

National Institute of Standards and Technology (NIST)  
U.S. Department of Commerce  
100 Bureau Drive  
Gaithersburg, MD 20899 301-975-2000

**Re: Response to the FR Doc. 2021-24090 (Docket Number 211026-0219), Request for Information on the Study on People's Republic of China (PRC) Policies and Influence in the Development of International Standards for Emerging Technologies**

As scholars and economists who are experts on technological innovation and the standard development process, we are submitting this comment in response to the National Institute of Standards and Technology's (NIST) request for information for its study of how the People's Republic of China participates in standard development organizations (SDOs). We identify several policy and legal issues that NIST should address as it studies how to ensure the continuing integrity of the SDO process, including, among others, whether the narrative that China is the leader in next-generation technologies is correct, the necessity of reliable and effective U.S. patent rights as a foundation for continued technological leadership by the U.S., and the importance of rule-based governance of SDOs to ensure transparency, fairness, and balanced policies. NIST should engage in data-driven policy-making to ensure continued U.S. leadership in next-generation technologies that both grow the U.S. innovation economy and secure U.S. national security interests relative to economic and strategic competitors like China. The signatories are listed at the end.

**I. China's Leadership Position in Standardized Technologies**

China has significantly improved its position as a global contender for technological leadership in key emerging technologies.<sup>1</sup> In the last two decades, China has increased its presence in SDOs and has become an important player in setting global standards in key technological areas,

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<sup>1</sup> See, e.g., Danny Russel & Blake Berger, *Is China Stacking the Technology Deck by Setting International Standards?*, THE DIPLOMAT (Dec. 2, 2021), <https://thediplomat.com/2021/12/is-china-stacking-the-technology-deck-by-setting-international-standards/>.

such as in wireless technologies. A recent study found that China has significantly increased the number of its attendees in several SDOs, such as the 3rd Generation Partnership Project (3GPP) and the Institute of Electrical and Electronics Engineers (IEEE), which create the standards for smartphone transmission technologies like 5G and for WiFi, respectively.<sup>2</sup> China's increased participation has been largely driven by a single company—Huawei. The same study found that through intensive SDO participation and targeted recruitments of SDO veterans, Huawei has also become a significant competitor for leadership positions in SDOs.<sup>3</sup>

Although China has clearly strengthened its role in the global standardization ecosystem, it is not the technological leader, despite claims to the contrary. This is best illustrated with 5G, where Huawei is often proclaimed to be the global winner of the 5G race.<sup>4</sup> It is undeniable that Huawei is one of the leading contributors to 5G technological innovation. But the “world leader” status bestowed on it is a byproduct of an overly simplistic and unreliable methodology.

Commentators have been making a profound error when identifying Huawei as the winner of the 5G race: they are relying on simple counts of the total number of patents for measuring 5G leadership.<sup>5</sup> But there are important limitations in using patent counting as a measure of innovative output, as economists and statisticians have long recognized.<sup>6</sup> The fundamental flaw in this method

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<sup>2</sup> See, e.g., Justus Baron & Olia Whitaker Kanevskaia, *Global Competition for Leadership Positions in Standards Development Organizations* (March 2021), <https://ssrn.com/abstract=3818143>.

<sup>3</sup> *Id.*

<sup>4</sup> See, e.g., Dan Strumpf, *Where China Dominates in 5G Technology*, WALL STREET J. (Feb. 26, 2020), <https://www.wsj.com/articles/where-china-dominates-in-5g-technology-11551236701>.

<sup>5</sup> *Id.* (citing the number of patents as reported by the data-analytics firm IPLYtics); see also WHO IS LEADING THE 5G PATENT RACE? A PATENT LANDSCAPE ANALYSIS ON DECLARED 5G PATENTS AND 5G STANDARDS CONTRIBUTIONS, IPLYTICS (Nov. 2019), <https://www.iplytics.com/wp-content/uploads/2019/01/Who-Leads-the-5G-Patent-Race2019.pdf>; *Who is Leading the 5G Patent Race?* IAM (July 2019), <https://www.iam-media.com/who-leading-5g-patent-race-july-2019-update-part-two>.

<sup>6</sup> See *5G Technological Leadership*, HUDSON INSTITUTE (2020), <https://www.hudson.org/research/16547-5g-technological-leadership>; see also Jean Lanjouw, Ariel Pakes & Jonathan Putnam, *How to Count Patents and Value Intellectual Property: The Uses of Patent Renewal and Application Data*, 46 J. INDUS. ECON. 405, 413 (1998)

is that it assumes that all patents have equal value. However, numerous empirical studies have shown that the value of patents varies enormously,<sup>7</sup> and simply counting the number of patents fails to account for this heterogeneity.

Several recent studies have confirmed that despite China's progress, Western countries maintain their technological leadership in standardized technologies.<sup>8</sup> Yet, it is clear that China is closing the gap and it is a serious contender in key technological areas. That is why the U.S. must take the necessary steps to ensure that U.S. companies continue to be world leaders in the creation of next-generation technologies and can participate in fair and open standardization processes in SDOs that do not benefit any specific country's industrial policies or specific company's commercial interests.

## **II. Promote Technological Development by Restoring the Gold Standard Patent System**

To promote both U.S. leadership in the development of next-generation technologies and continued participation by U.S. companies in SDOs in the efficient commercial deployment of these technologies, it is imperative that the U.S. secure reliable and effective patent protections for technological innovations. Until recently, the U.S. was recognized globally as having the “gold

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(“[T]here is little doubt that the variability in patent value significantly reduces the efficacy of patent counts as a measure of invention.”).

<sup>7</sup> See Bronwyn H. Hall, Adam B. Jaffe & Manuel Trajtenberg, *The NBER Patent Citations Data File: Lessons, Insights and Methodological Tools* 6 (National Bureau of Economic Research, Working Paper No. 8498, 2001) (“[I]t has long been known that innovations vary enormously in their technological and economic ‘importance’, ‘significance’ or ‘value’, and moreover, that the distribution of such ‘values’ is extremely skewed.”); see also Bronwyn H. Hall, Adam Jaffe & Manuel Trajtenberg, *Market Value and Patent Citations*, 36 RAND J. ECON. 16 (2005); Mark Schankerman & Ariel Pakes, *Estimates of the Value of Patent Rights in European Countries During the Post-1950 Period*, 96 ECON. J. 1052 (1986).

<sup>8</sup> See Baron & Kanevskaia, *supra* note 2; see also ALEXANDRA BRUER & DOUG BRAKE, MAPPING THE INTERNATIONAL 5G STANDARDS LANDSCAPE AND HOW IT IMPACTS U.S. STRATEGY AND POLICY (Nov. 2021), <https://itif.org/publications/2021/11/08/mapping-international-5g-standards-landscape-and-how-it-impacts-us-strategy>.

standard” patent system.<sup>9</sup> David Kappos, former Director of the U.S. Patent & Trademark Office, once observed that the U.S. patent system was “the greatest innovation engine the world has ever known.”<sup>10</sup> The U.S. patent system spurred the innovations that produced the Industrial Revolution in the nineteenth century, the computer and biotech revolutions of the twentieth century, and the mobile revolution of the early twenty-first century.<sup>11</sup> Unfortunately, it is in doubt that the U.S. patent system can properly foster next-generation inventions in artificial intelligence (AI), the Internet of Things, 5G, and other innovations that will be the subject of technological standards set by SDOs.

The U.S. patent system has been placed under an extensive amount of stress from all branches of the federal government in the past fifteen years. It has been transformed by new legislation,<sup>12</sup> impacted by regulatory actions by antitrust officials,<sup>13</sup> and upended by numerous

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<sup>9</sup> See Kevin Madigan & Adam Mossoff, *Turning Gold to Lead: How Patent Eligibility Doctrine is Undermining U.S. Leadership in Innovation*, 24 GEO. MASON L. REV. 939 (2017).

<sup>10</sup> Innovation Act of 2013: Hearing on H.R. 3309 Before the Comm. on the Judiciary, 113th Cong. (Oct. 29, 2013) (statement of David J. Kappos, Partner, Cravath, Swaine & Moore LLP), at 2.

<sup>11</sup> See Madigan & Mossoff, *supra* note 9 (identifying how the patent system facilitated biotech and computer revolutions); Adam Mossoff, *A Brief History of Software Patents (and Why They're Valid)*, 56 ARIZ. L. REV. SYLLABUS 62, 79 (2014) (“The American patent system has succeeded because it has secured property rights in the new innovation that has come about with each new era—and it has secured the same property rights for all types of new inventions, whether in the Industrial Revolution or in the Digital Revolution.”).

<sup>12</sup> See Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 248 (2011) (codified in scattered sections of 35 U.S.C.). There have been many bills introduced in Congress in the past eight to ten years, which, until the recent STRONGER Patents Act and the RALI Act, all proposed further restrictions or outright elimination of patent owners’ rights. See, e.g., Restoring the America Invents Act, S. 2891, 117th Cong. (2021); Venue Equity and Non-Uniformity Elimination Act of 2016, S. 2733, 114th Cong. (2016); Innovation Act, H.R. 9, 114th Cong. (2015); Innovation Act, H.R. 3309, 113th Cong. (2013); Saving High-Tech Innovators from Egregious Legal Disputes Act of 2013, H.R. 845, 113th Cong. (2013).

<sup>13</sup> See Letter from Renata B. Hesse, Acting Assistant Att’y Gen., U.S. Dep’t of Justice, Antitrust Division, to Michael A. Lindsay, Esq., Dorsey & Whitney LLP (Feb. 2, 2015), <https://www.justice.gov/atr/response-institute-electrical-and-electronics-engineers-incorporated> (permitting controversial, one-sided changes by the IEEE-SA to its patent policy for standard essential patents that significantly diminished remedies for owners of standard essential patents); Press Release, Federal Trade Commission, FTC Finalizes Settlement in Google Motorola Mobility Case, (July 24, 2013), <https://www.ftc.gov/news-events/press-releases/2013/07/ftc-finalizes-settlement-google-motorola-mobility-case> (discussing the FTC’s approval of Google/Motorola merger in which Google made concessions on enforcement of its standard essential patents).

court decisions changing all areas of patent doctrine. The widespread and systematic changes by the courts have affected, among many others, infringement remedies,<sup>14</sup> licensing activities,<sup>15</sup> and what types of inventions and discoveries are eligible for patent protection.<sup>16</sup> The inventors, universities, and companies working in the U.S. innovation economy have experienced unending upheavals for over a decade in the primary legal system that incentivizes their research-and-developed (R&D) investments and defines their capabilities to commercialize the innovations produced by these long-range R&D investments that can amount to billions of dollars. In addition to the extensive uncertainty created by this legal tumult, the theme of these legal actions has been clear: elimination of patent rights, new restrictions on patent owners, and new legal institutions like the Patent Trial & Appeal Board that have imposed substantial costs on patent owners.<sup>17</sup>

The loss of reliable and effective patent rights in the U.S. is important because property rights are a legal platform for both technological innovation and economic growth.<sup>18</sup> This

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<sup>14</sup> See *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 392-93 (2006) (holding that injunctions will be awarded according to four-factor test).

<sup>15</sup> See *Impression Prods., Inc. v. Lexmark Int'l, Inc.*, 137 S. Ct. 1523 (2017) (holding that patent owners exhaust all rights in conveyances of patented products in the marketplace); *Bd. of Trustees of Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 563 U.S. 776, 789-90 (2011) (holding that the Bayh-Dole Act does not automatically vest title to federally funded inventions in federal contractors); *Quanta Comp. v. LG Elec., Inc.*, 553 U.S. 617 (2008) (holding that any authorized sale of a patented product exhausts all patent rights in that product); *Quanta Comp. v. MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 137 (2007) (holding that a licensee does not forfeit the right to challenge a licensed patent by signing a license agreement).

<sup>16</sup> See *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014) (holding that a computer program that facilitated financial transactions and mitigated risk is an abstract idea and not patent subject matter); *Association for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107 (2013) (holding that isolated DNA is not patentable subject matter); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012) (holding that a medical treatment method is not patentable subject matter); *Bilski v. Kappos*, 561 U.S. 593 (2010) (holding that a business method patent on hedging investment risk is not patentable subject matter).

<sup>17</sup> See Adam Mossoff, *Weighing the Patent System: It Is Time to Confront the Bias Against Patent Owners in Patent "Reform" Legislation*, WASH. TIMES (Mar. 24, 2016), <https://www.washingtontimes.com/news/2016/mar/24/adam-mossoff-weighing-the-patent-system/> ("The absence of any acknowledgment that reform of the PTAB is just as pressingly important as venue reform . . . is the latest example of a strikingly one-sided, biased narrative of the past several years about patent 'reform.'"); Madigan & Mossoff, *supra* note 9 (identifying how patent eligibility doctrine was recently severely restricted by the Supreme Court contrary to historical norms in the U.S. patent system).

<sup>18</sup> See Stephen Haber, *Patents and the Wealth of Nations*, 23 GEO. MASON L. REV. 811, 811 (2016) ("There is abundant evidence from economics and history that the world's wealthy countries grew rich because they had

economic and legal principle applies to patents, which are property rights secured under U.S. law in new technological innovations.<sup>19</sup> The economic and historical evidence is overwhelming that reliable and effective patents have been an essential element in the growing innovation economy in the U.S. for the past two centuries.<sup>20</sup> The U.S. innovation economy has thrived because inventors have known they could devote years of productive labor and resources in developing their inventions, secure in the knowledge that the resulting patents provided a reliable legal foundation for the commercialization of their inventions in the marketplace.

As a result, patents have facilitated the private development of numerous, heterogeneous commercial mechanisms that have driven efficient growth of the U.S. innovation economy. One well-known example is the franchise business model, developed in the nineteenth century by intellectual property owners,<sup>21</sup> and another is the creation of disaggregated supply chains based on licensing of patent and other IP rights and which have defined the modern commercial structure

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well-developed systems of private property. Clearly defined and impartially enforced property rights were crucial to economic development . . .”).

<sup>19</sup> See 35 U.S.C. § 261 (“patents shall have the attributes of personal property”).

<sup>20</sup> See B. ZORINA KHAN, *INVENTING IDEAS: PATENTS, PRIZES, AND THE KNOWLEDGE ECONOMY* (2020) (contrasting the success of a property rights system like patents against the comparative failure of administrative systems like prize systems in promoting new inventions and economic success in the marketplace); Joan Farre-Mensa, Deepak Hegde & Alexander Ljungqvist, *What Is a Patent Worth? Evidence from the U.S. Patent “Lottery,”* 75 J. FINANCE 639 (2020) (demonstrating that a startup with a patent significantly increases its chance of securing venture capital financing and these startups have statistically significant higher economic growth and success rates in the marketplace); Kristina M. L. Acri, née Lybecker, *Economic Growth and Prosperity Stem from Effective Intellectual Property Rights*, 24 GEO. MASON L. REV. 865 (2017) (detailing correlations between IP rights, innovation, and economic growth); Haber, *supra* note 18 (surveying historical and economic studies confirming that patents are a key factor in successful innovation economies); B. ZORINA KHAN, *THE DEMOCRATIZATION OF INVENTION: PATENTS AND COPYRIGHTS IN AMERICAN ECONOMIC DEVELOPMENT, 1790-1920* (2005) (detailing the key role that reliable and effective property rights in patents have served in spurring markets and economic growth in the U.S.).

<sup>21</sup> See Adam Mossoff, *Morse Telegraph*, in *A HISTORY OF INTELLECTUAL PROPERTY IN 50 OBJECTS* 69 (Claudy Op den Kamp & Dan Hunter eds., 2019) (“[Samuel Morse] transferred control of his patent in the American Magnetic Telegraph to Amos Kendall, who then created the Magnetic Telegraph Company, which used patent licensing in an innovative commercial organization that we now call the franchise business model.”).

of the high-tech sector.<sup>22</sup> SDOs are another example of what economists call “private ordering” institutions created by market actors to facilitate the efficient production and sale of new products and services to consumers.<sup>23</sup> SDOs function efficiently precisely because these institutions are predicated on the balanced, equal respect of the rights of all innovators and implementers.

To ensure continued participation in SDOs by U.S. innovators, NIST should support the return of the gold standard U.S. patent system. U.S. innovators should receive reliable and effective patents rights to secure the fruits of their inventive, productive labors. This has been the basis for U.S. technological leadership in the modern, global economy, and it remains an essential factor in the U.S. continuing to maintain this technological leadership in the twenty-first century.

### **III. Retain the 2019 Joint Policy Statement on Remedies for Standard Essential Patents**

The recent Executive Order on Promoting Competition in the American Economy issued by the Biden Administration on July 9, 2021, recognizes the importance of “facilitat[ing] innovation that fosters United States market leadership.”<sup>24</sup> At the same time, however, the Executive Order directs “the Attorney General and the Secretary of Commerce . . . to consider whether to revise their position on the intersection of the intellectual property and antitrust laws, including by considering whether to revise the Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND Commitments.”<sup>25</sup> Revising the 2019 Policy Statement on Remedies for Standards-Essential Patents Subject to Voluntary F/RAND

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<sup>22</sup> See JONATHAN M. BARNETT, *INNOVATORS, FIRMS, AND MARKETS: THE ORGANIZATIONAL LOGIC OF INTELLECTUAL PROPERTY* (2021).

<sup>23</sup> See Kristen Osenga, *Ignorance over Innovation: Why Misunderstanding Standard Setting Organizations will Hinder Technological Progress*, 56 U. LOUISVILLE L. REV. 159, 163-166 (2018) (detailing briefly the nature of standard development organizations).

<sup>24</sup> White House: Executive Order on Promoting Competition in the American Economy (July 9, 2021), <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy/>.

<sup>25</sup> *Id.*

Commitments (the “2019 Joint Policy Statement”) would undermine the ability of U.S. companies to compete for leadership in next-generation technological standards developed by SDOs. This would result in a deeply mistaken concession to Chinese companies like Huawei, who are working steadily to replace as technological leaders in SDOs the many U.S. and other companies from liberal democracies with free markets.

Many important technological standards, such as 5G, have been developed through what is called an “open standardization” process, in which hundreds of companies and thousands of engineers collaborate within an SDO to develop the standards.<sup>26</sup> Although many companies participate in an SDO processes in developing standards, a comparatively small number of companies involved in these processes contribute technologies to standards.<sup>27</sup> These contributors are companies that make significant investments in R&D to create these foundational technologies like 5G and WiFi. Through the SDO processes and contractual agreements, these companies make available to implementers their patented technologies incorporated into standards on fair, reasonable, and nondiscriminatory (FRAND) terms.

For this open standardization system to function and achieve its goals, it is necessary to ensure that companies that create and contribute the technologies that comprise industry standards are adequately compensated for their investments and contributions to this collaborative, commercial process. As discussed in Part II, reliable and effective patents have served a primary role in promoting investments to create next-generation technologies and in commercializing these technologies through licensing business models and participation in private institutions in the marketplace like SDOs. Indeed, many of the most important SEP owners have traditionally relied

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<sup>26</sup> Kiri Gupta & Urška Petrovčič, *The Value of Cellular Technology*, HUDSON INSTITUTE (October 2021), <https://www.hudson.org/research/17328-the-value-of-cellular-technology>.

<sup>27</sup> *Id.*



on the licensing business model, a business model first developed by U.S. innovators in the nineteenth century,<sup>28</sup> to recoup their R&D investments and to fund their continued development of next-generation standardized technologies.

The 2019 Joint Policy Statement serves a key role in ensuring balanced protection of the rights of all participants in SDOs because it reconfirms in patent law a key legal principle of equal protection: SEP owners shall receive the same legal protections as all owners of all patented innovations. The 2019 Joint Policy Statement reaffirms the established legal doctrine that SEP owners who commit to FRAND terms in their licenses shall have the same legal rules applied to them for infringement of their patent rights, including requesting and receiving injunctive relief if they meet the relevant legal requirements. The U.S. Court of Appeals for the Federal Circuit held in *Apple v. Motorola* that there is no per se rule prohibiting an injunction to issue on a finding of infringement of a SEP.<sup>29</sup> The 2019 Joint Policy Statement reaffirms this and other similar court decisions on legal remedies for SEP owners; thus, it clarifies as a matter of regulatory policy in the Executive Branch that a FRAND-encumbered SEP is not a bar to receiving the general legal relief provided in the patent statutes and as interpreted and applied by U.S. courts.<sup>30</sup> By clarifying that the same legal remedies available to all patent owners are available to SEP owners, the 2019 Joint Policy Statement resolves confusions among SDO participants created by some

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<sup>28</sup> See, e.g., Adam Mossoff, *Patent Licensing and Secondary Markets in the Nineteenth Century*, 22 GEO. MASON L. REV. 959 (2015); B. Zorina Khan, *Trolls and Other Patent Inventions: Economic History and the Patent Controversy in the Twenty-First Century*, 21 GEO. MASON L. REV. 825, 837-39 (2014); Naomi R. Lamoreaux, Kenneth L. Sokoloff & Dhanoos Sutthiphisal, *Patent Alchemy: The Market for Technology in US History*, BUS. HIST. REV. (Spring 2013).

<sup>29</sup> See *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1331 (Fed. Cir. 2014).

<sup>30</sup> See *Ericsson v. Ericsson Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1231-32 (Fed. Cir. 2014) (“We believe it unwise to create a new set of *Georgia-Pacific*–like factors for all cases involving RAND-encumbered patents.”).

commentators who have argued that SEP owners can never receive legal remedies like injunctions.<sup>31</sup>

Even more important, the clarifying function of the 2019 Joint Policy Statement encourages good faith negotiations between innovators and implementers for the licenses of SEPs that are incorporated into standardized technologies. As a general legal rule, an injunction serves the key function of facilitating contractual exchanges of property rights in the marketplace; the ability of a property owner to say “no” to someone seeking to use its property is what makes possible the determination of fair market value through negotiations.<sup>32</sup> Otherwise, individuals and companies would simply trespass or squat on the rights of property owners and merely wait for a lawsuit and a court to order compensation. For an SEP owner, an implementer could use the technological standard in its device, such as 5G in a smartphone, and simply refuse to pay a royalty until it was sued and a court ordered it to pay a judicially-determined reasonable royalty many years later.<sup>33</sup>

Some commentators assert that providing the same legal protections for SEPs as provided for all patents stifles innovation.<sup>34</sup> But this academic theory of innovation-stifling “holdup” has consistently failed to have any of its predictions validated or confirmed in actual market conditions,

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<sup>31</sup> See Georgios Effraimidis, Kirti Gupta & Urška Petrovčič, *Was the Update of the 2015 Business Review Letter to the IEEE Justified?*, *IEEE Communications Standards Magazine* (Oct. 2021), <https://ieeexplore.ieee.org/document/9579448>.

<sup>32</sup> See Adam Mossoff, *The Injunction Function: How and Why Courts Secure Property Rights in Patents*, 96 NOTRE DAME L. REV. 1581 (2021); Alden Abbott, Andrew Mercado et al., *Putting Innovation First: The “New Madison Approach” to Patent Licensing and Antitrust* 3 (Oct. 19, 2021), <https://regproject.org/paper/putting-innovation-first-the-new-madison-approach-to-patent-licensing-and-antitrust/>.

<sup>33</sup> See Richard A. Epstein & Kayvan B. Noroozi, *Why Incentives for “Patent Holdout” Threaten to Dismantle FRAND, and Why It Matters*, 32 BERKELEY TECH. L. J. 1381 (2017)

<sup>34</sup> See David Golden, *Standard-Essential Patents Are Being Reintroduced to Antitrust Standards With the Welcome Demise of the “New Madison” Approach*, Constantine Cannon (Oct. 15, 2021), <https://constantinecannon.com/2021/10/15/standard-essential-patents-are-being-reintroduced-to-antitrust-standards-with-the-welcome-demise-of-the-new-madison-approach/>.

such as in higher consumer prices or reduced rates of innovation.<sup>35</sup> As legal scholars, economists, and former judges observed in a letter to the Department of Justice in 2018: “It bears emphasizing that no empirical study has demonstrated that a patent-owner’s request for injunctive relief after a finding of a defendant’s infringement of its property rights has ever resulted either in consumer harm or in slowing down the pace of technological innovation.”<sup>36</sup> The Honorable David Kappos and Honorable Andrei Iancu, bipartisan former Directors of the U.S. Patent & Trademark Office recently observed: “Every generation for more than two centuries has foretold innovation’s death by patent thicket, from telegraphs and sewing machines to airplanes and smartphones. And yet the United States has been uniquely innovative, fueled precisely by strong patent protection.”<sup>37</sup>

To ensure that U.S. companies continue to invest in and create next-generation technologies relative to economic and strategic competitors like China, NIST should remain committed to data-driven policies like the 2019 Joint Policy Statement. The 2019 Joint Policy Statement reaffirms the reliable and effective patent rights that have been key to U.S. innovators producing the new inventions that have maintained U.S. technological leadership for the past two centuries and will sustain continuing U.S. technological leadership in the twenty-first century.

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<sup>35</sup> See Alexander Galetovic & Stephen Haber, *The Fallacies of Patent-Holdup Theory*, 13 J. COMPETITION L. & ECON. 1, 9–10 (2017) (providing extensive literature review of efforts to test “patent holdup” theories and models, and observing that “there is no positive evidence in support of its core predictions”); Jonathan M. Barnett, *Has the Academy Led Patent Law Astray?*, 32 BERKELY TECH. L.J. 1313, 1338–61 (2017) (detailing empirical, legal, and theoretical problems with “patent holdup” and related concepts); Ron D. Katznelson & John Howells, *The Myth of the Early Aviation Patent Hold-Up—How a US Government Monopsony Commandeered Pioneer Airplane Patents*, 24 INDUS. & CORP. CHANGE 1 (2014) (analyzing and critiquing oft-cited historical story of “patent holdup”).

<sup>36</sup> Letter from Judges, Former Judges and Government Officials, Legal Academics, and Economists to Makan Delrahim, Assistant Att’y Gen., Dep’t of Justice Antitrust Div. 1 (Feb. 13, 2018), <https://cpip.gmu.edu/wp-content/uploads/sites/31/2018/02/Letter-to-DOJ-Supporting-Evidence-Based-Approach-to-Antitrust-Enforcement-of-IP.pdf>.

<sup>37</sup> See David J. Kappos & Andrei Iancu, *Biden Administration Should Preserve Strong Patent Prosecution for Standardized Technology*, RealClearPolicy (Nov. 3, 2021), [https://www.realclearpolicy.com/articles/2021/11/03/biden\\_administration\\_should\\_preserve\\_strong\\_patent\\_protection\\_for\\_standardized\\_technology\\_801740.html](https://www.realclearpolicy.com/articles/2021/11/03/biden_administration_should_preserve_strong_patent_protection_for_standardized_technology_801740.html).

#### **IV. The Importance of Clear and Transparent Rules Governing Processes at SDOs**

To preserve the open standardization process in this technological ecosystem, it is essential to ensure that SDOs adhere to transparent, clear, and definitive procedural rules. Specifically, SDOs should respect fundamental principles of openness, transparency, balance, due process, and consensus-based decision-making, as these are essential to balancing the interests of the different stakeholders that participate in the standardization ecosystem. Such principles should be applied when selecting technologies that become part of a standard, and in other procedural matters, such as participation rules, voting rights, appointment of chairman positions, and revisions of the existing SDO policies. A standardization process based on these core principles serves two important goals that are essential to continuing the success of open standards and preventing strategic manipulation of SDOs by companies or countries.

First, a rule-based standardization process mitigates the risk that individual companies, countries, or groups with aligned interests will acquire outsized influence in an SDO.<sup>38</sup> When procedural loopholes exist, individual companies or governments can engage in strategic behavior and steer the SDO's agenda or individual decisions in a way that serves the interest of an individual company or country, rather than the public. A rule-based system prevents SDO participants from trying to “game the system” by rigging election votes for important chairmanship positions in SDOs or by changing the rules of standards bodies after the standards have been established.<sup>39</sup> Put differently, setting out strong governance principles for SDOs based on fundamental principles of openness, transparency, consensus and majority voting—key principles comprising the rule of law

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<sup>38</sup> See, e.g., Baron & Kanevskaia, *supra* note 2.

<sup>39</sup> See, e.g., Kirti Gupta, *Changing the Rules of the Game Ex-post: SDO Governance and Why It Matters* (July 2019), <https://ssrn.com/abstract=3601394>.

and substantive fairness in legal decision-making—avoids gamesmanship and ensures that the open standardization process is not misused to serve the interests of individual stakeholders.

Second, a rule-based standardization process promotes a merit-driven standardization ecosystem. The respect of procedural rules ensures that an SDO's agenda is based on technological advances, market needs, and consumer benefits, rather than on an industrial-policy plan of a specific country or the business plan of a specific company. An open and fair process typically leads to standards of higher quality, given that it encourages participants to select technologies based on their technical merit rather than the more narrow interests of companies or countries.

A merit-based standardization process secured through definitive procedural rules promotes the use and success of SDOs generally. First, it incentivizes companies to participate in the standardization process in the first place; they are unlikely to do so if they feel that the process is rigged in favor of a small group of stakeholders. Second, the respect of procedural rules reflecting principles of transparency and fairness ensure that participating stakeholders resolve conflicts in an amicable way, which further incentivizes companies to participate and adhere to the standards developed by an SDO.<sup>40</sup> In other words, a rule-based standardization process promotes the standard's success and mitigates the risk of companies and countries developing their own standards (which would in turn lead to standard fragmentation, where different standards are adopted across different regions or countries).

## **V. Conclusion**

NIST's study of the role of the People's Republic of China in SDOs in the twenty-first century is a welcome, important first step in either maintaining or producing data-driven policies on SDOs and the open standardization process. It is imperative that the U.S. continue to promote

legal rules and regulatory policies that ensure the institutional integrity of SDOs, which have served a key role in facilitating the efficient market deployment of next-generation technologies in the products and services that have benefited consumers and grown the U.S. innovation economy. In achieving this goal, NIST should reject mistaken narratives based on faulty assumptions about China’s technological leadership rooted in long-discredited empirical methods, such as simplistic patent counts. More importantly, NIST should retain policies, and promote the return of legal rules and policies, that ensure that reliable and effective patent rights are available to U.S. innovators who have been technological leaders for two centuries and who have developed an open standardization process at SDOs that reflect the U.S. commitment to the rule of law and free markets.

## **VI. Signatories\***

Thomas Duesterberg  
*Senior Fellow*  
Hudson Institute

Harold Furchtgott-Roth  
*Director, Center for the Economics of the Internet*  
Hudson Institute

Adam Mossoff  
*Senior Fellow and Chair, Forum for Intellectual Property*  
Hudson Institute

Urška Petrovčič  
*Senior Fellow*  
Hudson Institute

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\* Institutional affiliations provided for identification purposes only. The signatories are signing in their individual capacities and do not speak for or represent the institutions at which they work.