

**INTELLECTUAL PROPERTY AND
STRATEGIC COMPETITION WITH CHINA
PART I**

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Before the
Subcommittee on Courts, Intellectual Property, and the Internet
of the Committee on the Judiciary
U.S. House of Representatives

March 8, 2023

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CHAIRMAN ISSA, RANKING MEMBER JOHNSON, AND MEMBERS OF THE SUB-COMMITTEE:

The United States intellectual property laws are the infrastructure that underpins and shapes a great deal of American innovation. As with any other infrastructure, its reliability and trustworthiness are critical to national security at a time when technological progress defines America's leadership around the globe. I thank the Subcommittee for holding this hearing and focusing on this important topic.

Intellectual property intersects with international competitiveness in two distinct ways. The first is defensive. By providing a variety of national and cross-border remedies for infringement, the IP laws deter and prevent misappropriation of American research and development.¹ The importance of strong IP rights in response to IP theft, especially in China, is well-documented and undeniable.²

What has been less studied but requires this Committee's equal attention, however, is how abuses of IP can play an offensive role to the detriment of American innovation.³ As I detail below, China and Chinese entities are flooding the U.S. Patent and Trademark Office with questionable

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1. See generally KEVIN J. HICKEY ET AL., REPORT NO. R46532, INTELLECTUAL PROPERTY VIOLATIONS AND CHINA: LEGAL REMEDIES (Cong. Research Serv. Sept. 17, 2020), <https://sgp.fas.org/crs/row/R46532.pdf>.
 2. See, e.g., Jeanne Suchodolski, Suzanne Harrison & Bowman Heiden, *Innovation Warfare*, 22 N.C. J.L. & TECH. 175, 235–46 (2020); OFFICE OF THE U.S. TRADE REPRESENTATIVE, 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 (Mar. 22, 2018), <https://ustr.gov/sites/default/files/Section%20301%20FINAL.PDF>; JON BATEMAN, U.S.–CHINA TECHNOLOGICAL “DECOUPLING”: A STRATEGY AND POLICY FRAMEWORK 97–103 (2022), https://carnegieendowment.org/files/Bateman_US-China_Decoupling_final.pdf; Kayla Tausche & Jacob Pramuk, *White House Will Announce Tariffs Cracking down on Chinese Theft of Intellectual Property*, CNBC (Mar. 21, 2018), <https://www.cnbc.com/2018/03/21/white-house-to-announce-ip-tariffs-on-thursday-sources.html>.
 3. I have previously discussed this issue in brief. See CHARLES DUAN, POLICY SHORT NO. 67, U.S. PATENTS AND COMPETITIVENESS WITH CHINA (R St. Inst. Feb. 27, 2019) [hereinafter *Competitiveness with China*], <https://www.rstreet.org/research/u-s-patents-and-competitiveness-with-china/>; Charles Duan, *Of Monopolies and Monocultures: The Intersection of Patents and National Security*, 36 SANTA CLARA HIGH TECH. L.J. 369, 387 (2020) [hereinafter *Of Monopolies and Monocultures*], <https://digitalcommons.law.scu.edu/cgi/viewcontent.cgi?article=1655&context=chtlj>.

patents, have taken steps to dominate international technological consortia, have recrafted patent adjudication in adverse ways, and have even used our own IP enforcement agencies against Americans. Not unlike how hackers exploit cybersecurity vulnerabilities in computer infrastructure, these efforts exploit the infrastructure of patent laws to entangle American innovators and stymie American technologies.

Mitigating China's offensive use of the IP laws in these ways is just like mitigating any other infrastructure vulnerability: We must take steps to ensure that the IP laws are resilient to the sorts of abuses that undermine our technological leadership and security. I outline four major approaches below:

- **Trustworthiness in patents.** Strong processes for vetting and validating that patents are correctly issued will separate hard-earned innovation from low-quality patent chaff that, left untouched, could tie up American innovators in pointless and costly litigation. Greater transparency in patent ownership and litigation would also help to detect, identify, and respond to any abuse.
- **Championing forum fairness.** The United States should lead in putting a stop to the ongoing, destructive race to the bottom on patent litigation practices. It should stand against “forum selling” practices, in China and elsewhere, of courts attracting lucrative patent lawsuits by tilting the playing field.
- **Focusing on competition.** A robustly competitive landscape promotes national security and technological progress. Policymakers should work to ensure that the IP laws enhance competition and cannot be turned into tools for suppressing competition.
- **The whole of government.** To ensure American leadership in technology and innovation, IP rights are an important component but not the only component. Especially for dynamic fields like artificial intelligence, patents can have complex and counterintuitive effects, and policy tools such as STEM education, high-skilled immigration, research funding, and diversity initiatives can have tremendous impact.

I. PATENTS' TERRITORIAL NATURE AND THE IP THEFT MISCONCEPTION

To understand China's offensive use of IP rights, it is necessary to understand a key fact about IP law and patent law in particular. A patent confers a right upon one party, the patent holder, to block other parties from using certain technologies on penalty of infringement.⁴ But while anyone can get U.S. patents, the only people who can be blocked by them are U.S. firms.

U.S. patents generally cannot stop foreign activity.⁵ As the Supreme Court has repeatedly said, "Courts presume that federal statutes apply only within the territorial jurisdiction of the United States."⁶ While there are limited avenues for asserting patents against importers of infringing products,⁷ the act of importation confirms that patent law requires a domestic act before infringement can be found.⁸ An American patent has no effect on a Chinese company operating entirely outside the United States, even if that Chinese company is exploiting technology squarely within the scope of the patent.

That Chinese company, however, can apply for and obtain as many U.S. patents as it wants. Patents are available equally to foreign and domestic applicants, and in compliance with international treaties, the patent laws give no preference to domestic patent holders.⁹ Indeed, in 2020, 56% of U.S. patent applications were filed by foreign residents, and 53% of patents were issued to foreign inventors.¹⁰

4. See 35 U.S.C. § 271.

5. See generally Bernard Chao, *Patent Imperialism*, 109 NW. U. L. REV. ONLINE 77, 78–79 (2014), https://scholarlycommons.law.northwestern.edu/nulr_online/8.

6. *WesternGeco LLC v. ION Geophysical Corp.*, 138 S. Ct. 2129, 2137 (2018) (quoting *Foley Bros., Inc. v. Filardo*, 336 U.S. 281, 285 (1949)) (internal quotations omitted).

7. See 35 U.S.C. § 271(g) (providing for patent infringement when one "imports into the United States . . . a product which is made by a process patented in the United States").

8. See Chao, *supra* note 5, at 78 ("Although there are exceptions to patent law's territorial limitation, these exceptions are narrow.").

9. See Agreement on Trade-Related Aspects of Intellectual Property Rights, Annex 1C, art. 3, para. 1, Apr. 15, 1994, 1869 U.N.T.S. 299.

10. See U.S. PATENT & TRADEMARK OFFICE, PERFORMANCE AND ACCOUNTABILITY REPORT 201, 205, 209, 215 (2021), <https://www.uspto.gov/sites/default/files/documents/USPTOFY21PAR.pdf>.

The result of this asymmetry is that, as far as U.S. patent law goes, a Chinese firm can obtain a patent and charge an American company with infringement, but an American company cannot reciprocate.¹¹ For the American company to charge the Chinese company with infringement, it must obtain a Chinese patent and avail itself of China's intellectual property laws and procedures to obtain relief.

However unfair this arrangement may seem, it is the current law and it would be bad policy to change it. Patents cannot be given extraterritorial effect to reach foreign conduct, as U.S. courts lack jurisdiction to enforce judgments abroad. Nondiscrimination among patent applicant nationalities avoids a destructive race to the bottom, in which countries vie to attract companies to relocate based on increasingly discriminatory patent laws; it also avoids tit-for-tat retaliation against countries' respective innovators. The end result of policies favoring U.S. patent holders could be ultimately to disfavor them more greatly worldwide. Furthermore, determined foreign adversaries could probably game such policies easily through shell companies and obfuscatory corporate transactions, so attempting to disfavor Chinese patent applications legislatively would likely be futile.

Among other things, the territorial nature of patents explains why current concerns about IP theft in China are largely unrelated to U.S. patent law.¹² By both statute and constitutional requirement, the text of a patent is required to reveal the inner workings of a new technology with sufficient detail such that others are able to make and use the same technology.¹³ That text is published such that anyone around the world can read the patent, and it makes little sense to say that anyone can "steal" publicly available information outside the ambit of U.S. patent law. Instead, IP theft typically refers to misappropriation of trade secrets and other proprietary information, through industrial espionage or forced disclosures through compelled joint ventures.¹⁴ Trade secret and industrial espionage

11. See *Of Monopolies and Monocultures*, *supra* note 3, at 387 & n.105.

12. See HICKEY ET AL., *supra* note 1, at 15 ("A patent, for example, is a publicly available legal document granting the patent holder certain exclusive rights; . . . infringers do not 'steal' the patent."); *Competitiveness with China*, *supra* note 3.

13. See 35 U.S.C. § 112(a); *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1345 (Fed. Cir. 2010) ("[A] separate requirement to describe one's invention is basic to patent law.").

14. See OFFICE OF THE U.S. TRADE REPRESENTATIVE, *supra* note 2, at 19–23 (describing

laws would be the proper focus of this Subcommittee’s attention to deal with such issues.

II. HOW CHINA CAN USE, AND USES, PATENTS TO HARM AMERICAN INNOVATORS

The asymmetry between who can obtain U.S. patents and who can be sued under them helps to explain the offensive use of patents: Chinese firms, perhaps with backing or direction from the Chinese government, can obtain U.S. patents and assert them against American businesses. China’s offensive use of patents has already manifested in at least four ways, as described below.

A. *Flooding the United States with Low-Quality Patents*

First, Chinese entities have been applying for U.S. patents at a staggering rate. In 2020, the U.S. Patent and Trademark Office (“USPTO”) received 47,712 patent applications from China, the second highest filing volume from a foreign country.¹⁵ That represents a nearly 50% increase in application volume since 2017, a rapid acceleration compared to the top foreign filing country, Japan, where applications have dropped by almost 25% over the same period,¹⁶ and compared to an overall increase in U.S. patent application filings of about 7% between those years.¹⁷ China appears to be on track to the top foreign filer of U.S. patent applications within just a few years.

This meteoric rise in patent applications from China is the result of state-sponsored policy. As the USPTO reported recently, China uses a variety of tools to induce patent filings: tax incentives, target metrics for institutional patenting, and (until recently¹⁸) even monetary subsidies to

China’s use of joint venture requirements to compel technology transfers “behind closed doors”).

15. See U.S. PATENT & TRADEMARK OFFICE, *supra* note 10, at 210.

16. See *id.* at 211.

17. See *id.* at 201.

18. See Stephen Yang, *Ending Patent Subsidies in China*, LANDSLIDE (Am. Bar Ass’n), Jan. 2021, at 10, <https://www.mondaq.com/china/patent/1150552/ending-patent-subsidies-in-china>.

patent filers.¹⁹ The report concludes that these inducements are a “major contributor” to China’s high worldwide volume of patent filings.²⁰

Yet those patents are also often of low innovative quality. A *Bloomberg* report found that the majority of Chinese patents are abandoned shortly after grant, suggesting their minimal asset value.²¹ As the USPTO report also finds, China’s use of subsidies and incentives “may in part explain why the commercial value of China’s patents is low.”²² The report further finds that China’s IP licensing receipts are comparatively low, “an additional indicator of the relatively low value of China’s patents and other IP.”²³ Although these studies focused on worldwide patenting by Chinese entities, there does not appear to be reason to believe that Chinese-filed U.S. patents are substantially different.

This glut of low-quality patents cannot be ignored for at least three reasons. First, it strains the USPTO’s limited examination resources, potentially delaying the issuance of valuable patents representing commercializable innovation.²⁴ Second and more importantly, it crowds the space of potential liability for American innovators and businesses. A company

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19. See U.S. PATENT & TRADEMARK OFFICE, TRADEMARKS AND PATENTS IN CHINA: THE IMPACT OF NON-MARKET FACTORS ON FILING TRENDS AND IP SYSTEMS 7 (Jan. 2021), <https://www.uspto.gov/sites/default/files/documents/USPTO-TrademarkPatentsInChina.pdf>; see also DAN PRUD’HOMME & TAOLUE ZHANG, CHINA’S INTELLECTUAL PROPERTY REGIME FOR INNOVATION: RISKS TO BUSINESS AND NATIONAL DEVELOPMENT 62 (2019), <https://link.springer.com/content/pdf/10.1007/978-3-030-10404-7.pdf>; Cheryl Xiaoning Long & Jun Wang, *China’s Patent Promotion Policies and Its Quality Implications*, 46 SCI. & PUB. POL’Y 91 (2019), https://economics.harvard.edu/files/economics/files/long-cheryl_quality_implications_of_patent_promotion_policies_in_china_ec2342_seminar_1-25-17.pdf.
 20. See U.S. PATENT & TRADEMARK OFFICE, *supra* note 19, at 7.
 21. See Lulu Yilun Chen, *China Claims More Patents than Any Country—Most Are Worthless*, BLOOMBERG (Sept. 26, 2018), <https://www.bloomberg.com/news/articles/2018-09-26/china-claims-more-patents-than-any-country-most-are-worthless>.
 22. See U.S. PATENT & TRADEMARK OFFICE, *supra* note 19, at 7; PRUD’HOMME & ZHANG, *supra* note 19, at 62–63 (“[O]verly simplistic patent targets set by the Chinese state since 2010 have incentivized recent patent filings without enough attention to their quality.”).
 23. See U.S. PATENT & TRADEMARK OFFICE, *supra* note 19, at 9.
 24. Cf. U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-16-479, PATENT OFFICE SHOULD STRENGTHEN SEARCH CAPABILITIES AND BETTER MONITOR EXAMINERS’ WORK 49–50 (June 2016) (finding potential need for increased time for patent examination).

entering a market often conducts a “freedom to operate” analysis, assessing what patents cover a certain technological area and what licenses the company needs to negotiate. In doing that analysis, the company must wade through all the patents in the relevant area, high-quality or not. A mass of patents from China could multiply this search and legal analysis cost many times over.²⁵ Indeed, these filings may render it more difficult for American firms to protect their own IP rights, as they constitute facially cognizable prior art that could potentially draw out the patent examination process.²⁶

Several pointers suggest how a glut of low-quality foreign patents could end up interfering with domestic innovation. In the analogous field of trademark law, scholars have already worried that high-volume applications for trademark registrations from China are crowding the market so much that the United States might be “running out of trademarks.”²⁷ And in the early 2000s, a glut of software patents of questionable validity enabled a variety of patent assertion business models to spring up and harass technology companies and Main Street businesses for decades.²⁸ History suggests that China’s strategy of inducing high-volume patent filings regardless of

25. See Christina Mulligan & Timothy B. Lee, *Scaling the Patent System*, 68 N.Y.U. ANN. SURV. AM. L. 289 (2012).

26. See Suchodolski, Harrison & Heiden, *supra* note 2, at 201–02. To be clear, the mere publication of prior art in a timely manner is not a bad act. But to the extent that a patent application is so low-quality that its text is non-enabling, that application is not actually prior art, but a later patent applicant would have to expend effort to prove this.

27. See Barton Beebe & Jeanne C. Fromer, *Are We Running out of Trademarks? An Empirical Study of Trademark Depletion and Congestion*, 131 HARV. L. REV. 945 (2018), <https://harvardlawreview.org/2018/02/are-we-running-out-of-trademarks/>.

28. Specifically, several judicial decisions around that time cut back on the patent eligibility doctrine that previously had limited the patentability of software. See *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1370 (Fed. Cir. 1998). The effect of that decision has been widely criticized. See Fabio E. Marino & Teri H. P. Nguyen, *From Alappat to Alice: The Evolution of Software Patents*, 9 HASTINGS SCI. & TECH. L.J. 1, 6 (2017); James Bessen, *A Generation of Software Patents*, 18 B.U. J. SCI. & TECH. L. 241, 243 (2012); Richard H. Stern, *Alice v CLS Bank: US Business Method and Software Patents Marching Towards Oblivion?*, 2014 EUR. INTEL. PROP. REV. 619, 620; Andrew Chin, *Ghost in the “New Machine”: How Alice Exposed Software Patenting’s Category Mistake*, 16 N.C. J.L. & TECH. 623, 625 (2015) (describing the law during that period as a “category mistake”). See generally Charles Duan, *Examining Patent Eligibility*, 96 ST. JOHN’S L. REV. (forthcoming 2023) (manuscript at 11–12).

quality may have substantial implications for the American economy.

B. Asserting Patents Against American Firms

Besides complicating American companies' freedom-to-operate determinations, Chinese-held U.S. patents could be directly asserted against American companies, tying them up in potentially years of costly litigation. The Chinese telecommunications giant Huawei, for example, is reportedly the fourth most prolific patenting company in the United States, receiving 2,836 U.S. patents in 2022 alone.²⁹ In 2020, Huawei sued Verizon for infringement of several telecommunications patents; that lawsuit followed a 2016 suit against T-Mobile US.³⁰

Huawei has close ties with the Chinese government,³¹ and the idea that a national government might sponsor or coordinate patent litigation against American firms is not farfetched. Countries including France, Japan, and South Korea have established "sovereign patent funds" intended to aggregate and often monetize a country's patents around the world.³² State-sponsored entities such as Australia's Commonwealth Scientific and Industrial Research Organisation have vigorously asserted patents against American companies.³³ And the U.S. Chamber of Commerce has warned

29. See John Koetsier, *Samsung Beats IBM, Apple, Intel, Google for 2022 Patent Crown; 56% of U.S. Patents Go to Foreign Firms*, FORBES (Jan. 14, 2023), <https://www.forbes.com/sites/johnkoetsier/2023/01/14/samsung-beats-ibm-apple-intel-google-for-2022-patent-crown-56-of-us-patents-go-to-foreign-firms/>.

30. See David Shepardson, *Huawei, Verizon Agree to Settle Patent Lawsuits*, REUTERS (July 12, 2021), <https://www.reuters.com/legal/transactional/huawei-verizon-agree-settle-patent-lawsuits-sources-2021-07-12/>; Lauren Goode, *Huawei Sues T-Mobile, Saying Carrier Violated Wireless Patents*, THE VERGE (July 8, 2016), <https://www.theverge.com/2016/7/8/12133164/huawei-sues-t-mobile-saying-carrier-violated-wireless-patents>; *Of Monopolies and Monocultures*, *supra* note 3, at 385–87.

31. See, e.g., MIKE ROGERS & C.A. DUTCH RUPPERSBERGER, PERMANENT SELECT COMM. ON INTELLIGENCE, U.S. HOUSE OF REPRESENTATIVES, INVESTIGATIVE REPORT ON THE U.S. NATIONAL SECURITY ISSUES POSED BY CHINESE TELECOMMUNICATIONS COMPANIES HUAWEI AND ZTE 13–16 (Oct. 8, 2012), <https://stacks.stanford.edu/file/druid:rm226yb7473/Huawei-ZTE%20Investigative%20Report%20%28FINAL%29.pdf>.

32. See Josh Landau, *IPR Successes: A Bridge to Sovereign Patent Funds*, PAT. PROGRESS (Oct. 9, 2017), <https://www.patentprogress.org/2017/10/ipr-successes-bridge-sovereign-patent-funds/>; Xuan-Thao Nguyen, *Sovereign Patent Funds*, 51 U.C. DAVIS L. REV. 1257 (2018).

33. See *Commonwealth Sci. & Indus. Research Org. v. Cisco Sys., Inc.*, 809 F.3d 1295 (Fed.

about the possibility that China could use a sovereign wealth fund to instigate a “suit against an American company in a sensitive industry such as military technology,” and thereby obtain “highly confidential documents containing proprietary information regarding sensitive technologies” through the ordinary and compulsory discovery processes of litigation.³⁴

To be clear, the holder of a valid U.S. patent has and ought to have a right to assert that patent against infringers in the United States, regardless of the patent holder’s nationality. The concern here is that state-sponsored entities could strategically take advantage of the costs and procedures of protracted litigation to the detriment of American firms, regardless of the merits of the underlying patents in suit.³⁵ Given the wave of low-quality patent applications already present as discussed above, that concern is especially potent.

C. *Racing to the Bottom on Standard-Essential Patents*

Information and communication technologies present another avenue for offensive patent use. Technologies such as Wi-Fi, 5G, video encoding, television broadcasting, and more depend on technical standards that provide a common framework for products from competing firms to connect and communicate with each other.³⁶ An Apple smartphone must be able to speak the same languages as Verizon and AT&T cell phone towers, Cisco routers, Dell computers, and Android devices in order for us to have the

Cir. 2015).

34. Brief for Amici Curiae Chamber of Commerce of the United States of America and Lawyers for Civil Justice at 15, *In re Nimitz Techs. LLC*, No. 2023-103 (Fed. Cir. Nov. 30, 2022) (per curiam) (quoting Maya Steinitz, *Whose Claim Is This Anyway? Third-Party Litigation Funding*, 95 MINN. L. REV. 1268, 1270 (2011), https://www.minnesotalawreview.org/wp-content/uploads/2012/03/Steinitz_PDF.pdf).
35. Cf. FED. TRADE COMM’N, PATENT ASSERTION ENTITY ACTIVITY: AN FTC STUDY 3–4 (Oct. 2016), https://www.ftc.gov/system/files/documents/reports/patent-assertion-entity-activity-ftc-study/p131203_patent_assertion_entity_activity_an_ftc_study_0.pdf (describing different business models of patent assertion entities, including “Litigation PAES” that bring lawsuits “consistent with nuisance litigation”).
36. See *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1208–09 (Fed. Cir. 2014); Charles Duan, *Internet of Infringing Things: The Effect of Computer Interface Copyrights on Technology Standards*, 45 RUTGERS COMPUTER & TECH. L.J. 1, 11–12 (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3391231.

efficient and connected technological environment we enjoy today.

Those common languages are technical standards, typically developed by groups of industry members and technical experts in national and international organizations.³⁷ Members of these organizations often hold patents covering critical parts of standardized technologies, and if those “standard-essential patents” could be asserted freely, any one patent could disrupt critical communications systems.³⁸ As a result, almost every standard-setting organization requires patent holders to commit to licensing their patents on fair, reasonable, and nondiscriminatory (“FRAND”) terms, ensuring that those patents do not restrain competition and block companies seeking to use critical technologies such as Wi-Fi and 5G.³⁹

China has been a dominant player in technical standards and patents. As of 2021, the USPTO identified about 106,000 patents declared relevant to 5G technology, with Huawei being the top firm in patent holdings; ZTE ranked among the top seven.⁴⁰ Consistent with overall Chinese patent filings, many have questioned whether Huawei’s 5G patents represent high-quality innovation.⁴¹ China apparently also has significant leadership control over key standard-setting organizations.⁴² As standardized technolo-

37. See generally NAT’L ACAD. OF SCIS., PATENT CHALLENGES FOR STANDARD-SETTING IN THE GLOBAL ECONOMY (Keith Maskus & Stephen A. Merrill eds., 2013), <https://www.nap.edu/catalog/18510/patent-challenges-for-standard-setting-in-the-global-economy-lessons>.

38. See *id.* at 52–60; Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007), <http://faculty.haas.berkeley.edu/shapiro/stacking.pdf>.

39. See NAT’L ACAD. OF SCIS., *supra* note 37, at 51 (“While the specific language may differ, most SSOs ask rights holders to consent to license their rights on terms that are fair, reasonable and nondiscriminatory (FRAND), with or without a royalty payment.”).

40. See U.S. PATENT & TRADEMARK OFFICE, PATENTING ACTIVITY BY COMPANIES DEVELOPING 5G 4–5 (Feb. 2022), <https://www.uspto.gov/sites/default/files/documents/USPTO-5G-PatentActivityReport-Feb2022.pdf>.

41. See ROBERT D. ATKINSON, INFO. TECH. & INNOVATION FOUND., HOW CHINA’S MERCANTILIST POLICIES HAVE UNDERMINED GLOBAL INNOVATION IN THE TELECOM EQUIPMENT INDUSTRY 17–18 (2020), <https://itif.org/publications/2020/06/22/how-chinas-mercantilist-policies-have-undermined-global-innovation-telecom/> (collecting studies).

42. See Lindsay Gorman, *The U.S. Needs to Get in the Standards Game—with like-Minded Democracies*, LAWFARE (Apr. 2, 2020), <https://www.lawfareblog.com/us-needs-to-get-standards-game%E2%80%94minded-democracies>; MELANIE HART & JORDAN LINK, CTR. FOR AM. PROGRESS, THERE IS A SOLUTION TO THE HUAWEI CHALLENGE

gies such as 5G become increasingly essential to American infrastructure and national security, China’s IP-backed influence over technical standards demands scrutiny.

China also uses patents in an offensive role through litigation over these standard-essential patents. Since most standardized technologies are used worldwide, a holder of standard-essential patents in multiple countries can freely choose, among those countries, where to bring suit.⁴³ This lucrative litigation has created a “race to the bottom,” well-documented by Professor Jorge Contreras among others, in which national courts compete to attract patent cases through legal enticements such as automatic preliminary injunctions, expedited proceedings, favorable legal methodologies, and worldwide damages awards that ignore the extraterritoriality principles of patents.⁴⁴

Chinese courts have taken a leading position in this race. Recently, Chinese courts have taken a page out of the playbook of U.S. courts, issuing “anti-suit injunctions” prohibiting litigants from pursuing their infringement cases over standard-essential patents in courts outside of China.⁴⁵ As Professors Peter Yu, Contreras, and Yu Yang explain, China’s use of anti-suit injunctions has the “objective of making Chinese courts the ‘preferred place’ for international intellectual property dispute settlement” and is coterminous with the Chinese government’s efforts to promote indige-

(2020), <https://www.americanprogress.org/wp-content/uploads/2020/10/Solution-to-Huawei-Challenge-NEW.pdf>.

43. See, e.g., Erik R. Puknys & Michelle (Yongyuan) Rice, *Where Will Be the Most Favorable FRAND Forum?* (Mar. 2021), <https://www.finnegan.com/en/insights/articles/CDMR-where-will-be-the-most-favorable-frand-forum.html>; Eli Greenbaum, *No Forum to Rule Them All: Comity and Conflict in Transnational FRAND Disputes*, 94 WASH. L. REV. 1085, 1087 (2019), <https://digitalcommons.law.uw.edu/cgi/viewcontent.cgi?article> (“FRAND disputes can spawn litigation in each country in which standard-compliant products and services are made available.”).

44. See Jorge L. Contreras, *The New Extraterritoriality: FRAND Royalties, Anti-Suit Injunctions and the Global Race to the Bottom in Disputes over Standards-Essential Patents*, 25 B.U. J. SCI. & TECH. L. 251 (2019), <https://www.bu.edu/jostl/files/2019/10/1.-Contreras.pdf>; Stefan Bechtold, Jens Frankenreiter & Daniel M. Klerman, *Forum Selling Abroad*, 92 S. CAL. L. REV. 487 (2019).

45. See, e.g., Ken Korea, *Anti-Suit Injunctions—a New Global Trade War with China?*, MANAGING IP (Aug. 3, 2022), <https://www.managingip.com/article/2afz8grsj5i3uyxp19ji8/anti-suit-injunctions-a-new-global-trade-war-with-china>.

nous innovation by bulking up its patent system.⁴⁶

By no means is a renewed focus on strengthening IP protections in China a bad thing.⁴⁷ But rejiggering litigation procedures in ways that tilt the playing field as part of a global race to the bottom over standard-essential patent litigation—the harms of that fall not just upon U.S. innovators but upon American national interests as a whole.

*D. Using a Federal Agency, Designed to Protect
American Innovators, Instead to Target Them*

Maybe it is not such a surprise that Chinese patent holders can assert U.S. patents against U.S. companies. What is perhaps more surprising, though, is that one of the venues where Chinese patent holders do this is a federal agency established to protect U.S. companies from unfair foreign competition.

The U.S. International Trade Commission (“ITC”) is an independent administrative agency that adjudicates unfair acts of importation into the United States.⁴⁸ Under section 337 of the Tariff Act of 1930, the ITC investigates patent and other IP infringement as a species of those unfair acts, and has powers to exclude infringing articles from importation.⁴⁹ Because the importer of infringing articles is sometimes outside the jurisdiction of federal courts, the agency serves an important purpose of policing and enforcing IP rights at the border, making the ITC investigation an important

46. E.g., Peter K. Yu, Jorge L. Contreras & Yu Yang, *Transplanting Anti-Suit Injunctions*, 71 AM. U. L. REV. 1537, 1604, 1610 (2021–2022); see also Mark Cohen, *China’s Practice of Anti-Suit Injunctions in SEP Litigation: Transplant or False Friend?*, in SEAN M. O’CONNOR, 5G AND BEYOND: INTELLECTUAL PROPERTY AND COMPETITION POLICY IN THE INTERNET OF THINGS (Jonathan M. Barnett ed., 2023).

47. See OFFICE OF THE U.S. TRADE REPRESENTATIVE, SPECIAL 301 REPORT 50 (2022), <https://ustr.gov/sites/default/files/IssueAreas/IP/2022%20Special%20301%20Report.pdf> (noting that “[r]ight holders welcomed amendments to the Patent Law” in China); Yukon Huang & Jeremy Smith, *China’s Record on Intellectual Property Rights Is Getting Better and Better*, FOREIGN POL’Y (Oct. 16, 2019), <https://foreignpolicy.com/2019/10/16/china-intellectual-property-theft-progress/>.

48. See generally SHAYERAH ILIAS, REPORT NO. RS22880, INTELLECTUAL PROPERTY RIGHTS PROTECTION AND ENFORCEMENT: SECTION 337 OF THE TARIFF ACT OF 1930 (Cong. Research Serv. Oct. 26, 2009), https://www.everycrsreport.com/files/20091026_RS22880_d48541cc65507232fb40666ea4d32e56fa3461d5.pdf.

49. See Tariff Act of 1930 § 337(d)(1), 19 U.S.C. § 1337 (as amended).

tool for mitigating IP theft by foreign nations such as China.⁵⁰

Statutes make clear that the ITC is intended to support *American* inventors against foreign infringers. To qualify for an investigation to be brought, a complainant before the ITC must prove a “domestic industry,” showing that it engages in productive activities under the relevant patent within the United States.⁵¹ One cannot ask the ITC to block the importation of infringing computer chips, for example, without making the patented chips in the United States. The agency also must consider a list of U.S.-centric public interest factors before ordering any exclusion of imported articles.⁵² Those public interest factors would seem an ideal way for the ITC to incorporate national security concerns into its decisionmaking.⁵³ Finally, since the agency’s authority is limited to border control, American companies operating purely domestic businesses ought to be immune to the agency’s jurisdiction.⁵⁴

In recent years, though, every one of these protections has been undermined, in large part due to the ITC’s efforts toward expansion of authority.⁵⁵ The agency (with support of statutory amendments) has interpreted

50. See, e.g., Jonathan R.K. Stroud, *The China Syndrome: The International Trade Commission’s Rising Importance For Enforcing International Trade Secret Violations*, UPDATE, May–June 2013, at 10, <https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article>.

51. See Tariff Act § 337(a)(2) (providing for a remedy for patent infringement “only if an industry in the United States, relating to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established”); Colleen V. Chien, *Protecting Domestic Industries at the ITC*, 28 SANTA CLARA HIGH TECH. L.J. 169, 177–78 (2011).

52. See Tariff Act § 337(d)(1) (providing for orders excluding articles from importation “after considering the effect of such exclusion upon the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers”).

53. See Kenny Mok, *In Defense of 5G: National Security and Patent Rights Under the Public Interest Factors*, 88 U. CHI. L. REV. 1971, 1997–2010 (2021), <https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=6274&context=uclrev>.

54. See, e.g., *ClearCorrect Operating v. Int’l Trade Comm’n*, 810 F.3d 1283, 1290 (Fed. Cir. 2015) (“Thus, when there is no importation of ‘articles’ there can be no unfair act, and there is nothing for the Commission to remedy.”).

55. See generally CHARLES DUAN & BILL WATSON, POLICY STUDY NO. 147, THE INTERNATIONAL TRADE COMMISSION’S AUTHORITY IN DOMESTIC PATENT DISPUTES (R St. Inst. June 2018), <https://www.rstreet.org/wp-content/uploads/2018/06/Corrected->

“domestic industry” broadly, such that a foreign patent holder can minimally satisfy the requirement by licensing a patent to just one U.S. company, even one unwilling to participate in the investigation.⁵⁶ The public interest factors have received virtually no attention in ITC final determinations for decades.⁵⁷ And the agency has manufactured several ways to use purely domestic activity to support infringement findings, applying its exclusionary powers to block importation of staple articles that themselves infringe no asserted patents.⁵⁸

The unsurprising result has been an influx of ITC investigations in which *foreign* patent holders target American firms. In a study of recent investigations, I found that there were over four times as many foreign-against-domestic ITC investigations as there were of the expected domestic-against-foreign type.⁵⁹ Excluding investigations involving American companies against each other or involving only foreign ones (both of which are odd for other reasons), the ITC appears to be more often used against American innovators than in support of them. And this does not count patent assertion entities for which the full chain of ownership is un-

147-for-post.pdf.

56. See Tariff Act § 337(a)(3)(C); Stephen E. Kabakoff & Andrew G. Strickland, *Leveraging Standing and Domestic Industry Activities of Third Parties in Patent-Based ITC Investigations*, INTELL. PROP. & TECH. L.J. (June 2014), <https://www.finnegan.com/en/insights/articles/leveraging-standing-and-domestic-industry-activities-of-third.html>.
57. See Veronica Ascarrunz et al., *Public Interest at the ITC*, JD SUPRA (Mar. 15, 2022), <https://www.jdsupra.com/legalnews/public-interest-at-the-itc-3044140/> (“The Commission, however, rarely denies remedies based on the public interest factors, and has only done so on three occasions, and not since 1984.”).
58. See *Comcast Corp. v. Int’l Trade Comm’n*, 951 F.3d 1301, 1307–10 (Fed. Cir. 2020); Joe Mullin, *The International Trade Commission Is Opening the Door to Abusive Patent Owners and Endangering U.S. Businesses*, ELECTRONIC FRONTIER FOUND. (July 15, 2020), <https://www.eff.org/deeplinks/2020/07/international-trade-commission-opening-door-abusive-patent-owners-and-endangering>.
59. See CHARLES DUAN, POLICY STUDY NO. 246, THE U.S. INTERNATIONAL TRADE COMMISSION: AN EMPIRICAL STUDY OF SECTION 337 INVESTIGATIONS (R St. Inst. Nov. 2021), https://www.rstreet.org/wp-content/uploads/2021/11/REALFINAL_22Nov21_RSTREET246-1.pdf.

known.⁶⁰

The ITC is often considered a favored forum for patent assertion because of its powerful remedies and expedited timelines.⁶¹ As a protection for U.S. intellectual property against foreign misappropriation, this makes a great deal of sense. But the fact that the ITC has been turned on its head reflects not just a need for reform of the agency⁶² but a more general lack of attention to the offensive exploitation of patents.

III. A RESILIENT U.S. PATENT SYSTEM

To protect the United States from foreign abuses of its own patent system, more than simplistic measures are required. Simple attempts like blocking China from using U.S. patents would be no more effective than trying to block cyberattacks based on Internet addresses.⁶³ Resilient IP laws require layers of trust and security to ensure that granted patents and other rights represent valuable innovation, not tools of exploitation. The following proposals work toward such a resilient IP system and merit the Subcommittee's attention.

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60. See RPX Corp., *Bell Semic Unloads Against Multiple Targets with Just One Among Thousands of Patents*, RPX CORP. (May 19, 2022), <https://www.mondaq.com/unitedstates/patent/1194520/bell-semic-unloads-against-multiple-targets-with-just-one-among-thousands-of-patents> (noting complex and incomplete ownership information for one ITC complainant in the semiconductor industry).
 61. See William P. Atkins & Justin A. Pan, *An Updated Primer on Procedures and Rules in 337 Investigations at the U.S. International Trade Commission*, 18 U. BALT. INTELL. PROP. L.J. 105, 110–11 (2010).
 62. See Press Release, *Schweikert, Delbene Introduce Legislation to Protect American Industry, Workers, and Consumers from Patent Trolls* (Sept. 7, 2021), <https://schweikert.house.gov/2021/09/07/schweikert-delbene-introduce-legislation-protect-american-industry/>; Wayne Brough, *The Competition Issue Congress Isn't Talking About: Patent Abuse and ITC Reform*, THE HILL (Sept. 22, 2022), <https://thehill.com/opinion/international/3654836-the-competition-issue-congress-isnt-talking-about-patent-abuse-and-itc-reform/>.
 63. See also Jacob Schindler, *Rubio's Huawei Proposal Should Worry US Tech, Pharma Companies*, IAM MAG. (June 23, 2019), <https://www.iam-media.com/law-policy/rubios-huawei-proposal-should-worry-us-tech-pharma-companies> (identifying concerns with bill proposing to limit Huawei from enforcing U.S. patents); Kieren McCarthy, *You're Huawei Off Base on This, Rubio: Lawyers Slam US Senator's Bid to Ban Chinese Giant from Filing Patent Lawsuits*, THE REGISTER (June 21, 2019), https://www.theregister.co.uk/2019/06/21/huawei_patents_rubio/ (same).

A. Ensuring Trustworthiness in Patents

To defend against foreign abuses among other things, the patent system must be a trusted system, and the patents that it outputs must be trustworthy. Flooding the United States with low-quality, questionable patents exploits gaps in this trust, as does turning litigation systems against ourselves. These gaps must be identified and ultimately closed.

Correctness in patent grants is the cornerstone of this trustworthiness. The patent laws limit patents to novel,⁶⁴ nonobvious,⁶⁵ and sufficiently described⁶⁶ inventions within the range of allowable subject matter.⁶⁷ These statutory and constitutional⁶⁸ requirements work interconnectedly to ensure that patent rights inure to technologies of value to the public. But it is widely known, from government studies and outside commentary, that patent examiners have limited time and resources to give applications a full vetting.⁶⁹

Dedicating greater resources to the USPTO for patent examination would be an important step in this respect. That is not to say that the agency should act unequally between foreign and domestic applications; again, discrimination by applicant nationality would be bad policy and have troubling repercussions. Instead, increasing the quality of patent grants across the board would discourage high-volume, low-quality patent filings from China and elsewhere, protecting American innovators from the costs of an unnecessarily crowded patent space.

Back-end procedures for validating the correctness of already granted patents are equally important for patent trustworthiness. The USPTO oper-

64. See 35 U.S.C. § 102.

65. See § 103.

66. See § 112(a)–(b).

67. See § 101.

68. See, e.g., *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 6 (1966).

69. See, e.g., U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 24; Michael D. Frakes & Melissa F. Wasserman, *Is the Time Allocated to Review Patent Applications Inducing Examiners to Grant Invalid Patents? Evidence from Microlevel Application Data*, 99 REV. ECON. & STAT. 550 (2017), <https://direct.mit.edu/rest/article-abstract/99/3/550/58437/Is-the-Time-Allocated-to-Review-Patent>; Brian Fung, *Inside the Stressed-out, Time-Crunched Patent Examiner Workforce*, WASH. POST (Aug. 1, 2014), <https://www.washingtonpost.com/news/the-switch/wp/2014/07/31/inside-the-stressed-out-time-crunched-patent-examiner-workforce/>.

ates several procedures, including *ex parte* reexamination⁷⁰ and *inter partes* review,⁷¹ that give the agency the opportunity to take a second look and make corrections to past actions.⁷² These proceedings have proven their accuracy, with the Federal Circuit fully or partially affirming *inter partes* review decisions over 80% of the time.⁷³ These proceedings verify the patent system, and without verification there can be no trust.

The USPTO's ongoing focus on "robust and reliable patents" is very much consistent with patent trustworthiness.⁷⁴ A patent that is fully vetted by examination and verifiable after the fact is one that represents value, that can attract investment, that does not present potential for abuse, and that ultimately is robust and reliable.⁷⁵ Some have used the phrase "robust and reliable," however, to suggest that patents should effectively be incontestable by making those verification procedures less available and harder to use. To do this, though, could very well invite foreign adversaries to exploit a patent system with fewer validation measures, the harms from which would likely outweigh any benefit.

Transparency in patent ownership and assertion should be another area of focus. Patents and patent litigation can be veiled in layers of corporate shells and contracts in the same way that cyberattackers veil themselves with intermediary proxies. The USPTO previously initiated an effort to identify the real parties in interest owning patents,⁷⁶ Senator Leahy re-

70. See 35 U.S.C. § 302.

71. See § 311.

72. See generally Megan M. La Belle, *Patent Law as Public Law*, 20 GEO. MASON L. REV. 41, 50–55 (2012) (describing public importance of challenges to patent validity).

73. See Daniel F. Klodowski et al., *IPR, CBM, and PGR Statistics for Final Written Decisions Issued in October Through December 2022*, AT PTAB BLOG (Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Jan. 31, 2023), <https://www.finnegan.com/en/insights/blogs/at-the-ptab-blog/ipr-cbm-and-pgr-statistics-for-final-written-decisions-issued-in-october-through-december-2022.html>.

74. See Request for Comments on USPTO Initiatives to Ensure the Robustness and Reliability of Patent Rights, 87 Fed. Reg. 60130 (Patent & Trademark Office Oct. 4, 2022).

75. See *id.* at 60130 (defining "robustness and reliability of patents" as "ensur[ing] that the patent rights granted by the USPTO fulfill their intended purpose of furthering the common good, incentivizing innovation, and promoting economic prosperity").

76. See Changes to Require Identification of Attributable Owner, 79 Fed. Reg. 4105 (Patent & Trademark Office Jan. 24, 2014).

cently introduced a bill on the subject,⁷⁷ and a recent dispute in the U.S. District Court for the District of Delaware highlighted difficulties with transparency in patent litigation funding and control.⁷⁸ Knowing the avenues by which countries like China are using to take advantage of patents is essential to identifying systemic vulnerabilities.

B. *Championing Forum Fairness, Not Forum Selling*

Anti-suit injunctions and worldwide FRAND patent judgments are symptoms of a larger, global race to the bottom among courts to attract lucrative standard-essential patent lawsuits. Called “forum selling,” an extensive scholarly literature has considered the perverse incentives and outcomes that result from courts jockeying to attract patent cases.⁷⁹

The United States should position itself as a global leader for fairness across forums for patent litigation. Ending the race to the bottom likely requires coordination across major court systems either to return to national patents’ traditional territorial limits,⁸⁰ or to establish a decisive worldwide procedure for standard-essential patent litigation.⁸¹ A coordinated approach is superior to the alternative of participating in the race, by trying to make American courts more attractive to litigants or exacting penalties for outside FRAND litigation. Any such approaches must contend with the historically supported likelihood that other nations like China will trans-

77. See *Pride in Patent Ownership Act*, S. 2774, 117th Cong. (Sept. 21, 2021), <https://www.congress.gov/bill/117th-congress/senate-bill/2774>.

78. See *In re Nimitz Techs. LLC*, No. 2023-103 (Fed. Cir. Dec. 8, 2022) (per curiam); Christopher Yasiejko, *Judge Behind Litigation-Funding Probe Unloads After Forced Pause*, (Dec. 2, 2022), <https://news.bloomberglaw.com/ip-law/judge-behind-litigation-funding-probe-unloads-after-forced-pause>.

79. Daniel Klerman & Greg Reilly, *Forum Selling*, 89 S. CAL. L. REV. 241 (2016) (noting procedural techniques by which the Eastern District of Texas preferentially treated patent cases); see also J. Jonas Anderson, *Court Competition for Patent Cases*, 163 U. PA. L. REV. 631 (2015); Bechtold, Frankenreiter & Klerman, *supra* note 44 (describing competition for patent cases across foreign jurisdictions); J. Jonas Anderson & Paul R. Gugliuzza, *Federal Judge Seeks Patent Cases*, 71 DUKE L.J. 419 (2021), <https://scholarship.law.duke.edu/dlj/vol71/iss2/3> (identifying procedural issues in the Western District of Texas).

80. See Greenbaum, *supra* note 43, at 1117–19.

81. See Contreras, *supra* note 44.

plant those U.S. approaches and probably exaggerate them,⁸² ultimately to the detriment of American innovators and the worldwide patent system overall.

At the same time, policymakers need to consider the ongoing problem of forum selling domestically.⁸³ Ongoing questions about patent litigation in the federal courts of the Eastern and Western Districts of Texas show that the forum selling problem is recurrent and problematic within the United States and not just across nations.⁸⁴ If the United States is to be a global leader in opposing unfair judicial competition, it must demonstrate to the world that its own court system can lead in fairness as well.

C. *Promoting Competition as a National Security Defense*

Competition is the foundation of a robust American economy. It delivers high quality goods at the best prices to consumers, it avoids the stagnation of monopoly, and it encourages firms to out-innovate each other in order to out-compete each other. Competition is also critical to national security, because it forces companies in sensitive industries to compete on product cybersecurity and mitigates the potential formation of technological “monocultures” that are especially vulnerable to cyberattacks.⁸⁵

Ideally, patents and competition work in tandem. Patents grant temporary protection from immediate copying of a firm’s innovations, while also encouraging competitors to develop alternative technologies that design around those patents.⁸⁶ In practice, though, gaps in the laws occasionally

82. See Yu, Contreras & Yang, *supra* note 46; Cohen, *supra* note 46.

83. See Klerman & Reilly, *supra* note 79.

84. See Anderson & Gugliuzza, *supra* note 79; Susan Decker, *Chief Justice Backs Plan to Review Patent Trial Forum-Shopping*, BLOOMBERG L. (Jan. 1, 2022), <https://news.bloomberglaw.com/ip-law/chief-justice-backs-plan-to-review-patent-trial-forum-shopping>; Brian J. Love & James Yoon, *Predictably Expensive: A Critical Look at Patent Litigation in the Eastern District of Texas*, 20 STAN. TECH. L. REV. 1 (2017); Yan Leychkis, *Of Fire Ants and Claim Construction: An Empirical Study of the Meteoric Rise of the Eastern District of Texas as a Preeminent Forum for Patent Litigation*, 9 YALE J.L. & TECH. 193 (2007); Joe Mullin, *EFF Asks Appeals Court to “Shut Down the Eastern District of Texas”*, ARS TECHNICA (Oct. 30, 2015), <http://arstechnica.com/tech-policy/2015/10/eff-asks-appeals-court-to-shut-down-the-eastern-district-of-texas/>.

85. See *Of Monopolies and Monocultures*, *supra* note 3.

86. See, e.g., *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 43 n.4 (2006) (citing sources).

enable patenting of technologies that cannot be worked around competitively, without justifiable reasons.

In the context of technical standards, for example, a company cannot avoid a standard-essential patent without foregoing the entire market of standard-compatible products; one cannot feasibly sell laptops with alternative, incompatible Wi-Fi for example.⁸⁷ The FRAND obligation, requiring reasonable and nondiscriminatory licensing of standard-essential patents, exists precisely to mitigate the potential competition harm resulting from these patents.⁸⁸

And in some cases, patents are cleverly written to cover regulatory schemes, such that to comply with the law, one must infringe those patents.⁸⁹ In one recent case, for example, the manufacturer of a half-century-old drug obtained a patent not on the drug or its formulation, but the regulatory safety procedure for distributing the drug, thereby precluding generics and even improved drugs from entering the market on the off-patent drug.⁹⁰ These “mandatory infringement” patents present major anticompetitiveness problems, but they are unsurprisingly highly attractive to those looking to exploit IP rights to the greatest extent.⁹¹

Minimizing anticompetitive uses of these kinds of marginal patents will enhance the resilience of the U.S. patent system against foreign adversaries hoping to offensively exploit it. Unfortunately, though, the focus on competition has occasionally been forgotten in the context of patents. Conversations about standard-essential patents sometimes treat the FRAND commitment as a mere private contract, despite the commitment’s fundamen-

87. See, e.g., FED. TRADE COMM’N, *THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* 191 (2011), <http://www.ftc.gov/os/2011/03/110307patentreport.pdf> (“While firms may not formally commit to using a standard in producing their products, as a practical matter they will generally find it necessary to use standardized technology if it becomes successful in the marketplace.”); Lemley & Shapiro, *supra* note 38.

88. See, e.g., FED. TRADE COMM’N, *supra* note 87, at 191–94.

89. See Charles Duan, *Mandatory Infringement*, 75 FLA. L. REV. (forthcoming 2023) [hereinafter *Mandatory Infringement*] (manuscript at 7–27), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4193947.

90. See Rebecca Robbins, *A Drug Company Exploited a Safety Requirement to Make Money*, N.Y. TIMES (Feb. 28, 2023), <https://www.nytimes.com/2023/02/28/business/jazz-narcolepsy-avadel-patents.html>.

91. See *Mandatory Infringement*, *supra* note 89, at 27–29, 30–35.

tal public role in protecting technological and market competition.⁹² As the United States engages with the world as a leader on standard-essential patent litigation issues, as I recommend above, it should make competition the centerpiece of that engagement.

D. Engaging the Whole of Government on Innovation Policy

The policy goal is to maintain the United States' leadership in technology, not in patent counts. China itself, with its failed attempts to “innovate” by subsidizing patent filings, is a cautionary warning against equating patents with innovation: It is easy to boost quantities of patents at the expense of quality and actual technological growth.

Instead, the United States government must take a whole-of-government approach to technology. The patent system is an important part of that approach. But so are resources for STEM education that build the next generation of innovators. So are high-skilled immigration policies that brings in the best talent from abroad.⁹³ So are research grant and innovation prize programs that can provide different and additional incentives.⁹⁴ So are diversity initiatives that ensure that the next great scientist or inventor is not lost.

Artificial intelligence exemplifies the importance of accounting for the whole of government in innovation policy. There is little doubt that AI technology is a strategic asset of importance both to national security and national competitiveness.⁹⁵ The United States has made tremendous investments in AI and has looked to numerous arms of policy to implement the objective of being the forerunner in AI technology. IP law circles, though, have largely focused on a narrow equation that more patents mean more AI, so limitations on the granting of patents in the field are tantamount to impediments to American AI leadership.

The reality is not so simple. AI development in the United States often progresses as an especially high-value form of “user innovation,” in which

92. See *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024, 1052 & n.22 (9th Cir. 2015).

93. See Caleb Watney, *The Egghead Gap*, 63 NEW ATLANTIS 95, 90–91 (2021).

94. See Suchodolski, Harrison & Heiden, *supra* note 2, at 227–35 (describing role of federal research and development spending).

95. See, e.g., NAT'L SEC. COMM'N ON ARTIFICIAL INTELLIGENCE, FINAL REPORT (2021), <https://www.nscai.gov/wp-content/uploads/2021/03/Full-Report-Digital-1.pdf>.

technologists advance the state of the art not just to sell products but to use the improvements in their own larger businesses.⁹⁶ A medical technology company might build a new natural-language data model for physician terminology, not because the company’s clients want to buy the model, but to incorporate the model into online services that it provides—the company creates AI to use rather than to sell. In a wide variety of industries characterized by user innovation, research finds that widespread patenting can have unexpected and counterintuitive effects, since user-innovators often rely on different IP strategies and can find their efforts stymied by broad-scoped patents.⁹⁷

Furthermore, not all AI patents are alike. As Professor Nikola Datzov explains in a forthcoming paper, a specific patent applying a trained AI model to a useful product domain is likely eligible for patenting, and such a patent is very much unlike a broadly stated patent on AI-based data processing that could span whole swaths of products.⁹⁸ These special characteristics of the AI technology environment help to explain Professor Datzov’s findings of tremendous levels of AI investment and innovation in the United States in the years after the Supreme Court sharply demarcated patent eligibility law in 2014:⁹⁹

AI private investment in the U.S. has been substantially stronger than any other country in the world, rising from approximately \$5 billion in 2014 to more than \$52.8 billion in 2021. By comparison, China—which was the next closest—totaled \$17.21 billion in private investment in 2021. In total private investment in AI from 2013 to 2021, the U.S. once again dominated with \$149.0 billion compared to China’s \$61.9 billion [S]ubstantial existing research demonstrates the ability of AI startups, generally, to be competitive and successful in the absence of extensive patent protection.¹⁰⁰

96. See, e.g., ERIC VON HIPPEL, *DEMOCRATIZING INNOVATION* (2005).

97. See *id.* at 112–17.

98. See Nikola Datzov, *The Role of Patent (In)Eligibility in Promoting Artificial Intelligence Innovation*, 92 U. MO. KAN. CITY L. REV. (forthcoming 2023) (manuscript at sec. IV.B), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4380405.

99. See *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014).

100. Datzov, *supra* note 98, sec. V.C.3.

Based on this unintuitive relationship between patents and AI investment, Professor Datzov recommends a cautious approach to altering the law of patent eligibility, with a greater emphasis on policy for data resources that serves as a foundation for new AI development.¹⁰¹ That approach exemplifies how, in an especially significant technological area, the focus for national competitiveness needs to be not narrowly on IP protection, but on the full range of policy tools available in the United States.

CONCLUSION

Maintaining American leadership over national competitors demands a multifaceted, nuanced approach across a wide range of domestic and international policies. With respect to intellectual property, the patent and other IP laws must offer both a defensive strategy to protect American innovators from misappropriation, and protection from offensive exploitation of U.S. patents and patent laws by China and others. To mitigate these offensive uses, we must treat the patent laws as infrastructure for innovation, securing it against abuse and misuse as we would secure any other national strategic asset.

I thank the Subcommittee for holding this hearing on this important topic, and am delighted to answer any questions you may have.

101. *See id.* sec. VI.