UPDATE CONCERNING CHINA’S ACTS, POLICIES AND PRACTICES RELATED TO TECHNOLOGY TRANSFER, INTELLECTUAL PROPERTY, AND INNOVATION

November 20, 2018
## Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEI</td>
<td>American Enterprise Institute</td>
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<tr>
<td>AI</td>
<td>artificial intelligence</td>
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<td>AmCham</td>
<td>American Chamber of Commerce Shanghai</td>
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<td>APT</td>
<td>advanced persistent threat</td>
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<tr>
<td>AR</td>
<td>augmented reality</td>
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<td>ASPI</td>
<td>Australian Strategic Policy Institute</td>
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<tr>
<td>BDI</td>
<td>Federation of German Industries</td>
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<tr>
<td>BfV</td>
<td>Germany’s Federal Office for the Protection of the Constitution</td>
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<td>BGP</td>
<td>Border Gateway Protocol</td>
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<td>CCP</td>
<td>Chinese Communist Party</td>
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<td>CDB</td>
<td>China Development Bank</td>
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<td>CFIUS</td>
<td>Committee on Foreign Investment in the United States</td>
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<td>CJV</td>
<td>contractual joint venture</td>
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<td>CNY</td>
<td>Chinese yuan</td>
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<td>DARPA</td>
<td>Defense Advanced Research Projects Agency</td>
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<td>DHS</td>
<td>U.S. Department of Homeland Security</td>
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<td>DIUx</td>
<td>Defense Innovation Unit Experimental</td>
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<td>DNS</td>
<td>Domain Name System</td>
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<td>DOC</td>
<td>U.S. Department of Commerce</td>
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<td>DOJ</td>
<td>U.S. Department of Justice</td>
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<td>DPA</td>
<td>Defense Production Act of 1950</td>
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<td>DSB</td>
<td>Dispute Settlement Body</td>
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<td>EJV</td>
<td>equity joint venture</td>
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<td>FDI</td>
<td>foreign direct investment</td>
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<td>FF</td>
<td>Faraday Future</td>
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<tr>
<td>FIRRMA</td>
<td>Foreign Investment Risk Review Modernization Act of 2018</td>
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<td>IC</td>
<td>integrated circuit</td>
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<tr>
<td>ICT</td>
<td>information and communications technology</td>
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<td>INTA</td>
<td>European Parliament Committee on International Trade</td>
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<td>IP</td>
<td>intellectual property</td>
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<td>IPs</td>
<td>Internet Protocol</td>
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<td>JV</td>
<td>joint venture</td>
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<td>MIIT</td>
<td>Ministry of Industry and Information Technology</td>
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<td>MMT</td>
<td>Micron Memory Taiwan Co., Ltd.</td>
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<td>MOF</td>
<td>Ministry of Finance of the People’s Republic of China</td>
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<td>MOFCOM</td>
<td>Ministry of Commerce of the People’s Republic of China</td>
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<td>MOST</td>
<td>Ministry of Science and Technology of the People’s Republic of China</td>
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<td>MSP</td>
<td>managed service provider</td>
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<td>NDRC</td>
<td>National Development and Reform Commission</td>
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<td>NEV</td>
<td>new-energy vehicle</td>
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<td>NSA</td>
<td>National Security Agency</td>
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<td>NUAA</td>
<td>Nanjing University of Aeronautics and Astronautics</td>
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<td>NVCA</td>
<td>National Venture Capital Association</td>
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<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<td>OFDI</td>
<td>outbound foreign direct investment</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>OLED</td>
<td>Organic Light-Emitting Diodes</td>
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<td>PEV</td>
<td>pure-electric vehicle</td>
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<td>PoP</td>
<td>Points of Presence</td>
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<tr>
<td>SASAC</td>
<td>State-owned Assets Supervision and Administration Commission</td>
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<td>SDIC</td>
<td>State Development and Investment Corporation</td>
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<tr>
<td>SEI</td>
<td>strategic and emerging industries</td>
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<tr>
<td>TRIPS</td>
<td>Trade-Related Aspects of Intellectual Property Rights</td>
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<td>UMC</td>
<td>United Microelectronics Corporation</td>
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<tr>
<td>USCBC</td>
<td>U.S.-China Business Council</td>
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<tr>
<td>USD</td>
<td>U.S. dollars</td>
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<td>VC</td>
<td>venture capital</td>
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<tr>
<td>VR</td>
<td>virtual reality</td>
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<tr>
<td>WFOE</td>
<td>wholly foreign-owned entity</td>
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<td>WTO</td>
<td>World Trade Organization</td>
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<tr>
<td>ZDG</td>
<td>Zhongguancun Development Group</td>
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<td>ZGC</td>
<td>Zhongguancun</td>
</tr>
</tbody>
</table>
CONTENTS

I. Overview ........................................................................................................................................... 3

   A. Background .................................................................................................................................. 3
   B. China’s Technology Policies Persist ............................................................................................... 7

II. China Continues Its Unauthorized Intrusions into U.S. Commercial Computer Networks and Cyber-Enabled Theft of Intellectual Property and Sensitive Commercial Information ............................................................. 10

   A. Introduction .................................................................................................................................. 10
   B. Rising Incidence of Chinese Cyber-Enabled Theft against the United States ......................... 11
      1. The Increasing Frequency of Chinese Cyber-Enabled Theft ....................................................... 11
      2. Continuing Threat to U.S. Companies from China’s APT10 .................................................... 12
      3. The Increasing Sophistication of Chinese Cyber-Enabled Theft .............................................. 13
   C. Major Criminal Indictments of Ongoing Chinese Government Economic Espionage against U.S. Aerospace and High-Technology Companies .................................................................................... 13
      1. China’s Campaign to Steal Commercial Aerospace Technology ........................................... 14
      2. China’s Campaign to Steal Semiconductor Technology from the United States ................. 17
   D. China Conducts a Global Espionage Campaign to Obtain Intellectual Property and Sensitive Commercial Information .................................................................................................. 19
      1. Australia ..................................................................................................................................... 19
      2. Japan .......................................................................................................................................... 20
      3. The European Union and Member States .................................................................................. 21
      4. South Korea ............................................................................................................................... 21

III. China’s Unfair Technology Transfer Regime for U.S. Companies in China ......................................................... 22

   A. Introduction .................................................................................................................................. 22
   B. U.S. and Foreign Companies and Other U.S. Trading Partners Continue to Share U.S. Concerns ................................................................................................................................. 23
      1. Companies ................................................................................................................................. 23
      2. Other Trading Partners ............................................................................................................. 24
   C. China Has Made Only Incremental Changes to Foreign Investment Restrictions ............ 25
      1. Changes to Foreign Ownership Restrictions ............................................................................. 25
      2. The Automotive Sector as an Illustrative Example of China’s Continued Use of Foreign Investment Restrictions .............................................................................................................. 27

IV. China’s Discriminatory Licensing Restrictions ..................................................................................... 29

V. Outbound Investment ............................................................................................................................ 31

   A. Introduction .................................................................................................................................. 31
   B. Actions by the United States and Other Trading Partners to Enhance Investment Review Processes ................................................................................................................................. 33
      1. Actions by the United States ...................................................................................................... 33
      2. Actions by Other Trading Partners ........................................................................................... 33
C. China’s Outbound Investment Regime ................................................................. 36
   1. Outbound Investment Approvals and Their Influence on Investment Decisions..... 36
   2. Major Policies and State-Backed Actors .......................................................... 39

D. China Is Increasingly Focusing on Venture Capital Investment ......................... 40
   2. The Significance of Venture Capital Investment for Technology and Intellectual
      Property Acquisition ......................................................................................... 43
   3. Illustrative Examples of Chinese Venture Capital Investments .......................... 46

VI. Conclusion ......................................................................................................... 49

Appendix A – China’s Foreign Investment Catalogue: Overview of Key Changes in 2018
Version ..................................................................................................................... 50
I. Overview

A. Background

On August 14, 2017, the President instructed the U.S. Trade Representative to determine under Section 301 of the Trade Act of 1974\(^1\) whether to investigate China’s laws, policies, practices, or actions that may be unreasonable or discriminatory and that may be harming American intellectual property rights, innovation, or technology development.\(^2\) On August 18, 2017, the Office of the U.S. Trade Representative (USTR) initiated a Section 301 investigation of China’s acts, policies, and practices related to technology transfer, intellectual property, and innovation.\(^3\) On the date of initiation, USTR requested consultations with the Government of China concerning the issues under investigation.\(^4\) Instead of accepting the request, China’s Ministry of Commerce expressed “strong dissatisfaction” with the United States and decried the investigation as “irresponsible” and “not objective.”\(^5\)

On March 22, 2018, USTR issued the *Findings of the Investigation into China’s Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation under Section 301 of the Trade Act of 1974* (the “Section 301 Report”).\(^6\) Based on this report, USTR determined the following Chinese actions are unreasonable or discriminatory and burden or restrict U.S. commerce:

1. China uses foreign ownership restrictions, such as joint venture (JV) requirements and foreign equity limitations, and various administrative review and licensing processes, to require or pressure technology transfer from U.S. companies.

2. China’s regime of technology regulations forces U.S. companies seeking to license technologies to Chinese entities to do so on non-market based terms that favor Chinese recipients.

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\(^1\) Unless otherwise specified, “Section 301” refers generally to Chapter 1 of Title III of the Trade Act of 1974 (codified as amended in 19 U.S.C. §§ 2411-2417).


3. China directs and unfairly facilitates the systematic investment in, and acquisition of, U.S. companies and assets by Chinese companies to obtain cutting-edge technologies and intellectual property and generate the transfer of technology to Chinese companies.

4. China conducts and supports unauthorized intrusions into, and theft from, the computer networks of U.S. companies to access their sensitive commercial information and trade secrets.7

After USTR issued the Section 301 Report, the United States continued to engage China to resolve the unfair trade acts, policies, and practices included in the investigation. A cabinet-level U.S. delegation traveled to Beijing on May 4, 2018, to discuss a range of bilateral economic issues, including China’s policies addressed in the Section 301 Report.8 This high-level engagement continued on May 17, 2018, when senior administration officials hosted a trade delegation from China in Washington, D.C.9 Another high-level U.S. delegation met with its Chinese counterparts in Beijing on June 2 and 3, 2018 for additional discussions on trade and other issues.10 Each of these meetings gave China an opportunity to address U.S. concerns – but China failed to do so adequately.

The United States has also worked closely with the European Union (EU) and Japan, who share many of the concerns expressed by the United States regarding China’s acts, policies, and practices related to technology transfer, intellectual property, and innovation.

- At the conclusion of trilateral meetings held in May 2018, the trade ministers of the United States, Japan, and the EU (the “Ministers”) “confirmed their shared view that no country should require or pressure technology transfer from foreign companies to domestic companies, including, for example, through the use of JV requirements, foreign equity limitations, administrative review and licensing processes, or other means.”11

- At the conclusion of trilateral meetings held in September 2018, the Ministers “further recalled their shared view that no country should require or pressure technology transfer from foreign companies to domestic companies, including, for example, through the use of JV requirements, foreign equity limitations, administrative review and licensing

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processes, or other means. The Ministers found such practices to be deplorable." The Ministers also “affirmed their commitment to effective means to stop harmful forced technology transfer policies and practices, and to this end, deepen discussions on enforcement and rule-making as tools to address these problems.”

Despite repeated U.S. engagement efforts and international admonishments of its trade technology transfer policies, China did not respond constructively and failed to take any substantive actions to address U.S. concerns.

As a result of China’s ongoing failure to respond constructively to U.S. concerns, USTR imposed tariffs on July 6, 2018 and August 23, 2018 on approximately $50 billion of Chinese imports as part of the U.S. response to China’s unfair trade practices related to the forced transfer of American technology and intellectual property. The United States also requested dispute settlement consultations with China in the World Trade Organization (WTO) on March 23, 2018 concerning certain measures pertaining to the licensing of intellectual property rights, and the United States is now pursuing dispute settlement before the WTO on those issues.

China, however, made clear – both in public statements and in government-to-government communications – that it would not change its policies in response to the initial Section 301 action. Indeed, China largely denied there were problems with respect to its policies involving technology transfer and intellectual property. The Information Office of China’s State Council issued a 71-page “White Paper” in September 2018 that dismissed the Section 301

investigation’s findings and denounced U.S. actions as “trade bullyism.”

Furthermore, China responded to the U.S. action by attempting to cause further harm to the U.S. economy, by increasing duties on certain U.S. exports to China.

These actions demonstrated that USTR’s initial tariff action was no longer appropriate to obtain the elimination of China’s unfair trade acts, policies, and practices. In addition, the burden or restriction on United States commerce of these acts, policies, and practices continues to increase, including following the one-year investigation period. Accordingly, under direction of the President, USTR imposed additional tariffs on approximately $200 billion of imports from China on September 24, 2018.

USTR has undertaken this update as part of its ongoing monitoring and enforcement effort. In preparing this update, USTR has relied upon publicly available material, and has consulted with other government agencies. As detailed in this update, China fundamentally has not altered its acts, policies, and practices related to technology transfer, intellectual property, and innovation, and indeed appears to have taken further unreasonable actions in recent months.

- Section II describes how China continues its policy and practice of conducting and supporting cyber-enabled theft and intrusions into the commercial networks of U.S. companies and those of other countries, as well as other means by which China attempts illegally to obtain information. This conduct provides the Chinese government with unauthorized access to intellectual property, including trade secrets, or confidential business information, as well as technical data, negotiating positions, and sensitive and proprietary internal business communications.

- Section III describes how, despite the relaxation of some foreign ownership restrictions and certain other incremental changes in 2018, the Chinese government has persisted in using foreign investment restrictions to require or pressure the transfer of technology from U.S. companies to Chinese entities. Numerous foreign companies and other trading partners share U.S. concerns regarding China’s technology transfer regime.

- Section IV describes China’s discriminatory licensing restrictions and how the United States has requested consultations and is pursuing dispute settlement under the WTO in

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China – Certain Measures Concerning the Protection of Intellectual Property Rights (WT/DS542). China continues to maintain these discriminatory licensing restrictions.

- Section V describes how, despite an apparent aggregate decline in Chinese outbound investment in the United States in 2018, the Chinese government continues to direct and unfairly facilitate the systematic investment in, and acquisition of, U.S. companies and assets by Chinese entities, to obtain cutting-edge technologies and intellectual property and generate large-scale technology transfer in industries deemed important by state industrial plans. Chinese outbound investment is increasingly focused on venture capital (VC) investment in U.S. technology centers such as Silicon Valley, with Chinese VC investment reaching record levels in 2018.

B. China’s Technology Policies Persist

As detailed in the introduction to the Section 301 Report, official publications of the Chinese government and the Chinese Communist Party (CCP) set out China’s ambitious technology-related industrial policies. These policies are driven in large part by China’s goals of dominating its domestic market and becoming a global leader in a wide range of technologies, especially advanced technologies. The most prominent industrial policy is “Made in China 2025,” initiated in 2015. Industrial sectors that contribute to or benefit from the “Made in China 2025” industrial policy include aerospace, information and communications technology, robotics, industrial machinery, new materials, and automobiles.

In the period following the publication of the Section 301 Report, China has deliberately downplayed the importance of and reduced official media attention on the Made in China 2025 policy. In late June, China’s Internet Propaganda Ministry reportedly circulated a Propaganda Oral Notice directing media outlets to “not make further use of ‘Made in China 2025,’ or there will be consequences.” Also in late June, the Hong Kong paper South China Morning Post asked Wang Xinzhe, chief economist at China’s Ministry of Industry and Information

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22 These policies are also described in Department of Defense, Report to President Donald J. Trump by the Interagency Task Force in Fulfillment of Executive Order 13806, Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States 8-9 (Sep. 2018), https://media.defense.gov/2018/Oct/05/2002048904/-1/-1/1/ASSESSING-AND-STRENGTHENING-THE-MANUFACTURING-AND%20DEFENSE-INDUSTRIAL-BASE-AND-SUPPLY-CHAIN-RESILIENCY.PDF.
Technology (MIIT), whether the Chinese government “would withhold or adjust” the Made in China 2025 policy.\(^{24}\) In his response, Mr. Wang made no mention at all of the policy, stating only that “the ministry was following guidelines” set during the CCP’s 2017 national congress regarding “upgrading the manufacturing industry.”\(^{25}\)

In addition, the May 2018 project guide\(^{26}\) for China’s Industrial Transformation and Upgrading Fund – a government fund that provides financing to technology-related programs in sectors linked to Made in China 2025\(^{27}\) – no longer references the industrial policy by name, even though it still targets the same high-technology industries.\(^{28}\) (Made in China 2025 featured prominently in the fund’s administrative measure, issued in December 2016, and its 2017 project guide published in August 2017.\(^{29}\)

Despite this transparent attempt to deemphasize Made in China 2025 in public, China continues to implement this industrial policy on a large scale. In February 2018, the National Strategic Advisory Committee on Building a Powerful Manufacturing Nation published the Made in China 2025 Key Area Technology and Innovation Greenbook – Technology Roadmap (2017) ("2017 Roadmap"),\(^{30}\) which updates and replaces the 2015 Made in China 2025 Key Area Technology Roadmap ("2015 Roadmap")\(^{31}\) discussed in the Section 301 Report. The updated document again sets explicit market share and other targets to be filled by Chinese producers

\(^{24}\) Sidney Leng and Zheng Yangpeng, Beijing Tries to Play Down “Made in China 2025” as Donald Trump Escalates Trade Hostilities, SOUTH CHINA MORNING POST, June 26, 2018. See also a November 2018 opinion piece in the state-affiliated Global Times newspaper, confirming that Made in China 2025 “gradually disappeared from Chinese official documents and media” following U.S. Section 301 actions, and suggesting that this was an intentional action by China to avoid “inciting the behavior” of the United States. Editorial: Facing Up to the U.S.-China Battle over High-Technology, We’d Like to Say This [Chinese], GLOBAL TIMES, Nov. 9, 2018, https://m.huanqiu.com/tr/MV8wXzEzNTAwODg0XzliM1xNTQxNzU1MjYw.

\(^{25}\) Sidney Leng and Zheng Yangpeng, Beijing Tries to Play Down “Made in China 2025” as Donald Trump Escalates Trade Hostilities, SOUTH CHINA MORNING POST, June 26, 2018.


\(^{27}\) See, e.g., smart manufacturing programs (administered pursuant to the Ministry of Finance Notice on Distributing the 2016 Industrial Transformation and Upgrading (Made in China 2025) Fund Support for Smart Manufacturing Integrated Standardization and New Model Use Projects (MOF, Cai Jian [2016] No. 351, issued June 16, 2016)); industrial strong base programs (administered pursuant to the Ministry of Finance Notice on Distributing the 2016 Industrial Transformation and Upgrading (Made in China 2025) Fund Support for Strong Industrial Base Projects (MOF, Cai Jian [2016] No. 355, June 16, 2016)), and the first introduction of major technology equipment programs (administered pursuant to the Ministry of Finance Notice on Distributing the 2016 Industrial Transformation and Upgrading (Made in China 2025) Fund Support for Smart Manufacturing Integrated Standardization and New Model Use Projects (MOF, Cai Jian [2016] No. 351, issued June 16, 2016)).

\(^{28}\) The 2018 project guide goes so far as to delete the words “Made in China 2025” from the title of the Ministry of Finance and Ministry of Industry and Information Technology Notice on Issuing “Measures on the Administration of the Industrial Transformation and Upgrading (Made in China 2025) Fund”, the measure pursuant to which the fund operates.

\(^{29}\) Notice on Issuing the 2017 Industrial Transformation and Upgrading (Made in China 2025) Grant (Department Budget Project Guidance) (MIIT, Gong Xin Bu Gui Han [2017] No. 351, issued Aug. 21, 2017).


\(^{31}\) Made in China 2025 Key Area Technology Roadmap (National Strategic Advisory Committee on Building a Powerful Manufacturing Nation, issued Oct. 10, 2015).
both domestically and globally in dozens of high-technology industries. For example, the 2017 Roadmap calls for “indigenous new energy vehicle annual production” to have a “supplying capacity that can satisfy more than 80% of the market” by 2020, up from a 70% target set in the 2015 Roadmap.

References in a litany of national and subnational normative documents, such as 13th five-year sectoral plans (2016-2020), as well as their implementing measures, confirm the continuing importance of Made in China 2025 and China’s persistent pursuit of its goals.32

China also appears to have reinvigorated the “Strategic Emerging Industries” policy, a high-technology industrial policy started in 2010.33 (This policy was also addressed in the Section 301 Report.) China issued a draft for comment in September 2018 of the latest version of the Strategic Emerging Industry Development Key Product and Service Catalogue (“SEI Catalogue”).34 As shown in Table 1, sectors covered in the catalogue illustrate a high degree of overlap with Made in China 2025.

<table>
<thead>
<tr>
<th>Topic</th>
<th>SEI Catalogue</th>
<th>2017 Roadmap</th>
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<tbody>
<tr>
<td>New Generation Information Technology Industry</td>
<td>Chapter 1</td>
<td>Chapter 1</td>
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<tr>
<td>High End Equipment Manufacturing Industry</td>
<td>Chapter 2</td>
<td>Chapter 2</td>
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<td>New Materials Industry</td>
<td>Chapter 3</td>
<td>Chapter 9</td>
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<tr>
<td>Biotech Industry</td>
<td>Chapter 4</td>
<td>Chapter 10</td>
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<tr>
<td>New Energy Vehicle Industry</td>
<td>Chapter 5</td>
<td>Chapter 6</td>
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<tr>
<td>New Energy Industry</td>
<td>Chapter 6</td>
<td>Chapter 7</td>
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<td>Creative Data Industry</td>
<td>Chapter 8</td>
<td>Chapter 1</td>
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In March 2018, a new agreement was signed by the National Development and Reform Commission (NDRC) and the Export-Import Bank of China to provide financial products worth


33 Decision on Accelerating the Cultivation and Development of Strategic Emerging Industries (State Council, Guo Fa [2010] No. 32, issued Oct. 10, 2010).

34 Announcement on Request for Opinions on Amending the Strategic Emerging Industry Development Key Product and Service Catalogue (2016 Edition) (Strategic Emerging Industries Development Interagency Committee Office, issued Sep. 21, 2018).
CNY 800 billion ($122 billion) to companies in Strategic Emerging Industries. China has also enhanced fiscal supports specific to Strategic Emerging Industries for fiscal-year 2018.

II. China Continues Its Unauthorized Intrusions into U.S. Commercial Computer Networks and Cyber-Enabled Theft of Intellectual Property and Sensitive Commercial Information

A. Introduction

China shows no sign of ceasing its policy and practice of conducting and supporting cyber-enabled theft and intrusions into the commercial networks of U.S. companies. This illicit conduct provides the Chinese government with unauthorized access to intellectual property, trade secrets, confidential business information, technical data, negotiating positions, and sensitive and proprietary internal business communications.

The White House National Cyber Strategy, published in September 2018, concluded that “China engaged in cyber-enabled economic espionage and trillions of dollars of intellectual property theft.” The White House Office of Trade and Manufacturing Policy also noted China’s prevalent use of cyber-enabled theft (as well as physical theft) in acquiring technologies and intellectual property in strategic sectors. As the next section demonstrates, China’s cyber-enabled theft against the United States has increased in frequency and sophistication since the March 2018 issuance of USTR’s findings.

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36 China’s official budget documents show that in fiscal years 2016 and 2017, fiscal funding for Strategic Emerging Industries was administered through the “Strategic Emerging Industry Special Fund.” In 2018, funding shifted to the “Strategic Emerging Industry Major Contracts” and “Strategic Emerging Industry Venture Investment Guiding Fund,” with allocations exceeding those under the previous “Strategic Emerging Industry Special Fund.” Official budget information is available on the MOF website, http://yss.mof.gov.cn/2017zyys/ and http://yss.mof.gov.cn/2018zyys/.

37 China’s official budget documents show that in fiscal years 2016 and 2017, fiscal funding for Strategic Emerging Industries was administered through the “Strategic Emerging Industry Special Fund.” In 2018, funding shifted to the “Strategic Emerging Industry Major Contracts” and “Strategic Emerging Industry Venture Investment Guiding Fund,” with allocations exceeding those under the previous “Strategic Emerging Industry Special Fund.” Official budget information is available on the MOF website, http://yss.mof.gov.cn/2017zyys/ and http://yss.mof.gov.cn/2018zyys/.


B. Rising Incidence of Chinese Cyber-Enabled Theft against the United States

1. The Increasing Frequency of Chinese Cyber-Enabled Theft

According to a June 2018 report, cybersecurity firms have observed, in the period from mid-2017 through mid-2018, what appear to be Chinese state-sponsored entities attacking firms in cloud computing, Internet of Things, artificial intelligence, biomedicines, civilian space, alternative energy, robotics, rail, agricultural machinery, and high-end medical devices sectors.\(^{40}\)

One cybersecurity firm, CrowdStrike, observed that Chinese state hacking is gaining in pace and volume, while another, FireEye/Mandiant, similarly stated that previously inactive Chinese hacking groups had now been reactivated.\(^{41}\) In November 2018, cybersecurity firm Carbon Black found a sharp rise in the third quarter of 2018 “in attacks against manufacturing companies—a type of attack that has been frequently tied to Chinese economic espionage.”\(^{42}\) It also found that 68% of incident response professionals surveyed during the preceding three months assessed that China was the source of the observable cyberattacks, more than any other country.\(^{43}\)

In August 2018, cybersecurity firm Recorded Future found a series of cyberattacks around late May 2018 originating from IP addresses linked to Tsinghua University.\(^{44}\) The attackers in question appeared to be conducting surveillance on organizations related to the governor of Alaska’s trade delegation trip to China, and were focused on oil and gas industry information.\(^{45}\)


\(^{41}\) China Backed Off from Hacking U.S. Companies. Now It Is at It Again, McClatchy (June 7, 2018). See also China Is a Bigger Cyber Threat than Russia (Fox News television broadcast Sep. 18, 2018), https://video.foxnews.com/story/405836552451001/?#sp=show-clips (In a separate televised interview, Crowdstrike’s Chief Technology Officer noted, “in light of the trade conflict we are engaged with [China] right now […] companies all over the United States are suffering major breaches from Chinese actors, primarily [enacted by] their ministry of state security.” He also stated: “We’re seeing a huge pickup in activity, it’s really been continuing for the last year and a half, but increasing over time, and every major sector of the economy is being targeted.”).


In October 2018, experts affiliated with the U.S. Naval War College and Tel Aviv University published a study finding that China Telecom, one of China’s three major state-owned telecoms enterprises, may be using Points of Presence (PoP) servers to hijack internet traffic and direct it through Mainland Chinese servers for possible collection and analysis. According to these experts, China Telecom maintains PoP control in ten locations in North America, which it has used to hijack internet traffic in the United States and Canada and divert it through China where it could be copied. These acts by a Chinese entity suggest, in these experts’ words, “malicious intent, precisely because of their unusual transit characteristics” of routing traffic through abnormally long paths that always go through China.

Assessments in the U.S. law enforcement and intelligence community dovetail with industry views. On November 1, 2018, Department of Justice Attorney General Jeff Sessions, announcing a new initiative to combat Chinese economic espionage, stated, “In 2015, China committed publicly that it would not target American companies for economic gain. Obviously, that commitment has not been kept.” In November 2018, Robert Joyce, senior advisor for cybersecurity at the National Security Agency, said that over the last year, the U.S. government has seen a resurgence of hacking and intellectual property theft attempts by people based in China and sometimes even by the Beijing government.

2. Continuing Threat to U.S. Companies from China’s APT10

Information obtained from the ongoing monitoring of APT10 by the U.S. Department of Homeland Security (DHS) has also indicated a rising incidence of Chinese cyber-enabled theft. As noted in USTR’s original findings, several cybersecurity firms believe APT10 is a Chinese cyber-espionage group that conducted a campaign of intrusions against several major IT managed service providers, including some U.S. companies. APT10 targets industries that

48 Chris C. Demchak and Yuval Shavitt, China’s Maxim – Leave No Access Point Unexploited: The Hidden Story of China Telecom’s BGP Hijacking, 3(1) MILITARY CYBER AFFAIRS 5-8 (2018). See also National Security Law of the People’s Republic of China (adopted by the National People’s Congress on July 1, 2015, effective July 1, 2015) (providing at Article 11 that “All citizens of the People’s Republic of China, state authorities, armed forces, political parties, people’s groups, enterprises, public institutions, and other social organizations shall have the responsibility and obligation to maintain national security,” and at Article 77, that “[citizens and organizations] shall provide necessary support and assistance to national security authorities, public security authorities, and the relevant military authorities.”).
51 See Section V.B.4 of the Section 301 Report.
align with China’s technology policies for the 13th five-year planning period (2016-2020), to provide valuable information for advancing domestic innovation goals. Cybersecurity firm FireEye views APT10’s activities in many instances as supporting the theft of confidential commercial information to support Chinese firms. In October 2018, DHS issued a new alert concerning “ongoing APT actor activity attempting to infiltrate the networks of global managed service providers (MSPs)” (October 2018 Alert). The activity observed by DHS aligns with activity that cybersecurity firms have attributed to APT actors. This alert followed a prior one concerning APT10 issued in April 2017.

3. The Increasing Sophistication of Chinese Cyber-Enabled Theft

China’s cyber-enabled theft of intellectual property and sensitive commercial information exhibits increasing sophistication. According to cybersecurity experts quoted in a June 2018 report, China’s state-supported hackers have developed new ways of concealing their attacks. In particular, hackers appear to be using generic “tools” that leave little if any unique traces, making attribution more difficult. In its November 2018 assessment, Carbon Black found that Chinese state actors had improved their methods of infiltration and concealment.

C. Major Criminal Indictments of Ongoing Chinese Government Economic Espionage against U.S. Aerospace and High-Technology Companies

Since the publication of USTR’s Section 301 Report, the Department of Justice (DOJ) has indicted a dozen individuals and corporate entities directed by the Chinese government to obtain commercial secrets from 15 companies, predominantly in aerospace and high-technology sectors. The facts alleged in these indictments reflect China’s ongoing determination to obtain trade secrets and other valuable commercial information in support of China’s industrial policy.

52 See Section V.B.4 of the Section 301 Report.
53 See Section V.B.4 of the Section 301 Report.
57 China Backed Off from Hacking U.S. Companies. Now It Is at It Again, McCLATCHY (June 7, 2018).
58 China Backed Off from Hacking U.S. Companies. Now It Is at It Again, McCLATCHY (June 7, 2018).
1. China’s Campaign to Steal Commercial Aerospace Technology

   a) Cyberintrusion and Cybertheft

On October 30, 2018, the DOJ announced indictments against two Chinese intelligence officers, six of their paid hackers, and two Chinese intelligence agents placed in a French aerospace company.60 Over at least a five-year period, the Chinese intelligence officers directed the hackers and agents to “facilitate intrusions into computers of companies based in the United States and abroad” for the purpose of stealing intellectual property and confidential business information in the aerospace and other high-technology industries.61 The indictment identifies 13 victim companies, including aerospace companies in Massachusetts,62 Arizona,63 Oregon,64 Wisconsin,65 California,66 as well as companies from the United Kingdom,67 France,68 and Australia.69

The indictment states that Chinese intelligence targeted, among other things, data and information related to a turbofan engine used in commercial jetliners.70 At the time of the intrusions, a Chinese state-owned aerospace company sought to develop its own engine for use in commercial aircraft manufactured in China and elsewhere.71 The turbofan engine targeted by members of the conspiracy was being developed through a partnership between a French aerospace company and an aerospace company based in the United States.72

According to the indictment, Chinese intelligence and hackers operating at their direction used tactics such as spear phishing,73 malware,74 doppelganger domain names,75 dynamic domain name service (DNS) accounts to register multiple domain names and frequently change the associated Internet Protocol address,76 domain hijacking, watering hole attacks,77 and co-opting

62 United States v. Zhang et al., at 5.
63 United States v. Zhang et al., at 6.
64 United States v. Zhang et al., at 6.
65 United States v. Zhang et al., at 6.
67 United States v. Zhang et al., at 5.
68 United States v. Zhang et al., at 6.
69 United States v. Zhang et al., at 6.
70 United States v. Zhang et al., at 6.
71 United States v. Zhang et al., at 6.
72 United States v. Zhang et al., at 6.
73 United States v. Zhang et al., at 8.
74 United States v. Zhang et al., at 8-9.
75 United States v. Zhang et al., at 8-9.
76 United States v. Zhang et al., at 8-9.
77 United States v. Zhang et al., at 8-9.
of targeted company employees. The actors launched multiple attacks on target companies. In one brazen attack on a French aerospace company, Chinese intelligence officer “Chai Meng” reported to a colleague: “We sent a fake email pretending to be from network management.”

In another attack on the same company, intelligence officers and their recruited agents inside the company conspired to plant a piece of “Trojan horse” malware on the company’s computer systems. One intelligence officer told another, “I’ll bring the horse […] to you tonight. Can you take the Frenchmen out to dinner tonight? I’ll pretend I bump into you at the restaurant to say hello. This way we don’t need to meet in Shanghai.” Later on, the company’s insider confirmed to a Chinese intelligence officer that “[t]he horse was planted this morning.”

In another instance described in the indictment, one of the hackers that operated at the direction of Chinese intelligence officers created a “Google AppEngine” account, and working with his associates, placed malware on the network of an Oregon-based aerospace supplier. This company manufactured parts for a turbofan engine that was of interest to China. The hackers then used the Google AppEngine account to manage the implanted malware and steal commercial data over at least a seven-month period. In another instance, malware was placed on the systems of a California-based company, which the hackers used as a watering hole to launch further attacks on other victims.

In short, the indictment indicates that China conducted a systematic and thorough campaign to attack targets with the goal of stealing valuable intellectual property to further its industrial policies.

b) Economic Espionage Campaign against the United States by Chinese Human Intelligence Programs

China conducts cyberintrusion and cybertheft hand-in-hand with the physical theft of intellectual property, many times with the use of insiders. A common pattern—shown in an indictment made public in October 2018—appears to be the recruitment of employees in a target company, who then take commercially sensitive information from their employer and transfer it to Chinese government agents. A different criminal case from September 2018 also shows how Chinese intelligence seeks to gather information from co-optees in the United States regarding potential recruits.

According to the indictment made public in October 2018, a high-ranking Chinese intelligence officer, “Yanjun Xu” (“Xu”), sought to steal trade secrets from U.S. and European aviation...
companies. In particular, he targeted technology from a U.S. aircraft engine supplier related to the “design and use of certain types of composite materials in fan blades and fan blade encasements [that] provide greater engine durability, weight reduction, and lower costs.” It is estimated that the company spent “billions of dollars of research and development investment” in developing these technologies over several decades. This aircraft engine technology gave the company “a significant competitive advantage over others in the industry.”

The indictment relates that Xu worked together with an official at the government-affiliated Nanjing University of Aeronautics and Astronautics (NUAA). NUAA is run by China’s MIIT, which, in the words of the indictment, has “significant influence over China’s aerospace industry.” Xu developed a relationship with an employee at the company. He lied to the employee about his true identity, and instead posed as an official with a science and technology association. According to the indictment, Xu worked with NUAA to invite the employee to give a presentation on the victim company’s “signature material design and manufacturing technology.” In return, NUAA would cover all expenses and pay a stipend. The employee traveled to China and gave the presentation.

According to the indictment, these facts started a relationship in which Xu attempted to obtain the company’s trade secrets for Chinese intelligence. Xu developed a list of intelligence collection requirements and specific technical information that he wanted the employee to provide. This list included documents related to an aircraft engine’s containment analysis for a fan blade encasement. The documents that the employee provided to Xu “contained a label warning that the presentation contained proprietary information[.]”

Xu’s scheme was stopped only after he was arrested in Belgium. According to the indictment, after receiving a computer file directory from the employee’s computer, Xu arranged to meet the employee and obtain the employee’s company computer. Xu confirmed that the contents of the

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89 United States v. Xu, at 2.
90 United States v. Xu, at 3.
91 United States v. Xu, at 3.
92 United States v. Xu, at 2.
93 United States v. Xu, at 2.
94 United States v. Xu, at 2.
95 United States v. Xu, at 8.
96 United States v. Xu, at 7-9.
97 United States v. Xu, at 9.
98 United States v. Xu, at 6.
100 United States v. Xu, at 10.
employee’s company computer could be exported to a portable hard drive. Instead, U.S. and Belgian law enforcement intervened, and Xu was extradited to the United States.

Chinese intelligence also sought to benefit from the resources available to co-optee “Ji Chaoqun” (“Ji”), who was arrested in Illinois in September 2018. According to the complaint filed by DOJ, Ji was recruited by Chinese intelligence and tasked to provide background reports that could not be purchased from China on eight individuals whose names were provided to him. The “eight individuals … [are] naturalized U.S. citizens born in Taiwan or China now living in the United States”, and who “either currently worked in or were recently retired from a career in the science and technology industry, including several individuals specializing in aerospace fields.” Seven out of the eight individuals had been employed by U.S. defense contractors. Ji paid for background check reports on each of these eight individuals using services provided by Intelius, Instant Checkmate, and Spokeo. According to the criminal complaint, he then transmitted these background check reports in email to his Chinese intelligence handler, and disguised them as “Midterm test questions.” Ji facilitated the work of Chinese intelligence by providing them with unclassified information that could not be obtained easily in China.

2. China’s Campaign to Steal Semiconductor Technology from the United States

Another DOJ indictment made public in November 2018 discusses China’s efforts to steal U.S. computer technology. In its 13th Five-Year Plan, which covers the years 2016–2020, China prioritized the development of integrated circuit devices, including dynamic random-access memory (DRAM). DRAM is “used in leading-edge computing, consumer, networking, automotive, industrial, embedded, and mobile productions[.]” China is seeking to create its own DRAM production capability, which would lessen its dependence on manufacturers in the United States. China’s top government body, the State Council, views the building of a DRAM industry as “a national economic priority.”

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102 United States v. Xu, at 11.
112 United States v. UMC, et al., at 2.
113 United States v. UMC, et al., at 2.
According to the indictment, the Chinese government established Fujian Jinhua Integrated Circuits, Co. Ltd. (“Jinhua”) to help meet its DRAM production goals. Jinhua’s “sole purpose” is to create and manufacture DRAM. The Chinese government started Jinhua with over $5 billion in capital. In or around 2016, Jinhua entered into a technology cooperation agreement with Taiwan-based United Microelectronics Corporation (UMC) to attempt to develop DRAM technology. Jinhua funded UMC, and UMC promised to “develop DRAM technology, transfer the technology to Jinhua, and Jinhua would mass produce DRAM.”

In this case, the U.S. victim was Boise-based Micron Technology, Inc. (“Micron”), which is “the only United States-based company that manufactures DRAM.” It is a leader in the semiconductor industry, and “provides approximately 20-25% of the world supply of DRAM.” According to the indictment, Jinhua illegally obtained Micron’s trade secrets, which included “detailed, confidential information used to design and construct efficient manufacturing processes for advanced DRAM technology.”

The indictment states that Jinhua recruited employees at Micron’s Taiwan subsidiary Micron Memory Taiwan Co., Ltd. (MMT) to steal critical DRAM technology trade secrets. First, UMC hired MMT’s former president “Chen Zhengkun” (“Chen”). Chen in turn recruited “J.T. Ho,” who formerly worked at MMT. Prior to leaving MMT, Ho took confidential information from Micron and used it to further UMC and Jinhua DRAM technology design. Ho also recruited former MMT employee “Wang Yungming,” who had taken “over 900 Micron files, some containing Micron confidential and proprietary information for the design of the company’s DRAM technology in its current and future generations that were still in its research and development phase.”

According to the indictment, the stolen trade secrets are valued at up to $8.75 billion. UMC and Jinhua have filed for a number of patents that contain information that is “the same or very similar to technology described in Micron’s [trade secrets].” UMC then used the Chinese legal system to block Micron from selling its DRAM products in China, claiming that Micron had infringed on UMC’s patents.

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114 United States v. UMC, et al., at 2.
115 United States v. UMC, et al., at 2.
118 United States v. UMC, et al., at 4.
119 United States v. UMC, et al., at 4.
120 United States v. UMC, et al., at 5.
121 United States v. UMC, et al., at 3.
122 United States v. UMC, et al., at 3.
123 United States v. UMC, et al., at 4.
124 United States v. UMC, et al., at 4.
125 United States v. UMC, et al., at 7.
126 United States v. UMC, et al., at 11.
The United States responded strongly in this case of Chinese economic espionage. Earlier this month, DOJ unsealed an indictment against Jinhua, UMC, and the former MMT employees. The unsealing of these indictments come on the heels of recent action by the U.S. Department of Commerce (DOC) to restrict technology exports to Jinhua. Due to the importance of semiconductor technology, the DOC determined that “Jinhua poses a significant risk of becoming involved in activities that are contrary to the national security interests of the United States.”

D. China Conducts a Global Espionage Campaign to Obtain Intellectual Property and Sensitive Commercial Information

After USTR released the Section 301 Report in March 2018, reports of Chinese government-supported intrusions into commercial networks and cyber-theft emerged in Australia, Japan, the EU, and South Korea.

1. Australia

A September 2018 report by the Australian Strategic Policy Institute (“ASPI Report”) found that China did not fulfill its commitments to Australia, stemming from a 2017 joint statement, to refrain from commercial cyber espionage. The ASPI Report describes a July 2018 incident in which Chinese hackers attacked the Australian National University system, which contained sensitive potentially commercially valuable information.” The breach was of a nature that the investigators found it “hard to definitively determine what was stolen and for what purpose.”

The Weekend Australian has confirmed from a national security source that the intelligence highlighted Huawei’s role in cyber espionage. In August 2018, Australia had banned Huawei,

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131 See also About Us, ASPI.ORG.AU, https://www.aspi.org.au/about-aspi (last visited Nov. 19, 2018) (According to its website, the Australian Strategic Policy Institute “is an independent, non-partisan think tank that produces expert and timely advice for Australia’s strategic and defence leaders.”).
133 Dr. Adam Segal, Dr. Samantha Hoffman, Fergus Hanson, and Tom Uren, Hacking for Cash, AUSTRALIAN STRATEGY POLICY INSTITUTE (Sep. 25, 2018), at 11.
134 Dr. Adam Segal, Dr. Samantha Hoffman, Fergus Hanson, and Tom Uren, Hacking for Cash, AUSTRALIAN STRATEGY POLICY INSTITUTE (Sep. 25, 2018), at 11.
135 Dr. Adam Segal, Dr. Samantha Hoffman, Fergus Hanson, and Tom Uren, Hacking for Cash, AUSTRALIAN STRATEGY POLICY INSTITUTE (Sep. 25, 2018), at 11.
as well as China’s other major telecoms equipment supplier ZTE, from participating in the construction of Australia’s 5G network.137

The ASPI Report echoes the conclusion of cybersecurity experts in the United States that China has improved its cyber capabilities and is better able conceal its activities.138 As the ASPI Report notes, Chinese activity targeting Australia spans the range of security and non-security related sectors, including mining.139

2. Japan

FireEye reported in September 2018 on a new campaign detected in July 2018 of phishing attacks on Japanese corporations in the media sector by APT10, which was discussed earlier in this report. According to FireEye, APT10 has “a history of targeting Japanese entities.”140 The report noted that APT10 has upgrated its malware such that it has become more difficult to detect.141 In addition, FireEye noted in April 2018 that since November 2017, APT10 has conducted attacks on Japanese health care companies.142

Moreover, according to an August 2018 report, Japan is considering excluding Chinese telecommunications firms Huawei and ZTE from bidding on public contracts for building information systems. Japanese newspaper Sankei Shimbun reported on August 26 that the Japanese government is considering the ban in a bid to prevent cyber-attacks and leaks of confidential information, and to align with the United States and Australia’s recent restrictions regarding the two Chinese tech companies. The report published by the newspaper said the government had already begun discussing concrete measures, which would include a set of strict standards that companies need to satisfy to qualify for participating in public procurement for information systems.143

138 Dr. Adam Segal, Dr. Samantha Hoffman, Fergus Hanson, and Tom Uren, Hacking for Cash, AUSTRALIAN STRATEGY POLICY INSTITUTE (Sep. 25, 2018), at 11.
139 Dr. Adam Segal, Dr. Samantha Hoffman, Fergus Hanson, and Tom Uren, Hacking for Cash, AUSTRALIAN STRATEGY POLICY INSTITUTE (Sep. 25, 2018), at 12. See also Justina Lee, Suspected China Cyberhack on Singapore Is a Wake-Up Call for Asia, NIKKEI ASIAN REVIEW, Aug. 21, 2018, https://asia.nikkei.com/Spotlight/Asia-Insight/Suspected-China-cyberhack-on-Singapore-is-a-wake-up-call-for-Asia (noting that in August 2018, the Singaporean government reportedly learned of a cyber-theft incident in which information regarding “1.5 million patients was stolen from the city-state's largest public health care provider.” According to Fergus Hanson, head of the Cyber Policy Center at the Australian Strategic Policy Institute, the incident “‘certainly fits with a pattern of Chinese Communist Party cyber-activity.’” Hanson also noted that Beijing “has been accused of other major health care hacks in the United States.”).
141 Ayako Matsuda, Irshad Muhammad, APT10 Targeting Japanese Corporations Using Updated TTPs, FIREEYE BLOGS THREAT RESEARCH (Sep. 13, 2018).
3. The European Union and Member States

Earlier this month, Germany’s public broadcaster Deutsche Welle\(^{144}\) published an article entitled “Chinese Spies Suspected of Pilfering German Industrial Pillars.”\(^{145}\) The article noted that in recent years, enterprises in the German state of Baden-Württemberg “have become the target of China’s economic espionage more and more frequently, and the automobile industry as the local pillar is the hardest hit.\(^{146}\) The Baden-Württemberg Ministry of the Interior confirmed this news in response to a question from the state legislature.”\(^{147}\) In addition, the Recorded Future report noted above also indicated that German automotive multinational Daimler AG was targeted by IPs traced to Tsinghua University.\(^{148}\)

4. South Korea

In June 2018, the Suwon District Prosecutor’s Office in South Korea indicted one Chinese national for illegally attempting to use an external hard drive to transfer 5,130 trade secrets related to foldable OLED technology,\(^{149}\) the latest in electronic display technology which is

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\(^{144}\) See article posted by Deutsche Welle on its Chinese-language news service: Chinese Spies Suspected of Infiltrating German Pillar Industries [Chinese], DEUTSCHE WELLE, Nov. 4, 2018, https://www.dw.com/zh/[中国间谍疑染指德国支柱产业]/a-46150266. See also Deutschland im Visier chinesischer Internet-Spione [German], DEUTSCHE WELLE, Dec. 11, 2017, https://www.dw.com/de/deutschland-im-visier-chinesischer-internet-spione/a-41739291 (reporting on an investigation by Germany’s Federal Office for the Protection of the Constitution (BfV) which reportedly found that “China is increasing the focus of Chinese espionage activity on the Internet.”).

\(^{145}\) See article posted by Deutsche Welle on its Chinese-language news service: Chinese Spies Suspected of Infiltrating German Pillar Industries [Chinese], DEUTSCHE WELLE, Nov. 4, 2018, https://www.dw.com/zh/[中国间谍疑染指德国支柱产业]/a-46150266. See also Deutschland im Visier chinesischer Internet-Spione [German], DEUTSCHE WELLE, Dec. 11, 2017, https://www.dw.com/de/deutschland-im-visier-chinesischer-internet-spione/a-41739291 (reporting on an investigation by Germany’s Federal Office for the Protection of the Constitution (BfV) which reportedly found that “China is increasing the focus of Chinese espionage activity on the Internet.”).

\(^{146}\) See article posted by Deutsche Welle on its Chinese-language news service: Chinese Spies Suspected of Infiltrating German Pillar Industries [Chinese], DEUTSCHE WELLE, Nov. 4, 2018, https://www.dw.com/zh/[中国间谍疑染指德国支柱产业]/a-46150266. See also Deutschland im Visier chinesischer Internet-Spione [German], DEUTSCHE WELLE, Dec. 11, 2017, https://www.dw.com/de/deutschland-im-visier-chinesischer-internet-spione/a-41739291 (reporting on an investigation by Germany’s Federal Office for the Protection of the Constitution (BfV) which reportedly found that “China is increasing the focus of Chinese espionage activity on the Internet.”).

\(^{147}\) Sanil Chohan, Winnona DeSombre, and Justin Grosfelt, Chinese Cyberespionage Originating from Tsinghua University Infrastructure, CTA-2018-0816, RECORDED FUTURE (Aug. 16, 2018), at 12.

\(^{148}\) See An Introduction to OLED Displays, OLED INFO, https://www.oled-info.com/introduction (last visited Nov. 19, 2018). (“OLED (Organic Light-Emitting Diodes) is a flat light-emitting technology, made by placing a series of organic thin films between two conductors. When electrical current is applied, a bright light is emitted. OLEDs are emissive display that do not require a backlight and so are thinner and more efficient than LCD displays (which do require a white backlight).”). See also Flexible OLEDs: Introduction and Market Status, OLED INFO,
primarily used in TVs, smartphones, and other electronic devices. The Suwon District Prosecutor’s Office also indicted another Korean national for illegally removing thousands of files related to wind turbine blade testing and production technology from the Korea Institute of Machinery & Equipment in February 2017, then passing on some of the files to a Chinese competitor for a consultation contract between October 2017 and May 2018.

Korean firms such as Samsung Display have tried to prevent former employees from breaching their non-disclosure agreements and seeking work with Chinese competitors. In this case, the former employee allegedly misled Samsung Display into believing that he was seeking employment in a different business sector. In fact, he had taken a position with a Chinese company with close business ties to Samsung Display’s competitor in OLED technology. Chinese companies have been struggling to narrow the gap with South Korean display makers, especially in the field of flexible OLED displays. A Korean court found in favor of Samsung Display and prohibited the former researcher from taking employment with the Chinese company.

III. China’s Unfair Technology Transfer Regime for U.S. Companies in China

A. Introduction

As detailed in Section II of the Section 301 Report, the Chinese government uses a variety of tools to regulate or intervene in U.S. companies’ operations in China in order to require or pressure the transfer of technologies and intellectual property to Chinese companies. Two key aspects of China’s technology transfer regime act to pressure technology transfer: foreign ownership restrictions and administrative licensing and approvals. These two aspects of China’s technology transfer regime are furthered by the non-transparent and discretionary nature of China’s foreign investment approvals system, wherein Chinese officials may use oral communication and informal administrative guidance to pressure foreign firms to transfer technology.

Despite the relaxation of some foreign ownership restrictions and certain other incremental changes in 2018, China’s acts, policies, and practices related to forced technology transfer in China persist. Since the publication of the Section 301 Report, companies and other trading partners have continued to report on and express concern regarding China’s technology transfer regime. China has not effectively resolved the systemic or specific problems detailed therein.

https://www.oled-info.com/flexible-oled (Foldable OLEDs, also known as flexible OLEDs, is an OLED “based on a flexible substrate which can be either plastic, metal or flexible glass.”).


B. U.S. and Foreign Companies and Other U.S. Trading Partners Continue to Share U.S. Concerns

1. Companies

Since March 2018, a number of independent surveys have shown that foreign businesses remain very concerned about the technology transfer regime in China. In July 2018, the 2018 China Business Report of the American Chamber of Commerce in Shanghai (AmCham Shanghai) reported that 21% of member companies had felt pressure to transfer technology in exchange for market access. This pressure was particularly notable in high-technology industries, with 44% of aerospace and 41% of chemical companies having reported facing “notable” pressure to transfer technology. According to AmCham Shanghai, these findings affirm “the current U.S. administration’s concern about this pay-to-play tactic in technology-based industries.”

In September 2018, the U.S.-China Business Council (USCBC) released its annual 2018 Member Survey, which reported that over 58% of respondents had cited “licensing and regulatory approvals,” 34% had cited “foreign investment barriers,” and 27% had cited “government pressure to favor Chinese companies” as signs of protectionism in China. These findings confirm the persistent pattern of conduct highlighted in the Section 301 Report.

Surveys of European companies indicate similar concerns. In June 2018, the Business Confidence Survey 2018 of the European Union Chamber of Commerce in China found that “unfair technology transfers continue despite government assurances,” with 19% of Chamber members reporting that they had felt compelled to engage in unfair technology transfers to maintain market access in China. Consistent with the findings reported in AmCham Shanghai’s survey, European companies in high-technology industries were significantly more likely to report in the affirmative, including: 36% of aerospace and aviation, 33% of civil engineering and construction, 27% of automotive, and 23% of chemical and petroleum companies. This new information supports the Section 301 Report’s finding that “[industry] surveys make clear that China’s technology transfer regime is a persistent problem for U.S. companies in China, particularly in high-technology sectors targeted by the Chinese government.”

In September 2018, the European Union Chamber of Commerce in China published its 2018/2019 Position Paper, which outlines European companies’ dissatisfaction with China’s...
regulatory environment in a number of areas, including “access to licenses,” “market access barriers,” “unequal and unfair treatment,” and “complex and lengthy administrative procedures.” These areas are the main focus of Section II of the Section 301 Report. The 2018/2019 Position Paper states:

[T]he European Chamber shares many of the U.S. concerns about China, including a general lack of market access—particularly in high-tech sectors—a business environment that favors domestic firms, the continued existence of technology transfers as a pre-condition for market access, and the requirement to localize information and industrial and innovation facilities.161

In November 2018, moreover, the European Union Chamber of Commerce in China released an official statement expressing doubt about market opening promises made by President Xi Jinping in a keynote speech at the Chinese International Import Expo in Shanghai. According to the statement, China’s “constant repetition, without sufficient concrete measures or timelines being introduced, has left the European business community increasingly desensitized to these kinds of promises.”162

2. Other Trading Partners

In a number of fora over the last year, other U.S. trading partners have indicated that they share U.S. concerns about China’s technology transfer regime and the types of acts, policies, and practices in which China engages. During China’s WTO Trade Policy Review in July 2018, the Concluding Remarks by the Chairperson noted that concerns were raised about China “regarding JV [(joint venture)] requirements, and also with regards to what some perceived as being inconsistent and unpredictable regulatory practices and technology transfer requirements.”163

Referencing these remarks, the European Union Chamber of Commerce in China’s 2018/2019 Position Paper states:

[T]he chairperson’s concluding remarks on the WTO’s 2018 Trade Policy Review and the more than 1,900 questions raised by other members reflect the international community’s mixed feelings towards the situation and indicate that concerns about China’s role in the global economy are widespread. These concerns derive from issues such as unfair technology transfers, which a reported 19 per cent of European Chamber members felt compelled to do to maintain market access in 2017, a lack of investment

161 EUROPEAN UNION CHAMBER OF COMMERCE IN CHINA, POSITION PAPER 2018/2019 (Sep. 18, 2018), at 155.
reciprocity and concerns over how the China Manufacturing 2025 initiative will be pursued.\textsuperscript{164}

On the occasion of the Chinese International Import Expo in Shanghai, the French and German ambassadors to China co-authored an opinion piece advocating reform of China’s policies and practices. The letter called on China to provide the same opportunities for European businesses in China that Chinese businesses enjoy in Europe, including taking the significant step to abolish JV requirements across all sectors.\textsuperscript{165} The letter further urged China to complement these steps by allowing greater access to operational licenses and adopting other reforms in sectors that are formally open to foreign companies.\textsuperscript{166}

A 2017 report from the Organisation for Economic Co-operation and Development (OECD) also confirmed the existence of China’s technology transfer regime. In its discussion of sector-specific equity restrictions and JV requirements, the 2017 report pointed out that a survey of available literature shows, with respect to China, “several restrictions are explicitly aimed at mandating technology transfer.”\textsuperscript{167} The 2017 report also found that the Chinese government must approve certain JVs, and that such approval process “explicitly involves a significant exchange of technology-related information with officials.”\textsuperscript{168} It specifically noted that “Chinese authorities retain the right to examine the machinery and proprietary technology provided by foreign parties, and require submission of documentation on industrial property or proprietary technology....”\textsuperscript{169}

C. China Has Made Only Incremental Changes to Foreign Investment Restrictions

1. Changes to Foreign Ownership Restrictions

Since the publication of the Section 301 Report, China has taken some actions to remove or relax certain foreign ownership restrictions. As set out in the Section 301 Report, China’s inbound foreign investment catalogue provides a starting point for understanding China’s restrictions applying to foreign investment. On June 28, 2018 (entering into force on July 28, 2018), the NDRC and the Ministry of Commerce (MOFCOM) issued the \textit{Special Administrative Measures (Negative List) for the Access of Foreign Investment (2018)} (“2018 Negative List”), which

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\textsuperscript{164} \textit{EUROPEAN UNION CHAMBER OF COMMERCE IN CHINA}, \textit{POSITION PAPER 2018/2019} (Sep. 18, 2018), at 4 (emphasis added).


\textsuperscript{166} Jean-Maurice Ripert, Clemens Von Goetze, “Will Shanghai Become Milestone for China’s Opening-Up?” \textit{Ask French, German Ambassadors}, CAIXIN, Nov. 1, 2018.


replaces the negative list in China’s most recent (2017) Foreign Investment Catalogue.\textsuperscript{170} (See Appendix A for an updated table of examples of equity restrictions and local partner requirements in the 2018 Negative List.)\textsuperscript{171} Among other changes, the 2018 Negative List eases or removes foreign equity caps and certain other restrictions for the automotive, aircraft and shipbuilding industries, and for certain financial sectors. Some of these changes take place immediately and some over time.\textsuperscript{172}

As analysts and industry stakeholders have noted, however, these revisions reflect only incremental changes to China’s foreign ownership restrictions. Several of the industries opened in the 2018 Negative List are in sectors in which China already has an internal reason for inviting more foreign participation, including in connection with attracting more foreign investment (and potentially technology transfer) in manufacturing and extractive industries, or in which market conditions are already overwhelmingly favorable to Chinese companies (e.g., railway lines or electricity grid construction and management).\textsuperscript{173} Following its release, the European Union Chamber of Commerce in China criticized the list for continuing “to discriminate against non-Chinese companies by maintaining the distinction between domestically-invested and foreign-invested enterprises with respect to market entry and approval requirements.”\textsuperscript{174} The Chamber’s president noted that while these reductions represent a further step towards China’s opening, “a negative list of 48 areas is excessive and a lot more needs to be done.”\textsuperscript{175}

Using foreign ownership restrictions, including in connection with its administrative review and licensing processes, China continues to pressure technology transfer from foreign companies in numerous ways. For example, a September 2018 report by the Wall Street Journal provides case-specific examples of Chinese actions to obtain technology from five major U.S. companies: DuPont, General Electric, Advanced Micro Devices, Huntsman Corp, and Micron


\textsuperscript{171} China also adopted other specific policies related to the 2018 Negative List. For example, a tax preference previously available only to foreign companies in sectors “encouraged” for inbound investment was expanded, as of Sep. 29, 2018, to apply to all foreign investments except those related to increasing, transferring or purchasing shares of publicly traded companies and which are not in “prohibited” sectors. Notice on the Applicable Scope of the Policy of Temporary Exemption of Withholding Taxes on the Direct Investment Made by Overseas Investors with Distributed Profits (MOF, State Administration of Taxation, NDRC, MOFCOM, Cai Shui [2018] No. 102, issued Sep. 29, 2018).

\textsuperscript{172} Notably, in conjunction with making certain incremental changes to foreign investment restrictions, China continues to designate sectors “encouraged” for foreign investment. See the official notice attached to the 2018 Negative List, which provides that sectors “encouraged” in 2017 will maintain their “encouraged” status.\textsuperscript{173} See, e.g., David Fickling, China’s Foreign Investment Door Opens, But Only Barely, BLOOMBERG, July 1, 2018 (stating that 2018 Negative List allows China “to proclaim a more open market while in practice making little tangible difference.”).


Several of these companies faced coercive pressure from Chinese officials. According to the article, China’s tactics “include pressuring U.S. partners in JVs to relinquish technology, using local courts to invalidate American firms’ patents and licensing arrangements, dispatching antitrust and other investigators, and filling regulatory panels with experts who may pass secrets to Chinese competitors.” Similar policies and practices are described in the Section 301 Report.

2. The Automotive Sector as an Illustrative Example of China’s Continued Use of Foreign Investment Restrictions

In the automotive sector, discussed in detail in Section II.B.2(a) of the Section 301 Report, China has eased certain restrictions on foreign investment. As first announced by NDRC in April 2018, and as written into the 2018 Negative List (see Appendix A), China removed foreign equity caps for special-purpose vehicles and new energy vehicles (NEVs) as of July 28, 2018, and has pledged to remove foreign equity caps for non-NEV commercial vehicles by 2020 and non-NEV passenger vehicles by 2022. The 2018 Negative List also provides that in 2022, China will remove the current restriction that limits foreign automakers to two JVs.

However, several factors suggest that non-Chinese automakers will continue to face significant pressure to share their technology with Chinese partners. First, China is contemplating new restrictions on automotive investments that would be more onerous on non-Chinese entities. The draft Regulations for the Administration of Investment in the Automobile Industry, published in May 2018, would prohibit certain investments in new fuel-vehicle manufacturing plants.

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179 See, e.g., Section II.B, Section VI.A.2, Section VI.A.3, and Section II.C.2 of the Section 301 Report.
182 NDRC Notice on Soliciting Comments on the “(For-Comment Draft) Regulations for the Administration of Investment in the Automobile Industry” (NDRC, issued July 4, 2018).
183 NDRC Notice on Soliciting Comments on the “(For-Comment Draft) Regulations for the Administration of Investment in the Automobile Industry” (NDRC, issued July 4, 2018) at Art. 11.
and would subject existing fuel-vehicle manufacturing enterprises to new requirements relating to existing vehicle production, vehicle exports, and NEV output. The draft regulations would also subject newly established pure-electric vehicle (PEV) manufacturing enterprises, as well as fuel-vehicle manufacturing enterprises seeking to expand PEV production capacity, to a number of onerous requirements. Foreign automakers seeking to establish new manufacturing facilities without a Chinese JV partner would find it particularly difficult to meet these requirements.

These draft investment restrictions also serve to illustrate how foreign automakers, like foreign companies in various sectors in China, continue to be subject to administrative review and licensing processes used in China’s technology transfer regime. The European Union Chamber of Commerce in China’s Automotive Working Group comments in its 2018/2019 Position Paper: “[T]here are still concerns over investment from an industry standpoint. First, administrative and permit approvals that are closely linked to major investments are sometimes a deterrent, either intentionally or unintentionally.”

Second, China’s automotive policy is transitioning to a new phase that may exacerbate pressure on foreign automakers to remain in JVs with their Chinese competitors. Since 2010, the Chinese government has subsidized NEVs manufactured and sold in China through a program known as Promoted Use. This financial support has gone predominately to Chinese domestic automakers, who have scaled up NEV production. While the Promoted Use program is scheduled to be phased out by the end of 2020, as of 2019, a new “Credit System” will require all automakers, including foreign automakers who currently produce no or very few NEVs in China, to generate or purchase credits based on their fuel-vehicle fleet’s corporate average fuel consumption as well as their NEV production.

184 NDRC Notice on Soliciting Comments on the “(For-Comment Draft) Regulations for the Administration of Investment in the Automobile Industry” (NDRC, issued July 4, 2018) at Art 12.
185 NDRC Notice on Soliciting Comments on the “(For-Comment Draft) Regulations for the Administration of Investment in the Automobile Industry” (NDRC, issued July 4, 2018) at Chapter IV.
186 EUROPEAN UNION CHAMBER OF COMMERCE IN CHINA, POSITION PAPER 2018/2019 (Sep. 18, 2018), at 181. For further discussion of administrative licensing and approvals, see also key recommendations by the European Union Chamber of Commerce in China’s Standards and Conformity Assessment Working Group.
189 Measures for Parallel Management of the Passenger Vehicle Corporate Average Fuel Consumption and New Energy Vehicle Credit System (MIIT, MOFCOM, MOF, General Administration of Customs, and General
To comply with this new Credit System, foreign automakers will have a strong incentive to establish JVs with Chinese domestic automakers who are already large NEV producers and can generate the requisite NEV credits. For example, in August 2018, Ford signed a memorandum of understanding with China’s Zotye Automobile to build a 50-50 JV to develop, produce and sell electric passenger cars, and was reportedly in talks with at least three Chinese automakers to produce NEVs in China. According to a news report by China Daily, “An industry insider close to the matter said the move is primarily to brace Ford for the credit system that is designed to stimulate the development of new energy cars.”

As a general matter, the fact that China has maintained foreign ownership restrictions in the automotive sector for over two decades now places many foreign automakers in an unfavorable position to make wholly foreign-owned investments. The China-based spokesman for Japanese automaker Honda Motor Co. stated in April 2018 that “we have no plan to change our investment ratio.” The spokesman further explained that “If we had this option 20 years ago when we were first coming into the market, we might have thought differently.” The European Union Chamber of Commerce in China has similarly commented:

> For European companies in China that have previously faced JV requirements, most have already developed a strong and entrenched relationship with their required partners. In most cases, it is unlikely that this will change.

IV. China’s Discriminatory Licensing Restrictions

As discussed earlier in Section I.A, USTR is pursuing dispute settlement against China at the WTO to address China’s discriminatory technology licensing requirements. USTR initiated a request for consultations on March 23, 2018, after President Trump directed the U.S. Trade Representative to pursue dispute settlement in the WTO to confront China over its policies that result in unfair treatment for U.S. companies and innovators trying to do business in China.

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193 Trefor Moss and Mike Colias, China to Ease Rules on Foreign Auto Makers, WALL ST. J., Apr. 17, 2018.

194 EUROPEAN UNION CHAMBER OF COMMERCE IN CHINA, POSITION PAPER 2018/2019 (Sep. 18, 2018), at 181.

The U.S. consultations request details how China appears to breach WTO rules by denying foreign patent holders, including U.S. companies, basic patent rights to stop a Chinese entity from using the technology after a licensing contract ends. China also appears to break WTO rules by imposing mandatory adverse contract terms that discriminate against and are less favorable for imported foreign technology. These Chinese policies hurt innovators in the United States and worldwide by interfering with the ability of foreign technology holders to set market-based terms in licensing and other technology-related contracts.

Japan; the EU; Ukraine; the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu; and Saudi Arabia requested to join the U.S. consultations as third parties.196

Following the U.S. request, the EU also filed a request for consultations with China at the WTO to address China’s discriminatory technology licensing requirements.197

In July 2018, the United States consulted with China, with Japan and the EU attending as third parties. 198 The dispute was not resolved during consultations. Accordingly, on October 18, 2018, the United States requested that the WTO establish a panel to examine the matter.199

In support of its request for a panel at the meeting of the WTO Dispute Settlement Body on October 29, 2018, the United States recalled that “all WTO Members, including China, have committed through the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) to provide certain protections for intellectual property rights, a core element of a free and fair international trading system. Among those intellectual property rights are the commitments to protect exclusive rights of patent holders and to accord to the nationals of other Members treatment no less favorable than that the Member accords to its own nationals with

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198 See Acceptance by China of the Requests to Join Consultations, China — Certain Measures Concerning the Protection of Intellectual Property Rights, WTO Doc. WT/DS542/7 (July 17, 2018). Although China accepted the requests to join consultations as a third party from Japan and the EU, it did not accept the requests of Ukraine; the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu; and Saudi Arabia; and China did not provide an explanation as to why those requests were not granted.
regard to the protection of intellectual property.” The U.S. delegation went on to note that “China agreed to these commitments when it acceded to the WTO. However, for the past several years, the United States has repeatedly raised concerns about China’s policies relating to technology licensing that do not comport with China’s WTO commitments.”

China blocked the first U.S. request for a WTO dispute settlement panel as provided for in the rules for dispute settlement proceedings, but the United States intends to repeat its request to establish a WTO dispute settlement panel at the November 21, 2018 meeting of the Dispute Settlement Body.

V. Outbound Investment

A. Introduction

The Chinese government continues to direct and/or unfairly facilitate the systematic investment in, and/or acquisition of, U.S. companies and assets by Chinese companies to obtain cutting-edge technologies and intellectual property and generate large-scale technology transfer in industries deemed important by Chinese government industrial plans.

The Section 301 Report considered China’s outbound foreign direct investment (OFDI) trends for the period 2005-2016. Since March 2018, new data has become available that suggests that growth in total OFDI from China slowed in 2017 and 2018. According to China’s official 2017 China Foreign Direct Investment Statistical Report, China registered $158.29 billion in total OFDI worldwide in 2017, a year-on-year decrease of 19.3%. In particular, China’s non-financial investment dropped 23% in 2017 to $139.5 billion and in the first three quarters of

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204 MINISTRY OF COMMERCE, NATIONAL STATISTICS BUREAU, AND STATE ADMINISTRATION OF FOREIGN EXCHANGE, THE PEOPLE’S REPUBLIC OF CHINA, 2017 CHINA FOREIGN DIRECT INVESTMENT STATISTICAL REPORT [Chinese] (Sep. 28, 2018), at 5 and 86.
2018, there has only been a marginal recovery of non-financial investment\textsuperscript{205} compared to the same period in 2017.\textsuperscript{206}

With respect to Chinese investment in the United States, transaction-based data from Rhodium Group and the American Enterprise Institute (AEI)\textsuperscript{207} likewise indicate a declining trend in 2017 and 2018. According to a Rhodium report, in the first half of 2018, Chinese companies completed acquisitions and Greenfield investments worth only $1.8 billion in the United States – a drop of more than 90% from 1H 2017 and the lowest level in seven years – and “the pace of newly announced transactions remained similarly depressed.”\textsuperscript{208} China’s official data for 2017 also shows a year-on-year decrease in Chinese OFDI in the United States.\textsuperscript{209}

This tapering off of China’s overall outbound investment is not surprising, nor does it indicate that China has fundamentally changed its acts, policies, and practices for high-technology acquisition. A number of factors are at work that help to explain the overall decrease. First, the United States has both highlighted its longstanding concerns about China’s outbound investment policies and practices and increasingly taken direct action to address them. Second, China has been reducing overall OFDI by discouraging acquisitions in sectors such as real estate.

Despite the reduction in overall OFDI, China’s targeted acquisitions of technology and intellectual property persist. In particular, Chinese VC investment in U.S. technology centers such as Silicon Valley has intensified in recent months. China has not addressed the problems caused by its outbound investment regime. Indeed, this investment regime appears to be essentially unchanged, and – as of the publication of this supplemental report – no reform proposals are on the horizon.


\textsuperscript{207} Given the different methods of data collection between Rhodium and AEI, it is impossible to compare the figures directly. AEI compiles data from publicly available or voluntarily submitted information, for all announced investment transactions over $100 million in value. This data is premised on the entire value of the transaction, including U.S. domestic financing (e.g., bonds and loans) for projects. \textit{China Global Investment Tracker}, AEI, http://www.aei.org/china-global-investment-tracker/ (last visited Nov. 7, 2018). For its part, Rhodium collects data through publicly available or voluntarily submitted information, for completed direct investment transactions valued at $500,000 or more. Transaction values are based on the entire value of the transaction, including U.S. domestic financing (e.g., bonds and loans) for projects. \textit{China Investment Monitor}, RHODIUM GROUP, http://rhg.com/interactive/china-investment-monitor (last visited Nov. 7, 2018).


\textsuperscript{209} MINISTRY OF COMMERCE, NATIONAL STATISTICS BUREAU, AND STATE ADMINISTRATION OF FOREIGN EXCHANGE, THE PEOPLE’S REPUBLIC OF CHINA, 2017 \textit{CHINA FOREIGN DIRECT INVESTMENT STATISTICAL REPORT [Chinese]} (Sep. 28, 2018), at 97 (reporting $6.43 billion of Chinese investment in the United States in 2017, a year-on-year decrease of 62.1%).
B. Actions by the United States and Other Trading Partners to Enhance Investment Review Processes

The United States and other trading partners have taken steps to enhance their national security-related investment review processes – in part, to address concerns over Chinese outbound investment. These efforts may have contributed to the overall decline in Chinese OFDI in 2017 and 2018.

1. Actions by the United States

The United States has highlighted national security-related concerns regarding Chinese outbound investment for some time, and has increasingly taken direct action. The President recently signed into law legislation that expands the jurisdiction and authority of the Committee on Foreign Investment in the United States (CFIUS) to review transactions raising potential national security concerns.210 This legislation, the Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA), Subtitle A of Title XVII of Pub. L. 115-232 (Aug. 13, 2018),211 amends section 721 of the Defense Production Act of 1950 (DPA).212 CFIUS recently launched a pilot program to implement several of these new authorities with respect to certain categories of transactions, pending full implementation of FIRRMA.213

Moreover, CFIUS has continued to fulfill its longstanding mandate and vigilantly review mergers, acquisitions, and takeovers from all countries – including China – based on national security considerations. In 2017 and 2018, the President prohibited two transactions following CFIUS review.214 In addition, reports suggest that a significant number of transactions may not have been entered into due to concerns about possible CFIUS review, or were abandoned after CFIUS began its review.215

2. Actions by Other Trading Partners

Several of the United States’ trading partners have worked to enhance their investment review processes. In particular, the EU has taken steps to help coordinate and improve Member State

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mechanisms for screening foreign investment. The official website of the European Parliament describes these steps as follows:

The EU has no single foreign direct investment (FDI) screening mechanism comparable to well-established schemes in Australia, Canada, Japan, and the USA. Currently, less than half of EU Member States have legislation in place that allows them to review FDI on grounds of national security or public order in line with their commitments under international and EU law. In its May 2017 Reflection paper on Harnessing Globalisation the European Commission stressed the need for the EU to maintain an open investment environment, but acknowledged increasing concerns about changing FDI patterns and the need to defend the EU’s essential interests.

On 13 September 2017 the European Commission published a proposal for a regulation establishing a legal framework for the screening of FDI inflows into the EU. Parliament’s Committee on international trade (INTA) adopted its report on 28 May 2018 as well as the decision to enter into inter-institutional (trilogue) negotiations. As there were no requests for a vote in Parliament, INTA was authorised to start negotiations based on the INTA report. On 13 June 2018, the permanent representatives of the EU Member States agreed on the Council’s position. The first trilogue took place on 10 July 2018, the second on 27 September 2018, and the third on 11 October 2018.216

In its proposal, the European Commission seeks:

- “to create an enabling legal framework which embraces the diversity of Member States’ approaches to FDI screening and their exclusive responsibility for national security, while taking into account the EU’s competence for FDI;”

- “to introduce a new Commission competence to screen FDI and issue a non-binding opinion, if i) an FDI in a Member State may affect the security or public order of projects or programmes “of Union interest” in the areas of research, space, transport, energy and telecommunications; ii) an FDI in a Member State may affect the security or public order of another/other Member State/s;” and

- “to create a cooperation mechanism between Member States and the Commission which aims to enhance the coordination of screening decisions taken by the Member State/s concerned and to increase the awareness of Member States and the Commission about planned or completed FDI that may affect security or public order by way of exchanges of information.”217


217 Legislative Train Schedule – A Balanced and Progressive Trade Policy to Harness Globalisation – Screening of Foreign Direct Investment in Strategic Sectors, EUROPEAN PARLIAMENT.
By the end of 2018, the European Commission intends to “carry out an in-depth analysis of FDI flows into the EU” which “will focus on strategic sectors and assets whose control may raise security or public order concerns.”

In parallel with these efforts at the EU level, individual EU member states are also taking actions to improve their investment screening mechanisms. In July 2017, Germany amended its Foreign Trade and Payments Ordinance to clarify which industry sectors implicate national security concerns and are thus more likely to trigger a foreign investment review. Germany is now considering additional measures that would lower the threshold amount for government review of inbound acquisitions by non-EU investors from the current 25% ownership stake to 15%.

News sources reported in late October 2018 that the Federation of German Industries (BDI), a leading German industry association, had drafted a 25-page China position paper that calls on German companies to reduce their dependence on China. The position paper reportedly calls for “a new EU instrument to prevent state-subsidized takeovers, including requiring Chinese firms to present accounts based on internationally agreed standards when acquiring European firms so their ownership structures and financing can be vetted.” The BDI also reportedly calls for “closer coordination on China strategy within the German government and between the EU and like-minded partners, including the United States.”

France and the United Kingdom have also taken actions similar to those in Germany. In May 2014, the French government issued a decree permitting the government to block foreign takeovers of French firms in strategic sectors. In June 2018, the UK government amended the Enterprise Act 2002 to lower the screening threshold for proposed foreign acquisitions of companies developing military and dual-use technology, computer hardware and quantum technology. In July 2018, the UK government released a white paper entitled National Security and Investment: A Consultation on Proposed Legislative Reforms that sets out the government’s intent to further reform its investment screening regime to “protect national security or public order concerns.”

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218 Legislative Train Schedule – A Balanced and Progressive Trade Policy to Harness Globalisation – Screening of Foreign Direct Investment in Strategic Sectors, EUROPEAN PARLIAMENT.
222 Noah Barkin, Exclusive: German Firms Urged to Cut Dependence on China, REUTERS, Oct. 31, 2018.
223 Noah Barkin, Exclusive: German Firms Urged to Cut Dependence on China, REUTERS, Oct. 31, 2018.
224 Jean-Baptiste Vey and Benjamin Mallet, France Boosts Say on GE Bid for Alstom with Takeover Law, Reuters, May 15, 2014.
security from hostile actors using ownership of, or influence over, businesses and assets to harm the country.”

The white paper notes that the United Kingdom’s reforms take place “as many other governments are also updating their powers in light of the same technological, economic and national security-related changes.”

C. China’s Outbound Investment Regime

The available evidence indicates that aggregate Chinese OFDI has also declined because China has curtailed investments in certain non-strategic sectors, to channel private and public resources towards high-technology sectors designated in its industrial policies.

1. Outbound Investment Approvals and Their Influence on Investment Decisions

As detailed in the Section 301 Report, despite two decades of reforms, China continues to use various tools to direct and/or unfairly facilitate outbound investment. The latest measure through which China exercises such authority is the Measures on the Administration of Enterprise Outbound Investment (“2018 NDRC Approval Measures”). The 2018 NDRC Approval Measures are beginning to factor into company-level decisions regarding outbound investment.

The 2018 NDRC Approval Measures have served to curtail outbound investment in certain non-strategic sectors by classifying them as “sensitive investment projects,” which increases the regulatory burden to obtain government approval. Corresponding to this provision is an updated Sensitive Industry Catalogue, which was released on January 31, 2018, and took effect on March 1, 2018 – the same day that the 2018 NDRC Approval Measures went into effect. The Sensitive Industry Catalogue includes a wide range of industries that are classified as


227 SECRETARY OF STATE FOR BUSINESS, ENERGY AND INDUSTRIAL STRATEGY BY COMMAND OF HER MAJESTY, NATIONAL SECURITY AND INVESTMENT: A CONSULTATION ON PROPOSED LEGISLATIVE REFORMS 9 (Presented to Parliament in July 2018).


229 For example, Fujian Xing Wang Rui Jie Telecommunication Holding Co., Ltd. updated its “Foreign Investment Administrative Measures,” according to a March 30, 2018 filing. In the measures, the company cites to the 2018 NDRC Approval Measures as part of the basis of its internal “Foreign Investment Administrative Measures.” The company further states its investments will “revolve[ ] around the State’s overseas investment guidance and be in accordance with the State’s overseas investment industrial policy.” Fujian Xing Wang Rui Jie Telecommunication Holding Co., Ltd. updated its “Foreign Investment Administrative Measures,” http://disclosure.szse.cn/finalpage/2018-03-30/1204543719.PDF.


“sensitive,” including (1) real estate, (2) hotels, (3) movie studios, (4) the amusement industry, (5) sports clubs, and (6) “the establishment of equity investment funds or investment platforms outside China that are for non-specific commercial projects.” Due to their classification as “sensitive industries,” investments in these industries must go through additional examination and approval. Notably, none of these ostensibly “sensitive” industries falls within areas such as biotechnology or robotics that are targeted by industrial policies like Made in China 2025.

China’s expansive definition of “sensitive” sectors, and the resulting discouragement and tighter regulation of OFDI in sectors such as real estate, entertainment, hospitality, tourism, and sports clubs, has likely contributed to lower Chinese OFDI growth. Data from the 2017 China Foreign Direct Investment Statistical Report shows that between 2016 and 2017, Chinese OFDI in real estate decreased by 55.1%. Similarly, in residential services, OFDI decreased by 65.5%, and in culture, sports and entertainment, by 93.3%. These decreases occurred alongside a series of highly publicized government enforcement actions against companies such as Dalian Wanda, HNA and Anbang Insurance, which were known for their aggressive international deal-making in these sectors. These restrictions have reportedly had a significant impact on Chinese OFDI in the United States.

As the Section 301 Report found, these types of restrictions on commercial outbound investment create an incentive for Chinese investors to orient their investments toward industries favored by industrial plans and other government policies, especially when viewed in conjunction with China’s closed capital account, which allows government authorities to restrict access to foreign exchange and limit outbound investment flows.

An illustrative example is the recent acquisition of NEV manufacturer Faraday Future (FF) by Evergrande Health. Evergrande Health is the Hong Kong-listed subsidiary of China’s largest real estate company, Evergrande Real Estate Group. While the group itself is private and controlled by its chairman, Xu Jiayin, Xu Jiayin has been the chairman of his company’s CCP

234 See also Chinese Investing Nine Times More in Europe than North America as Policies Force Divergence, BAKER MCKENZIE, July 16, 2018 (stating that “The initial decline in Chinese OFDI was primarily caused by Chinese regulatory tightening over outward investments. Facing large capital outflows, Beijing began to crackdown on outbound FDI in the second half of 2016.”).
236 See, e.g., Sumeet Chatterjee and Matthew Miller, China’s Latest Conglomerate Crackdown Casts Dealmaking Shadow, REUTERS, Mar. 2, 2018; Wei Lingling and Deng Chao, Xi’s Sign-off Deals Blow to China Inc.’s Global Spending Spree: Measure is a Warning to China’s Other Big Private Businesses that Loaded up on Debt to Buy Assets Overseas, WALL ST. J., July 23, 2017.
237 See, e.g., Thilo Hanemann and Daniel H. Rosen, Chinese FDI in the US in 2017: A Double Policy Punch, RHODIUM GROUP, Jan. 17, 2018 (stating that “Some of the restricted sectors have been important drivers of Chinese FDI in the US in recent years, including real estate and hospitality (which accounted for 36% of total US investment in the past 3 years) and sports and entertainment (another 7% of total investment in the past 3 years).”).
cadre since its establishment in 2002, and he has made public his belief in the CCP, stating “everything that Evergrande and I have, it is all given by the Party, given by the State, given by society.”

In November 2017, Evergrande Health agreed to invest $2 billion for a 45% share in FF, and the deal was finalized in June 2018. Based in Southern California, FF seeks to produce high-end NEVs to compete with Tesla. Evergrande’s focus on acquiring technology is evident in the press release announcing the acquisition, which claimed that “by taking control of FF, Xu Jiaying [Evergrande’s owner] will bring the peak of world technology into China, greatly improving the core competitiveness of China’s vehicle engine industry.” Evergrande’s financial report for the first half of 2018 includes an entire section about the FF investment and its role in providing Evergrande new technology and diversifying Evergrande’s sector portfolio. Evergrande also emphasizes that FF, between its U.S. and Chinese operations, has already acquired 380 patents.

NEVs are a major focus of China’s industrial policies, including the Energy-Saving and New-Energy Automotive Industry Development Plan (2012-2020), Strategic Emerging Enterprises, and Made in China 2025. Evergrande cites China’s industrial policies, particularly Made in China 2025, as a chief rationale for investing in FF. A Chinese

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250 Notice on Issuing the 13th Five-year National Strategic Emerging Industries Development Plan (State Council, Guo Fa [2016] No. 67, issued Nov. 29, 2016).
automotive industry expert also pointed out the importance of the deal to the Made in China 2025 policy and China’s ambitions to catch up with world-leading automakers, stating:

Currently, the large gap between the technology of domestic electric vehicle enterprises and global leaders is obvious. By becoming the dominant player in FF, Evergrande comprehensively masters world-leading technology and is able to synchronize the sharing of research and development, which will help China realize its strategic goal of becoming a strong automotive nation.253

After Evergrande made its initial $800 million payment, FF and Evergrande came into conflict. According to a press release issued by FF, the conflict centered around Evergrande withholding future payments, and blocking FF from seeking other financing, claiming “Evergrande held the payments back to try to gain control and ownership over FF China and all of FF’s IP.”254 FF further stated that “Evergrande’s breach in its funding obligations, and its attempts to prevent FF from obtaining other investments or even using its assets to obtain short-term financing, caused a serious and unexpected cash shortfall that led us to take immediate steps to re-evaluate business priorities.”255

2. Major Policies and State-Backed Actors

Since the publication of the Section 301 report, China has continued to pursue its major policies to acquire foreign technology. For example, the State Council’s August 2017 Guiding Opinion on Further Guiding and Standardizing the Direction of Foreign Investment (“2017 Investment Opinion”) remains in place, calling for “catalyzing the ‘Going Out’ strategy for products, technologies, and services,” while restricting or prohibiting investment in real estate and other sectors disfavored by the government.256 Significantly, in October 2018 the state-owned People’s Daily newspaper published an article entitled The Major Trend of Chinese Enterprises ‘Going Out’ Has Not Changed.257 The article emphasizes the growth in Chinese outbound investment in the first nine months of 2018 (based on MOFCOM statistics), including 265 “acquisition projects” worth $43.3 billion, spread across 49 countries including advanced economies such as France and Germany.258 The article highlights the government’s One Belt

One Road initiative as a catalyst for China’s outbound investments, while also lauding the “effective suppression of irrational investments.”

State-backed actors also continue to constitute a prominent feature of China’s outbound investment activity. SOEs remain prevalent throughout the Chinese economy, and are market leaders in key sectors deemed strategic by the government. As the Section 301 Report detailed, SOEs are subject to state direction and control, in particular those central SOEs administered by the State Council’s State-owned Assets Supervision and Administration Commission (SASAC). Through the CCP, the Chinese government exercises additional control over both SOEs and nominally private companies.

State-backed funds and investment companies continue to represent an important feature of China’s financial sector, as illustrated by the recent activities of the National Integrated Circuit (IC) Fund. As described in the Section 301 Report, the National IC Fund was established in 2014 to upgrade China’s industrial capacity and support the development of an indigenous IC industry. The National IC Fund achieves this, in part, by supporting overseas investment and technology acquisition. The fund has been linked with numerous technology-related outbound investments in the United States. In May 2018, official Chinese media reported that the National IC Fund was preparing to raise a second round of funding, targeted at about CNY 150-200 billion ($23-$30 billion). There have also been new National IC Fund partnerships with local governments in China; for example, in June 2018, the National IC Fund and Wuxi City signed a strategic agreement and in September 2018, Chongqing City established a local CNY 50 billion ($7.6 billion) IC Fund.

D. China Is Increasingly Focusing on Venture Capital Investment

1. Trends in Chinese Venture Capital Investment in the United States

China continues to explore new means of securing cutting-edge technologies and intellectual property. Analysis based on multiple data sources suggests that, since the release of the Section 301 Report, China’s sustained interest in acquiring technology in the United States increasingly relies upon VC investment.

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According to Rhodium Group data, Chinese VC investment in the United States from January to May 2018 reached almost $2.4 billion, equivalent to the previous full-year high set in 2015.\textsuperscript{264} Similarly, investment data compiled by Bloomberg show that the value of VC deals with at least one Chinese-domiciled investor has increased in 2018, reaching a record high by November 15, 2018 (see Figure 1).

As this data makes clear, Chinese VC investors are increasingly active in the U.S. VC ecosystem. Analysts estimate that Chinese investors participated in 10-16% of all venture deals in the United States between 2015 and 2017.\textsuperscript{265} According to Bloomberg data, Chinese VC investors have participated in 151 deals through November 15, 2018, which roughly matches the pace set in 2017 when Chinese investors participated in an all-time high of 167 deals (see Figure 2).

\textbf{Figure 1 – Value of VC Investment Deals in the United States Involving at Least One Chinese Investor ($ Billions)}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig1.png}
\caption{Value of VC Investment Deals in the United States Involving at Least One Chinese Investor ($ Billions)}
\end{figure}

Source: Bloomberg.


Significantly, the sectoral focus of China’s VC investors in the United States aligns with the Chinese government’s continued focus on acquiring emerging technologies via foreign investment and international engagement. China’s VC investment in the United States began in earnest in 2014 and has historically been focused on the information and communication technology (ICT) sector. While investment in the ICT sector remains strong, Chinese VC investors in the United States have demonstrated growing interest in emerging sectors identified as strategic priorities by Chinese government industrial policies and plans. These sectors include robotics and artificial intelligence (AI), and especially biotechnology, which accounts for much of the increase in Chinese VC activity in the United States in recent years.\footnote{According to Bloomberg data, the value of VC investment deals in the U.S. biotechnology sector involving at least one Chinese investor increased from $690 million in 2016 to $1.53 billion in 2017, and has already exceeded $2.2 billion in 2018 through November 15, 2018.}

Other reports have noted the sectoral focus of Chinese VC investment in the United States. In its January 2018 report, the Defense Innovation Unit Experimental (DIUx) sheds light on the sectoral focus of recent Chinese VC investment in the United States:

- **AI:** Between 2010 and 2017, Chinese investors participated in eighty-one AI financings, contributing to the roughly $1.3 billion in total financing that was raised. Participation accelerated in 2014 and has continued through the end of the third quarter of 2017, with Chinese investors active in sixty-nine deals and $1.2 billion in financing.

- **Robotics:** Chinese entities were active in nearly $237 million of financing for robotics startups between 2010 and 2017. Deal activity peaked in 2015, with Chinese participation in twelve deals and $113 million in financing.
• **Augmented Reality/Virtual Reality (AR/VR):** Chinese investors participated in $2.1 billion worth of deals during the period 2010-2017. In 2016, China-based investors participated in seventeen deals, contributing to the $1.3 billion in total funding value.

• **Financial Technology (Fintech):** Investments in Fintech continued their rapid pace in 2016 and 2017 with Chinese investors participating in forty-nine deals, valued at approximately $1.4 billion. Overall, Chinese investors have participated in 100 deals, representing $3.5 billion in funding for Fintech companies during 2010-2017.  

2. The Significance of Venture Capital Investment for Technology and Intellectual Property Acquisition

Chinese VC investment in the United States can play a significant role in technology transfer. According to the National Venture Capital Association (NVCA):

> [T]ypically a venture capitalist becomes intimately involved at a policy-making level in a company he or she invests in, including taking a seat on the board of directors, acting as a coach and close confidant to the CEO, providing strategic counsel regarding development and production, making introductions to key contacts, and facilitating strategic partnerships that will help the company achieve success.

Numerous academic studies have shown that VC firms have been linked to technology diffusion, especially between a VC firm’s various portfolio companies. VC firms often encourage their portfolio companies to participate in research alliances, which have been shown to diffuse knowledge. VC firms also facilitate the movement of human resources across their networks, which diffuses technology and knowledge. The movement of human resources is critical because for some emerging technologies, most of the “technology” is in fact know-how.

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269 Juanita Gonzalez-Uribe, *Venture Capital and the Diffusion of Knowledge*, COLUMBIA GRADUATE SCHOOL OF BUSINESS 3 (Feb. 2013) (stating that “the increase in portfolio-linked citations is four times stronger than the increase in non-portfolio-linked citations.”).


273 China’s Threat to American Government and Private Sector Research and Innovation Leadership: Hearing Before the House Permanent Select Committee on Intelligence, 115th Cong. (2018) (statement of Elsa B. Kania) (stating that “if there is a U.S.-China ‘AI arms race’ today, then the primary battlefield is talent.”) In her testimony, Kania also cites Elsa Kania, *The Pursuit of AI Is More Than an Arms Race*, DEFENSE ONE (Apr. 19, 2018)).
Researchers estimate that VC investment accounts for about 14% of U.S. innovative activity (i.e., patent production).\textsuperscript{274}

The openness at the heart of the VC model allows the possibility of exploitation by foreign governments. Small investments for minority stakes by state-backed Chinese VC firms can enable Chinese government access to cutting-edge U.S. technology and private technology-related information. U.S. business leaders, technology industry experts, and China experts have emphasized this risk. For instance:

- Bryan Ware, CEO of Haystax Technology, which works with law enforcement, defense and intelligence clients on securing their technologies, was recently quoted as follows:

  If you’ve got a Chinese investor and that’s the lifeblood that’s going to allow you to get your product out the door, or allow you to hire your next developer, telling them, “No, you can’t do that,” or, “No you shouldn’t do that,” while you have no other alternatives for financing — that’s just the nature of the dilemma. […] Every investment comes with a risk of some loss of intellectual property or foreign influence and control.\textsuperscript{275}

- Adam Lysenko, a senior analyst at Rhodium Group, said: “I think it's become increasingly acknowledged that this risk exists, that venture capital and other minority investments provide Chinese investors to [...] access potentially sensitive technologies, particularly ones that are in ascent, in an early stage where U.S. government, military and other security individuals haven't had a full chance to evaluate the implications of those technologies.”\textsuperscript{276} This access to technology is problematic because of the pervasive control of the Chinese government over Chinese VC firms. As Lysenko noted:

  It is very common for Chinese firms to have some sort of ties to the government, and those ties can be in many different forms. It might just be because they have to answer to the government and party leaders back at home. And that [confers on] the state some level of control essentially over every Chinese firm.\textsuperscript{277}

- Elsa B. Kania, Adjunct Fellow at the Technology and National Security Center for a New American Security, also noted:

  The potential benefits and negative externalities of these engagements via venture capital and incubation should receive further consideration going forward, given the clear linkages to government priorities and initiatives to advance Chinese indigenous innovation. Even when there is not evidence that a particular mechanism has been exploited thus far for tech transfer in ways that are illegal or obviously concerning,
the access to and knowledge of prioritized technologies can still be beneficial to future targeting and acquisitions. Potentially, as Chinese investments are subjected to greater scrutiny, the focus of tactics for tech transfer could shift further towards these alternative techniques for access to tech and talent resources via accelerators and innovation centers. Again, the factor that should raise questions and differentiate these from purely commercial activities is the consistent government involvement in guidance and direction.278

Some Chinese VC firms make no secret of their intention to access U.S. technology through VC investment to build Chinese companies in sectors that the Chinese government has deemed strategic. For instance, 6 Dimensions Capital is a healthcare-focused Chinese VC firm with over CNY 10 billion ($1.5 billion) in assets under management, making it one of the largest healthcare-focused VC firms in the world.279 It is behind much of the recent increase in Chinese VC investment in the U.S. biotechnology sector and boasts its “access to innovative startups in the U.S.” as a “proven advantage,”280 having built a portfolio of about 60 companies in the United States and China.281 On its website, 6 Dimensions Capital states that it “specializes in the investment of innovative life science companies with business focuses on those strategic life science and technology areas promoted by the Chinese government for growth and innovation.”

281 News | 6 Dimensions Capital Closed Oversubscribed 1st USD Fund and RMB Fund, Bringing Total AUM Over RMB 10Bn (USD 1.5Bn), 6 Dimensions Capital (Dec. 7, 2017).
development” and aims to “find and invest in global innovation in the US and build healthcare industry leaders in China.”

3. Illustrative Examples of Chinese Venture Capital Investments

Available evidence indicates that the Chinese government has created and supported a web of entities that have established a presence in Silicon Valley and other U.S. technology centers to invest in high-technology U.S. startups and engage in a variety of VC investment related activities, to further the industrial policy goals of the Chinese government. VC firms invest in dozens, and sometimes hundreds, of startup companies, creating a diverse set of portfolio companies. VC firms then engage with their portfolio companies and to varying degrees have access to information, technology, and the ability to influence and potentially coerce management. The following cases exemplify this pattern of activity.

a) Digital Horizon Capital (Formerly “Danhua Capital”)

As discussed in Section IV.C.3 of the Section 301 Report, Zhongguancun Development Group (ZDG), an SOE established by the Beijing municipal government, established an investment arm in Silicon Valley in October 2014 – ZGC Capital Corporation. ZGC Capital Corporation subsequently founded the ZGC Innovation Center @ Silicon Valley in May 2016. The Section 301 Report also noted that ZGC Capital has partnered with Stanford University, engaged in talent recruitment, made VC investments – including Meta, Everstring, and Optimizely – and invested in other VC funds – including Plug & Play, KiloAngel, and Danhua.

ZDG continues to support VC investments in Silicon Valley and elsewhere. In total, it has backed at least 59 investment funds, including Danhua Capital.

In May 2013, Beijing’s Mayor, Wang Anshu, attended the Danhua Capital signing ceremony in Silicon Valley. In a press release posted on the ZDG website, ZDG stated that Danhua Capital would focus on supporting original and disruptive technologies developed at Stanford and nearby universities to work with the ZGC Group Silicon Valley Incubator Center and guide those projects back to Zhongguancun (in Beijing) to commercialize, thereby advancing the strategy whereby “Zhongguancun capital goes out and foreign advanced technology and human capital is brought in.”

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282 See Frontline BioVentures’ Total AUM Reached RMB 3Bn after Announcing RMB Fund II Fundraising Closed, 6 DIMENSIONS CAPITAL (Mar. 1, 2017).
These efforts appear to be continuing. In March 2018, Wei Xiaodong, a member of the Beijing Municipal CCP Standing Committee, led a delegation of ZDG executives to officially open the Zhongguancun Boston Innovation Center in Cambridge, Massachusetts. According to a press release posted on the ZDG website, the Boston center marks the “substantial progress of [ZDG’s] overseas strategy to radiate the technological and innovation resources concentrated in the Eastern United States.”

Danhua Capital, which currently goes by the name “Digital Horizon Capital,” originally planned to raise a first fund of $50 million, but ZDG spurred Chinese heavyweights, including Alibaba and Baidu, to contribute funding which ended up at $91.25 million in 2014. In 2016, Danhua raised $250 million for a second fund. Other notable Chinese companies with state connections and strong interests in technology also allocated funds to Danhua Capital:

- iFlyTek, a voice recognition company, committed to invest $5 million in Danhua Capital funds in November 2016 for the purpose of “participating in investment in high-technology areas in the United States, following leading edge technology development trends, strengthening [iFlyTek’s] communication and cooperation with outstanding U.S. companies, obtaining overseas market investment and acquisition opportunities.”

- BOE Technology Group Co., Ltd. (“BOE Group”) had invested almost CNY 60 million ($8.9 million) in Danhua Capital funds by the end of 2017. BOE Group’s largest and controlling shareholder is the State-owned Assets Supervision and Administration Commission of Beijing Municipality.

In total, Danhua lists 113 U.S. companies in its portfolio, and most of those companies fall within emerging sectors and technologies (such as biotechnology and AI) that the Chinese government has identified as strategic priorities. Subsequently, at least one of those

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288 A New Journey on Our Eighth Anniversary: Zhongguancun Launches Innovation Center in Boston [Chinese], ZHONGGUANCUN DEVELOPMENT GROUP (Apr. 3, 2018).
293 iFlyTek Co., Ltd., Announcement on External Investment 1 (filed with the Shanghai Stock Exchange on Nov. 1, 2016 (2016-072)).
294 See Section IV.C.3 of the Section 301 Report.
295 BOE TECHNOLOGY GROUP, 2017 ANNUAL REPORT, at 69.
296 BOE TECHNOLOGY GROUP, 2017 ANNUAL REPORT, at 60-67.
companies has reportedly decided to reduce operations in Silicon Valley and open operations in China.\textsuperscript{298} Notable investments include Meta, a Silicon Valley company that makes augmented reality products,\textsuperscript{299} and Cohesity, a California-based data storage company.\textsuperscript{300}

\textit{b) Oriza Ventures}

Oriza Holdings,\textsuperscript{301} which is 100% owned by the Suzhou Industrial Park Administration Committee,\textsuperscript{302} an arm of the Suzhou municipal government,\textsuperscript{303} is also active in the U.S. VC ecosystem. Oriza Holdings is the lead manager of the Silicon Valley-based Oriza Ventures Technology Fund ("Oriza Ventures"), where it had invested over CNY 340 million ($50 million) as of September 30, 2017.\textsuperscript{304}

Oriza Holdings links its VC investments in the United States to Chinese industrial policies. In a February 2017 Oriza Holdings press release announcing a technological achievement by one of Oriza Ventures’ portfolio companies in California, Oriza Holdings tied the founding of Oriza Ventures to China’s “Going Out” strategy aimed at acquiring foreign technology.\textsuperscript{305}

Oriza Ventures has invested in at least 61 early stage technology companies in the U.S.\textsuperscript{306} These companies often fall within sectors or design technologies that the Chinese government has identified as strategic priorities. Notable investments include:\textsuperscript{307}

\begin{footnotes}
\footnote{301 Oriza Holdings Chinese name is \textit{Suzhou Yuanhe Kongsu Youxian Gongs}. Oriza Ventures Technology Fund is a U.S. entity and does not appear to have a Chinese name.}
\footnote{302 Oriza Holdings Co., Ltd., \textit{Reply to the Pre-audit Feedback about Suzhou Oriza Holdings Co., Ltd. Public Issuance to Qualified Investors of Innovation and Entrepreneurship Corporate Bonds} [Chinese] (filed with the Shanghai Stock Exchange on Mar. 7, 2018), at 25.}
\footnote{304 Oriza Holdings Co., Ltd., \textit{Reply to the Pre-audit Feedback about Suzhou Oriza Holdings Co., Ltd. Public Issuance to Qualified Investors of Innovation and Entrepreneurship Corporate Bonds} [Chinese] (filed with the Shanghai Stock Exchange on Mar. 7, 2018), at 6.}
\footnote{305 Oriza Holdings Overseas Investment Reveals Outstanding Talent, ORIZA HOLDINGS (Feb. 17, 2017), http://www.sipac.gov.cn/SIPNEWS/jwhg/2017yqdt/02/201702/20170217_532083.htm (last visited Nov. 13, 2018).}
\footnote{306 Oriza Holdings Co., Ltd., \textit{Public Offering of 2018 Innovation and Entrepreneurship Corporate Bonds (First Phase) Prospectus (for Qualified Investors)} [Chinese], filed with the Shanghai Stock Exchange on May 22, 2018.}
\footnote{307 \textit{Portfolio}, ORIZA VENTURES, https://www.orizaventures.com/portfolio (last visited Nov. 8, 2018).}
\end{footnotes}
• Omniscience, a company that produces big data analytics software with “technical origins in the U.S. intelligence community” that “help government agencies to protect the homeland.”

• Petuum, based in Pittsburgh, an AI and machine learning startup;

• Drive.ai, which works on AI for self-driving cars; and

• Aromyx, “a Stanford University- and VC-backed biotech and data science startup in Palo Alto” whose “early technology was funded by DARPA” and “accelerated by both the Stanford StartX Accelerator [and the] Plug and Play innovation center.”

Oriza Holdings has played a central role in China’s industrial policy, particularly in pioneering the Chinese government’s use of industry investment funds and VC funds. Oriza Holdings was established in 2001; as of June 2018 it has directly invested CNY 17.5 billion ($2.7 billion) in 593 projects. Oriza has also established 84 subsidiary VC funds that manage over CNY 67.2 billion ($10.2 billion), which in turn have invested in over 1,200 companies, 68 of which Oriza has “cultivated” to go public. Oriza Holdings claims to have established a “Thousand Talents” Venture Capital Center, which has 96 equity investment management teams that manage 152 funds exceeding over CNY 131 billion ($20 billion) in value as well as seven debt financing service organizations which have serviced over 4,200 enterprises.

VI. Conclusion

As the evidence gathered in this update demonstrates, China fundamentally has not altered its acts, policies, and practices related to technology transfer, intellectual property, and innovation, and indeed appears to have taken further unreasonable actions in recent months. USTR intends to continue its efforts to monitor any new developments and actions in this area.

308 About Omniscience, OMNISCIENCE, https://www.omni.sc/ (last visited Nov. 8, 2018) “With its technical origins in the US intelligence community and its founders’ experiences developing and deploying Internet-scale applications, Omniscience created a software execution framework to handle the high data volumes and combinatorial complexity of the real world. Omniscience’s team brings extensive experience in machine learning, algorithmic distribution, finance, insurance, and data science. Omniscience is headquartered in Palo Alto, California, the heart of Silicon Valley. Investors include Plug and Play and Oriza Ventures. Omniscience’s software solutions enable leading financial firms and insurers to increase revenues, lower costs, reduce risk, and improve return on equity. And Omniscience’s software help government agencies to protect the homeland.”


## Appendix A – China’s Foreign Investment Catalogue: Overview of Key Changes in 2018 Version

<table>
<thead>
<tr>
<th>Sector</th>
<th>Summary of Requirements in 2017 FIC</th>
<th>Changes in 2018 FIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection and cultivation of new varieties of crops and production of seeds</td>
<td>Chinese entity must be the controlling shareholder.</td>
<td>Removed controlling shareholder requirement for selection and cultivation of new varieties of crops other than corn and wheat.</td>
</tr>
<tr>
<td>Exploration and development of oil and natural gas</td>
<td>Limited to CJV or EJV</td>
<td>No Change</td>
</tr>
<tr>
<td>Manufacturing of fully-assembled automobiles</td>
<td>Chinese entity’s investment cannot be lower than 50 percent, and the same foreign investor may establish no more than two JVs in China for the same kind of automobiles, subject to certain exceptions.</td>
<td>Removed foreign equity cap for manufacturing of special use vehicles and new energy vehicles.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In addition, (i) in 2020, the foreign equity cap for manufacturing of commercial vehicles will be removed, and (ii) in 2022 the two JV cap and the foreign equity cap for manufacturing of passenger vehicles will be removed.</td>
</tr>
<tr>
<td>Manufacturing commercial aircraft</td>
<td>Chinese entity must be the controlling shareholder.</td>
<td>Controlling shareholder requirement removed</td>
</tr>
<tr>
<td>Construction and operation of nuclear power plants</td>
<td>Chinese entity must be the controlling shareholder.</td>
<td>No Change</td>
</tr>
<tr>
<td>Value-added Telecommunications Services</td>
<td>Foreign investment cannot exceed 50 percent, excluding e-commerce, and is limited to WTO commitments. Note that China classifies a broad range of internet and technology-related services under this sector.</td>
<td>No Change</td>
</tr>
<tr>
<td>Basic telecommunications services</td>
<td>Chinese entity must be the controlling shareholder and foreign investment is limited to WTO commitments.</td>
<td>No Change</td>
</tr>
<tr>
<td>Banking</td>
<td>Foreign financial institution investment cannot exceed 20 percent or 25 percent depending on how the investment is structured.</td>
<td>Foreign equity restriction removed</td>
</tr>
<tr>
<td>Medical institutions</td>
<td>Limited to CJV or EJV.</td>
<td>No Change</td>
</tr>
<tr>
<td>Surveying and mapping companies</td>
<td>Chinese entity must be the controlling shareholder.</td>
<td>Controlling shareholder requirement removed</td>
</tr>
</tbody>
</table>