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China's Recent Trade Measures and Countermeasures: Issues for Congress

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SUMMARY

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China's Recent Trade Measures and Countermeasures: Issues for Congress

Since early 2020, the government of the People's Republic of China (PRC or China) has adopted a set of interrelated laws and measures that seek to enhance the government's control over a wide range of commercial activity, within and outside of China. These measures signal the government's growing assertiveness in advancing and aligning China's national economic security tools to seek global economic, technology, and military leadership, and relatedly, control of core technologies and global supply chains. China's measures include extraterritorial reach and also aim at countering trade and national security policy tools and actions that the United States and other governments have applied toward China, such as sanctions, export controls, and foreign investment review. While China's measures mirror certain U.S. authorities in form, the government is applying its tools differently in ways that highlight core distinctions in the operating conditions and tenets of the economic, political, and legal systems in the United States and China. China's measures pressure U.S. and other firms to abide by China's policies and laws in ways that contravene U.S. authorities. Some of China's actions appear to be aimed at pressuring U.S. and foreign firms to work around U.S. and foreign government authorities and potentially violate U.S. and foreign laws by penalizing firms that contravene China's measures. Many of China's measures provide for retaliation in an apparent effort to codify and legitimize the Chinese government's propensity for trade retaliation and brinkmanship and the use of economic coercive measures to advance its economic and political objectives, often arguably in violation of global trade rules and norms.

These recent measures are part of a broader effort by China's leader Xi Jinping since 2014 to build out China's national security authorities to establish broad justification, jurisdiction, and mechanisms for China's national security-related actions on trade, investment, and other economic activity. Central to China's efforts are new measures that promote data sovereignty by expanding data localization requirements and placing data under new trade authorities, such as export controls and security review requirements for Chinese firms listing or operating overseas. These measures appear to enhance the Chinese government's control over foreign data (e.g., personal identifying and health information), intellectual property (IP), technology, and research that is transferred to or developed in China and increase the potential risks to the United States of U.S. government, commercial, and academic activities in these areas. Relatedly, China in its 14th Five-Year Plan (2021-25) is seeking to extend the reach of its judicial decisions extraterritorially, including in the United States, in ways that might undermine U.S. authorities. China is challenging certain U.S. decisions and the scope of certain authorities in the United States and other foreign legal and regulatory systems that appear aimed at limiting the scope and reach of U.S. authorities over Chinese firms, including in trade, investment, IP, and antitrust matters. At a strategic level, the Chinese government is developing alternative trade, currency, and geospatial platforms to those controlled or influenced by the United States.

The Chinese government says it is pursuing a policy of technology independence, but its approach involves sustaining its access to U.S. and foreign technology, capabilities, research, and talent. China's policy statements notwithstanding, China appears to be using its new measures to gain access and control over advanced technology and capabilities from the United States and U.S. allies and partners. Chinese firms, such as Huawei, are restructuring themselves and their foreign partnerships, arguably to avert U.S. national security restrictions and access U.S. technology, IP, research, and talent. China's industrial policies continue to require U.S. and other foreign firms to transfer advanced capabilities to China, using structures that place these firms' IP, R&D, and technology under China's authorities and control. China's announcements of "indigenous" breakthroughs are silent on the persistent ties to U.S. and foreign technology and talent that China seems to be leveraging to make many of these gains, including through research and open-source technology collaboration that China is increasingly pursuing as alternative paths in response to U.S. trade and investment controls.

Congress has actively sought to address its economic-related concerns about China through legislation, reports, and hearings. As the Biden Administration frames the U.S.-China relationship as one of "strategic competition," Congress might examine the Executive Branch's response to China so far to determine whether additional approaches and tools, as well as enhanced trade policy focus and bureaucratic agility, are needed to address China's new trade measures and countermeasures, and the broader challenges that China's approach may pose for the United States. Congress might consider how China's measures affect U.S. policies and authorities and whether follow-on legislation or policy actions are needed. Congress might examine how legal challenges to U.S. government authorities by Chinese firms in U.S. courts could constrain U.S. government policy action and narrow the scope of U.S. authorities as they pertain to China. Congress also could consider how the United States might work with like-minded countries to enforce and shape new global trade rules, initiate new arrangements, and act jointly to impose consequences and counter specific Chinese trade policies, actions, and behaviors of mutual concern.

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Introduction

This report assesses a set of interrelated trade laws, regulations, and policies that the government of the People's Republic of China (PRC or China) has adopted since 2020 that are designed to enhance its control over a wide range of commercial activity, within and outside of China, and to counter the reach of certain economic and national security-related policies and authorities of the United States and other governments. China, for example, has adopted a new law on export controls and related technology catalogues, new measures on the security review of foreign investment, measures to create and operationalize a list of "unreliable entities," "blocking measures," and a related anti-sanctions law, all of which seek to broadly limit the extraterritorial applications of U.S. and other foreign laws and policies of concern to China. The Chinese government also has drafted regulations that seek to enhance its control over critical materials such as rare earth elements (REEs), as well as data and scientific research. (See "New Laws and Regulations" below.)

These new measures are rooted in broader initiatives to strengthen the Chinese government's national economic security authorities and levers of control. The measures also amplify and reinforce China's use of market restrictions and economic coercion to pressure governments, firms, and individuals to comply with China's various political, economic, and technology demands. In several instances, these laws, regulations, and policies aim to counter policy tools and actions that the U.S. and other governments apply toward China, such as sanctions, export controls, and foreign investment review. Specific language in many of the measures attempt to pressure U.S. and foreign commercial actors to work around, or otherwise potentially violate, U.S. laws by penalizing companies that contravene China's measures.

This report also discusses how China is using policy and legal actions in IP, antitrust, and technical standards to strengthen its influence and authorities in ways that could challenge the United States and other countries.[1] China's actions in these areas challenge current global rules and norms, expose potential gaps in authorities, and, given China's role as a top trader, could potentially erode the current global trading system and the World Trade Organization (WTO), more broadly. Details in China's 14th Five-Year Plan, which sets national economic development priorities for 2021 to 2025, and policy statements, including those by China's leader Xi Jinping, show that China is intensifying its push for global acceptance of its rules, laws, and technical standards overseas. Another area of focus is China's development of secure supply chains and alternative trade, currency, and technology platforms that could allow China greater leeway to work around or challenge trade and development restrictions associated with U.S. dollar-based sanctions.

The report looks at the countermeasures China is using in response to U.S. government restrictions and how they may test and exploit potential gaps in U.S. authorities and WTO rules and where expanded or new multilateral trade rules, agreements, and actions may be needed. Chinese firms are challenging U.S. restrictions in U.S. courts and restructuring commercial and technology partnerships, including U.S. export controls. In its 14th Five-Year Plan, China is

[1] A technical standard is process or technical specifications designed to improve the quality, security and compatibility of various goods and services. Standards can involve specifications or technologies on which other technologies or methods will evolve, potentially locking in certain advantages, dependencies, and technical trajectories for those who contribute and set the standard. Setting common standards can provide significant economic, industry, and trade benefits, but can also determine which technologies become dominant and provide advantages to certain firms well placed to produce to the standards. See John Seaman, "China and the New Geopolitics of Technical Standardization," French Institute of International Relations, January 27, 2020.

prioritizing expanded research ties with foreign companies and universities; the localization of foreign research and development (R&D) in China; and, the transfer of foreign IP and technology to China in sectors prioritized in its industrial policies such as *Made in China 2025*.[2]

Concerns about the risks that China's statist economic and technology practices and the related asymmetric structure of commercial ties may pose to U.S. national interests have been building for over 15 years in the executive branch, Congress, and the U.S. business community. Since 2016, the U.S. Congress has sought to address these growing concerns about China's trade policies and practices through a broad range of new legislation, hearings, and reports. New legislation has sought to strengthen U.S. technology supply chains and government export control and investment review authorities to address concerns about dual use technology licensing to China and China's state-directed acquisition of U.S. companies with sensitive capabilities. Congressional reports have assessed the risks and policy options to address concerns about China's role in U.S. federally funded research and U.S. communications infrastructure, and risks created by China's market protections, role of the state in the economy, and technology transfer practices of concern. Relatedly, the national security assessments of both the Trump and Biden Administrations warn about China's trajectory and prioritize concerns about China as a strategic competitor.[3] Similar concerns have been building in other countries, particularly those that have suffered from China's economic coercive tactics and have advanced commercial, technology, and research capabilities at stake. There is ongoing concern among some in the executive branch and Congress about the ways in which U.S. commercial and investment ties may be supporting China's policies of concern. The salience of these concerns has focused attention on how the Biden Administration is approaching trade, investment, and technology issues with respect to China and in partnership with like-minded partner countries. In this context, this report raises issues and considerations about how China's new measures and countermeasures might challenge U.S. national interests—including the legislation and policies the U.S. government has already put in place—in ways that could require sustained U.S. policy attention, agility, and resolve, as well as potential U.S. and multilateral counter responses.

Broader Context of China's New Measures

China's recent trade measures that it has enacted since 2020 are part of a broader effort by China's leader Xi Jinping since 2014 to build out and strengthen China's national security authorities that establish broad justification, scope, reach, and mechanisms for China's national security-related actions on trade, investment, and other economic activity. China has been embarked on a longer-standing effort to build out an interrelated set of national security-related authorities that include laws and regulations on counterespionage (2014)[4], national security and

[2] See CRS In Focus IF11684, *China's 14th Five-Year Plan: A First Look*, by Karen M. Sutter and Michael D. Sutherland and CRS In Focus IF10964, *"Made in China 2025" Industrial Policies: Issues for Congress*, by Karen M. Sutter.

[3] "Interim National Security Strategic Guidance," Office of the White House, March 3, 2021; "National Security Strategy of the United States of America," Office of the White House, December 18, 2017.

[4] *Counterespionage Law of the People's Republic of China*, November 1, 2014, http://news.xinhuanet.com/politics/2014-11/01/c_1113074346.htm (Chinese); https://www.chinalawtranslate.com/en/anti-espionage/ (unofficial English translation).

counterterrorism (2015)[5], criminal law (2015)[6], cybersecurity and foreign nongovernmental organizations (2016),[7] oversight of lawyers and law firms (2016 and 2018),[8] standardization (2018),[9] and encryption (2019).[10] These laws and regulations require companies, organizations, and individuals—both foreign and domestic—to cooperate with the Chinese state in national security matters, affecting a range of economic activities and technology issues.[11]

Since 2014, China's leader Xi Jinping has made several speeches that show how he is developing concepts of national security and law to advance China's national interests, domestically and globally. China's emerging concept of national security under Xi Jinping includes traditional and nontraditional elements, defensive and offensive measures, and an interplay of domestic and global factors. Xi's concept of "overall national security" discusses economic security as the foundation of China's security, and the interplay between China's economic development and security as one of five key relationships. The concept includes China's "right to develop," a principle that Chinese officials often invoke in response to U.S. sanctions and other restrictions affecting trade, investment, and collaboration.[12]

Two speeches by Xi Jinping in spring 2018 emphasize China's efforts to promote and secure control over core technologies, research, and innovation. In an April 2018 speech at China's National Cybersecurity and Informatization Work Conference, Xi emphasized developing and controlling core technologies as "important instruments of the state."[13] In a May 2018 address to

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[5] *National Security Law of the People's Republic of China*, July 1, 2015, https://www.chinalawtranslate.com/en/2015nsl/ (unofficial English translation); *Counter-Terrorism Law of the People's Republic of China*, December 27, 2017, https://www.chinalawtranslate.com/en/counter-terrorism-law-2015/ (unofficial English translation).

[6] *Criminal Law of the People's Republic of China*, Amended on September 1, 2015.

[7] *Cybersecurity Law of the People's Republic of China*, Effective June 1, 2017, https://www.newamerica.org/cybersecurity-initiative/digichina/blog/translation-cybersecurity-law-peoples-republic-china/ (unofficial English translation); *The People's Republic of China's Law on the Management of the Activities of Overseas Nongovernmental Organizations*, https://chinadevelopmentbrief.cn/reports/the-peoples-republic-of-chinas-law-on-the-management-of-the-activities-of-overseas-ngos-within-mainland-china/ (unofficial English translation).

[8] *Measures for the Administration of Law Firms*; Ministry of Justice of the People's Republic of China, amended on September 6, 2016, and effective November 1, 2016, http://www.gov.cn/gongbao/content/2016/content_5109321.htm (Chinese language); *Administrative Measures for the Practice of Law by Lawyers*, as amended on September 18, 2016, http://www.gov.cn/gongbao/content/2016/content_5113014.htm (Chinese language); as amended on December 5, 2018; http://www.moj.gov.cn/government_public/content/2018-12/13/gggs_44271.html (Chinese language).

[9] *Standardization of Law of the People's Republic of China*, effective January 1, 2018, https://www.cfstc.org/en/2932583/2968817/index.html (unofficial English translation).

[10] *Cryptography Law of the People's Republic of China*, effective January 1, 2020, http://www.npc.gov.cn/npc/c30834/201910/6f7be7dd5ae5459a8de8baf36296bc74.shtml (Chinese language).

[11] Murray Scot Tanner, "Beijing's New National Intelligence Law: From Defense to Offense," *Lawfare*, July 20, 2017; "China Adds Broad New Definitions to Counter-Espionage Law," *Reuters*, December 6, 2017; "China Enacts Broad Counter-Terrorism Law," Client Alert, Covington, January 5, 2016; Steve Dickinson, "China Cybersecurity: No Place to Hide," Harris Bricken, October 11, 2020; Siodhbhra Parkin, "How China Regulates Foreign Non-Governmental Organizations," SupChina, August 8, 2019; Laney Zhang, "China: Multiple Areas of Criminal Law Changing under New Amendment," Global Legal Monitor, Library of Congress Law Library, February 26, 2021; "Revised Measures on Law Firms Further Curb Independence of Chinese Lawyers," China Human Rights Briefing, Chinese Human Rights Defenders, October 3, 2016; Changhao Wei, "Legislation Review: China to Revamp Standardization System," NPC Observer, May 17, 2017; "The Grand "Finale" of China's Encryption Law," Hogan Lovells, November 2019.

[12] Jude Blanchette, "Ideological Security as National Security," CSIS Report, December 2, 2020. Blanchette translates Tang Aijun, "Ideological Security in the Framework of the Overall National Security Outlook," *Socialism Studies*, May 2019.

[13] "Xi Jinping's April 20 [2018] Speech at the National Cybersecurity and Informatization Work Conference,"

the Chinese Academies of Sciences and Engineering, Xi said that "the initiatives of innovation and development must be securely kept in our own hands."[14] Relatedly, China is pressing for global acceptance of its domestic authorities and potentially an extraterritorial reach of its courts' decisions. In a November 2020 speech at the Party Central Committee's Work Conference on the Comprehensive Rule of Law, Xi called for promoting Chinese law in matters involving foreign parties, including overseas, and for coordinating China's promotion of domestic and foreign-related rule of law efforts.[15]

These measures also seek to advance China's economic security goals as clarified in China's 14th Five-Year Plan for 2021-2025, which China's legislature approved on March 11, 2021. The new plan seeks to advance China's national economic security interests through specific trade and investment actions. It specifically mentions the use of market restrictions and China's *One Belt, One Road* global networks to foster Chinese-controlled supply chains. It also calls for sharpening China's use of antitrust, IP, and technical standards tools, both domestically and overseas.[16] China's leaders seek to secure supply chains and boost self-sufficiency in agriculture, energy, technology, and industry, while leveraging China's control over global supply chokepoints.[17] In an April 2020 speech, Xi called for China to build production and supply chains that are "independently controllable, secure and reliable" to ensure industrial and national security.[18] Xi said China should "tighten international production chains' dependence on China, forming a powerful countermeasure and deterrent capability."[19] Xi also called for developing and leveraging control of core technologies—in sectors such as high speed rail, telecommunications and power equipment, and new energy—and localizing technology and critical production in China.

China's new trade measures codify and seek to legitimize long-standing practices of economic coercion and tit-for-tat trade retaliation that the Chinese government regularly uses to advance both economic and political objectives. The Chinese government has stepped up its use of economic coercion and retaliation against its major trading partners—including the United States, the European Union, Australia, and Canada—as it develops these tools. Additionally, China is using *ad hoc* boycotts and trade restrictions against several major trading partners and the use of sanctions that arguably reflect China's undermining of the rules-based global trading system.

Unofficial English translation, New America Foundation Blog, April 30, 2018.

[14] "China Focus: Xi Calls for Developing China into World Science and Technology Leader," Xinhua, May 29, 2019.

[15] "On the Study and Implementation of General Secretary Xi Jinping's Important Speech at the Central Committee's Work Conference on Comprehensive Rule of Law," Commentator Article, *People's Daily*, November 20, 2020.

[16] "The 14th Five Year Plan and 2035 Long-Term Development Objectives," *Xinhua*, March 11, 2021, http://www.xinhuanet.com/fortune/2021-03/13/c_1127205564.htm. See CRS In Focus IF11684, *China's 14th Five-Year Plan: A First Look*, by Karen M. Sutter and Michael D. Sutherland.

[17] *Proposal of the Central Committee of the Communist Party of China on Formulating the Fourteenth Five-Year Plan for National Economic and Social Development and the Long-term Goals for 2035* (adopted at the Fifth Plenary Session of the 19th Central Committee of the Communist Party of China on October 29, 2020), *Xinhua News Agency*, November 3, 2020, http://www.xinhuanet.com/politics/zywj/2020-11/03/c_1126693293.htm; *Report on the Implementation of the 2019 Plan for National Economic and Social Development and on the 2020 Draft Plan for National Economic and Social Development*, delivered at the Third Session of the Thirteenth National People's Congress on May 22, 2020; National Development and Reform Commission of the PRC, as published by *Xinhua News Agency*, http://www.xinhuanet.com/english/download/nationaleconomic.pdf.

[18] Xi Jinping, "Certain Major Issues in the National Medium and Long-Term Economic and Social Development Strategy)," *Qiushi Journal*, October 31, 2020. Unofficial English translation available at https://cset.georgetown.edu/research/xi-jinping-certain-major-issues-for-our-national-medium-to-long-term-economic-and-social-development-strategy/.

[19] Ibid.

China's actions target certain foreign officials, researchers, and institutions to try to deter criticism of Chinese policies and promote acquiescence to China's economic and political demands. (See "Ad Hoc Trade Measures and Economic Coercion" below and **Table A-1**.)

China's recent measures also aim to counter specific trade and investment restrictions that the U.S. government has imposed on China and certain PRC entities since 2018. To address China's industrial policies that seek civilian and military technology leadership through discriminatory trade, investment, and technology practices of concern, the Trump Administration, encouraged by many in Congress, sought to curtail U.S. technology transfer to China through measures that increased scrutiny of academic ties, strengthened foreign investment review and export control authorities, banned U.S. investment in firms tied to China's military, and invoked Section 301 of the U.S. Trade Act of 1974.[20] The Trump Administration declared a national emergency in May 2019 regarding securing the U.S. information and communications technology and services supply chain (an Executive Order that President Trump renewed in May 2020, and that President Biden renewed in May 2021, see below)—and banned PRC firms Huawei, China Mobile, and China Telecom from the U.S. market and encouraged other countries to follow suit.[21]

The U.S. government, in response to direction from Congress, has sought to restrict certain dual-use exports to China, based on human rights and related surveillance concerns, as well as U.S. imports found to be tied to forced labor practices involving workers from Xinjiang.[22] Relatedly, the U.S. government has also sanctioned some Chinese government officials for their role in human rights violations in Xinjiang[23] and has imposed sanctions related to the Chinese government's actions in Hong Kong. (See "The Changing Role of Hong Kong" below.)

In May 2021, the Biden Administration renewed the May 2019 Trump Administration Executive Order 3873 with its *Notice on the Continuation of the National Emergency with Respect to Securing the Information and Communications Technology and Services Supply Chain*. In June 2021, the Biden Administration issued a revised Executive Order restricting U.S. capital market investments in certain named Chinese companies identified as being tied to China's military, but omitted some military-tied firms that had been previously identified by the Department of Defense and included in the November 2020 Trump Administration Executive Order.[24] Also in

[20] See CRS In Focus IF11284, *U.S.-China Trade Relations*, by Karen M. Sutter; CRS In Focus IF11627, *U.S. Export Control Reforms and China: Issues for Congress*, by Ian F. Fergusson and Karen M. Sutter; CRS In Focus IF10952, *CFIUS Reform Under FIRRMA*, by James K. Jackson and Cathleen D. Cimino-Isaacs.

[21] "Executive Order on Securing the Information and Communications Technology and Services Supply Chain," May 15, 2019; "Text of a Notice on the Continuation of the National Emergency on Securing the Information and Communications Technology and Services Supply Chain," May 13, 2020; "Notice on the Continuation of the National Emergency with Respect to Securing the Information and Communications Technology and Services Supply Chain," May 11, 2021.

[22] "Addition of Certain Entities to the Entity List," Bureau of Industry and Security, U.S. Department of Commerce, October 9, 2019; "Xinjiang Uyghur Autonomous Region WRO Frequently Asked Questions," U.S. Customs and Border Protection, https://www.cbp.gov/trade/programs-administration/forced-labor/xinjiang-uyghur-autonomous-region-wro-frequently-asked-questions; "Fact Sheet: New U.S. Government Actions on Forced Labor in Xinjiang," Office of the White House, June 24, 2021. See CRS Report R46631, *Section 307 and U.S. Imports of Products of Forced Labor: Overview and Issues for Congress*, coordinated by Cathleen D. Cimino-Isaacs and CRS Report R46750, *Human Rights in China and U.S. Policy: Issues for the 117th Congress*, by Thomas Lum and Michael A. Weber.

[23] U.S. Department of the Treasury Press Release, Treasury Sanctions Chinese Government Officials in Connection with Serious Human Rights Abuse in Xinjiang, March 22, 2021, at https://home.treasury.gov/news/press-releases/jy0070.

[24] "Executive Order on Addressing the Threat from Securities Investments that Finance Certain Companies of the People's Republic of China," June 3, 2021.

June 2021, the Biden Administration rescinded three Trump Administration Executive Orders that would have restricted specifically named PRC social media platforms from operating in the United States, and replaced these actions with a new Executive Order that directs the U.S. government over the next year to examine potential data security risks, including potential risks that PRC firms may pose.[25] In response to China's industrial policies and trade and economic coercion, the executive branch and Congress have also worked to secure critical U.S. supply chains and are considering additional support to critical U.S. sectors such as semiconductors and U.S. research and development more broadly.[26]

Attempts to Create Parity with U.S. Authorities

China's new trade measures attempt to create parity with the United States by mirroring certain U.S. authorities and practices in areas such as export controls, foreign investment review, and sanctions, even though the Chinese government arguably already has broad authorities in these areas. The U.S. government has intensified its use of policy tools in these areas over the past several years to try to constrain and address Chinese behaviors of concern in commerce and technology.[27] While some aspects of China's new laws and regulatory mechanisms might look similar to those in the United States, in practice the two countries apply these trade tools differently and in ways that highlight core differences in the operating conditions and tenets of the economic and legal systems in the United States and China.

Key Distinctions in China and U.S. Tenets and Systems

A key distinction involves the role of the state—the PRC government, the Communist Party of China (CPC), and the People's Liberation Army (PLA)—in China's economy and business ecosystem, which blurs lines between China's government authorities and business operations. The Chinese state is directly involved in advancing China's national economic development and related industrial policy goals and in promoting national corporate champions, sometimes setting commercial terms and influencing corporate decision-making.[28] This overlap between government and business interests has become increasingly blurred since 2006, with the enactment of China's Medium- and Long-Term Plan in Science in Technology (2006-2020), as the Chinese government has reenergized the role of industrial planning and state financing to advance its goals through commercial or quasi-commercial actors.[29] The Chinese government has

[25] President Trump issued three related Executive Orders that sought to address the potential national security risks including those involving data with regard to PRC firms operating in the United States. On August 6, 2020, former President Trump issued E.O. 13942 and E.O. 13943 to address the threats posed by TikTok and WeChat under Executive Order 13873, issued on May 15, 2019, that declared a national emergency with respect to the information and communications technology and services supply chain. On January 5, 2021, President Trump issued E.O. 13971 to address the threat posed by applications and other software Applications and Other Software Developed or Controlled by Chinese Companies. In May 2021 President Biden renewed E.O. 13971. In June 2021 President Biden rescinded E.O. 13942 and E.O. 13943 and issued a new *Executive Order on Protecting Americans' Sensitive Data from Foreign Adversaries*.

[26] "Executive Order on America's Supply Chains," Office of the White House, February 21, 2021; see, for example, United States Innovation and Competition Act of 2021, S. 1260.

[27] See CRS In Focus IF11284, *U.S.-China Trade Relations*, by Karen M. Sutter.

[28] Mark Wu, "The 'China, Inc.' Challenge to Global Trade Governance," *Harvard International Law Journal*, Vol. 57, (2016): 1001-1063.

[29] Cong Cao, Richard P. Suttmeier, and Denis Fred Simon, "China's 15-Year Science and Technology Plan," *Physics Today*, December 2006; *The National Medium- and Long-Term Program for Science and Technology Development*

supplemented forms of direct state ownership with hybrid forms of state control that involve channeling state funding through government guidance funds and venture capital and private equity firms.[30] The CPC has strengthened its representation and influence within firms through the establishment and reinvigoration of corporate Party Committees, changes to companies' Articles of Association, and influence through supervisory boards and trade unions that fall under state control.[31] While the number of formally declared state firms managed by the central government has been declining due to corporate consolidation, arguably the financial and policy influence of the Chinese state has been expanding into a wider array of sectors and companies through these hybrid models, particularly in strategic and advanced technology sectors.[32]

Within this context, the Chinese government frequently distorts the commonly accepted premise and use of economic and trade policy tools by other governments to promote market competition because of how it applies these tools to seek particular advantages for China's industry and national champions.[33] The Chinese government is not an independent or impartial market regulator, and has direct financial and policy interests in the market segments and companies in which it invests and favors. China uses an interplay of trade and investment protections combined with targeted market openings to incentivize the transfer of foreign technology and advanced production capabilities to China and Chinese entities.[34] Increasingly, China is turning to data controls as well as IP, technical standards, procurement, and antitrust tools to advance these interests. The Chinese government also enjoys informal influence in setting market conditions and corporate-level terms.[35] Unlike the United States, in which the legal and regulatory system

(2006- 2020), State Council of the People's Republic of China, https://www.itu.int/en/ITU-D/Cybersecurity/Documents/National_Strategies_Repository/China_2006.pdf.

[30] Barry Naughton, *The Rise of China's Industrial Policy 1978 to 2020*, Universidad Nacional Autonoma de Mexico, 2021 (See Chapters 4 and 5); Ngor Luong, Zachary Arnold, and Ben Murphy, "Understanding Chinese Government Guidance Funds: An Analysis of Chinese-Language Sources," Center for Security and Emerging Technology, March 2021; Yifei Gong, Peiyue Li, and Ziqiao Shen, "Research on Operating Efficiency of Government Industry Guidance Funds," *Theoretical Economics Letters,* February 2020.

[31] Jennifer Hughes, "China's Communist Party Writes Itself Into Company Law," R*euters,* August 14, 2017; Scott Livingston, "The Chinese Communist Party Targets the Private Sector," CSIS, October 2020; Christopher Balding and Donald Clarke, "Who Owns Huawei?;" April 19, 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3372669.

[32] "State-Owned Enterprise Policy Reform," The China Dashboard, Asia Society Policy Institute and the Rhodium Group, Winter 2020 (Note: China's National Bureau of Statistics data on SOEs does not include data for stock companies or other types of ventures that involve SOEs or are state financed or tied. See Edimon Ginting and Kaukab Naqvi, Reforms, Opportunities, and Challenges for State-Owned Enterprises," Asian Development Bank, July 2020, pp. 190-224); Karen Jinrong Liu, Xiaoyan Lu, Junsheng Zhang, and Ying Zheng, "State-Owned Enterprises in China: A Review of 40 Years of Research and Practice," *China Journal of Accounting Research,* Volume 13, Issue 1, March 2000; Lingling Wei, "China's Xi Ramps Up Control of Private Sector," *The Wall Street Journal*, December 10, 2020; Scott Livingston, "The New Challenges of Communist Corporate Governance," CSIS Brief, January 15, 2021.

[33] China's national champions are firms that have a dominant or leadership position in China's market and receive certain government support, preferences, and market protections. They are not always formally depicted as such but in certain instances they are identified to play particular roles in China's economic and industrial policy plans. U.S. Chamber of Commerce, "Competing Interests in China's Competition Law Enforcement: China's Anti-Monopoly Law Application and the Role of Industrial Policy," August 2014.

[34] James McGregor, "China's Drive for 'Indigenous Innovation': A Web of Industrial Policies," U.S. Chamber of Commerce and APCO Worldwide, July 2010.

[35] Jeremie Waterman and Tami Overby, "China's Approval Process for Inbound Foreign Direct Investment: Impact on Market Access, National Treatment and Transparency," U.S. Chamber of Commerce, November 11, 2012.

aims to protect individual rights, including from government interference, the regulatory and legal system in China is oriented toward protecting and advancing the interests of the state.[36]

China's actions introduce new considerations for U.S. policies, laws, and regulations because the CPC has strong levers of influence among its top firms and controls the court system in China, making it difficult for U.S. companies to seek similar redress in China. China's state support for its companies in U.S. legal proceedings could disadvantage U.S. firms if this role, and the broader asymmetries in the U.S. and China economic and legal systems, is not acknowledged and addressed.[37]

New Laws and Regulations

The Chinese government has drafted and enacted a series of laws and measures since January 2020 that strengthen its control over economic activity in areas that it considers important to China's economic competitiveness and national security and that align with Xi Jinping's concepts of national security and the priorities set in China's 14th Five-Year Plan. These laws and measures also focus on the government's control over data, IP, research, and critical supply chains and technologies that it could leverage to advance its interests over the United States and other countries. These laws and measures are interrelated and, in many instances, cross-reference specific provisions to create overlapping policies of market barriers and government controls.

Some of the new laws and measures include reciprocity provisions and determine applicability according to whether China is party to particular international agreements. These provisions might signal how China could try to justify particular unilateral actions, press for membership in multilateral organizations that currently exclude China, or pursue alternative agreements or mechanisms. Provisions in the Ministry of Commerce's blocking measures (Articles 3 and 13), for example, discuss that the measures do not apply with regard to treaties and international agreements to which China is a party.[38] Article 36 of China's new Data Security Law calls for China to handle foreign judicial or law enforcement requests for data according to relevant

[36] Pittman P. Potter, "The Chinese Legal System: Continuing Commitment to the Primacy of State Power," *The China Quarterly*, February 12, 2009; Jamie P. Horsley, "Party Leadership and Rule of Law in the Xi Jinping Era: What Does an Ascendant Chinese Communist Party Mean for China's Legal Development?," The Brookings Institution, September 2019; Moritz Rudolf, "Xi Jinping Thought on the Rule of Law: New Substance in the Conflict of Systems with China," Stiftung Wissenschaft und Politik, SWP Comment, April 2021.

[37] The opacity of China's system can make it hard to secure evidence, prolong litigation, and impose significant costs on U.S. investors asserting their rights. State backing and support for Chinese firms in U.S. courts could create potential asymmetric advantages in their resources over U.S. counterparts. Even when a U.S. entity is directed and controlled by an SOE parent, it has proven difficult (but not impossible) to legally establish connectivity. In U.S. litigation since 2014, the Aviation Industry Corporation of China (AVIC) has tried to deny direct ties to its U.S. affiliates and twice tried to assert immunity under the Foreign Sovereign Immunities Act (P.L. 94-583) to thwart commercial litigation despite China's World Trade Organization accession commitment that its state firms would operate on a commercial basis. AVIC's actions put the evidence burden on the U.S. party to show how the China parent is tied to its U.S. affiliates and why PRC state firms should not have immunity in commercial deals. See CRS In Focus IF11803, *U.S. Capital Markets and China: Issues for Congress*, by Michael D. Sutherland and Karen M. Sutter Jamie P. Horsley, "Party Leadership and Rule of Law in the Xi Jinping Era: What Does an Ascendant Chinese Communist Party Mean for China's Legal Development?," Global China Report, The Brookings Institution, September 2019.

[38] China's Ministry of Commerce, MOFCOM Order No. 1 of 2021 on Rules on Counteracting Unjustified Extra-territorial Application of Foreign Legislation and Other Measures," January 9, 2021, http://english.mofcom.gov.cn/article/policyrelease/questions/202101/20210103029708.shtml (English), http://www.mofcom.gov.cn/article/b/c/202101/20210103029710.shtml (Chinese).

agreements to which China is a party, or in accordance with the principles of equality and reciprocity.[39]

Export Control Law

In October 2020, the Standing Committee of China's legislature, the National People's Congress (NPC), passed a new Export Control Law that went into effect on December 1, 2020.[40] The law includes several new provisions that aim to create a Chinese policy counterweight to the U.S. government's use of export control authorities to restrict the transfer of U.S. dual-use technology to China. The law includes provisions for retaliatory action (Article 48) and extraterritorial jurisdiction (Article 44).[41] The United States and other governments—such as those in Japan Taiwan, and Europe—have tightened China's access to sensitive technology through strengthened export control authorities and licensing practices over the past two years. In November 2020, for example, the European Union and the European Commission reached agreement on new measures that enhance their ability to address emerging dual-use technologies, including cyber-surveillance technologies that pose a risk to national and international security, including protecting human rights.[42] Relatedly, there has been a marked upswing over the past year in the number of countries that have sought to ban or impose conditions on the participation of China's telecommunications firm Huawei in their 5G networks, particularly in Europe.[43]

The PRC Export Control Law gives the Chinese government new policy tools and justifications to deny and impose terms on foreign commercial transactions—both inside and outside of China—on the grounds of China's national security and national interest (Articles 12 and 13). The Chinese government traditionally has sought to direct, condition, and restrict foreign investment and imports in ways that advance its own national industrial goals, although there have been prominent examples of China controlling the export of strategic commodities, such as coke, fluorspar, and rare earth elements.[44] The law gives the government new rationales and

[39] Data Security Law of the People's Republic of China, Adopted on June 10, 2021, entered into force on September 1, 2021, http://www.npc.gov.cn/npc/c30834/202106/7c9af12f51334a73b56d7938f99a788a.shtml (in Chinese).

[40] The law realizes a long-standing Chinese government goal of elevating and consolidating ministry-level export control authorities under one national-level legal and policy framework. See http://www.xinhuanet.com/2020-10/18/c_1126624518.htm (Chinese text and https://www.cov.com/ /media/files/corporate/publications/file_repository/prc_export_control_law_2020_10_cn_en_covington.pdf (unofficial English translation).

[41] See CRS In Focus IF11627, *U.S. Export Control Reforms and China: Issues for Congress*, by Ian F. Fergusson and Karen M. Sutter.

[42] "Commission Welcomes Agreement on the Modernisation of EU Export Controls," European Commission Press Release, November 9, 2020.

[43] Mark Scott, "How Trump Won Over Europe on 5G, Cutting China Out," *Politico*, February 4, 2021; Laurens Cerulus, "Germany Falls in Line with EU on Huawei," *Politico*, April 23, 2021.

[44] The United States won two separate World Trade Organization (WTO) cases against China in 2009 and 2014 regarding its export restraints on certain raw materials including fluorspar, tungsten, and select rare earth elements (REEs). In response to these rulings, China vertically integrated its industry under state firms such as Minmetals and used production quotas to control REEs in China. "WTO Case Challenges China's Export Restraints on Raw Materials Inputs, USTR, June 2009; "DS431: China—Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum," WTO Dispute Settlement, https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds431_e.htm; Wang Zhuoqiong, "Government Approves Rare Earth Conglomerates," *China Daily*, August 6, 2014. Also see CRS Report R42510, *China's Rare Earth Industry and Export Regime: Economic and Trade Implications for the United States*, by Wayne M. Morrison and Rachel Y. Tang.

processes to impose terms on transactions among firms, within joint ventures and other partnerships, and on exports and offshore transactions (Articles 3 and 44) (see **Table 1**).

Key factors in the issuance of export licenses include not only the particular technology, end use, and end user, but also an entity's "credit" rating, highlighting how the scope of China's implementation of its authorities are potentially much broader than how the U.S. government and other countries apply export controls in narrow instances that involve national security. The Chinese government may seek to leverage and enhance the emerging role of China's corporate social credit system as a policy tool to influence corporate activity.[45] The law authorizes the government to impose export controls in retaliation for other countries' actions (Article 48), to impose temporary (up to two years) export controls on items not on a control list (Article 9), and to broadly justify actions with several open-ended clauses. The law also includes provisions that press for China's participation in international discussions, regimes, and rulemaking on export controls according to the principles of equality and reciprocity (Articles 6 and 32), a sign that China could become more active in trying to set global rules and norms that advantage China.[46]

Table 1. Key Provisions of China's Export Control Law

Effective December 1, 2020

ARTICLE 2	Defines **controlled items** to include dual-use items, military items, nuclear items and other goods, technologies, services and items relating to the maintenance of national security and national interests, and performance of nonproliferation and other international obligations
ARTICLE 3	Defines **transfer** to include any transaction outside the PRC or involving foreign organizations or individuals (implying it includes transactions inside China that involve foreign entities)
ARTICLE 4	Defines **control list** to include lists, catalogues, and directories
ARTICLE 5	Defines **export control authorities** to include a consultative mechanism of State Council and Central Military Commission units that perform export control functions
ARTICLES 6 & 32	Call for **strengthening international cooperation and participating in global rules** related to export controls; cooperating and communicating with other countries and international organizations in accordance with international treaties concluded or ratified by China or on the **basis of principles of equality and reciprocity**
ARTICLE 7	Encourages companies to work through **industry groups and chambers of commerce** to perform export control duties
ARTICLES 8 & 9	Mention **both country and product lists and determination**s
ARTICLE 9	Allows for **temporary controls** (up to 2 years in duration) for **products not on a control list**
ARTICLES 12 & 13	State that **license decisions** will consider **national security and the national interest**. Other factors include: international commitments; type of export; sensitivity of the items; destination country or region of the export; end users and end use; **credit record** of the entities; and **other factors** provided in China's laws and administrative regulations
ARTICLE 14	Includes provisions for **internal compliance systems** and **general licenses**
ARTICLE 16	Includes provisions for end-users and end-use; includes **restrictions on altering end-use**
ARTICLES 34-40	Outline **fines and actions** in response to various types of violations

[45] China's Corporate Social Credit System is a network of national and provincial data-sharing initiatives and legal provisions with the common goal of regulating corporate behavior in China. See CRS In Focus IF11342, *China's Corporate Social Credit System*, by Michael D. Sutherland.

[46] See CRS Insight IN11524, *China Issues New Export Control Law and Related Policies*, by Karen M. Sutter, and CRS In Focus IF11627, *U.S. Export Control Reforms and China: Issues for Congress*, by Ian F. Fergusson and Karen M. Sutter.

ARTICLE 44	Scopes jurisdiction to include **transfers that occur outside of China**
ARTICLE 45	Addresses trade and transfer via **China's bonded zones** (a separate area in China with special trade policies, particularly those related to customs clearance)
ARTICLE 48	Provides justification for **tit-for-tat retaliatory action**: *"If any country or region abuses export control measures to endanger the national security and national interests of the People's Republic of China, the People's Republic of China may, based on the actual situation, take reciprocal measures against that country or region."*

Source: Export Control Law of China, effective December 1, 2020, available at http://www.xinhuanet.com/2020-10/18/c_1126624518.htm (in Chinese).

Note: CRS has **bolded** key provisions.

Catalogue of Prohibited and Restricted Technologies

To buttress the new export law, China's Ministry of Commerce and Ministry of Science and Technology, on August 28, 2020, amended the *Catalogue of Technologies Prohibited or Restricted from Export* to impose new controls in a range of technological areas.[47] The catalogue had last been updated in 2008. Many of the covered technologies are prioritized in China's national industrial plans for key sectors, such as aerospace, medical equipment, and advanced manufacturing. Other technologies relate to emerging geospatial, autonomous systems, and artificial intelligence capabilities with a wide range of applications, including China's BeiDou satellite navigation system, as well as technologies for autonomous vehicles.[48](See **Table 2**.) The Chinese government prohibits or restricts foreign investment in many of these areas, while simultaneously seeking technology transfer in these areas through foreign partnerships and acquisitions.

The timing of the catalogue update in August 2020 and, in particular, the addition of information technologies and algorithms used in social media platforms to the catalogue may reflect an effort by the Chinese government to try to influence terms the Trump Administration was considering imposing at the time on the U.S. operations of China-based ByteDance's social media platform, TikTok.[49] In September 2020, ByteDance said it had applied to the Chinese government for a license to export its algorithm, but indicated it may not have needed to provide U.S. parties access after all.[50] This example shows how the Chinese government might use the catalogue to control certain technologies to enhance its influence over company operations in China and overseas, influence U.S. decision-making, and potentially constrain or seek to override U.S. authorities over Chinese companies' trade and operations in the United States.

In December 2020, China's Ministry of Commerce, State Cryptography Administration, and General Administration of Customs jointly issued an *Announcement on the Issuance of Import Licensing List, Export Control List and Related Administrative Measures for Commercial*

[47] China's Ministry of Commerce, "Catalogue of China's Export Prohibited and Restricted Technologies," Announcement No. 38, August 28, 2020, http://www.gov.cn/zhengce/zhengceku/2020-08/29/5538299/files/135c5cdd6baa46a986ac5e51a1a49ac3.pdf (in Chinese). For a summary of technologies, see CRS Insight IN11524, *China Issues New Export Control Law and Related Policies*, by Karen M. Sutter.

[48] For a summary of the new technologies added to the catalogue, see CRS Insight IN11524, *China Issues New Export Control Law and Related Policies*, by Karen M. Sutter.

[49] "China's New Tech Export Controls Could Give Beijing a Say in TikTok Sale," *Reuters*, August 30, 2020.

[50] Arjun Kharpal, "ByteDance Applies for Export License from China as TikTok Deal Waits for Approval," CNBC, September 24, 2020.

Encryption to restrict the trade of commercial encryption products and related technology. The list of products controlled for export includes security chips, cipher cards, encrypted virtual private network (VPN) devices, various cryptographic devices including those using quantum technologies, and technologies or tools used to measure, test, or evaluate these products.[51] The measures established the Ministry of Commerce's central role over a new licensing process and places these products under the purview of China's new Export Control Law. In a move to create parity and an ability to retaliate in response to U.S. export control actions, on April 28, 2021, China's Ministry of Commerce issued *Guiding Opinions on the Establishment of an Internal Compliance Program for Export Control by Exporters of Dual-use Items*. The Opinions and related guidelines outline best practices for internal compliance programs for both domestic and foreign firms in China.[52]

Table 2. Select Technologies Prohibited or Restricted for Export

Items listed in the Catalogue of Technologies Prohibited or Restricted from Export
Amended August 28, 2020

- biotechnology, pharmaceuticals, and medical equipment
- 3D printing
- construction, petroleum, and power equipment, including technology relating to equipment and materials for Generation III & IV nuclear reactors and the design of Generation III nuclear power plants
- machine tools
- high speed wind tunnel design
- aerospace bearings
- unmanned aerial vehicles (UAVs)
- space-related remote sensing image acquisition, measurement instruments, and data transmission
- vacuum technology
- mapping
- information processing technologies (e.g., personal interactive data algorithms, speech synthesis, artificial intelligence-based interactive interface, voice evaluation, and intelligent scoring)
- cryptographic and cyber-related technologies

Source: *Catalogue of Technologies Prohibited or Restricted from Export*, China's Ministry of Commerce and Ministry of Science and Technology, Amended August 28, 2020, http://www.gov.cn/zhengce/zhengceku/2020-08/29/5538299/files/135c5cdd6baa46a986ac5e51a1a49ac3.pdf.

Unreliable Entity List

China's Ministry of Commerce on September 19, 2020, issued a State Council-approved *Order on Provisions on the Unreliable Entity List* that calls for establishing a new system to identify and

[51] Jenny (Jia) Sheng, Jack Ko, Ph.D., Chunbin Xu, "China Publishes Import License List and Export Control List for Commercial Encryption," Pillsbury Alert, December 16, 2020, https://www.pillsburylaw.com/en/news-and-insights/import-export-control-license-lists-commercial-encryption.html.

[52] Jenny (Jia) Sheng, Jack Ko, Ph.D., Nancy A. Fischer, Matthew R. Rabinowitz, Chunbin Xu, Fang Wang, Toochi L. Ngwangwa, "China's MOFCOM Issues Internal Export Control Program Guidelines," Pillsbury Alert, May 12, 2021, https://www.pillsburylaw.com/en/news-and-insights/china-mofcom-issues-internal-export-control-program-guidelines.html.

respond to entities that endanger China's sovereignty, security, or development; violate "normal" market transaction principles; and cause serious damage to the legitimate rights and interests of Chinese companies, organizations, or individuals.[53] The list triggers export control action, and justifications for including an entity on the list appear to be quite broad. Punitive actions include fines, restrictions, or prohibitions on participation in China-related trade and investment and on foreign personnel entry, work, stay, and residence in China. The government is expected to issue implementing regulations and update its control lists. The Unreliable Entity List would presumably closely align with new blocking measures (see below) and allow the Chinese government to impose or threaten to impose controls against particular companies or technologies on which the U.S. and other governments have imposed export controls that affect Chinese entities. It also would allow the government to impose controls where it has niche advantages or control over certain elements of global technology supply chains. The development of such a list also potentially allows the Chinese government an additional policy tool to institutionalize its tit-for-tat retaliation against specific corporate actors to punish and pressure corporate decision-making on broader political and economic Chinese interests. As discussed above, China's provisions imply a broader application of export controls than those of the United States that are relatively narrowly applied with regard to discrete national security concerns.

Blocking Measures

In January 2021, China's Ministry of Commerce issued blocking measures—rules designed to counter the extraterritorial reach of foreign government sanctions and related foreign court rulings—in accordance with China's National Security Law.[54] The measures represent an effort by China to build formal capacity to directly challenge sanctions imposed by the United States, the European Union, and other countries on PRC entities. The measures aim to counter foreign laws and policies in instances when the Chinese government determines that extraterritorial applications of foreign laws or policies "violate international law and basic principles of international relations" or "unjustifiably" prohibit or restrict PRC entities from engaging in trade with a party from a third country or region.

Some experts assess that, while some aspects of the measures are similar to blocking measures developed by the United Kingdom and the European Commission, there are significant differences in China's approach as defined in these measures and China's Anti-Foreign Sanctions Law (see below). In particular, the scope, potential consequences for violators, and broader levers over trade and investment of China's measures are significantly broader than Europe's laws, which target U.S. unilateral sanctions taken against a small group of countries (e.g., Cuba, Iran, and Russia), with relatively narrow applications that aim to allow certain European firms to continue to conduct some business with these countries. The scope of China's measures, in contrast, are quite broad; the Chinese government could apply them to any measure enacted by the United States or another government that Beijing assesses is discriminatory.[55] Moreover, China's penalties are to be applied within China's legal system in which China's firms enjoy the

[53] China's Ministry of Commerce, "MOFCOM Order No. 4 of 2020 on Provisions of the Unreliable Entity List," September 19, 2020, http://english.mofcom.gov.cn/article/policyrelease/questions/202009/20200903002580.shtml.

[54] China's Ministry of Commerce, MOFCOM Order No. 1 of 2021 on Rules on Counteracting Unjustified Extra-territorial Application of Foreign Legislation and Other Measures," January 9, 2021, http://english.mofcom.gov.cn/article/policyrelease/questions/202101/20210103029708.shtml (English), http://www.mofcom.gov.cn/article/b/c/202101/20210103029710.shtml (Chinese).

[55] Mary E. Lovely and Jeffrey J. Schott, "Can China Blunt the Impact of New U.S. Sanctions," Policy Brief 21-13, Peterson Institute for International Economics, June 2021.

special protections and preferences of China's courts, allowing the government additional leeway to pressure companies to adhere to China's rules.

China's measures call for the establishment of a government-working group tasked with countering such foreign actions and measures according to its assessment of a range of factors, including whether other countries' laws and policies infringe on China's sovereignty, security, and development interests. The measures authorize the Chinese government to adopt countermeasures, including prohibition orders that exempt Chinese and other entities from compliance and the imposition of fines. The measures require Chinese entities to report to this government-working group within 30 days of encountering a relevant restriction.

The measures seem to pressure U.S. and other foreign firms to adhere to any Chinese countermeasures. Article 9 discusses the imposition of penalties on entities that comply with the foreign actions, including legal proceedings in Chinese courts, rights to compensation for losses, and other forms of unspecified Chinese government support. Foreign firms operating in China that comply with foreign sanctions or restrictions could face penalties, including legal action in Chinese courts. Disclosing information about a party who brings an issue to the Chinese government is subject to punishment, including potential criminal charges under Chinese law.[56] These provisions appear to seek to challenge the extraterritorial reach of U.S. policy actions by pressuring U.S. and other firms operating in China—under the threat of potential sanctions and civil and criminal prosecution—to adhere to Chinese measures that may contravene U.S. policy actions and could violate U.S. laws.

Anti-Foreign Sanctions Law

China moved to broaden the scope and jurisdiction of the initial Ministry of Commerce's blocking measures to a broad national level on June 10, 2021, when the NPC Standing Committee adopted the Anti-Foreign Sanctions Law.[57] The law was enacted after two, instead of the traditional three readings a draft law typically undergoes, and there was no public comment period, in a sign of China's capacity and interest in accelerating the development and passage of national security-related legislation.[58] The law centralizes existing authorities and formalizes the Chinese government's ability to sanction and "countersanction" individuals, entities, and governments, as well as impose countermeasures in response to other countries' sanctions on PRC individuals and entities, or on China more broadly. While the Ministry of Commerce blocking measures focused on the behavior of third parties caught up in foreign government sanctions, the new law allows for directly imposing sanctions on countries that have imposed sanctions on China. At least one group of legal experts assessed that the law includes Hong Kong and Macau as part of China.[59] The Chinese government explains the new law, in Article 1, as an effort to "safeguard national sovereignty, security, and development interests, and protect the legitimate rights and interests of China's citizens and organizations." Article 3 asserts China's

[56] China's Ministry of Commerce, "MOFCOM Order No. 1 of 2021 on Rules on Counteracting Unjustified Extra-territorial Application of Foreign Legislation and Other Measures," January 9, 2021, http://english.mofcom.gov.cn/article/policyrelease/questions/202101/20210103029708.shtml (English), http://www.mofcom.gov.cn/article/b/c/202101/20210103029710.shtml (Chinese).

[57] "Anti-Foreign Sanctions Law of the People's Republic of China," June 10, 2021, http://www.npc.gov.cn/npc/c30834/202106/d4a714d5813c4ad2ac54a5f0f78a5270.shtml.

[58] Lester Ross, Jeffrey I. Kessler, Kenneth Zhou, and Tingting Liu, "China Enacts Anti-Sanctions Law," WilmerHale Client Alert, June 11, 2021.

[59] Ibid.

right to adopt countermeasures when another country "violates international law and basic norms of international relations" or "adopts discriminatory restrictive measures against Chinese citizens and organizations, and interferes in China's internal affairs."[60] This law and related developments present "potentially irreconcilable compliance problems," according to Greg Gilligan, chair of the American Chamber of Commerce in China.[61]

Other major provisions include the following:

- The law directs the State Council to set up a mechanism to implement the law and allows the State Council to place individuals and entities that "directly or indirectly participate in the formulation, decision, and implementation of discriminatory restrictive measures [on China]" on a "counter control list" (Article 4). This list may include spouses and immediate family members; senior staff or "actual controllers" of organizations; organizations in which targeted persons serve in senior positions; and organizations involved in the creation and operation of sanctions on China (Article 5).
- Other potential countermeasures include restrictions on visas and country entry and exit; seizure or freezing of movable and immovable property; and prohibition or restrictions on certain transactions, cooperation, and activities (Article 6).
- The law restricts individuals and entities from implementing or assisting in the implementation of foreign countries' restrictive measures and allows for Chinese citizens and organizations to file a lawsuit in China to determine infringement and compensate for losses (Article 12). This provision creates a pathway for China's courts to potentially challenge U.S. actions with rulings in China that seek to overturn U.S. policy actions, as well as U.S. court decisions.
- The law also allows for China to prosecute any organization or individual who fails to implement or cooperate with China's countermeasures (Article 14) or that implements, assists, or supports acts that engage China's sovereignty, security, and development interests (Article 15).

Even before the enactment of the new anti-sanctions law, the Chinese government had been testing U.S. redlines in challenging the enforcement of U.S. sanctions and invoking countersanctions in response to foreign governments' sanctions on PRC individuals and entities. For example, in December 2020, China included a senior official who had recently been sanctioned by the U.S. government as part of its delegation to a dinner hosted by the American Chamber of Commerce in Beijing.[62] In February 2021, a Chinese state media editor warned that the Chinese government would countersanction any country that was to boycott China's hosting of the 2022 Winter Olympics.[63] In January 2021, China sanctioned ten former Trump Administration officials it considered responsible for U.S. policy toward China and their immediate family members minutes after the U.S. presidential transition, restricting them and "companies and institutions associated with them from doing business in China."[64] This followed

[60] "Anti-Foreign Sanctions Law of the People's Republic of China, June 10, 2021, http://www.npc.gov.cn/npc/c30834/202106/d4a714d5813c4ad2ac54a5f0f78a5270.shtml.

[61] "How China Is Trying to Fight Back Against Sanctions," Bloomberg News, July 28, 2021.

[62] "China Sends Sanctioned Official to AmCham Dinner in Beijing," *Bloomberg News*, December 10, 2020.

[63] Jonathan White, "Beijing 2022: 'China Will Seriously Sanction' Any Country that Boycotts Winter Olympics, says State-backed Media Chief," *South China Morning Post*, February 8, 2021.

[64] "Foreign Ministry Spokesperson Announces Sanctions on Pompeo and Others," China's Ministry of Foreign Affairs,

China's announcement of unspecified sanctions against some Members of Congress and other Americans in July, August, and November 2020, over their raising of human rights concerns, including China's policies in Xinjiang, and in retaliation to U.S. sanctions on certain Chinese officials over China's actions in Hong Kong.[65]

Foreign Investment Review

China has formalized its foreign investment authorities as they relate to national security concerns in an effort to normalize the government's approach to national economic security, seek parity with the United States, and extend the government's jurisdiction overseas. In December 2020, China's Ministry of Commerce and National Development and Reform Commission (NDRC) issued Measures for the Security Review of Foreign Investment, which came into effect in January 2021.[66] The measures implement provisions in China's 2015 National Security Law (Article 59) and 2020 Foreign Investment Law (Article 35) that provide a legal framework for China's national security review of foreign investment.[67] The scope of the measures includes investments in China, offshore investments that result in control of a Chinese target (including a variable interest entity (VIE) structure), mergers and acquisitions, and greenfield investments (an investment in which a company builds a new operation from the ground up).[68]

The measures give the government the authority to review, mitigate, and block investment-related transactions. The structure of a new review process mimics certain aspects of the U.S. government's Committee on Foreign Investment in the United States (CFIUS) process and may aim to create a sense of parity and facilitate China's ability to pressure CFIUS through retaliatory responses to CFIUS determinations on PRC transactions.[69] The timing of China's measures may

January 20, 2021, https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/2535_665405/t1847554.shtml.

[65] Cate Cadell and Tony Munroe, "China Imposes Sanctions on 28 Trump-era Officials Including Pompeo," *Reuters*, January 20, 2021; Keith Bradsher, "China Imposes Tit-for-Tat Sanctions on Three American Lawmakers," *The New York Times*, July 13, 2020; "Foreign Ministry Spokesperson Zhao Lijian's Regular Press Conference," China's Ministry of Foreign Affairs, August 10, 2020, https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/2511_665403/t1805288.shtml; "Foreign Ministry Spokesperson Hua Chunying's Regular Press Conference," China's Ministry of Foreign Affairs, July 13, 2020, https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/t1797455.shtml; "Foreign Ministry Spokesperson Hua Chunying's Regular Press Conference," Ministry of Foreign Affairs of the PRC, November 30, 2020, https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/2511_665403/t1836732.shtml.

[66] https://www.bakermckenzie.com//media/files/insight/publications/2021/01/foreign_investment_security_review_measures.pdf?la=en (English), https://www.bakermckenzie.com/-/media/files/insight/publications/2021/01/china-enacts-new-foreign-investment-security-review-measures.pdf?la=en (Chinese language).

[67] Lester Ross, Kenneth Zhou, and Tingting Liu, "China's New Investment Security Review Measures," Wilmer Hale Client Alert, December 22, 2020.

[68] Howard Hao Wu and Tracy Wut, "China Enacts New Foreign Investment Security Review Measures," Baker McKenzie Insight, January 4, 2021; Z. Alex Zhang, Vivian Tsoi, Charlie Zhu and Chunlei Pang, "The New FISR Measures: A Step Further in China's National Security Review of Foreign Investments," White & Case Alert, January 21, 2021; for discussion of VIE structure, see CRS In Focus IF11803, *U.S. Capital Markets and China: Issues for Congress*, by Michael D. Sutherland and Karen M. Sutter.

[69] CFIUS is an interagency committee that serves the President in overseeing the national security implications of foreign investment in the economy. It reviews certain foreign investment transactions to determine if (1) they threaten to impair the national security; (2) the foreign investor is controlled by a foreign government; or (3) the transaction could affect homeland security or would result in control of any critical infrastructure that could impair the national security. While the President has the authority to block proposed or pending foreign investment transactions that threaten to impair the national security, the use of this authority is still relatively rare. See CRS Report RL33388, *The*

be in response to congressional and U.S. government efforts to strengthen CFIUS' purview and authorities in 2018, with the passage of the Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA) (P.L. 115-232) and in response to the increased scrutiny and restrictions the Committee appears to have imposed on certain PRC-tied transactions since that time.[70]

The new foreign review measures call for the creation of a government mechanism to review foreign investment from a national security perspective, to be located at NDRC and chaired by NDRC and the Ministry of Commerce. The new foreign investment review measures require a declaration for foreign investment in sectors related to national defense and security, including in agriculture, energy, critical materials, equipment, infrastructure, transportation, culture, information technology, internet and cyber, financial services, and other key technologies. The measures define foreign control as 50% or greater equity interest in an enterprise or, if less than 50% equity interest, as having the ability to influence corporate decisions, including those related to human resources, finances, and technology.[71]According to Article 22, the measures also cover foreign purchases of listed shares in Chinese companies through "stock exchanges or other securities trading venues approved by the State Council."[72]

The Chinese government says the measures fill gaps in its review system as it shifts to a negative list approach for approving foreign investment under which foreign investment is generally allowed except for those identified as being restricted.[73] China arguably already has extensive authorities to screen foreign investment, including for national security concerns, however. In form and practice, China's authorities and scope of action over commercial activity are already significantly more pervasive than the tools that the United States and other governments use. National economic security interests already inform China's industrial policies and related trade and investment policies and decisions. China's foreign investment catalogues and negative lists establish the sectors in which foreign investment will be encouraged, allowed, restricted, or prohibited, and calibrate terms of market access (including technology transfer and partnership requirements) based on China's national development goals and related industrial plans.[74] Under China's new Foreign Investment Law and related implementing regulations that took effect in January 2020, for example, the Special Administrative Measures for Foreign Investment (also referred to as the "negative list") and the Catalogue of Encouraged Industries for Foreign Investment prohibit, restrict, and incentivize foreign investment, according to national economic

Committee on Foreign Investment in the United States (CFIUS), by James K. Jackson.

[70] See CRS In Focus IF10952, *CFIUS Reform Under FIRRMA*, by James K. Jackson and Cathleen D. Cimino-Isaacs and CRS In Focus IF11334, *CFIUS: New Foreign Investment Review Regulations*, by Cathleen D. Cimino-Isaacs and James K. Jackson.

[71] Yan Luo, Timothy P. Stratford, and Eric Carlson, "China Issues Measures on National Security Review of Foreign Investment," Covington & Burling LLP.

[72] "Improving the Foreign Investment Security Review System to Encourage a Higher Level of Opening to the Outside World," Press Briefing, Foreign Investment Security Review Working Mechanism Office, PRC National Development and Reform Commission, December 19, 2021, https://www.ndrc.gov.cn/xwdt/xwfb/202012/t20201219_1255024.html.

[73] "Improve the Foreign Investment Security Review System to Accompany a Higher Level of Opening to the Outside World," NDRC press briefing on the *Foreign Investment Security Review Measures*, December 19, 2020, https://www.ndrc.gov.cn/xwdt/xwfb/202012/t20201219_1255024.html.

[74] A negative list approach typically outlines sectors or areas of the economy in which investment is prohibited or restricted with the idea that, unless a sector is listed, the economy should be open to foreign investment. "How to Use China's Negative Lists and Foreign Investment Encouraged Catalogue," China Briefing, Dezan Shira & Associates, December 10, 2019.

security concerns and national development priorities.[75] China has broad discretion to restrict or condition foreign investment in sectors designated as restricted (see **Table 3**), and has a range of other authorities that facilitate setting terms beyond the specific sectors identified in this list.

Table 3. Selected Highlights of China's Investment Restrictions by Sector

Drawn from China's Negative Investment List (December 10, 2020)

Sector	Details
Agriculture	• cultivation of plants for production, management, testing, or trade of seeds • agricultural related transportation, including fresh milk • production, sale or trade of food • GMO research, production, processing, or import • production or operation of genetic materials from livestock • fisheries • animal diagnosis and treatment • pesticides • animal husbandry • transfer of land management rights • cultivation or production of tobacco related products
Mining, Energy, and Resources	• exploration, exploitation, production, or operation of mineral resources • trade and sale of agriculture, crude oil, and other designated commodities, technologies, and services
Manufacturing, Retail/Wholesale, and Trade	• production, sale, and trade of pharmaceuticals, medical devices, and cosmetics • production of certain metals, shipbuilding, aerospace, rail, motor vehicles, and related components and equipment • "special" equipment and "important" industrial products • telecommunications, radio, and computer related products and systems • encryption • warehousing and logistics
Infrastructure and Transportation	• construction, engineering, and related technical services • electric power and public utilities • road, rail, and water transport services • water resource management

[75] *Foreign Investment Law of the People's Republic of China and Implementation Measures*, effective January 1, 2020, https://www.chinalawtranslate.com/en/foreign-investment-law-2019/ (unofficial English translation of the law); https://www.chinalawtranslate.com/en/implementation-regulations-for-the-foreign-investment-law/0 (unofficial English translation of the implementation measures); Catalogue of Industries for Encouraging Foreign Investment (2020), effective January 27, 2021, https://www.ndrc.gov.cn/xxgk/zcfb/fzggwl/202012/P020201228567029819518.pdf; New Special Administrative Measures for Foreign Investment Access ("Negative List") (2020), https://www.dezshira.com/library/legal/special-administrative-measures-access-foreign-investment-2020-edition-national-negative-list.html?1593598930 (unofficial English translation); new Special Administrative Measures for Foreign Investment Access to Pilot Free Trade Zones ("FTZ Negative List") (2020), effective July 23, 2020, https://www.dezshira.com/library/legal/FTZ-free-trade-zone-special-administrative-measures-foreign-investment-2020-national-negative-list.html?1593599181 (unofficial English translation); Angel Huang, Jessie Chenghui Tang, Ross Keene, and Patrick H. Hu, "China Further Opens its Market with New 'Foreign Investment Law,'" Jones Day, February 2020.

Sector	Details
Services	• hotel operations • financial services • real estate • medical services • educational institutions and services • wide range of other business services
Research, Testing, and Surveying	• scientific research • use of human genetic resources • geographic surveying, mapping, and remote sensing • exploration, inspection, testing, certification, and accreditation or assessment • meteorological and seismic services
Publishing, Media, and Entertainment	• printing and publishing • media, news, and broadcasting • sports, culture, entertainment, and film
Communications Services; Internet and Internet-Based Services	• radio, telecom, and satellite services • wide range of businesses including news, social media, gaming, financial services, ride sharing services, and apps

Sources: "China Releases 2020 Negative List for Market Access," China Briefing, Dezan Shira & Associates, December 23, 2020, https://www.china-briefing.com/news/china-2020-negative-list-market-access/; "Market Access Negative List (2020)," PRC National Development and Reform Commission, Notice (2020) No. 1880, December 10, https://www.ndrc.gov.cn/xxgk/zcfb/ghxwj/202012/t20201216_1252897_ext.html.

Notes: This list is designed to illustrate certain areas of restrictions. It is not comprehensive. In addition to formal sectoral-based restrictions, the PRC government also uses procurement, technical standards, and other domestic requirements to restrict or otherwise condition foreign investment.

Draft Regulations on Rare Earth Elements (REEs)

The PRC government has also drafted regulations to enhance its ability to control and leverage the trade of critical materials, such as rare earth elements (REEs), key inputs in a variety of consumer electronics and advanced technology products. In January 2021, China's Ministry of Industry and Information Technology (MIIT) issued draft *Regulations on Rare Earth Management* that cover China's entire REEs supply chain, limit the export of REEs, and put the management of these exports under the jurisdiction of China's new Export Control Law.[76] The draft regulation also calls for creating a strategic reserve and tracking system across the supply chain—including information on mining, processing, production, and sales—that seeks to manage supply in part through a quota system, something MIIT already does.[77] According to the

[76] Rare earth elements (REEs) refer to 17 elements: lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium, scandium, and yttrium. REEs are essential in a wide range of industries including electronics, telecommunications, clean energy technologies, aerospace, automotive, and defense. See CRS Report R46618, *An Overview of Rare Earth Elements and Related Issues for Congress*, by Brandon S. Tracy.

[77] Tom Daly, "China Hikes Half-Year Rare Earth Output Quotas to Record Level," *Reuters*, February 19, 2021.

2020 version of China's negative investment list, foreign investment in exploration, mining, and processing of REEs and tungsten is prohibited.[78]

China has curtailed access to strategic materials that it controls in the past and has used its control over REEs to signal foreign policy concerns and impose consequences on other countries. In 2010, after the Japan Coast Guard arrested and detained the captain of a Chinese fishing vessel following a clash in disputed waters near the Senkaku (Diaoyu) Islands in the East China Sea, China held REE shipments bound for Japan (see **Appendix**). China has also used export restrictions and other restrictions on the use of these resources to pressure foreign firms reliant on these inputs to bring advanced production to China.[79] In May 2019, official Chinese media featured a visit by China's leader Xi to an REE magnet production facility in Ganzhou, a city in China's Jiangxi province in a potential warning about China's ability to leverage REE supply chains.[80]

Ad Hoc Trade Measures and Economic Coercion[81]

China regularly uses economic coercion to advance its economic and industrial goals and to set commercial terms, including forcing technology transfer, setting technology licensing terms, and advocating its objectives through pressure on the business community.[82] While many U.S. firms have strong interests in open trade and investment channels with China, China's behind-the-scenes pressure can sometimes make it difficult to discern to what extent a U.S. company's representation of its economic and business interests in China also may be shaped by undisclosed Chinese government pressures, demands, or threats, issued directly or through Chinese companies and business partners.[83] Certain provisions in China's new national security and trade measures give the PRC government additional levers that can be used in both visible and private ways to pressure foreign companies to adhere to certain commercial or political requirements. In certain instances, the threat of potential action could potentially be as powerful as the imposition of costs.

The PRC government appears to be intensifying pressure on U.S. companies in ways that could affect open and informed U.S. public discourse about U.S. concerns and policy options with regard to China. In November 2021, Reuters reported that the PRC Embassy in Washington had sent letters to U.S. companies pressing executives to urge Members of Congress to alter or drop specific bills that seek to enhance U.S. competitiveness. According to press reports, the letters warned U.S. executives that their companies would risk losing market share or revenue in China if the legislation were to be passed and become law.[84] In August 2021, Senator Mark Warner said

[78] Sofia Baruzzi, "China Tightens Control Over Management of Rare Earths," China Briefing, Dezan Shira and Associates, February 25, 2021.

[79] See CRS Report R42510, *China's Rare Earth Industry and Export Regime: Economic and Trade Implications for the United States*, by Wayne M. Morrison and Rachel Y. Tang.

[80] Alexandra Ma, "Xi Jinping may have shown how he plans to cripple US tech and defense giants in the trade war with a visit to a Chinese magnet factory," *Business Insider*, May 21, 2019.

[81] This section includes contributions by CRS Analysts Caitlin Campbell and Michael Sutherland.

[82] "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," Office of the U.S. Trade Representative, March 22, 2018, https://ustr.gov/sites/default/files/Section%20301%20FINAL.PDF.

[83] "China Urges U.S. Companies to Lobby Washington on Trade," CBS News, July 12, 2018; Jeanne Whalen, "China Hawks Encounter Powerful Opponent: U.S. Companies," *The Washington Post*, October 12, 2020.

[84] Michael Martina, "Chinese Embassy Lobbies U.S. Business to Oppose China Bills," *Reuters*, November 15, 2021.

that several witnesses declined to testify at the U.S. Senate's Select Committee on Intelligence's open hearing on China because of fears of retribution by China.[85] In October 2021, Representative Brad Sherman said during a House Financial Services subcommittee hearing on China that several financial industry representatives had withdrawn their original commitment to testify because of fear of backlash from China.[86] In its August 2021 petition to the Department of Commerce to investigate potential circumvention of U.S. antidumping/countervailing duty orders, an industry coalition of U.S. solar manufacturers requested that it not be required to disclose its member firms because they could face "retaliation and other forms of harm" given the Chinese government's control over global solar supply chains.[87] In November 2021, the Department of Commerce responded that the association would have to disclose its members in order for their petition to be considered.[88]

The Chinese government for some time also has used *ad hoc* trade restrictions to commercially and politically pressure its major trading partners, to deter foreign countries, nongovernmental organizations, and companies from actions that the government views as inimical to its political interests, and to take action against those entities deemed to have violated those interests (see **Table A-1**). This pressure or action may take the form of (real or threatened) trade restrictions (on either imports or exports), popular boycott campaigns, restrictions on Chinese outbound tourism, suspension of contracts, or the imposition of restrictions in China and other costs ostensibly related to regulations. The Chinese government appears to also use sanctions, and countersanctions—including measures targeting certain foreign parliamentarians and academic researchers, and institutes—in an effort to stifle criticism of its policies and advance its geopolitical goals. China has also demonstrated trade brinkmanship. The PRC government countered each round of U.S. tariffs that the U.S. Trade Representative (USTR) imposed on Chinese imports under Section 301 of the Trade Act of 1974 between 2018 and 2020, targeting sectors such as agriculture in an effort to pressure Washington to lift U.S. tariffs.[89] The uptick in China's economic pressure on trading partners is amplifying ongoing concerns about Chinese trade practices and industrial policies more broadly, and prompting policy discussion about supply chain diversification away from China, developing alternative markets for global production, and the need for collective trade action among like-minded countries.[90]

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[85] U.S. Senate Select Committee on Intelligence, Open Hearing on Beijing's Long Arm: Threats to U.S. National Security, August 4, 2021.

[86] U.S. House Committee on Financial Services, Subcommittee on Investor Protection, Entrepreneurship, and Capital Markets, Hearing, "Taking Stock of China, Inc.: Examining Risks to Investors and the U.S. Posed by Foreign Issuers in U.S. Markets," October 26, 2021.

[87] Letters to the U.S. Secretary of Commerce from Wiley, Counsel to the American Solar Manufacturers Against Chinese Circumvention, August 16, 2021 and October 13, 2021.

[88] Letter from the Director, Office IV, AD/CVD Operations to Wiley, November 10, 2021.

[89] In 2018, the USTR under Section 301 of the Trade Act of 1974 (19 U.S.C. §2411) concluded that China engages in forced technology transfer, cyber-enabled theft of U.S. IP and trade secrets, discriminatory and nonmarket licensing practices, and state-funded strategic acquisitions of U.S. assets. The U.S. government subsequently imposed tariffs on imports from China worth approximately $250 billion. The Chinese government countered with tariffs on $110 billion worth of U.S. products. See CRS In Focus IF11284, *U.S.-China Trade Relations*, by Karen M. Sutter, CRS Insight IN11208, *U.S. Signs Phase One Trade Deal with China*, by Karen M. Sutter, and CRS Report R45949, *U.S.-China Tariff Actions by the Numbers*, by Brock R. Williams and Keigh E. Hammond.

[90] Lucy Fisher, "Downing Street Plans New 5G Club of Democracies," *The Daily Times*, May 29, 2020; Jonas Parello-Plesner, "An 'Economic Article 5' to Counter China," *The Wall Street Journal*, February 11, 2021; "Australia, Japan and India Form Supply Chain Initiative to Counter China," *Bloomberg News*, April 28, 2021; "G7 Foreign and Development Ministers' Equitable Access and Collaboration Statement," London, May 5, 2021.

After China joined the World Trade Organization (WTO) in 2001, its commitments may have constrained its ability and inclination to discriminate in direct and obvious ways through the raising of tariffs, for example. China's economic coercive and retaliatory measures instead were more informal, indirect, or not officially articulated, providing China's government flexibility in their application and plausible deniability. More recently, China has become more active and direct in its demands and related economic coercion and trade brinkmanship, demonstrating a potential willingness to jeopardize economic ties with major trading partners.[91] While WTO members can and do challenge China on certain practices that may violate its WTO obligations through WTO dispute settlement, some analysts assess that this process may be inadequate, given the growing frequency of China's actions. It can take two to three years for a dispute process to run its course, allowing China the time it needs to impose pressure before being potentially disciplined.[92]

In November 2020, China's Embassy in Canberra provided Australian media with a document demanding that Australian government retract its actions that criticized Chinese policies and sought to restrict certain Chinese investment, research, and political influence in Australia. China then imposed tariffs and other trade restrictions on Australian exports to China—including barley, coal, cotton, lobster, meat, and timber—when the government refused to submit to China's demands.[93] In May 2021, China announced it was canceling its economic dialogue with Australia—the last meeting held in 2017—in response to the Australian government's decision to review and potentially unwind certain Chinese port investments for national security concerns.[94]

In addition, China imposed trade restrictions on certain Canadian agricultural exports, and the Chinese government held in custody—arguably in an arbitrary manner—two Canadian citizens (Michael Kovrig and Michael Spavor) between December 2018 and September 2021 in apparent retaliation for the Canadian government's arrest of Huawei's Chief Financial Officer Meng Wanzhou.[95] Ahead of a Canadian court's decision on whether to extradite Meng to the United States, in August 2021 the Dandong Intermediate People's Court in northeastern Liaoning province sentenced one of the Canadian citizens, Michael Spavor, to 11 years in prison on espionage charges.[96] In September 2021, the U.S. government negotiated a deferred prosecution agreement (DPA) with Meng. The agreement involved Meng confirming the main points in the U.S. government's case against Huawei and, in exchange, ended her extradition proceedings in

[91] Jonathan Kearsley, Eryk Bagshaw, and Anthony Galloway, "If You Make China the Enemy, China Will Be the Enemy': Beijing's Fresh Threat to Australia," *The Sydney Morning Herald*, November 18, 2020.

[92] Jacob M. Schlesinger, "How China Swallowed the WTO," *The Wall Street Journal*, November 1, 2017; Jikon Lai, "*Australia's WTO Complaint: What's the Point?,"* The Diplomat, January 5, 2021.

[93] Ibid. Saheli Roy Choudhury, "Here's a List of the Australian Exports Hit by Restrictions in China," CNBC, December 17, 2020.

[94] Gabriel Crossley and Kristy Needham, "China Suspends Economic Dialogue with Australia as Relations Curdle," *Reuters*, May 6, 2021.

[95] Christian Shepherd, "Two Canadians Held in China Over Arrest of Huawei CFO Go on Trial," *Financial Times*, March 19, 2021.

[96] Eva Xiao, "China Sentences Canadian Citizen to 11 Years for Espionage in Case at Heart of Diplomatic Standoff," *The Wall Street Journal*, August 11, 2021.

Canada.[97] The Canadian government's release of Meng prompted the PRC government to then release the two Canadians, Kovrig and Spavor.[98]

China also pressured the United Kingdom (UK)-headquartered bank HSBC over its role in providing certain documents and evidence in support of U.S. government charges against Huawei and Meng. In February 2021, Huawei applied to the UK's High Court to require the handover of certain HSBC records related to the U.S. government case against Huawei and Meng. Huawei's application focuses on U.S. allegations that are based on a presentation that Meng reportedly gave to an HSBC executive about Huawei's ties to Huawei subsidiary Skycom. HSBC has argued that it is not a party to the U.S. case nor the extradition matter, thus the application is meritless.[99] Following a decision by Sweden's courts to uphold a ban on Huawei's participation in the country's 5G telecommunications market because of national security concerns, China Mobile Ltd., a Chinese government-owned wireless carrier, retaliated by reducing Sweden headquartered Ericsson's share in its latest 5G equipment tender from 11% in 2020 to 1.9% in the August 2021 awards.[100]

Data Localization and Control

China's efforts to promote data sovereignty appear to be central to advancing its broader economic security policies. China has expanded data localization requirements and placed data under new trade authorities, such as export controls and security review requirements for Chinese firms listing or operating overseas. China's new measures enhance the Chinese government's control over foreign data (e.g., personal identifying and health information), IP, technology, and research that is transferred to or developed in China and may increase the potential risks to the United States of U.S. government, commercial, and academic activities in these areas.

Since at least 2007, when the Chinese government drafted a multi-level protection framework for information security related to critical infrastructure, the government has been strengthening requirements to localize certain technology, IP, research, and data in China.[101] China's 2015 National Security Law requires information systems in China to be "secure and controllable." China's 2017 National Cybersecurity Law requires companies to store personal information and important data within China, and has set in motion requirements to place Chinese data and related infrastructure, such as servers and cloud services, in China and to certify the hardware and services, including encryption, used through specific technical and security standards and procurement rules.[102] The Chinese government since 2016 has required U.S. technology firms such as Apple to store data and accompanying cryptographic keys in China.[103] In March 2018, the

[97] The DPA involved the United States Attorney's Office for the Eastern District of New York, the Counterintelligence and Export Control Section of the Justice Department's National Security Division, and the Money Laundering and Asset Recovery Section of the Justice Department's Criminal Division. See "Huawei CFO Wanzhou Meng Admits to Misleading Global Financial Institution," Department of Justice, U.S. Attorney's Office, Eastern District of New York, September 24, 2021.

[98] Ian Austen, "China Frees 2 Jailed Canadians after the U.S. Agrees to Release a Huawei Executive," *The New York Times*, September 24, 2021.

[99] "Huawei Takes HSBC to UK Court for Docs in Extradition Fight," *Associated Press*, February 12, 2021.

[100] Stu Woo, "Beijing Shuns Ericsson, Nokia as the West Curbs Huawei," *The Wall Street Journal*, August 3, 2021.

[101] Nick Marro, "The 5 Levels of Information Security in China," China Business Review, December 5, 2016.

[102] "New Chinese Cybersecurity and Data Privacy Requirements," Jones Day Insight, December 2020.

[103] Stephen Nellis and Cate Cadell, "Apple Moves to Store iCloud Keys in China, Raising Human Rights Fears,"

State Council issued *Scientific Data Management Measures* to strengthen the government's control over data generated through academic and commercial scientific research in China. The scope of the measures includes both raw and derivative data and requires certain data storage in China and disclosure of data, including trade secrets, to China's Ministry of Science and Technology.[104]

Recent Measures and Actions

Priorities in 2021 for China's legislature, the National People's Congress (NPC), include several laws and measures related to data flows and security. These measures include newly passed laws on data security and personal data, and new measures on vehicle-tied data.[105] China is proposing to use these new laws and measures to strengthen Chinese government control and curtail U.S. extraterritorial reach over data subject to China's control. Unlike the U.S. approach to data trade that has sought market opening through a set of shared principles and best practices, China's laws and measures include data localization provisions that would require personal and other sensitive data to be located in China with restrictions on real time cross-border transfers of this data.

New requirements could further limit the ability of the U.S. government to implement measures, such as Securities and Exchange Commission (SEC) requirements that Chinese-listed firms disclose details about their owners and subsidiaries. In July 2021, for example, China's Cybersecurity Administration (CAC) reportedly undertook a security review of the Chinese ridesharing service Didi Chuxing Technology Co., in part due to concerns that its overseas listing on the New York Stock Exchange (NYSE) could prompt greater public disclosure and release of the company's data as part of U.S. listing requirements.[106] In December 2021, Didi announced it would delist from the NYSE, just as CAC completed its cybersecurity review of the company.[107] The new laws and measures expand the scope of China's reach with regard to the type of data covered and the parties responsible for compliance. The new data security law and related draft laws and measures advance China's long-standing goals of requiring data localization as a key step in developing its digital economy.[108] Some Members of Congress have asked the SEC to investigate and respond to these measures and related PRC government actions regarding particular companies listed on U.S. exchanges.[109] In July 2021, the SEC announced it would require additional disclosure by and scrutiny of PRC firms listed on U.S. exchanges, particularly

Reuters, February 24, 2018.

[104] China's State Council "Scientific Data Management Measures," March 17, 2018, http://www.gov.cn/zhengce/content/2018-04/02/content_5279272.htm (in Chinese).

[105] Mary Lam, "PRC Legal Update: Key Takeaways from China's Two Sessions 2021," Bryan Cave Leighton Paisner, March 16, 2021; Jihong Chen, Peng Cai, Jiawei Wu, Yating Jiao, and Jiabin Sun, "New Legislative Trend of Tightening ICV Data Regulation in China," Zhong Lun Law Firm, June 1, 2021.

[106] Lingling Wei and Keith Zhai, "Chinese Regulators Suggested Didi Delay Its U.S. IPO," *The Wall Street Journal*, July 5, 2021.

[107] Jing Yang, "Didi Global Plans to Delist From New York Stock Exchange," *The Wall Street Journal*, December 3, 2021.

[108] "China Unveils Internet Plus Action Plan to Fuel Growth," Xinhua, July 4, 2015; "China's Digital Economy: The Shape of Things to Come," China Briefing, Dezan Shira and Associates, January 4, 2018; "Digital Economy Development in China 2020," China Academy of Information and Communications Technology (CAICT), July 2020, http://www.caict.ac.cn/english/research/whitepapers/202007/P020200728343679920779.pdf; Cheng Yu and Zheng Yiran, "China Eyes 6G as Next Tech Frontier," *China Daily*, March 20, 2021.

[109] Kiran Stacey and James Politi, "Senators Call on U.S. Securities Regulator to Investigate Didi IPO," *The Financial Times*, July 8, 2021.

those firms that use a variable interest entity (VIE) structure.[110] CRS estimates that about two-thirds of PRC firms listed on U.S. exchanges use a VIE structure.[111]

Data Security Law

On June 10, 2021, the NPC passed a new law on data security that entered into force on September 1, 2021.[112] The law seeks to classify, manage, and protect data according to its importance to state interests, including a stated focus to protect the "legitimate rights and interests of individuals and organizations" and safeguard China's "national sovereignty, security, and development interests" (Article 1). The law covers data processing in China and outside of China if it "harms the national security, public interest, or the legitimate rights and interests of citizens or organizations of the PRC" (Article 2). The law's definition of covered data includes the collection, storage, use, processing, transmission, and disclosure of personal information and other important data (Article 3). The law designates the Chinese state as the party responsible for data development and security plans (Article 13); a big data strategy, the construction of data infrastructure, and plans for innovative applications of data in various industries (Article 14); the development of a data security standards system (Article 17); and, international cooperation in data security governance, including developing global rules and standards related to data security (Article 11). The law also includes provisions that authorize the Chinese government to leverage its control over data and retaliate against foreign government actions with which Beijing disagrees. Article 26 allows the Chinese government to retaliate in kind when a foreign government "adopts discriminatory prohibitions, restrictions, or other similar trade and investment measures against China related to data as well as data development and utilization technologies."[113]

Provisions in the law restrict Chinese, U.S., and other foreign companies, entities, and individuals from transferring data stored in China without Chinese government approval. The law requires the creation of a data classification system based on the importance of the data to China's economic development and national security interests (Article 21); a system to conduct risks assessments on any data disclosure or transfer; and a catalogue to define "important data" that could be subject to Chinese export controls (Article 25).[114] The law also calls for establishing systems to certify and test data security (Article 18) and to control and monitor data transfer (Article 19).[115]

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[110] "Statement on Investor Protection Related to Recent Developments in China," Public Statement by SEC Chair Gary Gensler, July 30, 2021, https://www.sec.gov/news/public-statement/gensler-2021-07-30. CRS estimates that two-thirds of all Chinese firms listed in the United States use a VIE structure. A VIE structure involves the owners of a Chinese firm creating an offshore holding company to which foreign investors can purchase an equity claim. The holding company is tied to the "parent" through a series of contracts and revenue sharing agreements that mimic ownership arrangements but do not provide the same rights typically afforded to investors in U.S.-listed firms. See CRS In Focus IF11803, *U.S. Capital Markets and China: Issues for Congress*, by Michael D. Sutherland and Karen M. Sutter.

[111] See CRS In Focus IF11803, *U.S. Capital Markets and China: Issues for Congress*, by Michael D. Sutherland and Karen M. Sutter.

[112] *Data Security Law of the People's Republic of China*, Adopted on June 10, 2021, Entered into force on September 1, 2021, http://www.npc.gov.cn/npc/c30834/202106/7c9af12f51334a73b56d7938f99a788a.shtml (in Chinese).

[113] Ibid.

[114] Masha Borak, "China to Punish Data Exports to Overseas Courts as Beijing Beefs up Defence Against US Long Arm," *South China Morning Post*, April 28, 2021.

[115] *Data Security Law of the People's Republic of China*, Adopted on June 10, 2021, Entered into force on September 1, 2021, http://www.npc.gov.cn/npc/c30834/202106/7c9af12f51334a73b56d7938f99a788a.shtml (in Chinese

Chapter 6 of the law outlines legal liability for data processing parties. According to the provisions, Chinese authorities have the right to inspect, impose fines, revoke business licenses, and potentially bring civil and criminal charges against parties found in noncompliance. The scope of potential violations is broad and includes a "violation of the national core data management system;" "endangering [China's] national sovereignty, security and development interests;" and the "unauthorized transfer of data overseas."[116] Unauthorized transfer of data includes existing provisions and laws regarding China's state secrets and military laws, forthcoming personal data legal requirements, and providing data to a foreign judicial or law enforcement agency without the approval of the competent Chinese authority.[117] The broad scope of the law may give Chinese authorities significant enforcement leeway and could prompt firms to be cautious in how they interpret the measures to avoid penalties and prosecution.

Critical Information Infrastructure

The Chinese government continues to tighten its cybersecurity measures which include purview over networks overseas. In July 2021, China's State Council issued new *Regulations on the Security Protection of Critical Information Infrastructure* that it adopted in April 2021, which became effective on September 1, 2021.[118] The new regulations build on China's 2016 Cybersecurity Law and prioritize the protection of critical information infrastructure (CII) and networks not only in China but also overseas (Article 5). The regulations define CII as including public communication and information services, energy, transportation, water conservancy, finance, public services, e-government, national defense science and technology industries, and other important industries and network facilities and information systems. (Article 2).These categories are the same as those in China's 2016 Cybersecurity Law with the addition of "defense science and industry technologies." The regulations require network operations to report major incidents and intrusions (Article 15) and call for the joint military and civilian protection of CII (Article 38). The regulations reinforce China's April 2020 Cybersecurity Review Measures in prioritizing the purchase of "secure and trusted" network products (Article 19), which could favor PRC vendors over foreign suppliers.[119]

Automotive-Vehicle Data

China is increasing the government's control over data generated by automotive vehicles in China, including foreign firms' vehicles, and the cross-border export of data generated by vehicles in China. In May 2021, the Cyberspace Administration of China (CAC) issued *Provisions on the Management of Automobile Data Security* for public comment.[120] In August 2021, five government agencies issued Regulations on the Management of Automobile Data

language).

[116] Ibid.

[117] Ibid.

[118] "Regulations on the Security Protection of Critical Information Infrastructure," State Council Order No. 745, July 30, 2021, http://www.cac.gov.cn/2021-08/17/c_1630785976988160.htm (in Chinese language).

[119] Tingting Liu, Lester Ross, and Kenneth Zhou, "China Rolls Out Critical Information Infrastructure Security Protection Regulations," WilmerHale, August 20, 2021.

[120] Draft *Provisions on the Management of Automobile Data Security*, May 12, 2021, http://www.cac.gov.cn/2021-05/12/c_1622400511898266.htm.

Security for Trial Implementation, which was effective October 1, 2021.[121] These measures focus on data collection, analysis, storage, use, and export.

The provisions require personal information and other "important data" to be stored within China and for CAC to provide a security assessment for any cross-border data transmission. The definition of "important data" is quite broad and includes any data which may have a bearing on national security or the public interest. This includes data on the flow of people and vehicles in a range of sensitive areas tied to the military, government, or the CPC; detailed surveying and mapping data; operational data about vehicle charging grids; statistics on the types and flows of vehicles on the road; audio and video data outside a vehicle, including human faces, voices, and license plates; and other data deemed to affect national security and public interest. The scope of responsible parties is also broad and moves beyond critical infrastructure providers to all data processers, including vehicle manufacturers, component and software providers, auto dealers, maintenance and repair providers, online car-hailing companies, and insurance companies.[122] Certain data are not to leave China "under any circumstances." China's draft *National Standard of Safety Requirements for Collecting Data of Connected Vehicles,* which the government released on April 28, 2021, restricts the cross-border transfer of data on roads, buildings, terrain, traffic participants and other data collected from connected vehicles' external environment through cameras, radar or other sensors, and data related to a vehicle's location and trajectory.[123]

The Chinese government has already applied these rules to Tesla, a California-headquartered electric vehicle company, potentially restricting the company's ability to collect, transmit, and assess vehicle-related data. Such restrictions could impede the ability of U.S. and other foreign firms to leverage this information in real time for product R&D, testing, or development of autonomous driving capabilities. U.S. reports indicate that some U.S. auto companies already store data domestically in China, but are now required to do this by law. Under pressure from the Chinese government and in response to specific data restrictions imposed in March 2021, Tesla announced in May 2021 that it would create a new data center in China, and that "all data generated from the sales of vehicles in the China market will be stored domestically."[124]

Personal Information

In August 2021, China's NPC passed a personal information protection law with data security restrictions that went into effect on November 1, 2021.[125] By restricting the types of data that

[121] "Five Departments Including the State Internet Information Office issued the *Regulations on the Security Management of Automobile Data (for Trial Implementation)*," Jointly issued by the State Internet Information Office, the National Development and Reform Commission, the Ministry of Industry and Information Technology, the Ministry of Public Security, and the Ministry of Transportation, August 20, 2021, http://www.cac.gov.cn/2021-08/20/c_1631049984834616.htm (in Chinese language).

[122] Draft *Provisions on the Management of Automobile Data Security*, May 12, 2021, http://www.cac.gov.cn/2021-05/12/c_1622400511898266.htm.

[123] Lester Ross, Kenneth Zhou, and Tingting Liu, "China Issued Draft Provisions on the Management of Automobile Data Security," WilmerHale Client Alert, June 11, 2021, https://www.wilmerhale.com/en/insights/client-alerts/20210611-china-issued-draft-provisions-on-the-management-of-automobile-data-security.

[124] Trefor Moss, "Tesla to Store China Data Locally in New Data Center," *The Wall Street Journal*, May 26, 2021.

[125] "China Issues Second Version of the Draft Personal Information Protection Law for Public Comments," Hunton Andrews Kurth LLP, *The National Law Review*, Volume XI, Number 124, May 4, 2021; *Personal Information Protection Law of the People's Republic of China* (effective November 1, 2021), https://digichina.stanford.edu/news/translation-personal-information-protection-law-peoples-republic-china-effective-nov-1-2021 (informal translation posted on August 20, 2021, by Rogier Creemers and Graham Webster, DigiChina Cyber Policy Center, Stanford

companies can collect, the provisions are in some ways similar to what the European Union has proposed. China's law, however, differs in significant ways, particularly in not imposing any restrictions on what data government entities may collect.[126] The law requires foreign firms conducting business in China that processes personal data to implement provisions on extraterritorial jurisdiction—including reporting requirements to government agencies in China.[127] Personal information (PI) handlers who use PI for business uses and operate outside China are required to set up a specialized entity or appoint a representative in China to handle PI security and protection matters (Article 52). The process requires a security assessment by China's cyberspace authorities and the storage of personal information collected and generated from China to be stored in China (Article 40). The provisions give China's regulators broad powers to investigate potential violations of PI rights, including the ability to question employees, conduct on-site investigations, inspect business records, and seize equipment (Article 59).[128]

Data and Offshore Operations

Implementation of China's data protection measures raises issues about what type of data and data operations are considered state or non-state in China. The Chinese government has been taking actions to exert more control over its national technology champions—such as Alibaba, Tencent, and ByteDance (the parent company of TikTok)—and requiring these firms to share the data they collect through their business operations with the Chinese government.[129] These firms also operate outside China, including in the United States, raising questions about what information the Chinese government could access.[130] There are now public examples that show how censorship controls extend outside of China, and data access and collection capabilities could follow a similar trajectory. In August 2021, the Chinese government became a direct shareholder in ByteDance and joined the company's board of directors in an arrangement that some analysts say is similar to the structure the government also uses with other social media and software-tied operators such as Sina Weibo.[131] In June 2021, former TikTok employees said that ByteDance has access to TikTok's U.S. user data and is closely involved in the company's decision-making and product development in the United States.[132] These statements are in contrast to company statements that its U.S. operations are separate from its China business, and raises potential questions about the strength and effectiveness of risk mitigation measures that the U.S. government uses with technology companies with strong ties and operations centered in China. While it is U.S. headquartered, Zoom Video Communications, for example, reportedly

University).

[126] Natasha Lomas, "China Passes Data Protection Law," *TechCrunch,* August 20, 2021.

[127] Ibid.

[128] "China Releases Draft Personal Information Protection Law," Greenberg Traurig Alert, *The National Law Review*, Volume XI, Number 21, January 21, 2021.

[129] Lingling Wei, "China's New Power Play: More Control of Tech Companies' Troves of Data," *The Wall Street Journal*, June 12, 2021.

[130] "China-Based Executive at U.S. Telecommunications Company Charged with Disrupting Video Meetings Commemorating Tiananmen Square Massacre," Office of Public Affairs, U.S. Department of Justice, December 18, 2020.

[131] Juro Osawa and Shai Oster, "Beijing Tightens Grip on ByteDance by Quietly Taking Stake, China Board Seat," *The Information*, August 6, 2021; Rita Liao, "China Roundup: Beijing Takes Stake in ByteDance, Amazon Continues China Crackdown," *TechCrunch,* August 21, 2021.

[132] Salvador Rodriguez, "TikTok Insiders Say Social Media Company is Tightly Controlled by Chinese Parent ByteDance," CNBC, June 25, 2021.

relies on PRC nationals as technical experts based in the United States and in China to develop algorithms and provide customer support for its U.S. operations.[133] In its March 2021 annual 10-K filing to the SEC, the company said that it "employ(s) a product development team that has a relatively significant footprint in China today," which "carries out the design and architecture decisions made by our U.S. engineering team." The company identified potential risks with this structure: "We have a sizable number of research and development personnel in China, which has exposed and could continue to expose us to governmental and regulatory, as well as market and media scrutiny regarding the actual or perceived integrity of our platform or data security and privacy features."[134]

Trade Agreement Provisions

China has negotiated specific data policy flexibilities in its free trade agreements that allow it to continue these restrictive data practices. In the Regional Comprehensive Economic Partnership (RCEP) agreement, signed in November 2020 among 15 countries, the e-commerce chapter includes language on data transfer and location of computing facilities that, through broad exceptions, allows parties to require data localization and does not prevent a party from taking any measures that it considers necessary for the protection of its "essential security interests" in the "cross border transfer of information by electronic means."[135] Significantly, the agreement also prohibits the requirement of source code transfers for licensing. In contrast, the United States has negotiated to prohibit such localization requirements and other digital trade barriers in its trade agreements.[136]

The Changing Role of Hong Kong

Since the promulgation of the Law of the People's Republic of China on Safeguarding National Security in the Hong Kong Special Administrative Region in June 2020, the economic role of Hong Kong—including with regard to China's trade and data security measures—has changed significantly. China's blocking measures and anti-sanctions law, among other actions, arguably undermine Hong Kong's traditional role as an international financial center and trade hub by bringing it under PRC requirements. The PRC government has also moved swiftly to control information dissemination and expression of views, as well as align Hong Kong's judiciary more closely with the PRC system and views. In June 2021, the Director of Hong Kong's Office for Safeguarding National Security warned that Hong Kong's judiciary would be "the biggest loophole in the rule of law if national security is not safeguarded" and said it "must highly

[133] Arjun Kharpal, "Zoom to Halt Direct Sales of Products to Users in China and Switch to Partner-only Model," CNBC, August 3, 2020.

[134] The company also said that, in September 2019, the Chinese government turned off its service in China without warning and required the firm to designate an in-house contact for law enforcement requests and transfer China-based user data housed in the United States to a data center in China. "Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934," for the fiscal year ended January 31, 2021, Zoom Video Communications, Inc., filed on March 18, 2021, https://investors.zoom.us/node/8631/html.

[135] RCEP signatories include the Asia-Pacific nations of Australia, Brunei, Cambodia, China, Indonesia, Japan, Laos, Malaysia, Myanmar, New Zealand, the Philippines, Singapore, South Korea, Thailand, and Vietnam. Patrick LeBlond, "Digital Trade: Is RCEP the WTO's Future?" Centre for International Governance Innovation, November 23, 2020. See CRS Insight IN11200, *The Regional Comprehensive Economic Partnership: Status and Recent Developments*, by Cathleen D. Cimino-Isaacs and Michael D. Sutherland.

[136] See CRS In Focus IF10770, *Digital Trade*, by Rachel F. Fefer.

manifest the national will and national interest" or it would lose its legal authority granted by China's legislature.[137]

On July 16, 2021, the U.S. Department of State, along with the U.S. Department of the Treasury, the U.S. Department of Commerce, and the U.S. Department of Homeland Security, issued a business advisory that warned U.S. businesses about emerging "operational, financial, legal, and reputational risks" to their operations and activities in Hong Kong.[138] This followed earlier U.S. government determinations and actions with regard to Hong Kong. On July 14, 2020, President Donald J. Trump issued Executive Order (E.O.) 13936, which declared that the United States would no longer treat Hong Kong as a jurisdiction separate from China for purposes of trade. The E.O. specifically determined that, pursuant to section 202 of the United States-Hong Kong Policy Act of 1992, "the Special Administrative Region of Hong Kong (Hong Kong) is no longer sufficiently autonomous to justify differential treatment in relation to the People's Republic of China (PRC or China) under the particular United States laws and provisions thereof set out in the order."[139] Pursuant to the order, the U.S. government changed export control policy to require reexports from Hong Kong to China to apply for a U.S. license rather than a license from Hong Kong trade authorities.[140]

Pursuant to the Hong Kong Autonomy Act (P.L. 116-149), in October 2020, the U.S. government designated PRC and Hong Kong officials to be subject to sanctions for their role in contributing to China's failure to meet its international obligations related to Hong Kong[141] In March 2021, the U.S. government designated the 14 vice chairs of the NPC's Standing Committee to also be subject to sanctions.[142] On July 16, 2021, the U.S. State Department issued a business advisory warning about deteriorating conditions in Hong Kong.[143] In response, on July 23, 2021, the Chinese government announced that it was pursuing countermeasures that imposed sanctions under its new Anti-sanctions Law on one entity (the Hong Kong Democratic Council) and seven U.S. individuals (former U.S. Secretary of Commerce Wilbur Ross, the Chair of the U.S.-China Economic and Security Review Commission (USCC) Carolyn Bartholomew, former Staff Director of Congressional-Executive Commission on China (CECC) Jonathan Stivers, DoYun Kim at the National Democratic Institute for International Affairs, senior program manager of the International Republican Institute (IRI) Adam Joseph King, and China Director at Human Rights Watch Sophie Richardson).[144]

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[137] Helen Davidson, "Hong Kong's Courts Should Reflect China's Will, Says Official," *The Guardian*, June 30, 2021.

[138] "Issuance of a Hong Kong Business Advisory," Fact Sheet, Office of the Spokesperson, U.S. Department of State, July 16, 2021.

[139] "The President's Executive Order on Hong Kong Normalization," Executive Order 13936, July 14, 2020, https://www.federalregister.gov/documents/2020/07/17/2020-15646/the-presidents-executive-order-on-hong-kong-normalization.

[140] "Removal of Hong Kong as a Separate Destination Under the Export Administration Regulations," Rule, Bureau of Industry and Security, U.S. Department of Commerce, December 23, 2020.

[141] "Identification of Foreign Persons Involved in the Erosion of the Obligations of China Under the Joint Declaration or the Basic Law," Report, Bureau of East Asian Affairs, U.S. Department of State, October 14, 2020.

[142] Yew Lun Tian, "China Passes Law to Counter Foreign Sanctions," Reuters, June 20, 2021.

[143] "Issuance of a Hong Kong Business Advisory," Office of the Spokesperson, U.S. Department of State, July 16, 2021.

[144] "Foreign Ministry Spokesperson's Remarks on China's Decision to Impose Sanctions on Relevant US Individuals and Entity," Ministry of Foreign Affairs of the People's Republic of China, July 23, 2021, https://www.fmprc.gov.cn/mfa_eng/xwfw_665399/s2510_665401/2535_665405/t1894670.shtml.

Some foreign companies had been using data servers in Hong Kong in lieu of placing certain servers directly in mainland China, but this model is now at risk under the terms of the national security law for Hong Kong and recent moves by the Chinese government and the Hong Kong authorities to implement the law's provisions.[145] In July 2020, TikTok's parent company ByteDance announced it would cease operations of its Hong Kong app following the enactment of the National Security Law. ByteDance China CEO Zhang Nan said in a statement, however, that while the Chinese version of TikTok, Douyin, does not officially operate in Hong Kong, it "has lots of users in Hong Kong and [we] will continue to serve the users there." In April 2021, media reports indicated that ByteDance might be considering an IPO for some of its businesses, particularly, Douyin, in Hong Kong or New York, potentially scaling back original IPO plans to list all of ByteDance.[146] In July 2021, U.S. firms Facebook, Google, and Twitter reportedly privately told the Hong Kong government that they would need to leave Hong Kong if new data-protection laws required them to disclose individuals' information online so that they could be harassed by others, a practice called "doxing." The companies reportedly expressed concern that the new rules could put their staff at risk of criminal charges related to what the companies' users post online.[147] In May 2021, Hong Kong government authorities froze assets belonging to jailed Hong Kong media tycoon Jimmy Lai, including all shares in his company, Next Digital. This marked the first reported instance of China targeting a listed firm in Hong Kong under the new National Security law provisions.[148] Hong Kong authorities reportedly arrested 117 people and charged 60 people under the new national security law between June 2020 and June 2021.[149] In October 2021, the Hong Kong Association of Banks issued guidance that included input from the Hong Kong Monetary Authority that obligates Hong Kong banks to report disclosures on clients suspected of violating the national security law.[150]

Regulatory and Legal Activism[151]

China's leadership is calling for the expanded use of domestic authorities in IP, technical standards, procurement, and competition—both domestically and globally—to advance China's national development goals. China is pressing for its courts to more actively promote China's IP and other commercial interests and for the adoption of China's legal and judicial pronouncements overseas, in part through broad judicial reforms and specific judiciary actions. On September 25, 2020, China's Supreme People's Court issued *Guiding Opinions on Service Guarantees to Further Expand Opening to the Outside World*, which focuses on building China's judicial

[145] Sebastian Moss, "Tech Companies Grapple with Hong Kong's New Security Law," Data Center Dynamics, July 8, 2020. See CRS Report R46473, *China's National Security Law for Hong Kong: Issues for Congress*, by Susan V. Lawrence and Michael F. Martin.

[146] Anusuya Lahiri, "ByteDance Ditches IPO Plans For The Time Being," *South China Morning Post*, April 23, 2021; Yingzhi Yang and Tony Munroe, "TikTok Owner ByteDance Launches Share Buyback After Shelving IPO Plans," *Reuters*, May 26, 2021.

[147] Newley Purnell, "Facebook, Twitter, Google Threaten to Quit Hong Kong Over Proposed Data Laws," *The Wall Street Journal*, July 5, 2021.

[148] Jessie Pang, Twinnie Siu, "Hong Kong Freezes Listed Shares of Media Tycoon Lai Under Security Law," *Reuters*, May 14, 2021.

[149] Pak Yiu and Anand Katakam, "In One Year, Hong Kong Arrests 117 People Under New Security Law," *Reuters*, June 29, 2021.

[150] Denise Wee, "Hong Kong Widens Security Supervision With Request to Banks," *Bloomberg*, October 24, 2021.

[151] The analysis on standards in this section includes a contribution by CRS Analyst Michael Sutherland.

competencies, as part of a broader effort to expand the global influence of China's judicial system.[152] The guidance calls for coordinating international and domestic actions to defend China's judicial sovereignty and national security. The Supreme Court's Five-Year Judicial Protection Plan (2021-2025) calls for "further maturation" of China's IP judicial system "with Chinese characteristics, in line with rules of innovation, and meeting the needs of national development goals," and "to resolutely defend national sovereignty and core interests." The plan calls for "promoting the extraterritorial application of China's laws and regulations on IP rights," "effectively protecting the overseas security and legal rights of Chinese citizens and enterprises," "properly resolving international parallel litigation," and "safeguarding national security in the field of IP rights" (Articles 16 and 17).[153]

As part of this effort, the Chinese government appears to be encouraging firms to advocate in the U.S. and other foreign legal systems to challenge U.S. government actions that impose trade, investment, and procurement restrictions.[154]

- In early 2019, Huawei sued the U.S. government in U.S. federal court in the Eastern District of Texas—where Huawei's U.S. headquarters is located—over its ban on the federal purchase of the company's products, but the case was rejected by a federal judge who determined that the U.S. government had acted within its rights to ban Huawei.[155] Huawei has also sought to advance its IP interests in the United States and has pressed its case in foreign courts including in Australia, Canada, and Sweden.[156]
- In January 2021, Chinese smartphone producer Xiaomi sued the U.S. government over its inclusion of the company in a list of Chinese military-tied firms that Congress requires the U.S. Department of Defense to report.[157] Luokang Technology, a Chinese mapping firm, and GOWIN Semiconductor, a Chinese field-programmable gate array (FPGA) semiconductor chip designer and manufacturer, filed similar suits in March 2021 and May 2021 respectively. In March 2021, a U.S. federal court blocked the U.S. government's investment ban on Xiaomi, ruling that the Defense Department's explanation for the ban was

[152] China Supreme People's Court, Fafa (2020) No. 37, https://mp.weixin.qq.com/s/zC5p4zojHVo8VDvBRiruUw (in Chinese).

[153] Marc Cohen, "Three SPC Reports Document China's Drive to Increase its Global Role on IP Adjudication," China IPR Blog, May 5, 2021, https://chinaipr.com/2021/05/05/three-spc-reports-document-chinas-drive-to-increase-its-global-role-on-ip-adjudication/.

[154] Dan Strumpf, "Huawei Files U.S. Lawsuit Disputing That It Is a Security Threat," *The Wall Street Journal*, February 10, 2021. See CRS Report R46693, *Huawei and U.S. Law*, by Stephen P. Mulligan and Chris D. Linebaugh.

[155] Steven Overly, "Court Rejects Huawei's Lawsuit Over Federal Defense Spending Law," *Politico*, February 18, 2020.

[156] Johan Ahlander and Supantha Mukherjee, "Swedish Court Upholds Ban on Huawei selling 5G Network Gear," *Reuters*, June 22, 2021; Moira Warburton, "Canada Court Rejects Huawei CFO Push for Publication Ban on New Evidence in U.S. Extradition Case," *Reuters*, June 25, 2021; Paul Mozur and Austin Ramzy, "Huawei Sues U.S. Government Over What it Calls Unfair Ban," *The New York Times*, March 6, 2020.

[157] These reporting requirements were originally under required under provision in Section 1237 of the FY1999 National Defense Authorization Act (NDAA) (P.L. 105-261). These requirements are superseded by new requirements set in Section 1260H of the FY2021 NDAA (P.L. 116-283). Demtri Sevastopulo, "Xiaomi Sues U.S. Government Over Inclusion on Pentagon Blacklist," *The Financial Times*, January 29, 2021; "Granting Plaintiffs' Motion for Preliminary Injunction; Granting Plaintiffs' Motion for Leave to File Supplemental Declaration," Xiaomi Corporation vs. Department of Defense, United States District Court for the District of Columbia, March 12, 2021, https://storage.courtlistener.com/recap/gov.uscourts.dcd.226816/gov.uscourts.dcd.226816.21.0_1.pdf.

> "inadequate" and "lacked substantial evidence."[158] In May 2021, a U.S. federal court also blocked implementation of the ban on Luokang.[159] Some experts assess that the U.S. government did not advocate effectively on its behalf in consideration of the potential evidence and arguments it could have leveraged.[160] GOWIN rescinded its lawsuit in June 2021, after the Defense Department removed it from its list of PLA-tied firms.[161] The Defense Department has removed all three companies from its list of PLA-tied firms.[162]

In its *2021 Special 301 Report* released in April 2021, the USTR highlighted "strong concerns about the emerging practice in Chinese courts of issuing anti-suit injunctions"—court orders that prevent a party from initiating or continuing a patent rights proceeding in another jurisdiction—"in standards essential patents (SEP) disputes."[163] USTR noted that "since the first issuance of such an anti-suit injunction in August 2020, Chinese courts have swiftly issued additional anti-suit injunctions in other SEP cases." Chinese semiconductor companies—such as Fujian Jinhua Integrated Circuit Co. Ltd. and Advanced Micro-Fabrication Equipment Inc. (AMEC)—have challenged foreign companies' exclusive use of certain proprietary technologies and pressed for better licensing terms by initiating copycat versions of U.S. cases in China's courts.[164] Xiaomi is currently trying to leverage an anti-suit injunction in China's Wuhan Intermediate Court against Delaware-headquartered InterDigital, Inc. to challenge Interdigital's ability to bring patent infringement charges against Xiaomi in U.S. and other courts outside China.[165] China's SEP effort has become increasingly complex as non-Chinese parties have pressed for U.S. courts' acceptance of Chinese rulings that support their interests, as evidenced by a fair, reasonable and nondiscriminatory licensing rates (FRAND) case between Swedish-headquartered Ericsson and South Korean-headquartered Samsung in U.S. federal court in the Eastern District of Texas.[166]

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[158] "Granting Plaintiffs' Motion for Preliminary Injunction; Granting Plaintiffs' Motion for Leave to File Supplemental Declaration," Xiaomi Corporation vs. Department of Defense, United States District Court for the District of Columbia, March, 12, 2021, https://www.courtlistener.com/recap/gov.uscourts.dcd.226816/gov.uscourts.dcd.226816.21.0_1.pdf.

[159] Karen Freifeld, "Nasdaq Withdraws Listing Ban on Luokung after U.S. Judge's Decision," *Reuters*, May 6, 2021.

[160] Dan Strumpf, "Xiaomi Wins Court Ruling Halting U.S. Investment Ban," *The Wall Street Journal*, March 12, 2021; Patrick Jenevein, "Last Week, Xiaomi Group Won–and the U.S. Departments of Defense and Justice Lost–a Round in U.S. District Court in Washington, D.C.," Pointe Bello Insights, June 2021, at https://www.pointebello.com/insights/balance-sheet-battlefields; Emily Weinstein, "U.S. Investment in China's Capital Markets and Military-Industrial Complex," Testimony before the U.S. China Economic and Security Review Commission, March 19, 2021.

[161] Chad Bray, "China's Luokung Technology Sues U.S. Government over Trump's Investment Blacklist," *South China Morning Post*, March 5, 2021; "GOWIN Removed from CCMC List, Withdrawing Lawsuit," GOWIN Company Press Release, June 25, 2021; https://www.gowinsemi.com/en/about/detail/latest_news/70/.

[162] U.S. Department of Defense "Notice of Designation of Chinese Military Companies Under the William M. (Mac) Thornberry NDAA for FY21," June 28, 2021, https://www.federalregister.gov/documents/2021/06/28/2021-13753/notice-of-designation-of-chinese-military-companies-under-the-william-m-mac-thornberry-ndaa-for-fy21.

[163] Office of the U.S. Trade Representative, *Special 301 Report*, April 30, 2021.

[164] "AMEC Wins Injunction in Patent Infringement Dispute Involving Veeco Instruments (Shanghai) Co., Ltd," *PR Newswire*, December 8, 2017; "Veeco, AMEC and SGL Settle MOCVD Wafer Carrier Patent Litigation," Semiconductor Today, February 8, 2018; and "Micron Provides Statement on Fujian Province Patent Litigation," Micron Company News Release, July 5, 2018.

[165] Konstanze Richter, "Post-ASI Battle: InterDigital Sues Xiaomi for Patent Infringement in Munich," *JUVE Patent*, May 19, 2021; John Z.L. Huang, James H. Jiang, and Ya-Chiao Chang, "Wuhan D/B/A Chicago of China, Now Epicenter of Anti-Suit Injunctions," Winston and Strawn LLP, April 22, 2021.

[166] Gene Quinn, "Ericsson Wins Temporary Restraining Order Over Samsung in ED TX FRAND Litigation," IP

Moreover, according to USTR, "recent high-level statements have raised concerns about whether the proliferation of such anti-suit injunctions has been purposeful, including statements from President Xi about promoting the extraterritorial application of China's IP law and from China's IP appellate court about how issuance of China's first SEP-related anti-suit injunction accelerated global settlement in a SEP dispute and was an example of the court 'serving' the 'overall work' of the Chinese Communist Party and the Chinese state." As part of its judicial reforms, China has advocated that judges closely use certain previous cases as guidance. In this regard, China's Supreme Court has emphasized the importance of 10 "big cases" as important models. Two of these cases involve anti-suit injunctions (*Huawei v. Conversant* and *OPPO vs. Sharp*).[167]

The Chinese government is also asserting the role of its domestic regulatory and judicial system to empower the government to press foreign firms for more generous IP licensing terms. China's antimonopoly law states that IP should be shared when it promotes the public interest of creating common standards or meeting industrial goals.[168] In April 2021, a Chinese court ruled that certain Hitachi Metals REEs patents are "de-facto" essential and said that the company's refusal to license them to certain entities in China constitutes an abuse of their dominant market position and control of certain technologies that deny others market entry.[169] China's state-controlled Rare Earth Alliance has targeted Hitachi's rare earth magnet patents since at least 2014.[170]

More broadly, the Chinese government is using its competition authorities to commercially pressure and impose terms on U.S. and foreign firms in ways that advance China's industrial policies. Specifically, the Chinese government is leveraging U.S. technology companies' need for its approval of global merger and acquisition deals to set specific market terms and, in some instances, direct the sale of particular businesses to advantage particular Chinese companies. This pattern of behavior has become particularly prominent and potentially consequential in the semiconductor sector:

- China's review in 2015 of the Dutch firm NXP's acquisition of the U.S. firm Freescale set terms that forced the sale of NXP's RF power transistor business to JAC Capital, a company-controlled by China's State Council.[171] Under this Chinese government direction, JAC Capital acquired NXP's restructured RF Power chip business Nexperia in 2015. In July 2021, Nexperia, with support from Chinese state funds (Wise Capital and JAC Capital), announced it would be acquiring the UK's semiconductor chip facility, Newport Wafer Fab. The facility has 400 advanced technical personnel developing advanced Gallium Nitride (GaN) light-emitting diodes (LEDs) and field effect transistors (HEMTs), next generation radio frequency (RF) monolithic microwave integrated circuits for radar and communications, and is working with the UK's Advanced Propulsion

Watch Dog, December 29, 2020.

[167] Marc Cohen, "Three SPC Reports Document China's Drive to Increase its Global Role on IP Adjudication," China IPR Blog, May 5, 2021, https://chinaipr.com/2021/05/05/three-spc-reports-document-chinas-drive-to-increase-its-global-role-on-ip-adjudication/.

[168] Antimonopoly Law of the People's Republic of China, August 3, 2008, http://english.mofcom.gov.cn/article/policyrelease/Businessregulations/201303/20130300045909.shtml.

[169] Jacob Schindler, "Court Rules Against Hitachi Metals in China's First 'Essential Facilities' Patent Case," Global Competition Review, April 29, 2021.

[170] "China Takes on Hitachi as 17-year-old Rare Earth Patent Ends," Bloomberg News, July 28, 2014.

[171] Chester Yung and Archie van Riemskijk, "NXP Semiconductors Sells Unit to Chinese Firm for $1.8 Billion," *The Wall Street Journal*, May 28, 2015.

Centre.[172] In response to political pressure from members of Parliament, UK Prime Minister Boris Johnson announced on July 7, 2021, that the UK government would review the investment transaction.[173]

- China imposed antitrust terms on Qualcomm in 2015, which required Qualcomm to pay a $975 million fine, as well as license its 3G and 4G patents to Chinese companies and enter into a joint venture with the government of China's Guizhou Province to jointly manufacture server chips in order for Qualcomm to access the wireless market in China.[174]
- In 2020, China reportedly leveraged its antitrust purview to complicate Applied Material's bid for Kokusai Electric and NVidia's bid for Japan's SoftBank-controlled ARM.[175] China also is complicating the potential use of foreign investment review and antitrust authorities in the United States, Japan, and the UK over ARM's business in China by facilitating a dispute about whether certain ARM businesses in China were included in Softbank's purchase of ARM in 2016. The head of ARM's joint venture business in China is suing ARM China for control of ARM's China operations, with reported backing of the Shenzhen government. The Shenzhen government appears to have an active stake in both transactions and may be trying to secure the best technology access for China through its joint positions. The Shenzhen government is also partnered with ARM through SoftBank's joint venture with the Hopu Fund.[176]

The Chinese government is seeking to influence global standards in sectors in which U.S. firms have traditionally led standard setting (e.g., telecommunications, data protection, and cybersecurity) to advance China's national economic, industrial, and technological development goals.[177] U.S. stakeholders have raised concerns about Beijing pressuring Chinese participants to

[172] Sam Shead, "UK's Largest Chip Plant to be Acquired by Chinese-Owned Firm Nexperia Amid Global Semiconductor Shortage," CNBC, July 2, 2021; "Newport Wafer Fab Profile," *Manufacturing-Today*, Issue 183.

[173] David Wilcock, "Boris Johnson U-turns to Confirm National Security Adviser Will Probe Sale of UK Microchip Maker Newport Wafer Fab to Chinese firm Nexperia," *Daily Mail*, July 7, 2021.

[174] "The Complete Administrative Sanction Decision for the Qualcomm Case, National Development and Reform Commission of the People's Republic of China," March 2, 2015; Noel Randewich and Matthew Miller, "Qualcomm to Pay $975 million to Resolve China Antitrust Dispute," *Reuters*, February 9, 2015; "Qualcomm and Guizhou Province Sign Strategic Cooperation Agreement and Form Joint Venture to Design and Sell World-Class Server Chipsets in China," Qualcomm Press Release, January 17, 2016; Lewis Ho and Monique Lee, "A Case Study: How the Record Breaking Antitrust Penalty Against Qualcomm Transforms the Landscape of SEPs Licensing in China," Dechert LLP, March 27, 2015.

[175] "Applied Materials Terminates $2.2 Billion Deal for Japan's Kokusai Electric," *Reuters*, March 29, 2021; "Nvidia's Acquisition of ARM Throws Company into Tech Spat Between U.S. and China," *Reuters*, September 14, 2020; Ryan McMorrow and Richard Waters, "Nvidia Asks Chinese Regulators to Approve $40bn Arm Deal," *The Financial Times*, June 8, 2021.

[176] Debby Wu and Ian King, "ARM Battle With China CEO Escalates, Complicating SoftBank Sale," Bloomberg, April 9, 2021; Peter Clarke, "ARM in Struggle for Control of Chinese Subsidiary," *EETimes*, June 11, 2020.

[177] International standards, broadly defined, are technical specifications, procedures, and benchmarks that are either established *de jure* by international standards-setting organizations such as the International Organisation for Standardisation (ISO), or in a more *de facto* manner as certain technology or practices are adopted by firms for economic reasons. Scott Kennedy, "The Political Economy of Standards Coalitions: Explaining China's Involvement in High-Tech Standards Wars," *Asia Policy* No. 2 (July 2006): pp. 41-62; Valentina Pop, Sha Hua, and Daniel Michaels, "From Lightbulbs to 5G, China Battles West for Control of Vital Technology Standards," *Wall Street Journal*, February 8, 2021.

vote as a bloc for standards proposed by Chinese firms.[178] China's approach challenges U.S. interests in part because of how the government is arguably using standards to set technology requirements in China that advance its industrial policies and potentially disadvantage foreign firms. A core tenet of China's cybersecurity certification, as outlined in various regulations and China's 2017 Cybersecurity Law, is a set of "secure and controllable" standards formulated by China's National Information Security Standardization Technical Committee more widely known as "Technical Committee 260" or "TC260."[179] China appears to be using these domestic standards to require U.S. firms to share key technologies with Chinese government agencies and industry associations.[180] Under these policies, U.S. technology firms since 2015 have increasingly partnered in China with state companies, institutes, and the Chinese government.[181]

China-Controlled Global Networks and Platforms

China's national government and related overseas projects under its *One Belt, One Road* initiative aim, in part, to develop alternatives to U.S. trade networks and technical standards.[182] These alternative Chinese-led technology, supply chain, and financial networks could facilitate China's ability to create alternatives to U.S. global networks and platforms and deepen China's influence in setting global market terms, rules, and standards. Many of China's investments in ports, rail, and telecommunications networks involve the creation of infrastructure on which China can develop related and interoperable products and services.[183] In a March 2021 discussion of the 14th Five-Year Plan, Zhang Yuyan, Director of the Institute of World Politics at the Chinese Academy of Social Sciences, emphasized the importance of "seeking to advance Chinese rules and standards overseas," "introducing and going out on the basis of fair and reasonable institutional arrangements," and "continuously strengthening the coordination and integration of rules, regulations, management, standards with other countries."[184] The 14th Five-Year plan outlines how China plans to actively participate in the setting of international rules and standards, with an emphasis on digital and financial trade.[185]

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[178] U.S. China Business Council (USCBC), "China in International Standards Setting: USCBC Recommendations for Constructive Participation," February 2020, https://www.uschina.org/sites/default/files/ china_in_international_standards_setting.pdf; Melanie Hart and Jordan Link, "There Is a Solution to the Huawei Challenge," *Center For American Progress*, October 14, 2020.

[179] Samm Sacks, "How Chinese Cybersecurity Standards Impact Doing Business In China," *Center for Strategic and International Studies*, August 2, 2018, https://www.csis.org/analysis/how-chinese-cybersecurity-standards-impact-doing-business-china; Clara Wang, "Here's who has the ear of China's most active cyber regulator," *Protocol*, January 27, 2021, https://www.protocol.com/china/tc260-china-cyber-regulator-companies.

[180] European Chamber of Commerce in China, "Standards and Conformity Assessment Working Group Position Paper 2019/2020," September 24, 2019, https://www.europeanchamber.com.cn/en/publications-archive/710/ Standards_and_Conformity_Assessment_Working_Group_Position_Paper_2019_2020.

[181] Eva Dou, "China's Tech Rules Make It Hard for U.S. Firms to Take Control," *The Wall Street Journal*, June 2, 2016.

[182] See CRS In Focus IF11735, *China's "One Belt, One Road" Initiative: Economic Issues*, by Karen M. Sutter, Andres B. Schwarzenberg, and Michael D. Sutherland.

[183] Ashley Dutta, "Introduction to China's Digital Silk Road: Economic and Technological Implications," Roundtable in Asia Policy 15.1, National Bureau of Asian Research, January 2020.

[184] "Economists Interpret the '14th Five-Year Plan' and the Outline of Long-Term Goals for 2035," *Economic Daily*, March 14, 2021, http://www.gov.cn/zhengce/2021-03/14/content_5592819.htm.

[185] (Authorized Release) Proposal of the Central Committee of the Chinese Communist Party on Drawing Up the 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2030, Xinhua,

In particular, China's BeiDou Navigation Satellite System provides an alternative to U.S. GPS navigation technology, including an alternative technology foundation on which China can build a vertically integrated Chinese commercial ecosystem in a range of products, services, and technologies that rely on these geolocation technologies. In transportation, overland routes that China is developing through *One Belt, One Road* projects offer alternative trading routes to U.S.-controlled sea lanes. China's creation of *One Belt, One Road* arbitration centers in China aim to formulate arbitration rules, set up a platform to provide legal services, and settle disputes in ways that may give China an upper hand.[186] In a potential conflict of interest, the Wuhan Arbitration Panel that China set up to arbitrate commercial disputes involving *One Belt, One Road* projects includes the heads of legal departments of China's major state firms most active in *One Belt, One Road* projects—including, China State Railway Group, China State Construction Engineering Corporation, Power Construction Corporation of China, China Communications Construction Company, and Sinohydro Corporation.[187]

Central Bank Digital Currency

China's central bank, the People's Bank of China (PBOC), is developing a digital currency and piloting its adoption domestically, as well as through pilot trading with Hong Kong, Thailand, and the United Arab Emirates (UAE).[188] China's development of a digital currency could leverage financial technology architecture that China's leading companies, such as Alibaba, are developing overseas.[189] The dominance of the U.S. dollar in cross-border trade and international financial transactions allows the United States unique visibility and levers of influence through policy measures, such as sanctions imposed for foreign policy or national security objectives that impede access to the U.S. financial system or use of the U.S. dollar in international trade. Some analysts assess that China's efforts to develop an alternative currency and financial network will not immediately challenge the global role of the U.S. dollar given an array of constraints, such as the lack of full convertibility of China's currency, the renminbi (RMB), hesitancy of other central banks to use a digital currency, long-standing international acceptance of reliance on the U.S. dollar in particular sectors (oil and gas, for example), and national security concerns in other countries.[190] Over time, however, a Chinese central bank digital currency and accompanying

November 3, 2020, https://web.archive.org/web/20201104114039/http:/www.xinhuanet.com/politics/zywj/2020-11/03/c_1126693293.htm (Chinese text); https://cset.georgetown.edu/wp-content/uploads/t0237_5th_Plenum_Proposal_EN-1.pdf (unofficial English translation).

[186] Tianshu (Susan) Lu and Yisha He, "Recent Developments In China's Cross-border Dispute Resolution Under the 'Belt and Road Initiative,'" *The American Review of International Arbitration*, Columbia Law School, February 1, 2018.

[187] "China Establishes 'One Belt, One Road' Arbitration Court," China Go Abroad, http://www.chinagoabroad.com/en/article/21685. For a list of the arbitrators, seehttp://www.wiac.org.cn/index.php/arbitrator/index/p/1.html.

[188] Frank Tang, "China Digital Currency: China, Hong Kong Begin Testing Digital Yuan as Beijing Ramps up Research into Cross-Border Use," *South China Morning Post*, April 2, 2021; "Joint Statement on Multiple Central Bank Digital Currency (m-CBDC) Bridge Project, "Hong Kong Monetary Authority, February 23, 2021, https://www.info.gov.hk/gia/general/202102/23/P2021022300482.htm.

[189] Barry Naughton, "Chinese Industrial Policy and the Digital Silk Road: The Case of Alibaba in Malaysia," Roundtable in Asia Policy 15.1, National Bureau of Asian Research, January 28, 2020.

[190] Martin Chorzempa, "China's Pursuit of Leadership in Digital Currency," Testimony before the U.S.-China Economic and Security Review Commission, April 15, 2021.

global payments network could offer China alternatives to the U.S. dollar and workarounds to U.S. sanctions, at least in certain instances or transactions.[191]

China arguably might use its digital currency to secure a global leadership role in setting global financial rules and standards. At the Bank of International Settlements (BIS) Innovation Summit in March 2021, China submitted a *Global Sovereign Digital Currency Governance* proposal that discusses its views for standards and norms on cross-border digital transactions, risk supervision, and the use and ownership of data. At the BIS event, Mu Changchun, a director of PBOC's Digital Currency Research Institute, reportedly indicated that PBOC aims to become the first major global central bank to issue a sovereign digital currency in order to propel the internationalization of the RMB, and reduce dependence on the global U.S. dollar system. Mu said that, "Our project is to safeguard the monetary sovereignty. And most of the monetary authorities or central banks would like to do the same to avoid dollarization."[192] China's payments network also could give China greater visibility and control of certain global financial flows.

In January 2021, PBOC announced a joint venture with the Belgium-based financial messaging service, the Society for Worldwide Interbank Financial Telecommunications (SWIFT). SWIFT is relied on globally for its facilitation of electronic financial transactions. The scope of the joint venture includes creating a storage center in China to allow the government to monitor and analyze cross-border payment messaging and to build a localized network in China that would "ensure a more stable, resilient and secure connection to the main SWIFT network." Other shareholders of the venture include China's Cross-border Interbank Payment System (CIPS)—China's domestic payment system which offers clearing and settlement services for participants in cross-border RMB payments and trade—and the Payment & Clearing Association of China—a PBOC affiliate tasked with creating and operating China' online payment clearing platform for non-banking payment institutions.[193]

Research, Talent, and Open-Source Technology

As China seeks U.S. capabilities in technology and research to realize its industrial policy goals, it is simultaneously expanding its economic security authorities to control and leverage the foreign research and innovation that is conducted in or transferred to China. China's policies encourage U.S. companies to transfer technology, IP, talent, and R&D to operations in China in exchange for preferential terms, including financing. China's *Made in China 2025* industrial policies require firms to transfer certain IP ownership to a China-based business that is legally separate from its corporate parent, potentially giving China control over certain technologies, including through its new export control law.[194] In establishing a direct quid pro quo link between technology transfer and qualifications for particular government incentives in semiconductors, China appears to be pursuing trade practices—that were detailed in USTR's Section 301 report

[191] See CRS In Focus IF11885, *De-Dollarization Efforts in China and Russia*, by Rebecca M. Nelson and Karen M. Sutter; CRS In Focus IF11471, *Financial Innovation: Central Bank Digital Currencies*, by Marc Labonte, Rebecca M. Nelson, and David W. Perkins and CRS In Focus IF11707, *The U.S. Dollar as the World's Dominant Reserve Currency*, coordinated by Rebecca M. Nelson.

[192] "China Proposes Global Rules for Managing Sovereign Digital Currencies," China Briefing, Dezan Shira and Associates, April 4, 2021; "China Suggests Principles for Cross Border CBDC to 'Avoid Dollarization,'" Ledger Insights, March 25, 2021.

[193] "China Central Bank Says New SWIFT JV Will Set Up Localized Data Warehouse," *Reuters*, March 23, 2021.

[194] See CRS Report R46767, *China's New Semiconductor Policies: Issues for Congress*, by Karen M. Sutter.

from March 2018—of concern to the U.S. government, including many in Congress.[195] Specifically, China's new semiconductor policies may violate provisions in the January 2020, U.S.-China Phase One Trade Deal, particularly in Chapter 2 of the agreement that addressed some aspects of China's technology transfer policies and practices. Among related commitments, in Article 2.3 of the agreement, China agreed it would not require or pressure firms to transfer technology in relation to investment transactions, or as a condition for parties to receive or continue to receive any advantages conferred by China.[196]

With greater U.S. and foreign government scrutiny of Chinese foreign acquisitions, China has sought other forms of cooperation, including joint ventures, technology licensing, research partnerships, open-source technology collaboration, and talent programs that sponsor Chinese study and work overseas and seek to attract foreign experts to work in China.[197] Details in China's new 14th Five Year Plan show how, even as the government advocates for technology independence, it is seeking specific U.S. and foreign capabilities to fill critical gaps and realize these goals. In January 2021, Jiang Jinquan—the head of the CPC Central Committee's Policy Research Office—published a commentary in *Study Times,* the newspaper of China's premier Communist Party training academy, that called for China's national mobilization to counter what he described as a "U.S. technology blockade." He called for a "new development pattern" in which China would aim for greater self-sufficiency, focus on "indigenous innovation" and look to overcome serious technology gaps and dependencies.[198]

China's 14th Five-Year plan prioritizes research collaboration with foreign companies and universities, in China and overseas, and is spurring policies and incentives to attract foreign research talent to China.[199] China's plans and policies encourage its firms and institutes to establish research operations overseas to access advanced capabilities. Huawei, for example, is reportedly investing $1.2 billion in an optoelectronics R&D and production center in Cambridge, England.[200] China's bid for Newport Wafer Production in England would allow China to access

[195] Pursuant to Section 301 of the Trade Act of 1974 (19 USC §§2411-2420), USTR concluded that China's policies and practices related to forced technology transfer requirements, cyber-enabled theft of U.S. intellectual property and trade secrets, discriminatory and nonmarket licensing practices, and state-funded strategic acquisition of U.S. assets were unreasonable or discriminatory. See "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," Office of the United States Trade Representative, March 22, 2018, https://ustr.gov/sites/default/files/Section%20301%20FINAL.PDF.

[196] "Economic and Trade Agreement Between the Government of the United States of America and the Government of the People's Republic of China," January 15, 2020, https://ustr.gov/sites/default/files/files/agreements/phase%20one%20agreement/Economic_And_Trade_Agreement_Between_The_United_States_And_China_Text.pdf. 9; and CRS Insight IN11208, *U.S. Signs Phase One Trade Deal with China,* by Karen M. Sutter.

[197] Xinhua, "The 14th Five Year Plan and 2035 Long-Term Development Objectives," March 11, 2020, http://www.xinhuanet.com/fortune/2021-03/13/c_1127205564.htm.

[198] Che Pan, "US-China Tech War: Beijing's Top Policy Official Lays Out Strategy to Address Washington's 'Stranglehold' Over China," *South China Morning Post*, January 26, 2021; Jiang Jinquan, "牢牢把握习近平新时代中国特色社会主义思想的基本立场观点方法 ("Firmly Grasp the Basic Standpoint, Views, and Methods of Xi Jinping's Thoughts on Socialism with Chinese Characteristics in the New Era)," *Study Times*, July 6, 2020, http://theory.people.com.cn/n1/2020/0706/c40531-31771933.html.

[199] Ibid; "Implementation Plan for the Pilot Comprehensive Reform of Building a Pilot Demonstration Zone of Socialism with Chinese Characteristics in Shenzhen (2020-2025)" General Office, Central Committee of the Communist Party of China and General Office of the State Council, October 11, 2020, http://www.gov.cn/zhengce/2020-10/11/content_5550408.htm (in Chinese).

[200] "Huawei to Build an Optoelectronics R&D and Manufacturing Centre in Cambridge," Huawei Company Press Release, June 25, 2020.

the semiconductor-related research the company conducts with UK universities. In October 2020, Huawei announced its fifth R&D center in France that is to focus on advanced computing and leverage advanced mathematics talent and capabilities.[201] Many of China's top technology firms—including Alibaba, Baidu, and Tencent—operate research centers in the United States, allowing them to partner with U.S. universities and access U.S. technology and talent.[202]

China's State Talent Programs

China operates state talent programs to acquire targeted cutting-edge technologies and capabilities at their development point through foreign research and researcher ties. These programs are specifically targeted to advance the goals and fill the gaps identified in China's industrial plans and advance China's economic, technological, and military competitiveness.[203] The Chinese government runs hundreds of talent recruitment programs, including the *Recruitment Plan for Global Experts,* which is more commonly known as the *Thousand Talents Plan*. Program participation can involve contract terms that create "conflicts of commitment and/or conflicts of interest for researchers," according to the White House's Office of Science and Technology Policy. These terms can include requirements to attribute awards, patents, and projects to the foreign institution, even if conducted under U.S. funding; requirements to recruit or train other talent recruitment plan members, circumventing merit-based processes; and requirements to replicate or transfer U.S.-funded work to China.[204] Chinese science and technology (S&T) officials are positioned in PRC embassies in countries with strong technology capabilities, such as the United States, the United Kingdom and Russia, to spot opportunities and facilitate the transfer of S&T capabilities prioritized by the Chinese government.[205]

Growing awareness of China's use of U.S. research ties as a technology transfer vehicle has prompted the U.S. government to begin investigating current activity and enforcing laws and rules that protect the integrity of U.S. federally funded research. These laws and rules include requirements to scrutinize PRC nationals participating in U.S. government funded research, ensure U.S. government grantees report all relevant foreign ties, and ensure U.S. universities disclose sources of foreign funding.[206] Initial investigations by Congress, the U.S. Department of

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[201] "Huawei Opens Research Center in France," Xinhua, October 10, 2020.

[202] Thilo Hanneman, Daniel H. Rosen, Cassie Gao, and Adam Lysenko, "Two-Way Street: US-China Investment Trends-2020 Update," *Rhodium Group*, May 11, 2020; Michael Brown and Pavneet Singh, "China's Technology Transfer Strategy," *Defense Innovation Unit Experimental (DIUx)*, January 2018.

[203] Glenn Tiffert, "Global Engagement: Rethinking Risk in the Research Enterprise," Hoover Institution, July 30, 2020; Jeff Stoff, "China's Talent Programs," in *China's Quest for Foreign Technology: Beyond Espionage*, William C. Hannas and Didi Kirsten Tatlow, eds., Routledge, 2021.

[204] "Enhancing the Integrity of America's Research Enterprise," the White House Office of Science and Technology Policy Office, July 2020, https://trumpwhitehouse.archives.gov/wp-content/uploads/2020/07/Enhancing-the-Security-and-Integrity-of-Americas-Research-Enterprise.pdf.

[205] Ryan Fedasiuk, Emily Weinstein, and Anna Puglisi, "China's Technology Wishlist," Center for Security and Emerging Technology, May 2021.

[206] "Institutional Compliance with Section 117 of the Higher Education Act of 1965," Office of the General Counsel, U.S. Department of Education, October 2020; "Financial Conflict of Interest: Investigator Disclosures of Foreign Financial Interests," National Institute of Health Notice, NOT-OD-18-160, March 30, 2018; "Federal Research Agencies Need to Enhance Policies to Address Foreign Influence," GAO Report to the Chairman, Committee on Finance, U.S. Senate, December 2020; and "Recommended Practices for Strengthening the Security and Integrity of America's Science and Technology Research Enterprise," Subcommittee on Research Security, Joint Committee on the Research Environment, National Science and Technology Council, January 2021.

Justice, and the U.S. Department of Education have identified numerous instances of U.S. academic institutions, U.S. researchers, and PRC researchers failing to disclose sources of PRC funding and institutional ties, even when legally required to do so.[207] Initial oversight since 2018 by the National Institutes of Health (NIH) prompted the agency to send roughly 180 letters to more than 60 U.S. institutions about potential rule violations. In response to initial reactions by some universities that academics identified by the federal government of potential concern did not have ties to China, NIH reportedly provided specific details about numerous examples in which published research indicated that U.S. government grantees also were receiving Chinese government support.[208] In addition to publicized dismissals of 54 scientists from NIH and others from U.S. research institutes, U.S. universities have fired faculty in cases that remain confidential, and repaid NIH "hundreds of thousands of dollars" in grants as a result of rule violations, according to Michael Lauer, head of NIH's extramural research program.[209]

In January 2020, the Department of Justice (DOJ) charged Charles Lieber, Chair of the Department of Chemistry and Chemical Biology at Harvard University, with making a "materially false, fictitious, and fraudulent statement" in failing to disclose to his U.S. government funders his contractual arrangements and funding sources from China, including the Wuhan University of Technology (where he served as "strategic scientist" and developed a nanotechnology lab) and China's Thousand Talents Program. The Justice Department's indictment documents include copies of the original contracts and details about the scope of work and funding amounts, and alleged efforts to hide his China affiliations and payments.[210] Following the Justice Department's indictment in July 2020 of five PRC nationals for failing to disclose ties to China's military and the shuttering of the PRC Consulate in Houston (which had served as a top S&T transfer center), DOJ estimates that 1,000 PRC researchers left the United States.[211]

Some Members of Congress and several Asian-American organizations have expressed concerns that the U.S. government has been overzealous in seeking to address the risks posed by the Chinese government's use of the U.S. research enterprise for its own industrial and technological gains. They say that the U.S. government may be conducting ethnic profiling, chilling U.S. research collaboration, and argue that criminal charges are too harsh for misreporting.[212] The U.S.

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[207] "The China Initiative: Year-in-Review (2019-20)," Office of Public Affairs, U.S. Department of Justice, November 16, 2020; "Institutional Compliance with Section 117 of the Higher Education Act of 1965," Office of the General Counsel, U.S. Department of Education, October 2020; "Federal Research Agencies Need to Enhance Policies to Address Foreign Influence," GAO, December 2020; and "Threats to the U.S. Research Enterprise: China's Talent Recruitment Plans," Staff Report, Permanent Subcommittee on Investigations, U.S. Senate, November 18, 2019.

[208] Jeffrey Mervis, "NIH Probe of Foreign Ties Has Led to Undisclosed Firings—and Refunds from Institutions," *Science*, June 26, 2019; and Jeffrey Mervis, "Fifty-Four Scientists Have Lost Their Jobs as a Result of NIH Probe into Foreign Ties," *Science*, June 12, 2020.

[209] Ibid.

[210] "Harvard University Professor and Two Chinese Nationals Charged in Three Separate China Related Cases," Office of Public Affairs, U.S. Department of Justice, January 28, 2020, at https://www.justice.gov/opa/pr/harvard-university-professor-and-two-chinese-nationals-charged-three-separate-china-related and https://www.justice.gov/opa/press-release/file/1239796/download (Charging documents).

[211] Ryan Fedasiuk, Emily Weinstein, and Anna Puglisi, "China's Technology Wishlist," Center for Security and Emerging Technology, May 2021; and Aruna Viswanatha, "U.S. Drops Visa Fraud Cases Against Five Chinese Researchers," *The Wall Street Journal*, July 21, 2021.

[212] "Researching while Chinese American: Ethnic Profiling, Chinese American Scientists and a New American Brain Drain," Congressional Roundtable chaired by Representative Jamie Raskin, Chair of the Oversight Subcommittee on Civil Rights and Civil Liberties, and Representative Judy Chu, Chair of the Congressional Asian Pacific American

university system has pushed back on U.S. government efforts to enforce statutory reporting requirements on sources of foreign funding outlined in Section 117 of the Higher Education Act of 1965, arguing that requirements are unclear and burdensome.[213] Many experts agree that the U.S. government should not conduct ethnic profiling but stress that the security challenges China poses to U.S. research are serious and should be addressed.[214] Some experts warn that Beijing is seeking to leverage U.S. societal tensions, including race issues, and is "exploiting identity politics by promoting any changes in U.S. policy as ethnic profiling, and offering a narrative about being merely a proponent of 'development' and science, in order to divert attention from its own questionable behavior."[215]

Some Members warn that the U.S. government is not doing enough to address the risks that China's talent programs pose to U.S. research integrity, economic competitiveness, and national security. The U.S. Senate Permanent Subcommittee on Investigations, in its November 2019 staff report, determined that it was not in the U.S. national security interest to fund China's economic and military development with U.S. taxpayer dollars. The report called on the university community to take greater responsibility to vet academics for financial conflicts of interest, foreign sources of funding, and other research affiliations and ties, noting that universities already have relevant vetting authorities that they use to ascertain scientific rigor, allegations of plagiarism, research aptitude, and prior publications. The Subcommittee found that, rather than overreacting, "the federal government has failed to stop China from acquiring knowledge and intellectual property from U.S. taxpayer funded researchers and scientists. Nor do federal agencies have a comprehensive strategy to combat this threat."[216] The Subcommittee found that members of China's state talent plans sign legally binding contracts with Chinese institutions that often have nondisclosure provisions and can "incentivize members to lie on grant applications to U.S. grant-making agencies, set up 'shadow labs' in China working on research identical to their U.S. research, and, in some cases, transfer U.S. scientists' hard-earned intellectual capital."[217]

Open-Source Technology Platforms

In response to U.S. government restrictions on certain technology licensing to China and acquisitions of U.S. technology firms, China is turning to U.S.-led open source technology platforms—such as RISC-V, the Open Compute Project (OCP), and the O-RAN Alliance—as alternative vehicles to obtain the technology and expertise it needs to advance its industrial and technology goals. (See "Open-Source Technology" and **Table A-2**.) RISC-V and the O-RAN Alliance promote their development of open and interoperable solutions in part as solutions for the United States and its allies and partners to diversify away from Chinese companies of concern such as Huawei, but many Chinese technology firms and government institutes are members of these organizations. Moreover, these platforms seem to be providing a way for Chinese firms and

Caucus, June 30, 2021; and Margaret K. Lewis, "Criminalizing China," 111, The Journal of Criminal Law and Criminology 145 (2020).

[213] Letter from Ted Mitchell, President, ACE, to Levon Schlichter, Office of the General Counsel, U.S. Department of Education, December 14, 2020, https://www.acenet.edu/Documents/Comments-memo-ED-Section-117-121420.pdf.

[214] Ken Dilanian, "American Universities are a Soft Target for China's Spies, say U.S. Intelligence Officials," CNBC, February 2, 2020

[215] Anna B. Puglisi, "Testimony before the U.S. Senate Select Committee on Intelligence," August 4, 2021.

[216] "Threats to the U.S. Research Enterprise: China's Talent Recruitment Plans," Staff Report, Permanent Subcommittee on Investigations, U.S. Senate, November 18, 2019.

[217] Ibid.

institutes of concern to the U.S. government to access U.S. technology and capabilities to design semiconductor chips and access semiconductor tools and software.[218]

Open-Source Technology

Open source originated from the term, open source software (OSS), which is software built on publicly accessible code designed to be modified and distributed. OSS is often developed in a decentralized and collaborative way, relying on peer review and community production.[219] Segments of the technology research community use open source technology platforms to share technology with a community of experts that they seek to adapt and develop through an open and collaborative model that proponents argue can more quickly advance technological developments and breakthroughs.[220] The open source technology approach has grown in popularity and influence over the past several years in a range of technologies related to hardware, software, fifth-generation telecommunications (5G), and artificial intelligence (AI) due to a combination of factors. These factors include the emergence of next generation technologies, organized movements by key U.S. technology firms that utilize other firms' hardware and software to standardize and commoditize the industry to bring down costs, and the search for alternative collaboration vehicles in response to U.S. government technology restrictions on China.

Members of these platforms include PRC companies that are restricted by the U.S. government or otherwise identified as companies of concern due to national security considerations, including PRC state and military ties. For example, Huawei, Semiconductor Manufacturing International Company (SMIC), and the semiconductor firm Phytium are on the U.S. Department of Commerce's Bureau of Industry and Security (BIS)'s export-restrictive Entity List.[221] BIS added Phytium to the Entity List in April 2021, ahead of a *Washington Post* article that reported how Phytium was using U.S. software to support its partnership with the PRC military's China Aerodynamics Research and Development Center and its hypersonic program. The article also mentioned that Phytium was producing its semiconductor chips at TSMC in Taiwan.[222] In response, Alchip Technologies Ltd., a Taiwan-headquartered firm that designs application-specific integrated circuits, or ASICs, that are fabricated at TSMC, said that it had halted shipments to Phytium.[223] ZTE is no longer on the Entity List, under terms negotiated with the U.S. government to address its export control violations even though it is restricted as a PRC company of concern in other U.S. government provisions.[224] Huawei and ZTE, for example, are

[218] Jeffrey Burt, "Alibaba on the Bleeding Edge of RISC-V with XT910," The Next Platform, August 21, 2020. Iain Morris, "China's Role in Open RAN is a Looming Problem," Light Reading, December 17, 2020. For a list of RISC-V's members, see https://riscv.org/members/.

[219] Jim McGregor, "The Difference Between ARM, MIPS, x86, RISC-V And Others In Choosing A Processor Architecture, Forbes," April 5, 2108, https://www.forbes.com/sites/tiriasresearch/2018/04/05/what-you-need-to-know-about-processor-architectures/#5b4c51324f57.

[220] Nitin Dahad, "Can ARM Survive RISC-V Challenge?" *EETimes*, February 13, 2019, https://www.eetimes.com/can-arm-survive-risc-v-challenge/.

[221] For the U.S. Department of Commerce's Entity List, see https://www.bis.doc.gov/index.php/documents/regulations-docs/2326-supplement-no-4-to-part-744-entity-list-4/file.

[222] Ellen Nakashima and Gerry Shih, "China Builds Advanced Weapons Systems Using American Chip Technology," *The Washington Post*, April 9, 2021; Addition of Entities to the Entity List, BIS, U.S. Department of Commerce, April 8, 2021.

[223] According to this report, Phytium contributed to 39% of AIchip Technologies' revenue in 2020. See Lisa Wang, "With Phytium on U.S. Entity List, Alchip Halts its Orders," *Taipei Times*, April 14, 2021.

[224] In response to findings that ZTE had violated U.S. export controls, the U.S. government negotiated two agreements in 2017 and 2018 to address U.S. national security concerns and placed ZTE under a compliance monitoring agreement. See "Order Terminating Denial Order Issued on April 15, 2018, Against Zhongxing Telecommunications Equipment Corporation and ZTE Kangxun Telecommunications Ltd.," BIS Notice, July 23, 2018. Two of China's defense industrial conglomerates—China Aerospace Science and Industry Corp (CASIC) and China Aerospace Science

among the PRC companies that the Federal Communications Commission (FCC) includes in its covered list of communications equipment and services that "pose an unacceptable risk to the national security of the United States or the security and safety of United States persons."[225] Under terms set in the Secure Equipment Act of 2021 (P.L. 117-55), the FCC is to establish rules stating that it will no longer review or approve any authorization application for equipment or services from companies on this list. China Mobile, China Telecom, China Unicom, Huawei, Inspur Group, and SMIC are among the firms that the Department of Defense has identified as Chinese military companies operating in the United States.[226]

These platforms include prominent PRC government institutes—such as the Chinese Academy of Science's Institute of Advanced Computing, the Beijing Academy of Edge Computing, Chongqing University's Industrial Technology Research Institute, MIIT's China Academy of Information and Communications Technology (CAICT), and Tsinghua University—as well as government funds and consortiums, such as the Xiamen Semiconductor Industry Group.[227] They also include China's national technology champions—such as Alibaba, Baidu, and Tencent—as well as Inspur Group and GigaDevice, who are state champions in China's computer server and flash memory semiconductor markets respectively.[228]

Many PRC firms are leveraging expertise and technology shared on these platforms to develop technology capabilities that China says are "indigenous." In 2019, Pingtouge, the chip subsidiary of Chinese company Alibaba, worked with RISC-V to develop its first processors—Xuantie 910 and Hanguang 800.[229] Under China's new semiconductor policies, the Chinese government is incentivizing the creation of new companies and development of "indigenous" capabilities; the number of new registrations for semiconductor firms increased three-fold in the first 5 months of 2021 over 2020.[230] The platforms include some of these new PRC firms, such as X-EPIC (a PRC electronic design automation, or EDA, software tool developer), and Biren Technology, which is reportedly working with RISC-V to develop a 7 nanometer graphics processing unit (GPU) chip for high performance computing applications in China.[231] Some companies, such as Shanghai

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and Technology Corp (CASC)—are among ZTE's shareholders. See Christopher Balding, "ZTE's Ties to China's Military-Industrial Complex Run Deep," *Foreign Policy*, July 19, 2018; ZTE Corporation 2020 Annual Report.

[225] "List of Equipment and Services Covered by Section 2 of the Secure Networks Act," Federal Communications Commission, March 12, 2021.

[226] "Chinese Military Companies Operating in the United States" in Accordance with Section 1260H of the William M. ("Mac") Thornberry National Defense Authorization Act for Fiscal Year 2021 (P.L. 116-283), U.S. Department of Defense.

[227] For details on the fund and its ties to the Chinese Academy of Sciences see the company's website at http://xmsig.com/en/about.

[228] Clark Edward Barrett, "China's "Server Sinification" Campaign for Import Substitution: Strategy and Snowden (Part 1 and Part 1)," China Brief, Volume 14, Issue 24 and Volume 15, Issue 2, The Jamestown Foundation, December 19, 2014 and January 23, 2015; Paul Mozur and Jane Perlez, "U.S. Tech Giants May Blur National Security Boundaries in China Deals," *The New York Times*, October 20, 2015; Daniel Nenni, "China's First Self-Developed Memory Chip Maker Scores Financing," SemiWiki.com, December 21, 2020; Jeffrey Ding, "China's AI 'National Team,'" ChinAI Newsletter Number 51, May 20, 2019; Keith Zhai and Lingling Wei, "China Lays Plans to Tame Tech Giant Alibaba," *The Wall Street Journal*, March 11, 2021.

[229] Jeffrey Burt, "Alibaba on the Bleeding Edge of RISC-V with XT910," The Next Platform, August 21, 2020.

[230] Josh Ye, "New Chinese Semiconductor Firms Have Tripled in 2021 as Beijing and Washington Jockey Over Technological Supremacy," *South China Morning Post*, June 9, 2021; See CRS Report R46767, *China's New Semiconductor Policies: Issues for Congress*, by Karen M. Sutter.

[231] "X-EPIC Announces Dr. TC Lin as Chief Scientist," Company Press Release, October 16, 2020, https://www.x-epic.com/en/nd.jsp?id=38#_np=2_506; Anton Shilov, "Chinese Company to Send 7nm GPU to Production Next

Boelink Communication Technology, develop public security products and services.[232] China may be using U.S.-based professional associations as well as technology incubators and accelerators to access U.S. talent and technology. The Chinese-American Semiconductor Professional Association (CASPA), may provide talent pipelines for its PRC members—such as Horizon Robotics, Huawei, SMIC, and the Chinese Academy of Science's Shanghai Industrial Technology Research Institute. U.S. joint ventures with China, such as Chengdu Silicon Power Technology, provide U.S. talent, IP, tools and software to China's semiconductor firms.[233]

Examples of Corporate Countermeasures to U.S. Restrictions

Huawei and Honor

Chinese companies are restructuring themselves potentially to circumvent U.S. export and investment restrictions. Current U.S. government 5G-related export control restrictions, for example, are specific to Huawei and its affiliates. In November 2020, China's government, acting through the Shenzhen branch of the State-owned Assets Supervision and Administration Commission of the State Council (SASAC), took control of Huawei's smartphone business, Honor.[234] Honor CEO Zhao Ming moved over from Huawei to head the new SASAC-controlled company. In addition, Honor inherited Huawei's R&D teams from Shenzhen, Beijing, and Xi'an, together with the "highest quality assets of the Huawei system," including the most advanced technology and design, according to Zhao Ming.[235] Zhao said that Huawei had divested from Honor to ensure its survival amid the U.S. export controls that prevented the company from making chips. Unnamed "industry insiders" told China's *Global Times* newspaper that Honor may capture Huawei's lost ground overseas once "everything is back in place."[236] Since restructuring, Honor has resumed cooperation with Huawei's original suppliers, including Intel, MediaTek, Micron, Microsoft, Qualcomm, and Samsung.[237] In June 2021, Honor launched a

Quarter," *Tom's Hardware,* June 26, 2021.

[232] For details on Boelink's work see the company's website at http://en.boelink.com/.

[233] CASPA eLetter: No. 94, October 19, 2016, http://www.caspa.com/news/publications/news-list/582d2c6860cb84c2124259be; "Announcing the Grand Opening of Silicon Power Technology Industry: Luminary David French and Silicon Valley's Silicon Catalyst partner to Launch Incubator for Power Semiconductor Startups," Silicon Catalyst Company Announcement, January 17, 2019; https://siliconcatalyst.com/announcing-the-grand-opening-of-silicon-power-technolog. For a list of CASPA's corporate members, see http://www.caspa.com/members.

[234] Scott Livingston, "Huawei, HONOR, and China's Evolving State Capitalist Tool Kit," CSIS Brief, December 2020; Chen Qingqing and Shen Weiduo, "Update: Former Chief Executive of Honor Zhao Ming becomes CEO of 'New' Company After Sub-brand Sold by Huawei," *Global Times,* November 17, 2020; "Huawei Officially Sold Glory to Shenzhen Zhixinxin: The Shareholder Structure Behind it is Disclosed," *Sina Technology,* November 17, 2020.

[235] Zhao Juecheng and Shen Weiduo, "Honor 50 Series Handset Powered with Qualcomm Chips Launched in Shanghai," *Global Times,* June 16, 2021.

[236] Ibid.

[237] Kelsey Cheng, "Huawei Spin-off Brand Honor Working with Qualcomm to Launch New 5G Phone in Coming Months," *Pan Daily*, January 7, 2021; Celia Chen, "Exclusive: Honor CEO Speaks Out: Unburdened by U.S. Sanctions on Huawei, the Budget Smartphone Brand Looks to Take on Apple and Former Parent," *South China Morning Post*," January 27, 2021; Anniek Bao, "Honor Inks Deal With Microsoft in Post-Huawei Rush to Rebuild Links to U.S. Companies," *Caixin,* December 25, 2020.

premium smartphone that is powered by Qualcomm's new Snapdragon 778G 5G chip.[238] In November 2021, U.S. media reported that Huawei might sell its server business to another PRC government consortium in a deal structure that appears to be similar to the one it used to sell Honor.[239]

Honor, having been restructured as a separate entity, may fall outside current U.S. government restrictions in the absence of further clarification or action from the U.S. Department of Commerce's BIS. While Huawei and its affiliates are listed on BIS' Entity List, subjecting U.S. trade with these companies to a license, Honor may not be currently restricted because it is no longer under Huawei and thus is not listed on the Entity List. To date, BIS has not clarified if it assesses that Honor falls within current export control restrictions, or if it would add Honor to the Entity List to explicitly apply U.S. export controls to the restructured Honor business. In August 2021, the Chair of the House GOP's Task Force on China and some of its Members sent a letter to Commerce Secretary Gina Raimondo asking that the End-User Review Committee (ERC) designate Honor Device Co. Ltd. to the Department of Commerce Entity List.[240] Also in August 2021, Senator Wicker, ranking member of the Senate Committee on Commerce, Science, and Transportation, sent a letter to the acting under secretary at BIS inquiring about Huawei licensing and implementation of a Final Rule that was to restrict Huawei's access to U.S. technologies.[241] In mid-September 2021, media reports indicated that U.S. agency participants in the ERC had considered whether to add Honor to the Entity List, but the decision was split at a staff level and would be escalated to a higher policy level, likely the Advisory Committee on Export Policy (ACEP).[242] In October 2021, the House Foreign Affairs Committee released BIS licensing data for Huawei and SMIC for the six-month period from November 2020 to April 2021. Even though both firms were on the Entity List, the data showed that BIS approved 113 licenses for Huawei at an estimated value of $61.4 billion, and 48 licenses were returned without action (RWA) at an estimated value of $29.8 billion. Many of these licenses were for semiconductor-related items, according to the BIS footnotes.[243] BIS approved 188 licenses for SMIC at an estimated value of $41.9 billion, and 17 licenses were returned RWA at an estimated value of $1.2 billion. These licenses included semiconductor equipment, as well as chemicals and gases used in

[238] David Kirton, "Chinese Phone Maker Honor Partners with Key Chip Suppliers after Huawei Split," *Reuters*, January 21, 2021.

[239] Sebastian Moss, "Huawei Reportedly Plans to Sell x86 Server Business Following U.S. Sanctions," Data Center Dynamics, November 3, 2021.

[240] "House GOP China Task Force Letter to U.S. Commerce Secretary Gina Raimondo," August 6, 2021, https://gop-foreignaffairs.house.gov/press-release/mccaul-china-task-force-members-ask-for-honor-device-co-to-be-added-to-the-entity-list/.

[241] "Letter from Senator Roger F. Wicker to Jeremy Pelter, Acting Under Secretary of BIS," August 11, 2021, https://www.commerce.senate.gov/services/files/776D4787-7260-42C2-9BEB-EFA3C7683780.

[242] Ellen Nakashima and Jeanne Whalen, "Key Security Agencies Split Over Whether to Blacklist Former Huawei Smartphone Unit," *The Washington Post*, September 19, 2021. The process for adding a company to the Entity List, including the escalation process, is detailed in Supplement No. 5 to Part 744 of the Export Administration Regulations (EAR), 15 C.F.R. § 730 et seq.

[243] See https://gop-foreignaffairs.house.gov/wp-content/uploads/2021/10/Huawei-Licensing-Information.pdf. According to the EAR 15 C.F.R. § 772.1 a return without action can include a license exemption or determination that a license is not required among other types of BIS administrative actions.

semiconductor chip fabrication.[244] Over this period, BIS denied two licenses for Huawei and one license for SMIC.[245]

Huawei is also shifting into new businesses, such as cloud computing, auto, and optical chips, to gain access to export-controlled U.S. semiconductor chips and related technology.[246] U.S. export controls generally do not currently cover cloud computing, and the United States does not generally restrict foreign cloud services businesses.[247] China's policies also call for strengthening ties with foreign industry associations potentially to work around U.S. restrictions.[248] In January 2021, BlackBerry Limited, a Canadian headquartered software company, announced it sold 90 smartphone patents—including some security-related patents—to Huawei, despite current U.S. restrictions on Huawei, highlighting areas of potential statutory or policy gaps in U.S. government efforts to address PRC companies of concern.[249] U.S. and other governments' restrictions of Huawei do not cover the company's participation in 6G research and applications. In January 2021, Huawei executives initiated a public relations push with the Australian government that advocates for Huawei's participation in the Australian government's 6G standards-setting process and 6G-related R&D.[250] In response to requests from U.S. companies, including Qualcomm, in June 2020 BIS issued an interim final rule that clarified that U.S. export restrictions would not apply to standard-setting collaboration with Huawei.[251] In addition, U.S. and other governments' 5G restrictions do not currently apply to some other prominent Chinese telecommunications vendors that may also raise concerns, such as Oppo, Vivo, or Xiaomi.

Applied Materials and Jingsheng

Other examples show how Chinese firms may be seeking to use offshore structures to obtain U.S. technologies and potentially bypass U.S. authorities. In August 2021, China's Jingsheng Mechanical and Electrical Co., Ltd. announced that it would be forming a joint venture with the Hong Kong subsidiary of U.S. headquartered semiconductor tools and equipment company, Applied Materials, Inc. Jingsheng would control the joint venture and Applied Materials would sell its equipment business in Italy, wafer testing equipment business in Singapore, and assets from its R&D and wafer business subsidiary in Xi'an, China.[252] Jingsheng says that the

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[244] See https://gop-foreignaffairs.house.gov/wp-content/uploads/2021/10/SMIC-Licensing-Information.pdf.

[245] Ibid.

[246] "Huawei Focusing on Cloud Business Which Still Has Access to U.S. Chips," *Reuters*, August 29, 2020; and Karen Freifeld, "Huawei Gets U.S. Approvals to Buy Auto Chips, Sparking Blow Back," Reuters, August 25, 2021.

[247] BIS 2018 Annual Conference on Export Controls and Policy, Bureau of Industry and Security, U.S. Department of Commerce, Presentation on Export Controls and Cloud Computing, May 13, 2018.

[248] Ramish Zafar, "U.S. Chip Firms to Coordinate with Chinese Firms on IP Security, Other Areas," WCCF Tech Inc., March 11, 2021.

[249] Sean Silcoff, "BlackBerry Sells 90 Patents to Huawei, Covering Key Smartphone Technology Advances," *The Globe and Mail*, January 12, 2021.

[250] Joseph Waring, "Huawei Pushes Australia for 6G Role," *Mobile World Live*, January 6, 2021.

[251] "Release of 'Technology' to Certain Entities on the Entity List in the Context of Standards Organization, U.S. Department of Commerce's Bureau of Industry and Security," 85 *Federal Register* 36719, June 18, 2020, shttps://www.federalregister.gov/documents/2020/06/18/2020-13093/release-of-technology-to-certain-entities-on-the-entity-list-in-the-context-of-standards.

[252] Mike Rosa, "Xi'an Center Advances More-than-Moore Technology Development," Applied Materials Company Website, March 2018, https://www.appliedmaterials.com/nanochip/nanochip-fab-solutions/march-2018/xian-center-advances-more-than-moore-technology-development.

businesses in the deal have "no assets, operations or personnel in the United States."[253] Jingsheng's business focuses on semiconductor research and manufacturing equipment related to silicon and silicon carbide.[254] The firm participates in China's *National Science and Technology Major 02 Special Project*, which directs and funds the development of China's "indigenous" semiconductor materials, tools, and equipment capabilities.[255] Some experts anticipate that next generation semiconductor capabilities could benefit from breakthroughs in silicon and silicon carbide, materials that also have defense applications.[256] By transferring semiconductor IP and capabilities to a Chinese firm, Applied Materials (and Jingsheng) may be seeking to qualify for China's semiconductor policy incentives.[257] The deal could also be in response to less visible Chinese government pressure. In March 2021, Applied Materials announced that its agreement to acquire Kokusai Electric Corporation expired because Applied Materials "did not receive confirmation of timely approval from the regulator in China."[258]

U.S. technology companies, such as Advanced Micro Devices, Inc. (AMD), previously responded to Chinese pressures to sell core x86 semiconductor capabilities to a Chinese state consortium by using a set of separate but interrelated commercial transactions to avoid CFIUS jurisdiction.[259] Concerns about these types of joint venture deals motivated some Members of Congress to expand CFIUS' jurisdiction with the passage of FIRRMA in 2018.[260] A new provision in FIRRMA gives CFIUS jurisdiction over "any other transaction, transfer, agreement, or arrangement, designed or intended to evade or circumvent the CFIUS review process."[261] In November 2021, the Italian government reportedly blocked Jingsheng's bid for the Applied Materials business based in Italy.[262]

Policy Implications and Issues for Congress

China's buildout of a robust national economic security toolkit, combined with its efforts to counter U.S. authorities and restrictions on China, indicate that U.S. government efforts to

[253] "Zhejiang Jingsheng (300316 CH)," Company Update, China Merchants Bank International Securities, Equity Research, August 2, 2021, at https://pdf.dfcfw.com/pdf/H3_AP202108021507573507_1.pdf?1627903003000.pdf.

[254] For further information see the company's website at http://www.jsjd.cc/ and the company's 2020 Annual Report available at https://vip.stock.finance.sina.com.cn/corp/view/vCB_AllBulletinDetail.php?stockid=300316&id=7113943.

[255] "National Science and Technology Major Specialized Enterprises—01 Special and 02 Special Enterprises Concentrated at IC China 2014," August 22, 2014, China Semiconductor Industry Association. See details at the company's website at http://www.jsjd.cc/casesinfo.aspx?id=38 and in the company's stock notice from May 4, 2017 at http://pdf.dfcfw.com/pdf/H2_AN201705030551346515_01.pdf.

[256] Brad Bergen, "Semiconductor Breakthrough: Scientists Just Widened the Gap with New Tiny Chips," *Interesting Engineering*, May 20 2021; Julissa Green, "An Overview of Silicon Carbide Ceramic Materials," Advanced Ceramic Materials.

[257] See CRS Report R46767, *China's New Semiconductor Policies: Issues for Congress*, by Karen M. Sutter.

[258] "Applied Materials Announces Termination of Kokusai Electric Acquisition Agreement," Globe Newswire, March 29, 2021.

[259] Kate O'Keeffe and Brian Spegele, "How a Big U.S. Chip Maker Gave China the 'Keys to the Kingdom'," *The Wall Street Journal*, June 27, 2019.

[260] Kate O'Keeffe and Siobhan Hughes, "Congress to Toughen Foreign Investment Reviews Amid Trade Fight With China," *The Wall Street Journal*, July 19, 2018.

[261] See CRS In Focus IF11334, *CFIUS: New Foreign Investment Review Regulations*, by Cathleen D. Cimino-Isaacs and James K. Jackson.

[262] Giuseppe Fonte and Ella Cao, "Italy's Draghi Vetoes Third Chinese Takeover This Year," *Reuters*, November 23, 2021.

advance and protect U.S. economic, trade, and national security interests with regard to China most likely will require sustained policy focus, bureaucratic agility, and political resolve to be effective. Long-standing and emerging patterns of China's economic and trade behavior show that the United States should expect and be prepared at both a strategic and tactical level to counter China's measures and countermeasures as U.S. officials seek to work with allies and partners to address the concerns posed by China's behavior. Relatedly, the United States should anticipate China's likely increased use of its geo-economic toolkit of trade retaliation, brinkmanship tactics, and other formal and informal tools of economic coercion to advance its political and economic goals. China's approach involves pressuring business and appears to be undermining certain global trade rules and norms or aims to set new rules that may differ from U.S. approaches, including areas involving digital trade rules and standard-setting. Some of these behaviors may require new rules and approaches—at the unilateral, plurilateral, and multilateral levels—and concerted joint actions by the United States and like-minded countries.

China is deploying trade tools that attempt to create parity with the United States but which may make broader and discriminatory use of these tools in advancing China's national economic, industrial, and political goals; promoting national champions; and pressuring foreign firms and governments. An important consideration in U.S. government policies and actions is the role of the state in China's business ecosystem and the control and influence the Chinese state may have over China's corporate actors. This state role arguably allows the Chinese government to align with or potentially compel its leading companies in undertaking joint action in China and overseas to advance China's political and other goals. As China seeks to counter U.S. policy actions and press for an extraterritorial reach of its regulatory system and judicial decisions, a key consideration is how U.S. policies and authorities view Chinese corporate entities, including how they are defined, as well as views on their role and rights in the United States.[263]

Some U.S. experts, companies, universities, and Members of Congress view some of the recent U.S. trade restrictions on China—such as the imposition of tariffs, expanding the number of Chinese firms on the BIS Entity List, and increased scrutiny of China's funding and research activities in the United States—as complicating and adversely impacting the ability to do business with China, one of the largest global markets, and argue that the restrictions undermine longer-term U.S. economic competitiveness and innovation. They argue that the U.S. government has restricted too much trade, investment, and research ties with China, citing the economic benefits of collaboration and the economic costs of decoupling. Others argue that, given the scope and scale of the challenges that China poses, the United States must protect its interests and address the asymmetry and vulnerabilities in how commercial relationships, investment, research ties with China are developing China's capabilities in ways that may disadvantage the United States. Other experts and Members of Congress support a policy of continued economic engagement with China, as it represents one of the largest markets in the world, while addressing major issues of concern with respect to market access and other discriminatory barriers in China and China's state-led policies that may create many of these barriers. This viewpoint generally supports continued negotiation in concert with like-minded nations and other advanced economies to advance more reciprocal economic relationships with China, and to take stronger action using various trade policies, if necessary, to achieve this goal.

The Biden Administration is undertaking a review of U.S. trade policy toward China that looks to continue the Trump Administration's framing of China as a strategic competitor. In this context,

[263] Tom Westbrook, Pei Li, John Mccrank, and Alexandra Alper, "NYSE May Make Second U-turn on China Telecom Delistings Amid Confusion over Policy," *Reuters*, January 4, 2021.

and in consideration of China's recent trade measures and countermeasures, Congress might consider whether, and, if so, how to address the following:

U.S. Legislation and Policymaking on China Concerns

- A key issue for Congress is whether current U.S. policy approaches and tools, including recent or pending legislation, are sufficient in how the United States prioritizes, scopes, structures, and acts on its concerns about China to advance U.S. national interests. Congress may further review U.S. government decision-making on China trade and economic security issues and the use of existing authorities and tools to address China's practices of concern to determine if existing policies and tools are sufficient. Key questions include whether the U.S. government bureaucracy is sufficiently agile and effective in its response to China's measures and countermeasures and to what extent is the U.S. government proactive or reactive in its efforts, and how are U.S. actions coordinated so that agencies' authorities are mutually reinforcing on crosscutting issues. Congress might explore, for example, how various U.S. government agencies collaborate to address crosscutting concerns such as U.S. technology transfer to China.
- Congress may review its legislation, hearings, reports and other oversight that it has conducted on U.S. policies over the past five years related to China trade and economic security issues to assess implementation. Congress may consider how it is leveraging its own reports and findings. How is Congress organizing and collaborating to address crosscutting concerns that may fall across different committee jurisdictions? Should Congress utilize more actively the role of its Designated Congressional Advisors and Congressional Advisory Groups on Negotiations that it established in Trade Promotion Authority legislation enacted in 2015 (P.L. 114-26), to represent congressional views on U.S.-China trade and economic issues to the Executive Branch?[264]
- Another area for ongoing congressional scrutiny is the U.S. government's experience to date on prominent issues, such as the treatment of national security concerns related to Huawei, to ascertain lessons and best practices in advancing U.S. economic and national security objectives vis-a-vis China. Congress could look ahead to consider how the government should address related and emerging issues, such as cloud computing, 5G connected vehicles and devices, 6G development, and other advanced Chinese technology. A related issue is the efforts and outcomes of ongoing cooperation with U.S. allies and partners regarding U.S. concerns about Huawei and whether such approaches should be applied to other concerns.

China's Trade and Economic Coercion

- Congress may examine how China's exercise of its new measures and countermeasures could challenge U.S. economic competitiveness and national security. Congress could assess how these measures might undermine U.S. policies and authorities—including those related to recently passed legislation—and consider whether, and, if so, how to address this issue. Should Congress enhance U.S. government enforcement provisions to counter China's pressures?

[264] See CRS Report R43491, *Trade Promotion Authority (TPA): Frequently Asked Questions*, by Ian F. Fergusson and Christopher M. Davis.

Are there existing laws and authorities that could be used to address these challenges posed by China? Has the U.S. government's defense of its policy decisions in U.S. courts been adequate?

- Congress may look at whether companies should be required to report or disclose when they are subject to pressure or benefit from China's measures, including subsidies and other preferences. One option might be to amend the Anti-boycott Act of 2018 (P.L. 115-232, 50 U.S.C. 4801) to address specific requirements for companies to counter how China may be using *ad hoc* trade measures against the United States and its allies and partners. In this regard, Congress might consider whether it should restrict companies from participating in or benefitting from (either directly or indirectly) China's commercial boycotts and other *ad hoc* trade restrictions, and accepting Chinese government subsidies and preferences that advance China's industrial policies of concern. Should Congress require that IP and technology transfer to China and Chinese entities tied to these policies and preferences be reported to the government or otherwise publicly disclosed, and what might be the costs of such action or inaction? Other potential options that could be explored in terms of their costs and benefits might be whether Congress should require a new category of SEC disclosure for China risks that includes economic coercion.
- Congress could consider whether, and if so, how, to enhance and support concerted trade action with U.S. allies and partners to help counter China's economic coercion. For example, Congress might encourage or seek the negotiation of similar anti-boycott provisions with like-minded countries and of other options to counter China's economic and trade coercion with joint actions that impose commensurate trade policy repercussions and economic costs, beginning with sectors China is leveraging, such as raw materials, energy, and agricultural commodities. Congress could consider how to work with the European Commission regarding its efforts to strengthen its ability to impose commercial sanctions in response to economic coercion by countries outside the European Union.[265]
- Another area of potential congressional focus might be to articulate the ways in which China's approach and behaviors undermine global trade rules, norms, and principles and consider the range of U.S. options, including in the WTO. For example, what is the feasibility of calls by some experts for the United States and other countries to bring a WTO nullification and impairment case against China? Could such action help to address the growing range of concerns that the United States and others have with China's trade measures?[266] Should the USTR prioritize and accelerate the negotiation of agreements that address issues, such as state funding and subsidies and nondiscriminatory trade rules and disciplines for digital trade?

[265] Barbara Moens and Jakob Hanke Vela, "EU Flexes Geopolitical Muscle with New Trade Weapon," Politico EU, December 6, 2021; "Strengthening the EU's autonomy–Commission seeks input on a new anti-coercion instrument," European Commission Press Release, March 23, 2021.

[266] Jennifer Hillman, "The Best Way to Address China's Unfair Policies and Practices is Through a Big, Bold, Multilateral Case at the WTO," Testimony Before the U.S.-China Economic and Security Review Commission, June 8, 2018; Stephen Ezell, "False Promises II: The Continuing Gap Between China's WTO Commitments and Its Practices," Information Technology and Innovation Foundation, July 26, 2021.

Technology, Data, and Research

- Congress could seek an assessment of U.S.-China dual use technology ties to identify actors, ties, and trends of concern and determine whether, and if so, in what ways, U.S. technology trade and two-way investment are strengthening China's capabilities in areas that may undermine U.S. national security and economic competitiveness. Congress might examine, for example, the effects of expanded U.S. export controls since passage of the Export Control Reform Act (ECRA), looking at the controls on particular firms and technologies that have been added, and the licensing of controlled technologies to China (including companies on the BIS Entity List), as well as how U.S. government technology licensing and investment review decisions align with U.S. policy objectives on China.
- An area for further congressional oversight and action could be to seek accelerated U.S. multilateral action on export controls, in line with pending legislative proposals in the United States Innovation and Competition Act of 2021 (S. 1260 and H.Amdt. 3535). These measures would require the Executive Branch to strengthen collaboration among members of the Wassenaar Arrangement and jointly impose and enforce technology controls on China.
- China's role and technological gains from participation in U.S. open source technology platforms and whether, and if so how, this activity should be addressed is another area for ongoing congressional oversight. As the Department of Defense and some in Congress look to open source technology solutions and alliances (e.g., ORAN) as a way to lessen dependence on Chinese companies, Congress might address Chinese membership and roles in these platforms.
- Congress could also further deepen its understanding of trends, and the benefits and risks of China's participation in U.S. research, including additional review of the findings and recommendations of the staff report, *Threats to the U.S. Research Enterprise: China's Talent Recruitment Plans*, which the U.S. Senate's Permanent Subcommittee on Investigations released in November 2019. A key issue is whether U.S. government activity to date has been excessive or whether further oversight, transparency, and restrictions should be considered with regard to visas, federal grant making, federal agency audits of programs and personnel, and disclosure of foreign ties and funding. Another area of consideration is how China's participation in U.S. federally funded research may be developing particular capabilities in the United States and China and whether the U.S. government should cultivate enhanced U.S. talent and alternative foreign talent. Additionally, should the U.S. government conduct greater examination of outbound U.S. government and university funding and university IP and technology licensing for China-tied research and commercial activities?
- Congress may examine the potential effects of China's measures on data and digital trade to ascertain whether U.S. government approaches to data protections and China's corporate operations are adequate. Congress might also assess whether, and if so, how, to achieve nondiscriminatory trade rules and disciplines in digital trade. Key issues that could be examined include how China's new measures affect U.S. IP, technology, trade secrets, data, and research that is transferred to China, or China-controlled entities and how China may access U.S. data, including cyber metadata, through commercial operations in the United States or commercial ties to U.S. firms. In light of recent concerns, Congress

might consider whether to examine prominent corporate examples—such as WeChat, TikTok, or Zoom—to ascertain the effectiveness of U.S. policy approaches, including the Biden Administration's proposed timeline and framework for assessing potential risks posed by Chinese software firms operating in the United States. Relatedly, Congress might consider whether China's new trade measures could undermine the risk mitigation measures and approaches the U.S. government uses with regard to China-tied transactions of concern. Congress could also consider whether to act on proposed legislation that would require additional U.S. government oversight over outbound U.S. investments, technology licensing, and data transfers to China and PRC entities by both the private sector and U.S. government agencies.[267]

Industrial Policies and the Role of the State

- Congress may continue to consider and address the challenges that the Chinese government's formal and informal levers of control over companies may pose for U.S. authorities**.** Such issues might include state control, influence, funding, and access; market restrictions; and other distorting and potentially anti-competitive practices. Congress might examine specific examples to ascertain how U.S. authorities distinguish between state and corporate actors; how U.S. incorporated firms have acted on behalf of the Chinese government; and whether the legal challenges posed by China in the United States expose any gaps in U.S. authorities or a need for new approaches.[268]
- Congress might consider how the Chinese government uses competition authorities to advance its industrial policies, including by requiring the divestiture and sale of targeted businesses and technologies to Chinese firms. Congress might investigate why the U.S. government rarely, if ever, has undertaken an antitrust review of a PRC corporate merger or acquisition and whether U.S. authorities, and use of these authorities, are sufficient to address instances of potential Chinese anticompetitive behavior.
- An area for further congressional oversight might include elevating biotechnology and agriculture as key concerns with regard to China. China identifies agriculture as a national security priority, including in its investment restrictions, national development plans, and *ad hoc* trade retaliation. Congress could, for example, add the U.S. Department of Agriculture to CFIUS as a full member. Congress might inquire on large potentially high impact transactions to assess whether current U.S. authorities are sufficient.

[267] See proposed example by Senator Wyden, Protecting Americans' Data from Foreign Surveillance Act, at https://www.wyden.senate.gov/imo/media/doc/Protecting%20Americans%20Data%20from%20Foreign%20Surveillance%20Act%20of%202021%20Bill%20Text.pdf ; and proposed legislation by Senator Casey and Senator Cornyn, The National Critical Capabilities Defense Act, https://www.casey.senate.gov/imo/media/doc/casey-cornyn_nccda_amendment.pdf. Also see the Genomics Data Security Act introduced by Senator Rubio, S. 1744.

[268] On July 22, 2021, U.S. courts sentenced a California-man for his role in a scheme to illegally export integrated circuits with military applications to China. He used a California-based company that he controlled to funnel funds provided by Chinese entities, which were subsequently placed on the BIS Entity List, to finance the manufacturing of the military integrated circuits by the victim company. See "Electrical Engineer Sentenced to More Than Five Years in Prison for Conspiring to Illegally Export to China Semiconductor Chips with Military Uses," Office of Public Affairs, U.S. Department of Justice, July 22, 2021.

- Another area for potential congressional examination is the lack of reciprocity in U.S. and China's investment terms and how China's market barriers disadvantage the United States. Do China's market restrictions in strategic sectors incentivize China's acquisitions and ability to set joint venture and technology transfer terms? Do China's requirements that U.S. software firms, such as Microsoft, share source code and cyber patches with the Chinese government and its state-tied firms create vulnerabilities for the United States, including cyber intrusion and attacks, as the U.S. government relies on these same firms to provide U.S. critical infrastructure?[269] Congress might examine how Chinese firms are operating in U.S. emerging technology sectors that remain closed or restricted to U.S. firms in China, such as social media, block chain, cloud computing, and software-tied services in health, finance, information, media, and retail. Is there sufficient visibility and oversight of China's activity in these areas in the U.S. market? Congress could work with the executive branch to set domestic reciprocity terms and seek similar provisions be negotiated with other like-minded countries to align approaches.
- Congress could seek to address China concerns through oversight of the June 2021 agreement with the European Union on aircraft subsidies, under which both sides agreed to coordinate and cooperate to diminish China's ability to require technology transfer in aerospace.[270] Congress could share its views about how the agreement could address transfer risks with regard to particular technological capabilities and transactions. It could consider how this agreement could be a model for how the United States might partner with the EU in other sectors (e.g., semiconductors and advanced materials), and with other countries to prevent China from coercing technology transfer.

[269] Sumner Lemon, "China Gets Access to Microsoft Source Code," *IDG News Service*, March 3, 2003; Kartikay Mehrotra, "Hack Pushes Microsoft to Rethink How it Discloses Code-Sharing Plan After Suspected Leak," *Bloomberg*, April 27, 2021.

[270] In the agreement's *Annex on Cooperation on Non-Market Economies*, the two sides agreed "to coordinate and explore common approaches and enhanced cooperation regarding the screening of new outward investments in joint ventures and production facilities in nonmarket economies to ensure that such activities are not influenced by nonmarket forces, including conditioning the in-country purchases on the location of production facilities or other actions, that lead to the transfer of technology or jobs to the detriment of market-oriented actors." "USTR Announces Joint U.S.-E.U. Cooperative Framework for Large Civil Aircraft," Office of the U.S. Trade Representative, June 15, 2021. The Agreement and Annex are available at https://ustr.gov/sites/default/files/files/FINAL%20Understanding%20on%20Principles%20relating%20to%20Large%20Civil%20Aircraft.pdf.

Appendix.

Table A-1. Select Instances of China's *Ad Hoc* Economic and Trade Coercion[271]

Date	Event
2020-2021	China effectively restricted imports of Australian coal, barley, beef, cotton, copper, sugar, timber, beer, wine, seafood, wheat, and wool beginning in May 2020. Observers view these restrictions as a response to Australian leaders' public calls for an investigation into the origin of the Coronavirus Disease 2019 (COVID-19) pandemic.[272] In June 2021, China's General Administration of Customs confiscated, destroyed, or returned several imported shipments of H&M, Gap, and Nike products that it claimed posed a potential health hazard to consumers. Some experts contend that this was an escalation in a broader campaign of retaliation against Western clothing brands following statements released by Nike, H&M, and other companies regarding forced labor in Xinjiang.[273]
2019-2020	After Daryl Morey, General Manager of National Basketball Association (NBA) team the Houston Rockets, tweeted an image with the caption "Fight for Freedom. Stand with Hong Kong," the PRC consulate in Houston demanded the team "correct the error" and "eliminate the adverse impact."[274] Soon thereafter, Chinese brands suspended cooperation with the team.[275] China Central Television, China's state broadcaster, stopped broadcasting NBA preseason games in China and did not resume them until October 10, 2020, more than a year later.[276] ESPN reported in September 2020 that the NBA had incurred "at least $200 million" in estimated losses from the China market as a result of the controversy.[277]

[271] This chart was prepared by CRS Analysts Caitlin Campbell and Michael Sutherland.

[272] Megan Ophel, "Warning from Australia: Meet the Threat of Chinese Economic Coercion to Democracy," Center for a New American Security, February 9, 2021; Bonnie S. Glaser, "Time for Collective Pushback Against China's Economic Coercion," Center for Strategic and International Studies, January 13, 2021; Paul Karp and Helen Davidson, "China Bristles at Australia's Call for Investigation into Coronavirus Origin," *The Guardian*, April 29, 2020.

[273] General Administration of Customs of the People's Republic of China, *General Administration of Customs Reports on the Safety of Children's Products*, June 1, 2021, http://www.customs.gov.cn/customs/xwfb34/302425/3692320/index.html;"China accuses Western firms over 'harmful' kids' goods," *BBC*, June 3, 2021.

[274] Consulate-General of the People's Republic of China in Houston, "Chinese Consulate General Spokesperson's Remarks on the Erroneous Comments on Hong Kong by General Manager of the Houston Rockets," October 6, 2019, http://houston.china-consulate.org/eng/sgxw/t1705494.htm.

[275] Paul Simao and Josh Horwitz, "NBA Stirs U.S. Hornet's Nest, Faces China Backlash over Hong Kong Tweet," *Reuters*, October 6, 2019; Iain Marlow and Jon Herskovitz, "NBA Chief Defends Freedom of Expression in Face Off with China," Bloomberg, October 8, 2019; Zhang Jianfeng, "Morey Owes the Chinese an Apology," CCTV, October 8, 2019.

[276] "A Timeline of the Daryl Morey NBA-China Saga," *South China Morning Post*, at https://multimedia.scmp.com/widgets/vert_timeline/?id=darylmorey-nba-china-saga; CCTV, "Central Radio and Television General Station CCTV Sports Channel Statement," October 8, 2019.

[277] Kevin Arnovitz, "Inside the Longest, Most Unpredictable Year in NBA History," ESPN, September 29, 2020.

Date	Event
April 2018	The Civil Aviation Administration of China (CAAC) issued a letter directing foreign airlines, including U.S. carriers, to refer to Taiwan as a region of China on their public websites and applications. For airlines that failed to comply within 30 days, CAAC threatened to designate them as "severely untrustworthy" companies—an apparent reference to China's emerging attempt to establish a social credit system to shape individual and corporate behavior[278]—and to report companies to the Cyberspace Administration of China for further sanctions.[279] According to Reuters, by August 2018, all targeted U.S. airlines had either complied or had begun taking steps to comply.[280]
January 2018	Marriott International, Inc., announced it would temporarily take down its Chinese-language websites and apps in China "at the request of the [PRC] Government" in order to "make the necessary corrections" following two incidents: the hotel chain listed Hong Kong, Tibet, Macau, and Taiwan as "countries" in an email survey and on its app, and an employee operating the hotel's official Twitter account "liked" a tweet by an organization that advocates for Tibetan independence. The hotel company issued an apology, pledged to complete a "full investigation" of the incidents, and later fired the employee who "liked" the tweet.[281]
November 2017	The PRC State Tourism Bureau reportedly issued a directive to Chinese travel agencies mandating the cancellation of all tours and advertisements for tours to the Vatican and St. Peter's Basilica due to the Vatican's maintenance of diplomatic relations with Taiwan.[282]
2016-2018	In an effort to pressure South Korea to abandon its plans to deploy (jointly with the United States) a Terminal High-Altitude Area Defense (THAAD) missile defense system, China took measures that included the following: (1) restricted South Korean entertainment and other cultural exports from entering China, including cancelling South Korean pop music events, banning South Korean television shows from airing on a state-owned television channel, and withholding regulatory approvals for South Korean online video games; (2) banned the sale of such South Korean household products as cosmetics, high-tech toilet seats, air purifiers, and food; (3) restricted tourism between the two countries by ordering travel agencies not to provide South Korea tour packages and by rejecting Korean airlines' applications to increase charter flights between the two countries; and (4) targeted the China business of Lotte, the South Korean conglomerate that agreed to provide land for the missile defense system's deployment site. China's efforts to disrupt Lotte's business reportedly included suspending new factories, launching cyberattacks against Lotte's website, and closing 75 of 99 Lotte Mart stores in China for alleged safety violations.[283] The campaign against Lotte also reportedly caused hundreds of millions of dollars or more in losses to the company, with revenues dropping 77% in 2017.[284]

[278] China's nascent social credit system seeks to aggregate data about each Chinese citizen's social and financial behavior and assign scores that could affect their access to a comprehensive list of financial and other services, including loans, jobs, domestic travel, and educational opportunities.

[279] Civil Aviation Administration of China, "Notice Relating to Rectification of the Official Website within a Specified Timeframe," April 25, 2018.

[280] "U.S. Airlines Say Further Amending Websites to Change Taiwan References," *Reuters*, August 9, 2018.

[281] Marriott International, Inc., "Statement from Arne Sorenson, President and CEO, Marriott International, Inc.," January 11, 2018; PRC Ministry of Foreign Affairs, "Foreign Ministry Spokesperson Lu Kang's Regular Press Conference," January 12, 2018; Alanna Petroff and Steven Jiang, "China Blocks Marriott for Listing Tibet and Taiwan as Countries," *CNN*, January 11, 2018; Matthew Hansen, "Hansen: Omaha Man 'Liked' a Tweet, and then He Lost his Dream Job," *Omaha World-Herald*, March 21, 2018.

[282] Radio Free Asia, "China's Links with The Vatican Appear to Sour Amid Tourism Ban," November 21, 2017.

[283] Ethan Meick and Nargiza Salidjanova, "China's Response to U.S.-South Korean Missile Defense System Deployment and its Implications," *U.S.-China Economic and Security Review Commission*, July 26, 2017, p. 7-8.

[284] Coco Feng, "South Korea's Lotte, Hit by Consumer Boycott, Sells More China Stores," *Caixin*, May 12, 2018; "Hit by Political Crossfire, Lotte's China Exit Stalls," *Bloomberg*, February 13, 2018; and "Lotte Aims to Complete Sales of

Date	Event
2016-2017	The number of PRC tourists to Taiwan began to decline after President Tsai Ing-wen took office on May 20, 2016. According to the Taiwan Tourism Bureau, the number of PRC visitors to Taiwan in 2016 fell 16% over 2015, to 3.5 million. In 2017, the number of PRC visitors fell 22% over 2016 to 2.7 million. The PRC had not acknowledged ordering tourists to stay away, but its state media highlighted the reported negative impact of lower mainland tourist numbers on the Taiwan tourism industry and linked the phenomenon to President Tsai's policies. The PRC's state news agency, Xinhua, noted in May 2017 that, "The lull [in tourism from mainland China] follows the election of Taiwan's new leader Tsai Ing-wen, who assumed office last May. Tsai has refused to adhere to the 1992 Consensus, angering people on both sides of the Strait."[285]
November 2016	After Mongolia hosted a visit from the Dalai Lama, the internationally recognized spiritual leader of Tibet, China raised fees on certain Mongolian imports, created delays at a major border crossing, and suspended negotiations for a loan to Mongolia. The Mongolian government eventually apologized to the PRC government and pledged not to host the Dalai Lama again.[286]
July 2015	Reuters reported that Sony Pictures Entertainment executives made adjustments to China-related content in movies, including *RoboCop* (2014) and *Pixels* (2015), in order to appease Chinese film regulators and moviegoers. The article quoted Peter Shiao, founder and CEO of film studio Orb Media Group, as saying "I think the studios have grown pretty savvy…For a type of movie, particularly the global blockbusters, they are not going to go and make something that the Chinese would reject for social or political reasons. That is already a truism."[287]
2012-2016	Following a tense standoff between China and the Philippines in 2012 over Scarborough Shoal, a disputed land feature in the South China Sea, China periodically restricted banana and other agricultural product imports from the Philippines, citing phytosanitary standards, apparently to signal its displeasure with Manila's refusal to abandon its claim to the disputed area.[288] In addition, in 2012, Chinese travel agencies imposed restrictions on or discouraged travel by Chinese citizens to the Philippines; China's government formally lifted its travel warning in 2016 amid improving bilateral relations and signals from Manila that it would not pursue its South China Sea claims as forcefully.[289]

Discount Store China in China by June," Yonhap News Agency, March 16, 2018.

[285] Tourism Bureau, Ministry of Transportation and Communications, Republic of China (Taiwan), "2016 and 2017 Visitor Arrivals by Residence;" "Xinhua Insight: What Has DPP Brought to Taiwan Over the Past Year?" Xinhua, May 20, 2017.

[286] Peter Harrell et al., "China's Use of Coercive Economic Measures," *Center for a New American Security*, June 11, 2018, p. 47.

[287] Clare Baldwin and Kristina Cooke, "Special Report: How Sony Sanitized Adam Sandler Movie to Please Chinese Censors," *Reuters*, July 24, 2015.

[288] Peter Harrell et al., "China's Use of Coercive Economic Measures," Center for a New American Security, June 11, 2018, p. 43.

[289] Willard Cheng, "China Lifts Travel Warning on PH after Duterte Meets Xi," *ABS-CBN News*, October 20, 2016; Jason Gutierrez, "China Issues Warnings on Philippines," *AFP*, May 11, 2012.

Date	Event
September 2010	After the Japan Coast Guard arrested and detained the captain of a Chinese fishing vessel following a clash in disputed waters near the Senkaku (Diaoyu) Islands in the East China Sea, China threatened "strong countermeasures."[290] A few weeks later, China held exports of rare earth shipments bound for Japan at Chinese ports.[291] The Japanese government reportedly was forced to spend at least $1 billion to address and compensate for China's restrictions.[292]
2010-2016	After the Norwegian Nobel Committee awarded the 2010 Nobel Peace Prize to Chinese writer and pro-democracy activist Liu Xiaobo while he was imprisoned in China, the PRC halted a trade deal under negotiation and restricted Norwegian salmon imports. This caused Norway's share of China's salmon imports to drop from 94% in 2010 to an average of 16% from 2013-2016.[293] Relations normalized and the salmon trade resumed in 2016, with Norway pledging not to "support any actions that undermine" China's core interests and to "do its best to avoid any future damage to the bilateral relations."[294] Liu Xiaobo died in prison in 2017.[295]

Source: Compiled by Caitlin Campbell, CRS Analyst in Asian Affairs, and Michael D. Sutherland, CRS Analyst in International Trade and Finance.

Table A-2. Select PRC Participants in U.S. Open-Source Technology Platforms

RISC-V	O-RAN Alliance	Open Compute Project, IBM Open Power Project, CHIPS Alliance, Open Hardware Group, and CASPA
• Alibaba Group • Beijing Academy of Edge Computing • Chongqing University Industrial Technology Research Institute • Huawei Technologies Co., Ltd. • Inspur Group • Institute of Advanced Computing, Chinese Academy of Science (CAS) • Nanjing SemiDrive Technology Ltd. • Rockchip	• ArrayComm (Chengdu Airi Wireless Technology) • AsiaInfo Holdings, Inc. • ASTRI (Hong Kong Applied Science and Technology Research Institute) • Cambridge Industries Group Ltd. • CertusNet Inc. • China Mobile • China Telecommunications Corporation • China Unicom (China United Network Communications Group Co., Ltd.) • China Academy of Information and Communications Technology • China Information Communication Technologies Group • Digigate (Nanjing Diange Communication Technology) • China GrenTech Co., Ltd.	• Alibaba Group • Baidu, Inc. • Beijing Auphi Bi Software, • Biren Technology • Chengdu Silicon Power Technology • Chizhou HISEMI Electronic Technology Co., Ltd. • Horizon Robotics • Huastart • Huawei Technologies Co., Ltd. • InnoGrit • Inspur Group

[290] Martin Fackler and Ian Johnson, "Arrest in Disputed Seas Riles China and Japan," *New York Times*, September 19, 2010.

[291] Keith Bradsher, "Amid Tension, China Blocks Vital Exports to Japan," *New York Times*, September 22, 2010.

[292] Peter Harrell et al., "China's Use of Coercive Economic Measures," Center for a New American Security, June 11, 2018, p. 6.

[293] Ibid.

[294] "Statement of the Government of the People's Republic of China and the Government of the Kingdom of Norway on Normalization of Bilateral Relations," via Lieke Bos, "Norway-China Relations 'Unfrozen,'" *Diplomat*, December 21, 2016.

[295] Charlie Campbell, "Liu Xiaobo, China's Most Prominent Political Prisoner, Dies at 61," *Time*, July 13, 2017.

RISC-V	O-RAN Alliance	Open Compute Project, IBM Open Power Project, CHIPS Alliance, Open Hardware Group, and CASPA
• Shanghai Jiatong University • Shenzhen XTX Technology Co., Ltd. • Tsinghua University • TrustKernel • Unisoc (formerly Spreadtrum Communications, Inc.) • Wanxiang Blockchain • X-EPIC • Xiamen Semiconductor Industry Group, Co. Ltd. • ZTE Corporation	• ComLab (Beijing) Communication System Equipment • GMTC (Shenzhen Zhaochi) • Herystorm (Guangzhou Huirui Sitong Technology) • HK Tech, Howking Tech (Nanjing Haojin Communication Technology) • Innogence (Sichuan Chuangzhi Lianheng Technology) • Inspur Group • Institute of Advanced Computing, Chinese Academy of Science (CAS) • Kindroid (Shanghai Jinzhuo Technology) • Lenovo Group Limited • Mikwave Communications • New H3C Group (Ziguang Group) • Phytium (Feiteng Information Technology Co., Ltd.) • Purple Mountain Laboratories • Raisecom (Nanjing Research Institute of Millimeter Wave and Terahertz Technology) • Ruijie Networks • Sageran (Guangzhou Shiju Network Technology) • Shanghai Boelink Communication Technology Ltd. • Spideradio (Suzhou Zhizhu Communication Technology) • State Grid Information and Telecom Group • Sunwave Communications • Tianyi (Sichuan Tianyi Comheart Telecom) • Tongwei (Shenzhen Gongjin Electronics) • Tongyu Communications • Tsinghua University • Vavitel (Shenzhen Fanweitai Technology Service) • Wuhan Huagong Zhengyuan Photonics Technology	• JCET • Lenovo Group Limited • MooreElite • Nanjing University Cloud Computing Lab • Semiconductor Manufacturing International Corporation (SMIC) • Shanghai Industrial Technology Research Institute, CAS • Tencent Holdings Ltd. • X-EPIC • YanRong Technology

Source: Membership details from the organizations' websites.

Notes: This chart is not exhaustive. Membership information accessed on June 29, 2021.

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