestment in the transaction, as occurred in Kunlun Tech's acquisition of Grindr.

Mandate expands

On 11 October 2018 CFIUS announced a pilot project for non-passive, non-controlling investments in critical technologies. The pilot project created a short-form process whereby CFIUS will act within 30 days to reject or accept a proposed transaction. Many foreign investors are reportedly changing their minority investment requirements or strategies through mechanisms such as having a US national serve on the board of a US investment. Due to the new CFIUS controls as well as Chinese restrictions on overseas investments, the amount of direct Chinese investment into the United States, particularly in high-tech sectors, has dropped significantly. However, minority Chinese VC investments continue to grow.

As with the BIS and FFLs, CFIUS may look at patents as a national security concern. CFIUS has been known in the first instance to look at patent portfolios as an indicator of the national security or economic security importance of a transaction. While patents themselves should not be regulated as a disclosed technology, they may be read by CFIUS as suggesting that there are

FIGURE 2. Annual value of foreign direct investment transactions between the United States and China, 1990 to 2018



Source: Rhodium Group

Action plan



In a turbulent trade environment, patent owners must be aware of the numerous ways in which US national security policy potentially interacts with R&D and IP management.

- Know what has changed – recent legislation and regulatory changes have greatly extended the scope and impact of US export controls.
- Know what has not changed – in other areas, measures that have been in place for decades but rarely invoked could become more important once again.

- Review your organisation's interaction with emerging and foundational technologies – two areas explicitly targeted by export controls.
- Think about foreign filing licences – there is uncertainty in the area that could affect where you should be conducting R&D activity.
- Patents are affected too – although patents themselves have not been regulated as disclosed technologies, CFIUS may look at patent transactions that are a part of any merger under review.

underlying proprietary technologies of concern or that the patent portfolio is of concern to national economic security, as may have been the case with Qualcomm.

Considerations for technology managers

How should technology managers approach CFIUS? In the current environment it is unlikely that an investment in a controlled technology would be approved in the United States differently from one involving the licensing of controlled technology for export. Companies that are the targets of investment in sectors that CFIUS may consider sensitive should consider notifying CFIUS to ensure that the transaction is not at risk of presidential-mandated prohibition or divestment in the US business. There may also be important strategic concerns around decisions to patent or disclose a technology and/or sequencing of US or foreign FFLs, export control licensing and CFIUS approvals, that may help to minimise concerns over the security implications of a proposed export or investment in technology. **iam**

Mark Cohen is a director and senior fellow, Berkeley Centre for Law and Technology and a lecturer in law at the University of California at Berkeley.

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