## 1AC

### 1AC---FRAND ADV

#### Advantage 1 is FRAND:

#### Standards-Setting Organizations (SSO’s) are industry members who jointly establish standards for information tech defined by the adoption of standard-essential patents (SEP’s), which are licensed to companies who wish to implement the tech in their product, called implementers, on Fair, Reasonable, and Non-Discriminatory (FRAND) terms. Current standards promote price gouging, FRAND enforcement is critical.

Melamed & Shapiro 18, \*A. Douglas Melamed is Professor of the Practice of Law at Stanford Law School; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business at the University of California at Berkeley; (May 2018, “How Antitrust Law Can Make FRAND Commitments More Effective”, https://www-cdn.law.stanford.edu/wp-content/uploads/2018/05/How-Antitrust-Law-Can-Make-FRAND-Commitments-More-Effective.pdf)

I. Standard Setting and the Competitive Process

The fundamental economics in the information technology sector, driven by network effects, implies that there is enormous value associated with establishing compatibility standards. Popular standards include the mobile broadband standards used in cell phones, which are established by the 3rd Generation Partnership Project (3GPP), and the Wi-Fi technology for wireless local area networks, which is enabled by the 802.11 standard established by the Institute of Electrical and Electronics Engineers (IEEE).4

There are many SSOs, and their rules and procedures differ considerably. In addition to IEEE, leading SSOs include the International Organization for Standardization (ISO), the International Telecommunication Union (ITU), the European Telecommunications Standards Institute (ETSI), the Internet Engineering Task Force (IETF), and the World Wide Web Consortium (W3C).5 SSOs generally establish standards by holding a series of committee meetings among industry participants. These meetings culminate in a vote on a technical specification that describes what features or attributes a product must have in order to comply with the standard. Most SSOs are open to all industry participants and seek to operate on a consensus basis, applying certain voting rules. SSOs do not normally engage in patent licensing, nor do they specify how patent royalties will be divided up among patent holders. They leave that to their members, which in some cases form patent pools to address these issues.6

SSOs adopt specific policies relating to intellectual property rights (IPRs).7 These IPR policies are generally intended to enable the SEP holders to obtain reasonable royalties for licensing their patents, while prohibiting them from charging excessive royalties after other industry participants have committed to the standard. At that point, firms committed to implementing the standard— which we call “implementers”—would find it very costly to avoid using the patented technology. For this purpose, most SSOs require SEP owners to license their SEPs on FRAND terms.8

FRAND policies are especially necessary because negotiations between SEP holders and implementers generally take place only after the implementers have used and infringed the technologies claimed by the SEPs. Standards involving information and communications technology can involve hundreds or even thousands of SEPs, many with uncertain boundaries for infringement. In addition, a time lag exists between patent application and patent issuance. For these and other reasons, it is impractical for implementers to enter into negotiations for patent licenses with all SEP owners prior to the establishment of a standard and to their implementation of it.9

The fact that patent negotiations generally do not take place until after implementers have used and infringed the technologies has several critical implications. First, at the time of negotiation, implementers are locked into the standard and the technologies claimed by the SEPs—that is, the cost to switch to an alternative technology or standard at that point—ex post—is much greater than it was ex ante, before the patented technology was first included in the standard. Ex post, the patent holder is no longer competing to have its technology included in the standard, nor is it competing to have implementers of the standard use its technology. Instead, because the patent holder owns an asset that is essential to the standard, implementers have no choice but to use the patented technology.

If the standard is commercially successful, implementers are willing to pay a much larger royalty for use of the patented technology than they would have paid ex ante, when the SEP holder faced competition from other technologies. In these circumstances, the SEP holder can be said to have obtained monopoly power in the market in which the patented technology is licensed for use in implementing the standard.10

Second, because of lock-in and the implementer’s ongoing infringement, the potential for litigation looms large in licensing negotiations. In effect, the parties are negotiating about how to settle an infringement suit, and that negotiation is heavily influenced by their predictions as to what the court will do if they cannot agree. This situation is not unique to SEPs; it arises frequently when firms are faced with patent infringement claims for products they have independently developed or technologies they have inadvertently infringed. Patent law addresses such instances by specifying that patent holders are entitled to “reasonable royalties,” defined as the royalties that the parties would have negotiated prior to the infringement and thus prior to lock-in.11 Those hypothetical ex ante royalties reflect the market value of the patent license. Notwithstanding the law’s embrace of this principle, however, as a practical matter, patent holders are generally able to recover more than the ex ante value of the patent when litigation occurs after the implementers are locked in. Further, negotiations in the shadow of litigation after lock-in tend to result in royalties in excess of the ex ante or market value of the patented technology.12

Third, the shadow of litigation is particularly problematic in the communications and technology sector, in which products typically include hundreds or thousands of patented technologies. A court-ordered injunction involving such products would deprive the implementer of not only the value of the technology covered by the patent-in-suit, but also the value of the entire product.13 Implementers that are forced to bear the risk of an injunction are thus induced to agree to royalties greater than those that would be appropriate if only the value of the patented technology were at stake. Those royalties systematically provide SEP holders with excessive compensation in comparison with the benchmark of ex ante royalties.

These implications of lock-in and ex post dealings are well-understood: they represent an example of the general concept of lock-in and opportunism developed by Oliver Williamson.14 The Federal Circuit has also recognized the market distortions caused by the inclusion of patented technologies in public standards and the resulting danger of patent holdup involving SEPs.15

For these and other reasons, the SEP holder has ex post monopoly power that, if left unchecked, would enable it to obtain royalties far in excess of the royalties that it could earn in a competitive market.16 To address this common problem and limit ex post opportunism by SEP holders, SSOs typically require participants that own SEPs to make certain FRAND commitments. In particular, by requiring a commitment to license on “fair and reasonable” terms, the FRAND requirement aims to prevent, or at least reduce, the extent of monopoly pricing by SEP holders. And by requiring a commitment to license on “nondiscriminatory” terms, the FRAND requirement can prevent SEP holders from extracting monopoly premiums by selective licensing or, more important, migrating their monopoly power from the FRAND-regulated market to unregulated standard-implementing product markets by licensing to only one or a few implementers or licensing to selected implementers on discriminatorily favorable terms.

#### Patent holdup is accentuated by the Ninth Circuit’s recent decision in *FTC v. Qualcomm* that permits ICT firms to engage in innovation-stifling conduct with antitrust impunity.

Moss 20, \*Alex Moss is a Staff Attorney on EFF’s intellectual property team, before joining EFF, Alex practiced complex commercial litigation at Sullivan & Cromwell LLP in New York and Durie Tangri LLP in San Francisco; (August 26th, 2020, “Throwing Out the FTC's Suit Against Qualcomm Moves Antitrust Law in the Wrong Direction”, https://www.eff.org/deeplinks/2020/08/throwing-out-ftcs-suit-against-qualcomm-moves-antitrust-law-wrong-direction)

Standards can enhance competition and consumer choice, but they also massively inflate the value of patents deemed essential to the standard, and give their owners the power to sue companies that implement the standard for money damages or injunctions to block them from using their SEPs. When standards cover critical features like wireless connectivity, SEP owners wield a huge amount of “hold-up” power because their patents allow them to effectively block access to the standard altogether. That lets them charge unduly large tolls to anyone who wants to implement the standard.

To minimize that risk, standard-setting organizations typically require companies that want their patented technology incorporated into a standard to promise in advance to license their SEPs to others on fair, reasonable, and non-discriminatory (FRAND) terms. But that promise strikes at a key tension between antitrust and patent law: patent owners have no obligation to let anyone use technology their patent covers, but to get those technologies incorporated into standards, patent owners usually have to promise that they will give permission to anyone who wants to implement the standard as long as they pay a reasonable license fee.

Qualcomm is one of the most important and dominant companies in the history of wireless communication standards. It is a multinational conglomerate that has owned patents on every major wireless communication standard since its first CDMA patent in 1985, and it participates in the standard-setting organizations that define those standards. Qualcomm is somewhat unique in that it not only licenses SEPs, but also supplies the modem chips used by a wide range of devices. These include chips that implement wireless communication standards, which lie at the heart of every mobile computing device.

Although Qualcomm promised to license its SEPs (including patents essential to CDMA, 3G, 4G, and 5G) on FRAND terms, its conduct has to many looked unfair, unreasonable, and highly discriminatory. In particular, Qualcomm has drawn scrutiny for bundling tens of thousands of patents together—including many that are not standard-essential—and offering portfolio-only licenses no matter what licensees actually want or need; refusing to sell modem chips to anyone without a SEP license and threatening to withhold chips from companies trying to negotiate different license terms; refusing to license anyone other than original-equipment manufacturers (OEMs); and insisting on royalties calculated as a percentage of the sale price of a handset sold to end users for hundreds of dollars, despite the minimal contribution of any particular patent to the retail value.

In 2017, the U.S. Federal Trade Commission [sued](https://www.ftc.gov/news-events/press-releases/2017/01/ftc-charges-qualcomm-monopolizing-key-semiconductor-device-used) Qualcomm for violating both sections of the Sherman Antitrust Act by engaging in a number of anticompetitive SEP licensing practices. In May 2019, the U.S. District Court for the Northern District of California agreed with the FTC, identifying numerous instances of Qualcomm’s unlawful, anticompetitive conduct in a comprehensive [233-page opinion](https://www.eff.org/document/ftc-v-qualcomm-district-court-opinion). We were pleased to see the FTC take action and the district court credit the overwhelming evidence that Qualcomm’s conduct is corrosive to market-based competition and threatens to cement Qualcomm’s dominance for years to come.

But this month, a panel of judges from the Court of Appeals for the Ninth Circuit unanimously [overturned](https://www.eff.org/document/ninth-circuit-opinion-ftc-v-qualcomm) the district court’s decision, reasoning that Qualcomm’s conduct was “hypercompetitive” but not “anticompetitive,” and therefore not a violation of antitrust law. To reach that result, the Ninth Circuit made the patent grant more powerful and antitrust law weaker than ever.

According to the Ninth Circuit, patent owners don’t have a duty to let anyone use what their patent covers, and therefore Qualcomm had no duty to license its SEPs to anyone. But that framing requires ignoring the promises Qualcomm made to license its SEPs on reasonable and non-discriminatory terms—promises that courts in this country and around the world have consistently enforced. It also means ignoring antitrust principles like the essential facilities doctrine, which limits the ability of a monopolist with hold-up power over an essential facility (like a port) to shut out rivals. Instead, the Ninth Circuit held rather simplistically that a duty to deal could arise only if the monopolist had provided access, and then reversed its policy.

But even when Qualcomm restricted its licensing policies in critical ways, the Ninth Circuit found reasons to approve those restrictions. For example, Qualcomm stopped licensing its patents to chip manufacturers and started licensing them only to OEMs. This had a major benefit: it let Qualcomm charge a much higher royalty rate based on the high retail price of the end user devices, like smartphones and tablets, that OEMs make and sell. If Qualcomm had continued to license to chip suppliers, its patents would be “exhausted” once the chips were sold to OEMs, extinguishing Qualcomm’s right to assert its patents and control how the chips were used.

Patent exhaustion is a century-old doctrine that protects the rights of consumers to use things they buy without getting the patent owner’s permission again and again. Patent exhaustion is important because it prevents price-gouging, but also because it protects space for innovation by letting people use things they buy freely, including to build innovations of their own. The doctrine thus helps patent law serve its underlying goal—promoting economic growth and innovation. In other words, the doctrine of exhaustion is baked into the patent grant; it is not optional. Nevertheless, the Ninth Circuit wholeheartedly approved of Qualcomm’s efforts to avoid exhaustion—even when that meant cutting off access to previous licensees (chip-makers) in ways that let Qualcomm charge far more in licensing fees than its SEPs could possibly have contributed to the retail value of the final product.

It makes no sense that Qualcomm could contract around a fundamental principle like patent exhaustion, but at the same time did not assume any antitrust duty to deal under these circumstances. Worse, it’s harmful for the economy, innovation, and consumers. Unfortunately, the kind of harm that antitrust law recognizes is limited to harm affecting “competition” or the “competitive process.” Antitrust law, at least as the Ninth Circuit interprets it, doesn’t do nearly enough to address the harm downstream consumers experience when they pay inflated prices for high-tech devices, and miss out on innovation that might have developed from fair, reasonable, and non-discriminatory licensing practices.

We hope the FTC sticks to its guns and asks the Ninth Circuit to go en banc and reconsider this decision. Otherwise, antitrust law will become an even weaker weapon against innovation-stifling conduct in technology markets.

#### Weakened antitrust enforcement emboldens firms to follow Qualcomm’s lead, which collapses FRAND integrity.

Hovenkamp 20, \*Herbert J. Hovenkamp is James G. Dinan University Professor at the University of Pennsylvania Law School and the Wharton School of the University of Pennsylvania; (2020, “FRAND and Antitrust”, <https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=3095&context=faculty_scholarship>)

While the FRAND process has been highly productive, it is also fragile. Firms are tempted to make commitments at the beginning when the incentive to join is large, but renege on them later when they can profit by doing so. At least in this particular case, private FRAND enforcement had not worked very well. Qualcomm had been able to violate FRAND commitments in order to exclude rivals and obtain higher royalties than FRAND would permit, largely with impunity. Other firms will very likely follow Qualcomm’s lead. If that happens the FRAND system will fall apart, doing irreparable injury to the modern wireless telecommunications network or, at the very least, diminishing the leadership role of the United States in preserving effective network competition.

While governments can be heavily involved in standard set-ting,9 the implementation of technical standards in information technologies is largely the work of private actors. Government involvement is limited mainly to enforcement of contract, intellectual property, or antitrust law. As private actors, those involved in standard setting or compliance are fully subject to the federal antitrust laws.

This Article addresses one question: when is an SSO participant’s violation of a FRAND commitment an antitrust violation, and if it is, of what kind and what are the implications for remedies? It warns against two extremes. One is thinking that any violation of a FRAND commitment is an antitrust violation as well. In the first instance FRAND obligations are contractual, and most breaches of contract do not violate any antitrust law. The other extreme is thinking that, because a FRAND violation is a breach of contract, it cannot also be an antitrust violation. The question of an antitrust violation does not de-pend on whether the conduct breached a particular agreement but rather on whether it caused competitive harm. This can happen because the conduct restrained trade under section 1 of the Sherman Act, was unreasonably exclusionary under section 2 of the Sherman Act, or amounted to an anticompetitive condition or understanding as defined by section 3 of the Clay-ton Act.10 The end goal is to identify practices that harm com-petition, thereby injuring consumers.

The Ninth Circuit’s Qualcomm decision will make antitrust violations in the context of FRAND licensing much more difficult to prove, even in cases where anticompetitive behavior and consumer harm seem clear.11 Indeed, in this case the court itself acknowledged the harm to consumers but appeared to think that they were not entitled to protection.12 If this decision stands, FRAND obligations will to a larger extent have to be settled through private litigation and the federal antitrust enforcement agencies will have a diminished role. Anticompetitive behavior by one firm that is not effectively disciplined will lead others to do the same thing.

#### Monopoly pricing and selective licensing undermines 5G innovation---FRAND enforcement is key.

Actonline 20, the App Association represents more than 5,000 app companies and information technology firms across the mobile economy; (August 26th, 2020, “Save Our Standards: The Ninth Circuit Court of Appeals Reverses Decision in FTC v. Qualcomm”, <https://actonline.org/2020/08/26/save-our-standards-the-ninth-circuit-court-of-appeals-reverses-decision-in-ftc-v-qualcomm/>)

* Ability edited

Moreover, the FRAND agreement is a critical tool used by standard setting organizations to ensure the process enhances competition and does not run afoul of antitrust laws. Generally, a collaboration between competitors to choose market winners or set prices raises significant questions for competition regulators. Royalty free and FRAND licensing requirements were created by standards bodies to avoid potential antitrust scrutiny by limiting the market power and the potential for abuse by those involved in developing a standard. This is why the American National Standards Institute (ANSI) will not accredit any standards developing organization (SDO) that does not require standard-essential patent holders to provide licensing terms at least as favorable as FRAND.

The most important beneficiary of open interoperability standards and FRAND licensing requirements are the entrepreneurs and small businesses that have long fueled America’s innovation engine. They don’t have giant patent portfolios, market power, or the resources to hire legions of lawyers and spend years battling SEP abusers in civil court. Without some level of certainty about their ability to obtain licenses—let alone what they may cost—entrepreneurs will have trouble justifying the pursuit of any innovation that uses a standard and will certainly struggle to raise money from investors for such innovation. And Qualcomm’s vague and toothless promise simply “not to sue” smaller companies and component makers is no substitute for a license.

The adoption of 5G technology is expected to open unprecedented opportunities for innovation and economic growth as we move toward a world where everything from cars to tractors to buildings will connect to wireless networks. At every stage of the information technology revolution, America has been the undisputed leader because of the unparalleled entrepreneurial innovation ecosystem that we have built. If 5G SEP holders are able to arbitrarily refuse licenses to smaller firms, it would ~~cripple~~ undermine America’s innovation ecosystem at the start of the next big wave of innovation. As economic tensions continue to rise with China, Chinese-based companies could use their 5G SEPs as international economic weapons to thwart U.S. competitors.

The 5G standard is supposed to be a platform for competition, innovation, and entrepreneurship, but if the Ninth Circuit decision is allowed to stand, it will become a chokepoint for snuffing out competitors and demanding monopoly rents. Open standards and FRAND licensing commitments are fundamental to competition in the modern economy, and the idea that they aren’t a subject for antitrust enforcement is patently absurd.

#### The absence of domestic 5G competition cedes leadership in technical standards to China.

Duan 19, \*Charles Duan is a senior fellow and associate director of tech & innovation policy at the R Street Institute, where he focuses his research on intellectual property issues; (February 5th, 2019, “Why China Is Winning the 5G War”, https://nationalinterest.org/feature/why-china-winning-5g-war-43347)

There is little doubt today that American superiority in the next generation of mobile communications, commonly called 5G, is a matter of extraordinary national concern. There is also little doubt that China is a strong competitor, already having outspent the United States by [$24 billion](https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5g-deployment-imperative.pdf#page=3) and planning [$411 billion](https://www.scmp.com/tech/china-tech/article/2098948/china-plans-28-trillion-yuan-capital-expenditure-create-worlds) in 5G investment over the next decade. The Chinese government has also laid out multiple national plans for establishing the country as a leader in mobile technology, and the Chinese firm Huawei is poised to be the [top smartphone manufacturer](https://www.cnbc.com/2018/11/16/huawei-aims-to-overtake-samsung-as-no-1-smartphone-player-by-2020.html) by 2020.

And what are United States companies doing about this? Bickering over patents.

For years, the leading American supplier of advanced mobile communications chips has been the San Diego-based Qualcomm. The company has been an innovator of mobile technology, but it has also been a remarkable innovator of convoluted legal strategies. As an ongoing Federal Trade Commission [lawsuit alleges](https://www.ftc.gov/news-events/press-releases/2017/01/ftc-charges-qualcomm-monopolizing-key-semiconductor-device-used), Qualcomm has used its dominant position as a chip supplier and its extensive patent holdings to weave an intricate web of patent licensing across the mobile industry. The effect of that complex licensing scheme, the FTC claims, has been to force competitor chipmakers out of the market and to extract concessions and high patent royalties from smartphone and mobile-device makers.

Qualcomm today faces only one major U.S. competitor—Intel, whose chips Apple recently [started using](https://www.cultofmac.com/484250/intel-reaping-rewards-apples-scrap-qualcomm/) instead of Qualcomm’s. Not surprisingly, Qualcomm has leveraged its patents to force a retaliatory investigation against Apple, the effect of which could be, as an administrative judge [recently determined](http://www.fosspatents.com/2018/10/itc-judge-didnt-buy-testimony-for-which.html), to boot Intel out of the mobile-chip market and leave Qualcomm as a monopoly.

It is hard to imagine that this infighting among Apple, Intel and Qualcomm is getting the United States very far in 5G, and it is harder to imagine that Qualcomm’s desired outcome would do so, either. The best path, instead, is the obvious one: allowing competition and expanding the number of firms working on 5G.

Competition encourages companies to out-innovate each other in order to grab market share. Of particular importance to 5G, competition leads to [better cybersecurity](https://morningconsult.com/opinions/in-the-race-to-5g-monopoly-considered-harmful/) in products, making them less vulnerable to hacking or misuse.

Competition is especially crucial when it comes to the technical standards that define how 5G works. These standards are the work of 3GPP, an international consortium of technology companies in the field. Chinese players such as Huawei and ZTE are major participants in 3GPP. Ensuring that 3GPP’s standards reflect American values requires having as many American companies at the negotiating table as possible—which is harder to achieve when those companies are trying to sue each other out of business.

Certainly patents themselves, as rewards for new inventions, are a driver of innovation in areas such as 5G. The problem, though, is not the existence of a patent system but the ever-expanding power of the patent laws, which encourage companies to pour dollars into complex patent licensing and assertion schemes—as companies like Qualcomm have done—rather than to perform the hard work of building new technologies. When innovation in patent strategy is more profitable than actual innovation, we lose the race to 5G and other technologies.

But don’t take my word for it. [Multiple members of Congress](https://www.patentprogress.org/2019/01/11/congress-weighs-in-on-qualcomm-and-apple-at-the-itc/), from both sides of the aisle, have denounced the use of patents to kick companies like Intel out of 5G development, predicting that such actions would “dampen the quality, innovation, competitive pricing, and in this case the preservation of a strong U.S. presence in the development of 5G and thus the national security of the United States.”

Or look to what China itself is doing. The Chinese government is handing out rewards left and right to encourage technology research and development. Indeed, it grants subsidies and financial benefits (ranging from the [ordinary](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2818503) to the [imperfect](https://funginstitute.berkeley.edu/wp-content/uploads/2013/12/patent_subsidy_Zhen.pdf) to the [bizarre](https://www.scmp.com/news/china/article/1681850/how-get-out-jail-early-china-buy-inventors-idea-and-patent-it)) to encourage its citizens to file for patents. But while China specifically encourages filing for patents, it does little to encourage using them: Patent infringement awards in court are peanuts—often only [five figures](https://scholarship.law.berkeley.edu/btlj/vol33/iss2/2/)—and most Chinese patent owners drop their patents [within five years](https://www.bloomberg.com/news/articles/2018-09-26/china-claims-more-patents-than-any-country-most-are-worthless) of getting them. The message in China is clear: You will be rewarded for innovating, but not for quibbling over patents.

The United States should take the same tack if it wants to match China in 5G. Ever-stronger patent rights encourage counterproductive disputes that are a drag on industry, a drag on research and development, and ultimately a drag on domestic competitiveness on the global stage. If America wants to lead in 5G, then it must clear the path for strong competition among leading American technology companies.

#### Standards leadership allows China to export digital authoritarianism.

Drew et al. 21, \*Dr Alexi Drew, Research Associate, The Policy Institute, King’s College London; (May 7th, 2021, “The Critical Geopolitics of Standards Setting”, https://www.transatlantic-dialogue-on-china.rusi.org/article/the-critical-geopolitics-of-standards-setting)

However, this previously ‘western’ domain is challenged by a Chinese bloc of private industry actors with centrally directed, strategic motivations for their efforts who have managed to leverage the flaws of this system for political and economic advantage.  The market-driven self-regulation model of technical standards has proven itself unsustainable given the geopolitical power achievable through the control of these standards. The marketised approach is easily abusable by a technologically developed nation-state with geopolitical intentions firmly in mind.

Obscurity Through Complexity

Technical standards have the immediate appearance of being both apolitical and ethically neutral. This seems to set them apart from the debate over standards of state behaviour in [cyber space concerning espionage and actions below the threshold of armed conflict](https://www.cfr.org/blog/unexpectedly-all-un-countries-agreed-cybersecurity-report-so-what). Yet, technological standards are unequivocally connected to normative practices of international behaviour and ethics. The extremely complex nature of the standards under consideration in bodies such as the International Organization for Standardization, the International Electrotechnical Commission (IEC), the International Telecommunications Union (ITU), and the Third Generation Partnership Project (3GPP) obscures the very tangible real-world impact that the standards they set have. The 3GPP is responsible for standards setting for mobile telecommunications. It covers everything from 5G through to autonomous vehicles and the Internet of Things. These are the bodies defining how the modern world is constructed.

On the one hand they appear quite benign, responsible for such banalities as the use of Universal Serial Bus (USB) connectors versus proprietary standards. This hardly seems a matter of national security importance. But the same process is responsible for what ultimately shape the basic operating parameters of facial recognition technology in closed circuit television systems, the level of centralised state control at the technical foundations of the internet, and the protections of personally identifiable data. These generate profound implications for international policy and ethics.

Internal Competition vs Strategic Direction

Technical standards setting processes have, historically, been dominated by private sector actors who have had both the capacity to develop a particular technology to the point of holding a significant market share, and the ability to use that market share to advocate for the standardisation of the technology in line with their own production. The market led approach has continued to be the prevailing model by which American companies have globalised the technical standards behind US dominated technological innovation. This privatised form of self-regulation for technology companies is only partially influenced by the approach taken within the EU where [some licensing of standards are controlled by state or EU led institutions.](https://www.ui.se/globalassets/ui.se-eng/publications/ui-publications/2019/ui-brief-no.-2-2019.pdf)

In contrast to this approach the Chinese model has involved a high level of state-oriented direction, oversight, and direct engagement on the creation and signing off technical standards. Efforts to harmonise and centralise technical standards domestically have become increasingly internationalised as the CCP takes this centralised, strategic approach to technical standards setting bodies such as the ITU, 3GPP, and IEC. Technical standards have also become an increasingly central component of the Digital Silk Road with the openly expressed goal of increasing uptake of Chinese technical standards in partner countries.

The implications of this clash between a system of technical standardisation that is driven by the market versus one driven by an authoritarian government subsidised model are a direct challenge to the development of free, open, and ethical technology. Standardisation mechanisms have become political, or rather there has been a gradual realisation of the political power to be gained from the control of technical standards. While the PRC might have come to this awareness first, the US and Europe have since had a rude awakening about the missed opportunity. The privatised model of technical standards setting favoured by European and US markets relies upon the dynamics of financial competition to regulate behaviour. This is in stark contrast to the statist Chinese model.

#### Causes global backsliding.

Kendall-Taylor et. al 20 \*Andrea Kendall-Taylor, senior fellow and director of the Transatlantic Security Program at the Center for a New American Security, co-author of Democracies and Authoritarian Regimes; Erica Frantz is Assistant Professor of Political Science at Michigan State University; Joseph Wright is Professor of Political Science at Pennsylvania State University; (March/April 2020, “The Digital Dictators,” Foreign Affairs, <https://www.foreignaffairs.com/articles/china/2020-02-06/digital-dictators>)

The risk that technology will usher in a wave of authoritarianism is all the more concerning because our own empirical research has indicated that beyond buttressing autocracies, digital tools are associated with an increased risk of democratic backsliding in fragile democracies. New technologies are particularly dangerous for weak democracies because many of these digital tools are dual use: technology can enhance government efficiency and provide the capacity to address challenges such as crime and terrorism, but no matter the intentions with which governments initially acquire such technology, they can also use these tools to muzzle and restrict the activities of their opponents.

#### Democracy solves a litany of existential threats.

Diamond 19, Professor of Political Science and Sociology at Stanford University, Senior Fellow at the Hoover Institution, Senior Fellow at the Freeman Spogli Institute for International Studies, PhD in Sociology from Stanford University, (Dr. Larry, Ill Winds: Saving Democracy from Russian Rage, Chinese Ambition, and American Complacency, p. 199-202)

The most obvious response to the ill winds blowing from the world’s autocracies is to help the winds of freedom blowing in the other direction. The democracies of the West cannot save themselves if they do not stand with democrats around the world. This is truer now than ever, for several reasons. We live in a globalized world, one in which models, trends, and ideas cascade across borders. Any wind of change may gather quickly and blow with gale force. People everywhere form ideas about how to govern—or simply about which forms of government and sources of power may be irresistible—based on what they see happening elsewhere. We are now immersed in a fierce global contest of ideas, information, and norms. In the digital age, that contest is moving at lightning speed, shaping how people think about their political systems and the way the world runs. As doubts about and threats to democracy are mounting in the West, this is not a contest that the democracies can afford to lose. Globalization, with its flows of trade and information, raises the stakes for us in another way. Authoritarian and badly governed regimes increasingly pose a direct threat to popular sovereignty and the rule of law in our own democracies. Covert flows of money and influence are subverting and corrupting our democratic processes and institutions. They will not stop just because Americans and others pretend that we have no stake in the future of freedom in the world. If we want to defend the core principles of self-government, transparency, and accountability in our own democracies, we have no choice but to promote them globally. It is not enough to say that dictatorship is bad and that democracy, however flawed, is still better. Popular enthusiasm for a lesser evil cannot be sustained indefinitely. People need the inspiration of a positive vision. Democracy must demonstrate that it is a just and fair political system that advances humane values and the common good. To make our republics more perfect, established democracies must not only adopt reforms to more fully include and empower their own citizens. They must also support people, groups, and institutions struggling to achieve democratic values elsewhere. The best way to counter Russian rage and Chinese ambition is to show that Moscow and Beijing are on the wrong side of history; that people everywhere yearn to be free; and that they can make freedom work to achieve a more just, sustainable, and prosperous society. In our networked age, both idealism and the harder imperatives of global power and security argue for more democracy, not less. For one thing, if we do not worry about the quality of governance in lower-income countries, we will face more and more troubled and failing states. Famine and genocide are the curse of authoritarian states, not democratic ones. Outright state collapse is the ultimate, bitter fruit of tyranny. When countries like Syria, Libya, and Afghanistan descend into civil war; when poor states in Africa cannot generate jobs and improve their citizens’ lives due to rule by corrupt and callous strongmen; when Central American societies are held hostage by brutal gangs and kleptocratic rulers, people flee—and wash up on the shores of the democracies. Europe and the United States cannot withstand the rising pressures of immigration unless they work to support better, more stable and accountable government in troubled countries. The world has simply grown too small, too flat, and too fast to wall off rotten states and pretend they are on some other planet. Hard security interests are at stake. As even the Trump administration’s 2017 National Security Strategy makes clear, the main threats to U.S. national security all stem from authoritarianism, whether in the form of tyrannies from Russia and China to Iran and North Korea or in the guise of antidemocratic terrorist movements such as ISIS.1 By supporting the development of democracy around the world, we can deny these authoritarian adversaries the geopolitical running room they seek. Just as Russia, China, and Iran are trying to undermine democracies to bend other countries to their will, so too can we contain these autocrats’ ambitions by helping other countries build effective, resilient democracies that can withstand the dictators’ malevolence. Of course, democratically elected governments with open societies will not support the American line on every issue. But no free society wants to mortgage its future to another country. The American national interest would best be secured by a pluralistic world of free countries—one in which autocrats can no longer use corruption and coercion to gobble up resources, alliances, and territory. If you look back over our history to see who has posed a threat to the United States and our allies, it has always been authoritarian regimes and empires. As political scientists have long noted, no two democracies have ever gone to war with each other—ever. It is not the democracies of the world that are supporting international terrorism, proliferating weapons of mass destruction, or threatening the territory of their neighbors.

#### China 5G leadership compromise US military superiority

Borghard et al. 19, \*Erica D. Borghard is an Assistant Professor at the Army Cyber Institute at West Point. Shawn W. \*Lonergan is a U.S. Army Reserve officer assigned to 75th Innovation Command and a Research Scholar at the Army Cyber Institute. (April 25th, 2019, “The Overlooked Military Implications of the 5G Debate”, https://www.cfr.org/blog/overlooked-military-implications-5g-debate)

There are economic implications for which entities can secure the [greatest global market share](https://www.reuters.com/brandfeatures/venture-capital/article?id=61837) of 5G technology. Technological innovation drives economic growth, job creation, and global economic influence. Huawei may have a long-term market advantage over U.S and Western telecoms because the former has been able to offer 5G products at [far cheaper](https://www.nytimes.com/2019/01/26/us/politics/huawei-china-us-5g-technology.html) rates than the latter. Furthermore, there are also concerns that Chinese-built 5G technology is likely to [contain backdoors](https://www.wired.com/story/huawei-case-signals-new-us-china-cold-war-tech/) that could be used to enable [Chinese economic or national security espionage](https://www.cnbc.com/2019/03/05/huawei-would-have-to-give-data-to-china-government-if-asked-experts.html). It is unlikely that Beijing would actively monitor all of the content of the data that comes across Huawei owned or operated infrastructure (although it may collect and analyze metadata). However, it is conceivable that Huawei would get a proverbial “tap on the shoulder” from Beijing to share pertinent information in specific instances. This may include individually targeting senior corporate executives, which is enabled by the millimeter wave frequency that 5G networks employ.

The military applications of 5G technology have vital strategic and battlefield implications for the U.S. Historically, the U.S. military has reaped enormous advantages from employing cutting edge technology on the battlefield. 5G technology holds similar innovative potential. Perhaps most obviously, the next generation of telecommunications infrastructure will have a direct impact on improving military communications. However, it will also produce cascading effects on the development of other kinds of military technologies, such as robotics and artificial intelligence. For instance, artificial intelligence and machine learning capabilities, such as those used in the Department of Defense’s [Project Maven](https://dod.defense.gov/News/Article/Article/1254719/project-maven-to-deploy-computer-algorithms-to-war-zone-by-years-end/), could be greatly enhanced when leveraging the data processing speeds made possible through 5G infrastructure. As an [era of great power competition](https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf) emerges between the United States and China, the United States has a compelling strategic interest in being at the forefront of these new technologies.

The United States and its allies must also consider the tactical and operational implications on the battlefield of conducting conventional or counterinsurgency operations in an area with Chinese owned or operated 5G infrastructure. This concern stems from the nature of the relationship between Huawei, an [ostensibly private company](https://www.itnews.com.au/news/analysis-who-really-owns-huawei-175946), and the Chinese Communist Party (CCP). While Huawei’s founder and CEO, Ren Zhengfei proclaimed in a February 2019 interview on [CBS This Morning](https://www.cbsnews.com/news/ren-zhengfei-huawei-ceo-says-we-will-never-provide-chinese-government-with-any-information/)that the company never has and never would provide information to the Chinese government, many experts are [skeptical](https://www.cnbc.com/2019/03/05/huawei-would-have-to-give-data-to-china-government-if-asked-experts.html). Under China’s [2017 National Intelligence Law](https://www.reuters.com/article/us-china-security-lawmaking-idUSKBN19I1FW), the CCP has the authority to monitor and investigate domestic and international companies as well as direct organizations to assist with government espionage efforts. As such, it is conceivable that Huawei will be required to hand over its data to the Chinese government for collection and analysis.

Due to this reality, the United States must consider and be prepared to conduct overseas contingency or counterterrorism operations in areas where Chinese telecommunications infrastructure is widely proliferated, thus restricting the United States’ ability to rely on indigenous telecoms. As [noted](https://www.africom.mil/media-room/transcript/31604/gen-joseph-votel-gen-thomas-waldhauser-and-acting-asd-for-international-security-affairs-kathryn) by US AFRICOM Commander General Thomas Waldhauser, this has already become an issue in Africa where Chinese telecommunications companies are poised to dominate. The integrity of U.S. military communications systems that rely on 5G networks could be undermined at key phases of an operation. For example, if the United States is conducting a military operation in an area of interest to China, it is plausible that the Chinese government could leverage Huawei to intercept or even deny military communications. Furthermore, Chinese telecom infrastructure dominance in a theater of operations may limit the U.S. military’s ability to conduct precision targeting that leverages signals intelligence collection on 5G telecommunications networks.

The strategic and battlefield implications of who owns and operates 5G infrastructure around the world underscores the national security importance of 5G. The U.S. government and its allies should more systematically assess both the opportunities and risks associated with conducting future military operations in environments that rely on Chinese technology.

To date, the U.S. government has devoted significant energy to persuading its allies and partners to follow the United States in prohibiting Chinese telecoms, particularly Huawei, from building and/or operating 5G infrastructure. However, its diplomatic approach has been met with varying degrees of success. While some countries such as [Australia](https://www.ft.com/content/e90c3800-aad3-11e8-94bd-cba20d67390c) and [Japan](https://www.reuters.com/article/us-usa-china-huawei-japan/japans-top-three-telcos-to-exclude-huawei-zte-network-equipment-kyodo-idUSKBN1O90JW) have fallen in line with the U.S. stance on Huawei, many others have not. The European Commission’s recent 5G [recommendations](https://www.cyberscoop.com/5g-eu-huawei-cybersecurity-recommendations/) for member states dismissed a ban on Chinese telecoms. British intelligence has reportedly maintained that the security risks associated with Huawei can be [sufficiently managed](https://www.ft.com/content/619f9df4-32c2-11e9-bd3a-8b2a211d90d5), and New Zealand, after [initially bandwagoning](https://www.nytimes.com/2018/11/28/business/huawei-new-zealand-papua-new-guinea.html) with the United States in December 2018, abruptly [reversed course](https://www.bloomberg.com/news/articles/2019-02-18/new-zealand-says-china-s-huawei-hasn-t-been-ruled-out-of-5g-role) in February 2019. This is concerning for the United States because New Zealand and the UK are members of the Five Eyes intelligence-sharing alliance. Many allies have refused an outright ban of Huawei because of the company’s ability to offer 5G products at far cheaper rates than Western telecoms.

It is clear that U.S. diplomatic efforts are not working. The reality is that the bottom line is largely driving decision-making. Therefore, rather than take a purely negative approach, the United States should consider using positive inducements to make its 5G products more appealing. While the United States should not strive to mirror China’s top-down approach to innovation, it should work with allies to use market incentives to make U.S.- and Western-developed 5G infrastructure and products more competitive. Furthermore, the U.S. military needs to anticipate that its use of native telecommunications infrastructure in a future operating environment may be compromised, limited, or denied. The U.S. military will inevitably need greater bandwidth on the tactical edge and this should be an imperative that drives investment in research and development to address this challenge.

Technological innovation was at the crux of the United States’ comparative military and economic advantage in the twentieth century. In this contemporary great power competition, U.S. failure to innovate at the scientific and technological frontier will have direct (and deleterious) effects for the United States on the distribution of power in the international system over the long term.

#### Chinese tech superiority upends deterrence and emboldens them to risk conflict over Taiwan---extinction.

Kroenig 18, Deputy Director for Strategy, Scowcroft Center for Strategy and Security Associate Professor of Government and Foreign Service, Georgetown University (Matthew, Nov 12, 2018, “Will disruptive technology cause nuclear war?” *BAS*, <https://thebulletin.org/2018/11/will-disruptive-technology-cause-nuclear-war>)

Rather, we should think more broadly about how new technology might affect global politics, and, for this, it is helpful to turn to scholarly international relations theory. The dominant theory of the causes of war in the academy is the “bargaining model of war.” This theory identifies rapid shifts in the balance of power as a primary cause of conflict.

International politics often presents states with conflicts that they can settle through peaceful bargaining, but when bargaining breaks down, war results. Shifts in the balance of power are problematic because they undermine effective bargaining. After all, why agree to a deal today if your bargaining position will be stronger tomorrow? And, a clear understanding of the military balance of power can contribute to peace. (Why start a war you are likely to lose?) But shifts in the balance of power muddy understandings of which states have the advantage.

You may see where this is going. New technologies threaten to create potentially destabilizing shifts in the balance of power.

For decades, stability in Europe and Asia has been supported by US military power. In recent years, however, the balance of power in Asia has begun to shift, as China has increased its military capabilities. Already, Beijing has become more assertive in the region, claiming contested territory in the South China Sea. And the results of Russia’s military modernization have been on full display in its ongoing intervention in Ukraine.

Moreover, China may have the lead over the United States in emerging technologies that could be decisive for the future of military acquisitions and warfare, including 3D printing, hypersonic missiles, quantum computing, 5G wireless connectivity, and artificial intelligence (AI). And Russian President Vladimir Putin is building new unmanned vehicles while ominously declaring, “Whoever leads in AI will rule the world.”

If China or Russia are able to incorporate new technologies into their militaries before the United States, then this could lead to the kind of rapid shift in the balance of power that often causes war. If Beijing believes emerging technologies provide it with a newfound, local military advantage over the United States, for example, it may be more willing than previously to initiate conflict over Taiwan. And if Putin thinks new tech has strengthened his hand, he may be more tempted to launch a Ukraine-style invasion of a NATO member.

Either scenario could bring these nuclear powers into direct conflict with the United States, and once nuclear armed states are at war, there is an inherent risk of nuclear conflict through limited nuclear war strategies, nuclear brinkmanship, or simple accident or inadvertent escalation.

This framing of the problem leads to a different set of policy implications. The concern is not simply technologies that threaten to undermine nuclear second-strike capabilities directly, but, rather, any technologies that can result in a meaningful shift in the broader balance of power. And the solution is not to preserve second-strike capabilities, but to preserve prevailing power balances more broadly.

When it comes to new technology, this means that the United States should seek to maintain an innovation edge. Washington should also work with other states, including its nuclear-armed rivals, to develop a new set of arms control and nonproliferation agreements and export controls to deny these newer and potentially destabilizing technologies to potentially hostile states.

These are no easy tasks, but the consequences of Washington losing the race for technological superiority to its autocratic challengers just might mean nuclear Armageddon.

#### Emergence of smart cities depends on IoT applications of 5G interoperability standards---absent FRAND, excessive royalties will undermine sustainable development.

Schwartz 18, \*Matt Schwartz, Privacy Fellowship Coordinator at ACT, App Association; (March 2nd, 2018, “It’s Smart to be FRANDly: How the FRAND Commitment Will Determine the Future of Smart Cities”, https://actonline.org/2018/03/02/its-smart-to-be-frandly-how-the-frand-commitment-will-determine-the-future-of-smart-cities/)

In December, we [outlined](https://actonline.org/2017/12/18/smart-cities-connecting-your-community-through-technology/%5d) the emergence of Smart Cities – cities that harness technological innovations like internet of things (IoT) devices and data analytics to improve essential infrastructure in growing urban centers. The technological foundation of Smart Cities aims to improve public safety, better allocate resources, and meet the needs of citizens more quickly.

A central element to Smart Cities is the comprehensive network of sensors and devices implemented within buildings, roads, traffic signs, and parking meters that allows them to interact with public, and potentially private-owned, infrastructure. These sensors will “speak” to one another, communicating information about energy usage, traffic density, or other elements of city management that have traditionally either been analyzed separately or not tracked at all. The potential of Smart Cities allows data to flow from previously disconnected branches of the city and be processed in real-time, unlocking previously unknown insights.

The powerful interoperability of Smart Cities will rely heavily on standardized technologies developed in organizations like the IEEE, which is responsible for standardizing the wi-fi technology we use every day. Standardized technologies often include standard-essential patents (SEPs), which, like their name suggests, are patents declared essential to an industry standard by a standards-setting organization. In simple terms, one cannot implement the standardized technology without using the patent.

Like regular patents, the users of SEPs must pay royalties or licensing fees to the patent owner before they may use it. For example, if a manufacturing company wants to make an IoT device interoperable with a 5G network, the manufacturer must pay a licensing fee to the owner of the SEP that is essential to the 5G standard. SEPs play a vital role in the new innovations we enjoy and have come to expect, and because of the value of these patents, SEP holders have the ability to demand high license fees from those who wish to implement the standard. To offset this competition issue, many SEP holders voluntarily agree to license their SEPs to any willing licensee under fair, reasonable, and non-discriminatory (FRAND) terms.

While wi-fi and LTE are standards that will be vital to Smart City deployment, countless new standardized technologies are being developed that will be integral to any fully-operational Smart City. With reasonable access to SEPs, assured by the FRAND commitment, innovators can enjoy the legal and business certainty they need to compete. While the meaning of the FRAND commitment continues to be refined – as evidenced by the development of SEP best practices recently launched by the App Association in Europe – its foundations are well-established.

But what happens when SEP holders do not abide by the FRAND licensing commitment, or simply refuse to license at all? Sadly, small and medium-sized companies would be forced to accept untenable licensing terms, but more realistically, they would be priced out of using the standard altogether. As a result, it would impose a barrier to innovation that would result in fewer products offered to consumers or cities eager to implement IoT technologies. For example, many hope the rise of autonomous vehicles will be seamlessly integrated into the Smart City network. But how beneficial would it be if only some autonomous vehicle brands are able to license the technology needed to communicate with traffic lights, simply because of the market power of a chipmaker? The FRAND commitment is an important backstop to that unfortunate possibility.

It is vital for SEP holders to honor FRAND licensing terms, if not for small and medium-sized innovators, then for the sustainability of future Smart Cities. FRAND creates a platform for innovation, providing a floor on which companies can stand, innovate, and compete. If the foundation of the FRAND commitment is reneged, American innovators pay a steep price – not only do they lose a key component of product development and market entry, but they are also left with years of expensive negotiations and litigation if they choose to challenge the licensing practice. What’s more, the confidence developed in the open standards development system is shaken, and Smart Cities have fewer choices in IoT solutions for their future.

To achieve the promise of Smart Cities, a balanced standards ecosystem is essential. We must allow small and medium-sized developers to leverage industry standards for innovation and prevent cost-prohibitive royalty structures and negotiating practices that are detrimental to competition, while also ensuring that SEP owners can protect their intellectual property and be fairly compensated for its use. The FRAND commitment continues to be the best framework to achieve this balance, and adherence to its principles will determine the future and success of Smart Cities.

#### Climate change is anthropogenic and causes extinction---5G-enabled smart cities are critical for mitigation and adaptation.

Huseien 21, \*Ghasan Fahim Huseien is a research fellow at Department of Building, School of Design and Environment, National University of Singapore, Singapore; Dr. Kwok Wei Shah is presently an assistant professor and deputy program director with the Department of Building, School of Design and Environment, National University of Singapore, Singapore; (August 23rd, 2021, “Potential Applications of 5G Network Technology for Climate Change Control: A Scoping Review of Singapore”, https://www.mdpi.com/2071-1050/13/17/9720)

Currently, the entire planet is at risk due to continual climate change [1–3]. The recorded increase in average temperature across the world in the past hundred years, and the associated changes attributed to this, are known as global warming. Many scientists are convinced by the published evidence that this change is anthropogenic and resulted from the elevated emission levels of global greenhouse gases (GHGs) [4,5]. Gases such as water vapor, carbon dioxide, methane, nitrous oxide, and ozone are responsible for the absorption and emission of thermal radiation. These changes in the relative quantities of the GHGs induce a proportional change in the amount of preserved solar energy. Presently, the accepted indicator for global warming is the sustained rise in the mean temperature worldwide. This definition is designed to account for the fact that there may be some localized exceptions to this rise. For example, there may be cooling experienced in a region while the global temperature may increase altogether, hence the need for average temperature. A key concern with the GHGs trapping of more heat in the atmosphere is that it affects both climate and short scale weather patterns. Consequently, it results in greater numbers of adverse weather events such as storms, heat waves, cold snaps, droughts, and fires [6]. Climate-related risks to health, livelihoods, food security, water supply, human safety, and economic growth are projected to increase with global warming of 1.5 ◦C [7] and further increase further at 2 ◦C, as shown in Figure 1. In addition, the risks to global aggregated economic growth due to the climate change impacts are projected to be lower at 1.5 ◦C than at 2 ◦C by the end of this century.

Carbon dioxide has the most substantial effect on global warming [8]. Although it was once assumed to have an ~100 year lifespan in the atmosphere, careful studies revealed that the situation is far worse, with three-quarters of the gas expected to remain for a time in the region of up to ~1000 years, with the remainder lasting for an indefinite period of time [9]. It was indicated that the present impacts of humanity on the atmosphere can certainly cause a long term problem [10]. Carbon dioxide is released when oil, coal, and other fossil fuels are burnt for the energy we use to power our homes, cars, and smartphones. By lessening its usage, we can curb our own contribution to climate change while saving money. The first challenge is eliminating the burning of coal, oil, and, eventually, natural gas. Oil is the lubricant of the global economy as it is hidden inside such ubiquitous items as plastic and corn, fundamental to the transportation of both consumers and goods. Coal is the substrate, supplying roughly half of the electricity worldwide, a percentage that is likely to grow according to the International Energy Agency (IEA). In fact, buildings contribute up to 43% of all the greenhouse gas emissions worldwide [11], even though investing in thicker insulation and other cost-effective as well as temperature-regulating strategies can save money in the long run. Investment in new infrastructures, or radical upgradation of the existing highways and transmission lines, may help to reduce greenhouse gas emissions, yielding economic growth in the developing countries.

Nations across the globe have kept very high targets to reducing their GHG discharges [12,13]. In order to meet these goals, considerable reductions in city energy usage is required. At a global scale, urban communities represent over half (55%) of the population, which is predicted to reach 68% by the middle of this century [14]. Urban areas claim ownership of the highest levels of energy use, gas emission, and also the largest local economy. As such, it is crucial for urban areas to reduce their consumption and utilize renewable sources wherever available to reduce their gas discharge levels. Smart cities often utilize digital sensors to measure and transmit data about the levels of GHGs in the city at that moment, as a means of tackling them [15]. The efficacy of such a system is thus reliant on the network used to collate and analyze the data collected as an extant network. The mobile telecommunications networks offer a convenient solution to this desire, as their pre-existence has the clear benefit of reducing costs compared to the design and implementation of a novel system. It is recognized that smart cities will certainly act as the key players meeting these ambitious targets [16,17]. In this study, we focused primarily on the potential applications of 5G network technology to control climate change in Singapore. In addition, a clear overview of the sustainability benefits of introducing 5G technology compatible smart cities, buildings, and farms in all aspects of urbanization is provided. Herein, the main purpose is to tackle the negative outcomes associated with anthropogenic climate change, with a particular focus on the contributions that are best made by the telecoms network operators.

Climate change is one of the most challenging problems that humanity has ever faced. Presently, hundreds of millions of lives, innumerable species, entire ecosystems, health, economy, and the future habitability of this planet are at risk. Fortunately, climate change is solvable, we just need to wisely exploit the existing technologies and sciences. Climate change mitigation is a pressing international need in which many management actions are required. The development of 5G technology has been largely driven by smart mobile devices and advanced communication technologies. It may thus serve as a technical enabler for a whole new range of business opportunities, energy, and facilities management, together with industrial applications. Moreover, it may enable different devices to work together seamlessly. Definitely, the 5G cellular network technology is expected to revolutionize the global industries with profound effects on the savings of energy, waste generation and recycling, and water resources management, thus reducing the climate change impacts.

### 1AC---Cybersecurity ADV

#### Advantage 2 is Cybersecurity:

#### Aggressive patent strategies create structural flaws in 5G standardization that imperils domestic cybersecurity---market competition reduces the incidence of vulnerability and severity of attacks.

Duan 20, \*Charles Duan is a senior fellow and associate director of tech & innovation policy at the R Street Institute, where he focuses his research on intellectual property issues; (2020, “OF MONOPOLIES AND MONOCULTURES: THE INTERSECTION OF PATENTS AND NATIONAL SECURITY”, Santa Clara High Technology Law Journal, 36(4), 369-405. Retrieved from <https://www2.lib.ku.edu/login?url=https://www.proquest.com/scholarly-journals/monopolies-monocultures-intersection-patents/docview/2442966690/se-2?accountid=14556>)

III. COMPETITION AND CYBERSECURITY

In addition to the historical review done so far, another approach to understanding the relationship among patents, competition, and national security is to consider the role of cybersecurity. There is little doubt that computer system vulnerabilities that enable hacking and spread of computer exploits are a threat to the nation’s defenses, so better cybersecurity is a key part of national security strategy.155

Strong competition can thus complement national security by enhancing domestic cybersecurity, and patent assertion that unduly weakens competition detracts from cybersecurity.156 Competition promotes better cybersecurity in at least two ways. First, multiple studies show that competition encourages firms to improve their products on multiple vectors including cybersecurity. Second, competition avoids a situation that security experts call a “monoculture,” which increases vulnerability to severe cyberattacks. As former Secretary of Homeland Security Michael Chertoff wrote recently, “We need competition and multiple providers, not a potentially vulnerable technological monoculture,” to guarantee national security.157 Thus, cybersecurity provides a useful lens for understanding how unfettered patent assertion and licensing can detract from national security.

A. Cybersecurity as Competitive Value-Add

Competition enhances national security by reducing the incidence of technical vulnerabilities. That effect is especially important for security sensitive systems such as mobile telecommunications.

Intuitively, a causal chain from competition to cybersecurity makes logical sense. Computer security is a value-added benefit to consumers, so firms in competitive markets are likely to use security to gain an edge over their competitors.158 In monopolized markets, though, there may be less external impetus to test products for flaws, and the monopolist may choose to focus less on security and more on new product features or increased product quality.

Economic research confirms these hypotheses about competition leading to better cybersecurity. A 2009 empirical study of web browsers considered the impact of market concentration on the amount of time that vendors took to fix security vulnerabilities as they were discovered.159 The study found that the presence of more competitors correlated with faster cybersecurity response—a reduction of 8–10 days in response time per additional market rival.160 Similarly, business researchers in 2005 modeled incentives for firms to engage in sharing of cybersecurity information, and concluded that the “inclination to share information and invest in security technologies increases as the degree of competitiveness in an industry increases.”161 Another study found that, where two software firms are in competition, at least one will be willing to take on some degree of risk and responsibility for cybersecurity, whereas a monopoly software firm will consistently fail to accept such responsibility.162 To be sure, an unpublished study from 2017 found that some market concentration can make firms more responsive to cybersecurity issues, but only to a point: “being in a dominant position reduces the positive effect of having less competitors on the responsiveness of the vendor,” and indeed the “more dominant the firm is, the less rapid it is in releasing security patches.”163 This research confirms that competition is more conducive to cybersecurity.

It is not hard to see how this applies to emerging communication technologies markets. In the absence of competition, the above research suggests that device manufacturers, chip makers, and software developers will lack incentives to respond to vulnerabilities, to share information about cybersecurity practices and issues, and to take responsibility for security matters. Mobile phone chips have had their share of cybersecurity failures already.164 The best way to flush out ongoing and future cybersecurity issues is to maintain competitive pressure at all levels of the supply chain.

B. Vulnerabilities of “Monocultures”

A second reason why monopoly undermines cybersecurity is that monopoly leads to a “monoculture” of single-vendor products, opening the door to massive systemic failure in the case of a cyberattack. Computer researchers developed the theory of software monocultures in the early 2000s, in response to the regular phenomenon of computer viruses and other attacks spreading rapidly by exploiting flaws in the dominant operating system at the time, Microsoft Windows.165 Where a computer system such as Windows has a commanding share of users, a virus that exploits a flaw in that system can quickly spread to infect a whole interconnected ecosystem. An operating system monopoly thus enables fast and easy spread of cyberattacks, and better cybersecurity would be achieved through greater diversity in online systems.166 As one research group posited, “a network architecture that supports a collection of heterogeneous network elements for the same functional capability offers a greater possibility of surviving security attacks as compared to homogeneous networks.”167

There has been considerable study of the theory that computer monocultures are naturally more vulnerable to attacks.168 In one study, computer science researchers reviewed a catalog of 6,340 software vulnerabilities recorded in 2007, to compare whether comparable software would share the same flaws.169 Of the 2,627 vulnerabilities applicable to application software (as opposed to operating systems, web scripts, and other software components), only 29 (1.1%) applied to substitute products from different vendors but providing the same functionality.170 By contrast, different versions of a single software product were found to share vulnerabilities 84.7% of the time.171 Thus, software monocultures share exploitable flaws even when there is some variation in versions across the monoculture; by contrast, diversity in software is almost guaranteed to prevent a single flaw from affecting all users.

In the case of 5G and wireless mobile communications, a monoculture is an especially concerning possibility. To the extent that systems such as smart city sensors or communication networks are widely deployed in a monoculture fashion, a widespread attack could have devastating consequences, potentially blacking out a region and affecting essential services such as 911.172 A monoculture that is vulnerable to so-called “rootkits” or “backdoors”—maliciously installed software that enable bad actors to commandeer systems—could also enable mass surveillance or spying by private hackers or foreign governments.173 The presence of systems from multiple vendors would mitigate these possibilities.

#### Actors have the means and motivations to strike critical infrastructure.

Wintch 21, \*Timothy M. Wintch, an active-duty Major in the United States Air Force. He is currently a graduate student at the Oettinger School of Science & Technology Intelligence, National Intelligence University, in Bethesda, Maryland. Mr. Wintch has over 11 years of experience in command-and-control operations as an Air Battle Manager. He holds a Bachelor of Arts in Politics from the University of California, Santa Cruz, and a Master of Arts in Military Studies from American Military University. (April 20th, 2021, “PERSPECTIVE: Cyber and Physical Threats to the U.S. Power Grid and Keeping the Lights on”, https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/)

Among critical infrastructure sectors in the U.S., energy is perhaps the most crucial of the 16 sectors defined by the Department of Homeland Security. This sector is so vital because it provides the energy necessary to run every other critical infrastructure sector. However, the U.S. power grid, the backbone of the energy sector, is built upon an aging skeleton that is becoming increasingly vulnerable every day. Whether from terrorists or nation-states like Russia and China, the power grid is susceptible to not just physical attacks, but also to cyber intrusion as well. However, much of this threat can be mitigated if the U.S. takes the appropriate steps to safeguard the power grid and avoid a potential catastrophe in the future.

Since Sept. 11, 2001, terrorism on U.S. soil has been at the forefront of American consciousness. Critical infrastructure provides an appealing target because of the disproportionally large impact even a small attack can have on the sectors. In particular, the power grid represents a particularly lucrative target, both in terms of the ease of access and the large impact it can make. The National Research Council stated that the U.S. power grid is “vulnerable to intelligent multi-site attacks by knowledgeable attackers intent on causing maximum physical damage to key components on a wide geographical scale.”[[1]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn1) Additionally, the physical security of transmission and distribution systems is difficult due to the dispersed nature of these key components, which in turn is advantageous to attackers as it reduces the likelihood of their capture.[[2]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn2) From 2002-2012, approximately 2,500 physical attacks occurred against transmission lines and towers worldwide and approximately 500 attacks against transformer substations.[[3]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn3) Terrorists have the motivation to attack the U.S. power grid but the very nature of the grid makes it highly vulnerable. The power grid is not only at risk from physical attacks, but also nation-state cyberattacks.

One nation that has shown both the capability and intent to use attacks against critical energy infrastructure is Russia, as demonstrated in their 2015 annexation of Crimea from Ukraine. A Russian cyber threat group known as Sandworm, which used its BlackEnergy malware, attacked Ukrainian computer systems that provide remote control of the Ukraine power grid.[[4]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn4) This attack, and another in 2016, each left the capital Kiev without power, prompting cyber experts to raise concern about the same malware already existing in NATO and the U.S. power grids.[[5]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn5) In any conflict between Russia and NATO, not only would similar cyberattacks pose a threat, but so would potential physical attacks severing fuel oil and natural gas lines to Western Europe. Russia has both the capability and intent to attack critical infrastructure, particularly power grids, during future conflicts in their “hybrid warfare” approach.

Another nation that has the capability to attack critical energy infrastructure is China, representing a threat to not just the U.S. energy infrastructure but also that of our allies whose support would be vital in a major conflict. A recent NATO report highlighted this threat from China’s Belt and Road Initiative, stating that “[China’s] foreign direct investment in strategic sectors [such as energy generation and distribution] …raises questions about whether access and control over such infrastructure can be maintained, particularly in crisis when it would be required to support the military.”[[6]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn6) Like Russia, China has been active with cyber intrusions in U.S. energy infrastructure. The Mission Support Center at Idaho National Laboratory characterized these as attacks as “multiple intrusions into US ICS/SCADA [Industrial Control Systems/Supervisory Control and Data Acquisition] and smart grid tools [that] may be aimed more at intellectual property theft and gathering intelligence to bolster their own infrastructure, but it is likely that they are also using these intrusions to develop capabilities to attack the [bulk electric system], as well.”[[7]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn7) China, therefore, has both the capability and intent to conduct cyber intrusions and attacks for myriad reasons.

Another arm of this threat is the reliance the U.S. energy industry has on imports from China, especially transformers. In early 2020, federal officials seized a transformer in the port of Houston that had been imported by the Jiangsu Huapeng Transformer Company before sending it to Sandia National Laboratory in Albuquerque. Sandia is contracted by the U.S. Department of Energy for mitigating national security threats.[[8]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn8) The Wall Street Journal reported that “Mike Howard, chief executive of the Electric Power Research Institute, a utility-funded technical organization, said that the diversion of a huge, expensive transformer is so unusual – in his experience, unprecedented – that it suggests officials had significant security concerns.”[[9]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn9) Previously destined for the Washington Area Power Administration’s Ault, Colo., substation, the transformer is believed to have been seized due to “backdoor” exploitable hardware emplaced by the Chinese prior to shipment.[[10]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn10) Shortly after these events, President Trump issued Executive Order 13920, “[Securing the United States Bulk-Power System](https://trumpwhitehouse.archives.gov/presidential-actions/executive-order-securing-united-states-bulk-power-system/),” essentially limiting the import of Chinese-built critical energy infrastructure components due to concerns about cybersecurity.[[11]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn11) Interestingly, Jiangsu Huapeng “boasted that it supported 10 percent of New York City’s electricity load.”[[12]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn12)

Franklin Kramer, the former Assistant Secretary of Defense for International Security Affairs, testified before a U.S. House of Representatives Energy and Commerce subcommittee during an energy and power hearing in 2011 and said that a “highly-coordinated and structured cyber, physical, or blended attack on the bulk power system, however, could result in long-term (irreparable) damage to key system components in multiple simultaneous or near-simultaneous strikes.” He added that “an outage could result with the potential to affect a wide geographic area and cause large population centers to lose power for extended periods.”[[13]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn13) Even the inclusion of features such as smart grids to the overall grid structure poses new vulnerabilities through their connectivity. Kramer stated that “such connectivity means that the distribution system could be a key vector for a national security attack on the grid.”[[14]](https://www.hstoday.us/subject-matter-areas/infrastructure-security/perspective-cyber-and-physical-threats-to-the-u-s-power-grid-and-keeping-the-lights-on/" \l "_ftn14)

#### Those attacks cause accidental nuclear escalation.

Klare 19, \*Michael T. Klare is a professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association; (November 19th, “Cyber Battles, Nuclear Outcomes? Dangerous New Pathways to Escalation”, https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation)

Yet another pathway to escalation could arise from a cascading series of cyberstrikes and counterstrikes against vital national infrastructure rather than on military targets. All major powers, along with Iran and North Korea, have developed and deployed cyberweapons designed to disrupt and destroy major elements of an adversary’s key economic systems, such as power grids, financial systems, and transportation networks. As noted, Russia has infiltrated the U.S. electrical grid, and it is widely believed that the United States has done the same in Russia.[12](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote12) The Pentagon has also devised a plan known as “Nitro Zeus,” intended to immobilize the entire Iranian economy and so force it to capitulate to U.S. demands or, if that approach failed, to pave the way for a crippling air and missile attack.[13](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote12)

The danger here is that economic attacks of this sort, if undertaken during a period of tension and crisis, could lead to an escalating series of tit-for-tat attacks against ever more vital elements of an adversary’s critical infrastructure, producing widespread chaos and harm and eventually leading one side to initiate kinetic attacks on critical military targets, risking the slippery slope to nuclear conflict. For example, a Russian cyberattack on the U.S. power grid could trigger U.S. attacks on Russian energy and financial systems, causing widespread disorder in both countries and generating an impulse for even more devastating attacks. At some point, such attacks “could lead to major conflict and possibly nuclear war.”[14](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote14)

These are by no means the only pathways to escalation resulting from the offensive use of cyberweapons. Others include efforts by third parties, such as proxy states or terrorist organizations, to provoke a global nuclear crisis by causing early-warning systems to generate false readings (“spoofing”) of missile launches. Yet, they do provide a clear indication of the severity of the threat. As states’ reliance on cyberspace grows and cyberweapons become more powerful, the dangers of unintended or accidental escalation can only grow more severe.

#### Cyber-compromised NC3 causes nuclear war.

Klare 19, \*Michael T. Klare is a professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association; (November 19th, “Cyber Battles, Nuclear Outcomes? Dangerous New Pathways to Escalation”, <https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation>)

The Nuclear-Cyber Connection

These links exist because the NC3 systems of the United States and other nuclear-armed states are heavily dependent on computers and other digital processors for virtually every aspect of their operation and because those systems are highly vulnerable to cyberattack. Every nuclear force is composed, most basically, of weapons, early-warning radars, launch facilities, and the top officials, usually presidents or prime ministers, empowered to initiate a nuclear exchange. Connecting them all, however, is an extended network of communications and data-processing systems, all reliant on cyberspace. Warning systems, ground- and space-based, must constantly watch for and analyze possible enemy missile launches. Data on actual threats must rapidly be communicated to decision-makers, who must then weigh possible responses and communicate chosen outcomes to launch facilities, which in turn must provide attack vectors to delivery systems. All of this involves operations in cyberspace, and it is in this domain that great power rivals seek vulnerabilities to exploit in a constant struggle for advantage.

The use of cyberspace to gain an advantage over adversaries takes many forms and is not always aimed at nuclear systems. China has been accused of engaging in widespread cyberespionage to steal technical secrets from U.S. firms for economic and military advantages. Russia has been accused, most extensively in the Robert Mueller report, of exploiting cyberspace to interfere in the 2016 U.S. presidential election. Nonstate actors, including terrorist groups such as al Qaeda and the Islamic State group, have used the internet for recruiting combatants and spreading fear. Criminal groups, including some thought to be allied with state actors, such as North Korea, have used cyberspace to extort money from banks, municipalities, and individuals.[4](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote04) Attacks such as these occupy most of the time and attention of civilian and military cybersecurity organizations that attempt to thwart such attacks. Yet for those who worry about strategic stability and the risks of nuclear escalation, it is the threat of cyberattacks on NC3 systems that provokes the greatest concern.

This concern stems from the fact that, despite the immense effort devoted to protecting NC3 systems from cyberattack, no enterprise that relies so extensively on computers and cyberspace can be made 100 percent invulnerable to attack. This is so because such systems employ many devices and operating systems of various origins and vintages, most incorporating numerous software updates and “patches” over time, offering multiple vectors for attack. Electronic components can also be modified by hostile actors during production, transit, or insertion; and the whole system itself is dependent to a considerable degree on the electrical grid, which itself is vulnerable to cyberattack and is far less protected. Experienced “cyberwarriors” of every major power have been working for years to probe for weaknesses in these systems and in many cases have devised cyberweapons, typically, malicious software (malware) and computer viruses, to exploit those weaknesses for military advantage.[5](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote05)

Although activity in cyberspace is much more difficult to detect and track than conventional military operations, enough information has become public to indicate that the major nuclear powers, notably China, Russia, and the United States, along with such secondary powers as Iran and North Korea, have established extensive cyberwarfare capabilities and engage in offensive cyberoperations on a regular basis, often aimed at critical military infrastructure. “Cyberspace is a contested environment where we are in constant contact with adversaries,” General Paul M. Nakasone, commander of the U.S. Cyber Command (Cybercom), told the Senate Armed Services Committee in February 2019. “We see near-peer competitors [China and Russia] conducting sustained campaigns below the level of armed conflict to erode American strength and gain strategic advantage.”

Although eager to speak of adversary threats to U.S. interests, Nakasone was noticeably but not surprisingly reluctant to say much about U.S. offensive operations in cyberspace. He acknowledged, however, that Cybercom took such action to disrupt possible Russian interference in the 2018 midterm elections. “We created a persistent presence in cyberspace to monitor adversary actions and crafted tools and tactics to frustrate their efforts,” he testified in February. According to press accounts, this included a cyberattack aimed at paralyzing the Internet Research Agency, a “troll farm” in St. Petersburg said to have been deeply involved in generating disruptive propaganda during the 2016 presidential elections.[6](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote06)

Other press investigations have disclosed two other offensive operations undertaken by the United States. One called “Olympic Games” was intended to disrupt Iran’s drive to increase its uranium-enrichment capacity by sabotaging the centrifuges used in the process by infecting them with the so-called Stuxnet virus. Another left of launch effort was intended to cause malfunctions in North Korean missile tests.[7](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote07) Although not aimed at either of the U.S. principal nuclear adversaries, those two attacks demonstrated a willingness and capacity to conduct cyberattacks on the nuclear infrastructure of other states.

Efforts by strategic rivals of the United States to infiltrate and eventually degrade U.S. nuclear infrastructure are far less documented but thought to be no less prevalent. Russia, for example, is believed to have planted malware in the U.S. electrical utility grid, possibly with the intent of cutting off the flow of electricity to critical NC3 facilities in the event of a major crisis.[8](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote08) Indeed, every major power, including the United States, is believed to have crafted cyberweapons aimed at critical NC3 components and to have implanted malware in enemy systems for potential use in some future confrontation.

Pathways to Escalation

Knowing that the NC3 systems of the major powers are constantly being probed for weaknesses and probably infested with malware designed to be activated in a crisis, what does this say about the risks of escalation from a nonkinetic battle, that is, one fought without traditional weaponry, to a kinetic one, at first using conventional weapons and then, potentially, nuclear ones? None of this can be predicted in advance, but those analysts who have studied the subject worry about the emergence of dangerous new pathways for escalation. Indeed, several such scenarios have been identified.[9](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote09)

The first and possibly most dangerous path to escalation would arise from the early use of cyberweapons in a great power crisis to ~~paralyze~~ undermine the vital command, control, and communications capabilities of an adversary, many of which serve nuclear and conventional forces. In the “fog of war” that would naturally ensue from such an encounter, the recipient of such an attack might fear more punishing follow-up kinetic attacks, possibly including the use of nuclear weapons, and, fearing the loss of its own arsenal, launch its weapons immediately. This might occur, for example, in a confrontation between NATO and Russian forces in east and central Europe or between U.S. and Chinese forces in the Asia-Pacific region.

Speaking of a possible confrontation in Europe, for example, James N. Miller Jr. and Richard Fontaine wrote that “both sides would have overwhelming incentives to go early with offensive cyber and counter-space capabilities to negate the other side’s military capabilities or advantages.” If these early attacks succeeded, “it could result in huge military and coercive advantage for the attacker.” This might induce the recipient of such attacks to back down, affording its rival a major victory at very low cost. Alternatively, however, the recipient might view the attacks on its critical command, control, and communications infrastructure as the prelude to a full-scale attack aimed at neutralizing its nuclear capabilities and choose to strike first. “It is worth considering,” Miller and Fontaine concluded, “how even a very limited attack or incident could set both sides on a slippery slope to rapid escalation.”[10](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote10)

What makes the insertion of latent malware in an adversary’s NC3 systems so dangerous is that it may not even need to be activated to increase the risk of nuclear escalation. If a nuclear-armed state comes to believe that its critical systems are infested with enemy malware, its leaders might not trust the information provided by its early-warning systems in a crisis and might misconstrue the nature of an enemy attack, leading them to overreact and possibly launch their nuclear weapons out of fear they are at risk of a preemptive strike.

“The uncertainty caused by the unique character of a cyber threat could jeopardize the credibility of the nuclear deterrent and undermine strategic stability in ways that advances in nuclear and conventional weapons do not,” Page O. Stoutland and Samantha Pitts-Kiefer wrote in 2018 paper for the Nuclear Threat Initiative. “[T]he introduction of a flaw or malicious code into nuclear weapons through the supply chain that compromises the effectiveness of those weapons could lead to a lack of confidence in the nuclear deterrent,” undermining strategic stability.[11](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote11) Without confidence in the reliability of its nuclear weapons infrastructure, a nuclear-armed state may misinterpret confusing signals from its early-warning systems and, fearing the worst, launch its own nuclear weapons rather than lose them to an enemy’s first strike. This makes the scenario proffered in the 2018 NPR report, of a nuclear response to an enemy cyberattack, that much more alarming.

### 1AC---Solvency

#### Plan: The United States federal government should substantially increase prohibitions on private sector conduct that is more restrictive of competition than reasonably necessary to enable creation of information technology standards.

#### The plan requires SSO’s to administer reasonable action to prohibit ex post opportunism---that strengthens FRAND effectiveness while enabling SEP holders to capture appropriate royalties---which is the best competition-innovation balance.

Melamed & Shapiro 18, \*A. Douglas Melamed is Professor of the Practice of Law at Stanford Law School; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business at the University of California at Berkeley; (May 2018, “How Antitrust Law Can Make FRAND Commitments More Effective”, https://www-cdn.law.stanford.edu/wp-content/uploads/2018/05/How-Antitrust-Law-Can-Make-FRAND-Commitments-More-Effective.pdf)

3. Application of the Basic Legal Principles

The antitrust principle is straightforward: industry-wide collaboration through SSOs to establish procompetitive standards is permitted only if it is no more restrictive of competition than reasonably necessary to enable creation of the standards. When standard setting predictably creates technology monopolies that, if unrestrained, will enable anticompetitive ex post opportunism that would otherwise not occur, an SSO that does not take effective measures to pre- vent or minimize such ex post opportunism engages in conduct that is more restrictive of competition than necessary. In that case, the SSO and, in appropriate cases, its members, may well violate Section 1 of the Sherman Act.

Under this principle, SSO procedures and FRAND rules should be evaluated based on whether they lead to reasonable SEP royalties, using the competitive ex ante licensing standard discussed above, which has been adopted by the courts in patent law. Put differently, FRAND rules should be evaluated based on their ability to prevent SEP holders from obtaining more than the ex ante value of their technology from implementers.

This limitation would not prevent a SEP holder from proﬁting, perhaps greatly, from participating in the SSO and having its patented technology included in the standard. The SEP holder continues to be rewarded for its technology because the inclusion of its technology in the standard can still greatly increase the volume of licensing opportunities available to the SEP holder.

Whether a particular set of FRAND rules are sufficiently effective in preventing ex post opportunism will depend on the particular circumstances. The procedural unfolding of the case will also depend upon the circumstances. As a general matter, the case would probably be structured as an ordinary Rule of Reason case.82

First, the plaintiff would have to demonstrate harm to competition as a result of the collaboration of the SSO’s members, many of which compete with one another. In this case, the harm to competition would stem from the ability of the SEP holder to exercise monopoly power by obtaining royalties in excess of the competitive, ex ante level. The decision to include patented technologies in the standard would be the allegedly unlawful agreement. Notably, the court need not determine what a FRAND royalty is; it would suffice to determine that market power has been created or exercised, and that existing SSO rules and policies were not adequate to prevent the competitive harm. The defendant, which could be the SSO or perhaps one or more SSO members, would win at this point if the plaintiff failed to show harm to competition. If might fail if the standard faces substantial competition and the court concludes that the SEP holder therefore does not have market power or if the SSO’s rules and policies are found to be effective in preventing ex post opportunism, even if the plaintiff or even the court thinks that other rules and policies would be preferable.

Second, if the plaintiff makes the requisite showing of harm to competition, the defendant(s) would then have to show some procompetitive justiﬁcation— in this case, the beneﬁts of the standard. These two initial steps should be straightforward.

Third, if as is likely the defendant is able to show a procompetitive justiﬁcation, the plaintiff would have to show that the SSO could have used available, reasonable alternatives to realize the efficiency beneﬁts with less or none of the competitive harms. The plaintiff might identify reasonable alternatives that would have led to a different standard, based on including unpatented technology in the standard or perhaps involving fewer SEPs or fewer owners of SEPs, which would be less subject to patent holdup. More likely, the plaintiff could suggest alternative SSO rules that would not change the standard, but would reduce the likelihood or extent of ex post opportunism. For example, the plaintiff might suggest more rigorous FRAND-type rules, such as rules that set forth more precise principles on which FRAND royalties are to be determined and the circumstances under which SEP holders might seek injunctions.

Fourth, the burden would then shift to the defendant(s) to show that the beneﬁts of the standard could not have been realized if the SSO had adopted any of the proffered alternatives or that those alternatives were unrealistic.83 The plaintiff would be entitled to judgment if the court concludes that those beneﬁts could have been realized with less competitive harm if the SSO had adopted the standard with different IPR rules or policies.

Our overall sense, based on experience and the empirical literature, is that the extant FRAND rules are generally useful, but tend to be inadequate because they are imprecise and leave unresolved such critical issues as (a) the meaning of a reasonable royalty, even conceptually; (b) the meaning of “non-discriminatory;” (c) to whom licenses must be offered; and (d) under what circumstances may a SEP holder obtain an injunction.84 These imprecise FRAND commitments are therefore not sufficient to adequately prevent ex post opportunism. The recent revisions to IEEE’s FRAND policy represent a signiﬁcant step in the right direction, but even this advance leaves important questions unanswered.85 If FRAND rules are inadequate in these ways, litigation involving extant FRAND rules would likely be resolved only at the ﬁnal, fourth step. The defendant would be able to demonstrate the beneﬁts created by the standard; the plaintiff would be able to demonstrate the creation of market power and that other reasonable and practical rules or policies would ameliorate the problem. The case would thus turn on whether the defendant is able to demonstrate that signiﬁcant beneﬁts associated with standardization could not have been realized if the SSO had adopted those other rules or policies.

The court would have available a variety of possible remedies if the plaintiff prevails. Implementers that paid supracompetitive royalties or were unlawfully excluded in whole or in part from product markets as a result of the inadequate FRAND policies would be entitled to damages and, in some cases, to treble damages.86 If the unlawful SSO conduct is regarded as the collective action of the SSO and its members, which is likely to be the case in most instances, SSO members would be jointly and severally liable for the damages. Forward-looking injunctive relief aimed at restoring competition would need to be fashioned to the requirements of the individual case. For example, a court could order the SSO to adopt a new rule or policy proposed by the plaintiff. If the court is reluctant to take on that governance role, it might give the SSO a period of time—maybe ninety days—to develop a rule, subject to the court’s ultimate approval, which would adequately ameliorate the competitive problem created by the SSO. Alternatively or in addition, the court might order the parties to attempt to negotiate a rule or policy on which they can agree. And, depending on the circumstances, the court might order SEP holders, including at least those that were defendants in the case, to comply with the new SSO rules and policies.

#### Threatening antitrust liability lures SSO’s into adopting best practices.

Lemley & Shapiro 13, \*Mark Lemley is the William H. Neukom Professor at Stanford Law School and a partner at Durie Tangri LLP; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business, University of California at Berkeley and a Senior Consultant at Charles River Associates; (2013, “A SIMPLE APPROACH TO SETTING REASONABLE ROYALTIES FOR STANDARD-ESSENTIAL PATENTS”, (https://faculty.haas.berkeley.edu/shapiro/frand.pdf)

Under our approach, many of these issues should become moot, since the patentee cannot obtain an injunction (or transfer the patent to someone who can) against a willing licensee, and since competitors are not involved in jointly setting the reasonable royalty rate. If SSOs set clear, reasonable rules following the best practices we recommend, and parties follow those rules, there should be little or no need for antitrust to intervene. Indeed, even the risk of non-disclosure of a patent is lessened, since the patentee has committed to license its essential patents whether or not it discloses them. For the most part, the rules we have described are self-executing, meaning that even if a party tries to break the rules set by the SSO there still may be no need for antitrust to intervene. Thus, we suggest that parties who abide by these procedures—patentees, implementers, and the SSOs themselves—should be immune from antitrust liability for activities that merely follow those rules.107 They have entered into an arrangement that is on balance good for competition, one that allows patentees to receive reasonable royalties but prevents holdup and reduces the risk of monopolization by trickery.

The fact that antitrust remains a last resort available when SSOs don’t follow best practices may have two practical benefits, however. First, under our approach the promise of avoiding the risk of antitrust liability will be a powerful incentive for both SSOs and patent owners to adopt the best practices we propose. Second, the risk of antitrust liability may be relevant when an individual patentee wants to adopt best practices but the SSO governing the standard has not yet done so. We propose that a patentee that unilaterally commits to the FRAND procedures we describe here should be immune from antitrust liability for following these procedures.108 A patentee’s unilateral binding commitment to arbitration could be enforced whether or not it was elicited by an SSO. Thus, just as the prospect of antitrust immunity might lure SSOs to adopt best practices, it might also lure patentees to implement those practices even if the SSO has not done so. Given the large number of standard-essential patents based on preexisting standards,109 and given that SSOs tend to update their IP rules rather slowly,110 this is not a small matter.

#### Only antitrust enforcement creates a consumer-action feature that counterbalances SSO’s conspiratorial incentives---private action fails.

Melamed & Shapiro 18, \*A. Douglas Melamed is Professor of the Practice of Law at Stanford Law School; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business at the University of California at Berkeley; (May 2018, “How Antitrust Law Can Make FRAND Commitments More Effective”, <https://www-cdn.law.stanford.edu/wp-content/uploads/2018/05/How-Antitrust-Law-Can-Make-FRAND-Commitments-More-Effective.pdf>)

2. Why Antitrust Enforcement Is Necessary

Some SSO members have an interest in ensuring that the SSO takes steps to minimize the potential harms from the SEP holders’ monopoly power, and this undoubtedly explains in part why most SSOs have adopted FRAND policies or similar requirements. But, as shown in the economic model in the Appendix,73 SSOs cannot in general be counted on to adopt effective FRAND policies. The bases for this conclusion, which is central to our argument for the applicability of Section 1 to SSO FRAND rules, can be summarized as follows.74

First, the SSO members collectively have an interest in permitting SEP holders to charge supracompetitive royalties that elevate the downstream price of compliant devices to the monopoly level. Doing so will enable the members in aggregate to collect increased revenues from consumers, and thus to generate increased profits that in theory could be shared by all the members. In other words, supracompetitive royalties can enrich industry participants as a group at the expense of final consumers. This fact alone should serve as a clear and strong signal regarding the dangers of counting on SSOs to implement effective FRAND policies: if the SSO members negotiate efficiently, the outcome will be just as bad for consumers as if the members agreed to fix downstream prices.75 The fundamental problem is that final consumers are not at the table when the SSO rules are negotiated.

Second, SSO members that own SEPs but earn little or no profits as implementers have a powerful self-interest in being able to exercise the ex post monopoly power associated with their SEPs. Because SSO policies are usually determined by a consensus process, these members will likely be able to block the adoption of fully effective FRAND policies. Moreover, these SSO members often have the greatest interest in SSO patent policies. Since much of their income may be attributable to patent licensing, they can be expected to devote substantial resources to block the adoption of FRAND policies that effectively prevent patent holdup.

Third, even SSO members that earn significant profits as implementers may have mixed incentives if they also own SEPs, which can also lead to weak or in-effective FRAND rules. In the Appendix, we show that, if the requisite share of votes in the SSO are cast by firms whose share of SEP royalties is at least as large as their share of downstream profits, and if these firms can coordinate their voting over the FRAND rules, then an SSO unconstrained by antitrust laws will establish FRAND rules leading to an outcome no better for consumers than would result from an integrated monopolist controlling all SEPs and all downstream sales.76

Fourth, even SSO members that are downstream implementers and own few, if any, SEPs may have only a modest interest in promoting effective policies to restrict ex post opportunism. Because all implementers will be subject to the opportunism, all of them will face increased licensing costs, and therefore will likely be able to pass on most or all of the increased costs to their customers.77 Furthermore, these implementers might not be especially active or effective in the standard-setting process for free-riding or public-good reasons, especially if SEP royalties constitute only a relatively small portion of the costs of their standard-implementing products. Public choice theory predicts that the highly motivated SEP holders are likely to have the greatest influence over patent policies.

Empirical evidence bears out these concerns. As a starting point, we find it striking that SSO FRAND rules are almost always quite vague.78 Notably, SSOs in which SEP holders are more prevalent tend to have weaker FRAND rules.79 Further, to our knowledge, SSOs have made almost no effort to enforce their FRAND rules and have, instead, left enforcement efforts to others.80 This evidence raises serious doubts about the effectiveness of the existing FRAND rules in preventing ex post opportunism.

#### Patent holdup is real and necessitates intervention, even if it can’t be systemically proven.

Contreras 19, \*Jorge Contreras, Professor, University of Utah S.J. Quinney College of Law; (2019, “MUCH ADO ABOUT HOLD-UP”, <https://www.illinoislawreview.org/wp-content/uploads/2019/08/Contreras.pdf>)

III. CAN WE PLEASE STOP SEARCHING FOR SYSTEMIC HOLD-UP?

It is not the purpose of this article to critique the data or methodologies used by researchers who claim that there is no evidence of systemic hold-up. Though questions remain, the data presented in the cited studies finding no empirical evidence of systemic hold-up present plausible descriptions of current markets for products such as smart phones and other connected technology devices. Instead, this critique is directed at the core assumption that runs through each of these studies: that a lack of evidence of systemic hold-up means that hold-up does not represent a threat that justifies policy intervention. In this Part, I argue that, notwithstanding the findings of these studies, patent hold-up in standardized product markets may indeed be a threat that merits preventative policy measures, but that those measures should be directed toward the prevention of well-understood and actionable forms of anticompetitive conduct rather than the economic phenomenon of hold-up.

A. The Absence of Systemic Hold-Up Does Not Mean that Hold-Up Does Not Occur

In a 2017 article, Galetovic and Haber utilize an extended analogy drawn from the field of Mayan archeology to make the point that scholars sometimes ignore the facts in front of them in order to cling to pre-formed (and empirically unsupported) beliefs.92 In this analogical tradition, I will use a hypothetical from public health epidemiology to illustrate a related point. Let us consider the often fatal and highly contagious viral infection Ebola. U.S. public health officials, aware of the dangerous effects of Ebola, might propose the implementation of prophylactic measures to prevent the spread of Ebola in the United States. Such measures might include early detection systems at U.S. hospitals, a network of Ebola experts ready to investigate suspected cases, and potential vaccines for particularly vulnerable populations. All of these measures, of course, would come at a cost. Those opposing the incurrence of this cost might argue that such measures are unjustified because there is no empirical evidence that Ebola is a problem in the U.S. After all, there are no documented outbreaks of the disease, and the only reported cases have been sporadic and linked to other factors (such as health workers returning from abroad). In fact, both lifespan and overall health in the United States have been improving steadily over the past several decades. Most declines in population health can be traced to causes such as tobacco use, poor dietary choices, lack of exercise and the like, but not to Ebola. Thus, because there is no evidence that Ebola outbreaks have occurred in the United States nor any linkage between decreased health and Ebola, and because the overall health of the United States population continues to improve, there is no justification for preventative measures to stop Ebola outbreaks in the United States.

This reasoning is, of course, fallacious and, in the case of a disease like Ebola, dangerously so. In the field of public health, prophylactic measures are often taken before a health risk affects a significant portion of the population. This is the reason for prophylactic measures in the first place. In the field of public health, it is widely recognized that risks arising from any number of environmental and pathogenic sources can be assessed based on laboratory analysis and test cases, without population-level epidemiological data. In fact, once population level data for such outbreaks is available, it is often too late: an epidemic has broken out and millions are at risk. Luckily, it is doubtful that public health officials would apply the fallacious reasoning outlined above to important public health decisions.

Curiously, however, this “Ebola fallacy” has taken root in the debate over patent hold-up. As discussed above, the purported lack of empirical evidence of system-wide patent hold-up is used as a justification for abandoning or forestalling policy interventions aimed at reducing the risk of hold-up. Because hold-up has not been detected at a systemic level, so the argument goes, it must not be a problem. Therefore, measures designed to prevent hold-up from occurring must be the result of gratuitous or over-zealous policy making. The logical fallacies in this argument should be apparent.

In fact, there are numerous examples of anticompetitive conduct by individual firms in markets that are not otherwise overrun by anticompetitive behavior. For example, in 2009, the Federal Trade Commission brought an action against pharmaceutical manufacturer Solvay and a group of generic drug manufacturers for violating Section 5 of the FTC Act by entering into an arrangement whereby the generic manufacturers agreed not to challenge Solvay’s patent on its AndroGel product and not to market their generic versions of AndroGel, in exchange for a significant payment by Solvay to each of the generic manufacturers (a so-called “pay for delay” scheme).94 The Supreme Court held in 2013 that such conduct was actionable and reversed the Eleventh Circuit’s dismissal of the FTC’s claim.95 Yet even in 2009, the year in which the FTC brought its action, of the 68 agreements settling patent disputes filed by pharmaceutical manufacturers with the FTC,96 the FTC estimated that only 19 of these (28%) were potential pay for delay agreements; and by 2014, the year after the Actavis decision, only 21 out of 160 such agreements (13%) were deemed by the FTC likely to represent illegal pay for delay schemes.97 Thus, while pharmaceutical industry patent settlements have attracted significant attention as potentially anticompetitive arrangements, most such settlements do not merit investigation by the FTC.98

An even more telling example is found in the area of mergers and acquisitions. During fiscal year 2016, a total of 1,832 merger and acquisition transactions were reported to the FTC and DOJ under the Hart-Scott-Rodino Antitrust Improvements Act.99 Of these, the FTC challenged only twenty-two (1.2%). 100 Thus, while some anticompetitive mergers may exist, the vast majority are not anticompetitive.101 But the absence of market-wide anticompetitive conduct in the area of mergers and acquisitions hardly excuses the handful of transactions that do present antitrust risks, nor does it suggest that mergers should not be subject to governmental monitoring and, when merited, enforcement.

B. Protective Measures May Already Be Working to Reduce Hold-Up

Another important factor that should be considered regarding the purported lack of empirical evidence of systemic hold-up is the effect that existing policy measures have already had in reducing hold-up. As noted above, the threat of patent hold-up was a primary motivating factor for many SDOs to adopt policies requiring the disclosure and licensing of SEPs. These policies have been in place for decades. In the United States, the first such policy was adopted in 1959 by the American Standards Association (the predecessor to today’s American National Standards Institute (ANSI).102 Today, every one of the more than 200 ANSI-accredited developers of American National Standards must adhere to ANSI’s essential requirements, including the adoption of such a licensing policy for SEPs. Similar policies have existed in European and international standards organizations since at least the 1980s.103 These policies, which were developed by SDOs in large part to reduce the likelihood of hold-up within standard-setting systems, have had several decades to work, and it is likely that the lack of observed hold-up in some studies can be attributed to the successful operation of these policies.

Similarly, antitrust and competition enforcement agencies in the U.S. and Europe have been aware of the potential for hold-up connected with standardization for many years. Accordingly, they have brought enforcement actions when it has been alleged that hold-up behavior has resulted in a violation of the antitrust laws. High-profile enforcement actions against patent holders such as Rambus, 104 Google 105 and Qualcomm106 send powerful deterrent signals to the market and warn others not to engage in similar behavior lest they, too, become the subject of agency enforcement. Like SDO policies, it is likely that the general market awareness of agency interest in standard-setting and hold-up has, to a degree, limited the amount of hold-up that is actually attempted in the marketplace, thereby limiting the direct evidence of hold-up as a systemic problem.

But do the deterrent effects of SDO and agency efforts to reduce hold-up signify that hold-up is not a problem? Certainly not. To reach such a conclusion would be perverse: akin to claiming that burglary is not a problem in a neighborhood that experiences reduced burglary rates after it has implemented an active neighborhood watch program and enhanced policing.

C. Indicia of Healthy Markets do not Prove the Absence of Anticompetitive Conduct

As noted above, one of the principal arguments advanced by commentators seeking to refute the “hold-up theory” is that markets for telecommunications products, namely smart phones, are robust – evidenced by increasing product functionality, decreasing consumer prices and rapid innovation -- and that this degree of robustness indicates that hold-up cannot be a problem in these markets.107 If hold-up were a problem in these markets, they reason, we would see product stagnation, stable (but high) prices, and a lack of competition – features associated with classic examples of hold-up in markets for products such as natural resources and agricultural goods.108

But this argument relies on a false syllogism: hold-up results in market dysfunction; if a market functions well, then it cannot be subject to hold-up. The weaknesses in this argument are multifold. First, hold-up may exist in individual instances without sufficient weight to affect overall market characteristics, particularly in a large global market such as mobile telecommunications. Thus hold-up may exist, even in a market that outwardly appears to be functioning well. Second, there is no valid counterfactual to use to compare the health and robustness of the market for mobile telecommunications products.109 Other consumer electronics devices, such as televisions and DVD players, do not compare well with mobile telecommunications devices, which have taken on a unique character in the modern networked economy. Thus, observing the strength of the market fails to answer the critical questions “compared to what?” and how much stronger the market might be (through more product diversity, functionality, price reduction) without hold-up?

A simple historical illustration is useful in this context. During the decade leading up to the enactment of the Sherman Antitrust Act of 1890, several major U.S. commodity markets (e.g., steel, salt, petroleum, coal, sugar, lead, and others) came under intense scrutiny for a variety of allegedly anticompetitive industrial arrangements. One might have argued that these markets, had they been subject to the sorts of anticompetitive collusion that the Sherman Act sought to address, should have seen reductions of output and increases in price. Yet, between 1880 and 1890, U.S. output of salt, petroleum, steel, and coal all increased significantly, and prices of steel, sugar and lead all dropped significantly.110 Do these positive market indicia demonstrate that the subject markets were not subject to anticompetitive collusion, and that the Sherman Act was not necessary? Certainly, investigations of these industries revealed significant cartel behavior. I would suggest that few commentators today would argue that the coal, steel, sugar and other major industrial producers of the late nineteenth century were innocent of collusive and anticompetitive conduct, or that the Sherman Act was not a necessary and beneficial measure for the U.S. economy.111 Yet, had we relied solely on the positive characteristics exhibited by these markets as proof that anticompetitive conduct did not exist, then perhaps the Sherman Act never would have been enacted.

By the same token, the fact that global markets for standardized products such as computers and smart phones appear to be thriving does not itself refute the possibility of hold-up nor the existence of anticompetitive conduct in these markets. Nor does it allow regulators and policy makers to drop their guard or cease to monitor these important industries.

## 2AC

### T-Per Se

#### We meet---the plan still increases prohibitions on anticompetitive conduct, the rule of reason is simply a test that decides whether certain conduct actually violates said prohibition.

Fishman 19, \*Todd Fishman, [Allen & Overy LLP](https://www.jdsupra.com/profile/Allen_Overy_docs/); (January 31st, 2019, “The Rule of Reason as a Bar to Criminal Antitrust Enforcement”, https://www.jdsupra.com/legalnews/the-rule-of-reason-as-a-bar-to-criminal-87406/)

Antitrust law’s rule of reason was born of technical necessity. By its terms, §1 of the Sherman Act prohibits “[e] very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade.” 15 U.S.C. §1. Despite the expansive language of the statutory prohibition, the Supreme Court has held that §1 prohibits only agreements that unreasonably restrain trade. *Board of Trade of Chicago v. United States*, 246 U.S. 231, 238 (1918); *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1, 58-60 (1911). With the rule of reason, antitrust courts assumed a prudential role in administering the scope of antitrust violations, applying a factual inquiry weighing legitimate justifications for a restraint against any anticompetitive effects. Under the rule of reason, “the factfinder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited as imposing an unreasonable restraint on competition.” *Continental T.V. v. GTE Sylvania,* 433 U.S. 36, 49 (1977).

#### Counter-interpretation---rule of reason is a prohibition.

Light 19, Sarah E. Light Assistant Professor of Legal Studies and Business Ethics, The Wharton School, University of Pennsylvania., The Law of the Corporation as Environmental Law, 71 Stan. L. Rev. 137, 2019, Lexis/Nexis

While antitrust law can serve as an environmental mandate by prohibiting collusive behavior that keeps environmentally preferable goods from the market, there is also conflict between antitrust law's goals of promoting competition and environmental law's goals of promoting [\*177] conservation. 192 Because antitrust law's per se rule and rule of reason operate on a somewhat fluid continuum, 193 this Subpart discusses the two doctrines together. The per se rule operates as a prohibition, whereas the rule of reason operates as both a prohibition and a disincentive. As noted above, antitrust law generally prohibits certain types of market activity - price fixing, horizontal boycotts, and output limitations - as illegal per se, and harm to competition is presumed. 194 For example, if an industry association declines to award a seal of approval necessary for a product's sale without any good faith attempt to test the product's performance, but rather simply because that product is manufactured by a competitor, such an action would be illegal per se. 195 Under this Article's framework, a per se violation is thus a prohibition. The more fact-intensive inquiry under the rule of reason tests "whether the restraint imposed is such as merely regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition." 196 While this extremely broad statement might suggest that any fact is relevant to the inquiry, the salient facts under the rule of reason are "those that tend to establish whether a restraint increases or decreases output, or decreases or increases prices." 197 If an anticompetitive effect is found, then the action is illegal and the rule of reason operates, like the per se rule, as a prohibition. 198 The rule of reason can also operate as a disincentive, even if no [\*178] court finds an anticompetitive effect, as uncertainty and litigation risk may discourage firms from undertaking legally permissible, environmentally positive industry collaborations. 199 Associations of firms have adopted numerous mechanisms of private environmental governance to address the management of common pool resources like fisheries, forests, and the global climate. 200 Examples include the Sustainable Apparel Coalition's Higg Index 201 and the American Chemistry Council's Responsible Care program. 202 But private industry standards raise special antitrust concerns. An agreement among competitors with respect to product or process specifications may exclude competitors who fail to meet such standards, raising the specter that such industry collaborations really constitute output limitations or efforts to limit competition. 203 While the U.S. Supreme Court has scrutinized private standard-setting associations carefully, 204 it has noted that if associations "promulgate … standards based on the merits of objective expert judgments and through procedures that prevent the standard-setting process from being biased by members with economic interests in stifling product competition … , those private standards can have significant procompetitive advantages." 205 In the absence of price fixing or a boycott, a rule of reason analysis generally applies to product standard setting by private associations. 206 The uncertain outcome [\*179] inherent in the application of antitrust law in this context could therefore serve as a potential disincentive to the adoption of private industry standards. 207 The challenge of course is that some form of explicit sanctions on noncompliant industry members may be necessary for private industry standards to be effective. In the context of private reputational mechanisms like the New York Diamond Dealers Club, 208 Barak Richman has pointed out that the Club's use of reputational sanctions and voluntary refusals to deal with actors who flout industry norms, while welfare enhancing, could nonetheless amount to violations of antitrust law. 209 This echoes the concern raised by Andrew King and Michael Lenox in their extensive empirical analysis of the Responsible Care program created by the Chemical Manufacturers Association (now the American Chemistry Council). 210 King and Lenox concluded that the absence of explicit sanctions on members who failed to meet the standards set by the program left the program vulnerable to "opportunism." 211 While they suggested that industry associations could look to third parties to enforce the rules, 212 an alternative way to facilitate the long-term environmental benefits of stronger sanctions would be to interpret antitrust law in conformity with the environmental priority principle presented below. 213 [\*180] In some instances, the conflict between the values of promoting competition and conserving environmental resources can be stark. 214 Jonathan Adler, for example, has identified this conflict in the context of fisheries - a tragedy of the commons situation in which some form of collective action is required to avoid overfishing. 215 He cites as an example Manaka v. Monterey Sardine Industries, Inc., in which a fisherman was excluded from a local fishing cooperative. 216 The fisherman sued the cooperative under the Sherman Act, and the court found an antitrust violation in his exclusion. 217 While the fishing cooperative's policies were no doubt exclusionary, Adler contends that they also promoted conservation by restricting catch. 218 The fishery collapsed by the 1950s, a collapse Adler hypothesizes might have been "inevitable" but that perhaps might not have occurred in the absence of the antitrust suit. 219 While a court performing a rule of reason analysis must consider whether a restraint on trade suppresses or destroys competition, Adler points out that courts may also "consider offsetting efficiencies from otherwise anticompetitive arrangements." 220 It is not clear, however, that the courts have consistently taken these factors into account. 221 Among other potential remedies, Adler argues that to resolve this tension between antitrust law, on the one hand, and private collective action to conserve environmental resources, on the other, courts should more actively consider the "ancillary conservation benefits of otherwise anticompetitive conduct." 222 Recognizing the long-term health of a fishery would be consistent with antitrust law's purpose of ensuring viable markets exist in the future, and consistent with the environmental priority principle introduced below. 223

#### Prohibit can mean ‘severely hinder’---doesn’t necessitate a ban.

Washington Court of Appeals 19 (KORSMO-judge. Opinion in State v. Kimball, No. 35441-5-III (Wash. Ct. App. Apr. 2, 2019). Google scholar caselaw. Date accessed 7/13/21).

His argument runs counter to the meaning of the word "prohibit." It means "1. To forbid by law. 2. To prevent, preclude, or severely hinder." BLACK'S LAW DICTIONARY 1405 (10th ed. 2014). As "severely hinder" suggests, a "prohibition" need not be an all or nothing proposition.

#### The ‘per se’ distinction is meaningless---rules always devolve into standards.

Crane 7 Daniel A. Crane is Assistant Professor, Benjamin N. Cardozo School of Law, Yeshiva University, Rules Versus Standards in Antitrust Adjudication, 64 Wash. & Lee L. Rev. 49 (2007), https://scholarlycommons.law.wlu.edu/wlulr/vol64/iss1/3

Before proceeding much further, it is worth pausing to consider the possibility that a world of antitrust rules would be illusory because, in practice, rules always fade into standards. Take H.L.A. Hart's observation that "[n]atural languages like English are... irreducibly open-textured" when specifying "general classifying terms,' ' 0 0 or Wittgenstein's point that the problem with rules is that they do not tell you when they should be applied.' 0 ' Because language is irreducibly open-textured and indeterminate and because rules lack internal mechanisms to specify when they should be applied, even when the law is formally framed as a rule, it requires penumbral rules, canons of interpretation, and other secondary decisional criteria which end up swallowing the apparent simplicity of the rule. 10 2 Specifying the governing law as a simple, bright-line rule may merely conceal the fact that important balancing of social interests, weighing of probabilities, and choosing between competing ends and means lurk in the shadow of the rule. Declaring a legal rule thus appears misleading or even dishonest because it hides the social preferences that animate the decision-maker's conclusion. Under one interpretation, antitrust law provides the perfect illustration for Hart and Wittgenstein's point. In this view, there never have been such things as case-determinative antitrust rules-only standards clad in rule-bound rhetoric. The current march toward standards, then, is not so much a change in liability determinants as a dissipation of the mystery surrounding antitrust's concealed methodology. In a moment, I will dispute this possibility and argue that the specification of antitrust law as rule or standard has very important practical consequences. But first, it is worth acknowledging the extent to which Hart and Wittgenstein's observation rings true in antitrust. A case in point is antitrust law's long-standing per se prohibition against "price fixing." As any antitrust practitioner will recognize, price fixing appears in quotation marks because application of the per se rule depends not on the fact that competitors have literally fixed prices but that the challenged conduct falls within the antitrust category known as "price fixing." The judicial decision often thought to have established the per se rule against price-fixing did not involve price fixing either literally or figuratively but rather a gentleman's agreement by dominant oil producers to buy up distressed oil from small refineries and thereby stabilize the wholesale market. 1 03 The defendants never came close to agreeing on price. Nonetheless, the Supreme Court held that any "combination formed for the purpose and with the effect of raising, depressing, fixing, pegging, or stabilizing the price of a commodity in interstate or foreign commerce" amounts to "price fixing" in the relevant legal sense, whether or not the defendants have actually done the act that a lay person might suppose "price fixing" to be-fixing a price. 1 On the other hand, the Supreme Court has described an act of apparent price fixing by competitors-an agreement on prices for blanket licensing of musical repertoires-as something other than "price fixing" and hence subject to the rule of reason. 0 5 In BMI v. CBS, the Supreme Court rejected textual "literalism" and held that application of the per se rule against price fixing is not as "simplistic" as "determining whether two or more potential competitors have literally 'fixed' a 'price.'" 06 Rather, "[a] s generally used in the antitrust field, 'price fixing' is a shorthand way of describing certain categories of business behavior to which the per se rule has been held applicable."' 0 7 Application of the per se rule turns not on whether the conduct amounts literally to price fixing but on whether the "particular practice is one of those types or that it is 'plainly anticompetitive' and very likely without 'redeeming virtue."" 8 This flexibility in the per se rule invites endless pages of briefing on whether the conduct at issue should be properly characterized as "price fixing" because it unjustifiably tampers with the market mechanism for determining prices or as something else because it can be justified by efficiencies, a standard-favoring way of doing law.'0 9 Hence, Hart explains that rules inevitably dissolve into standards and Wittgentsein explains that rules do not tell us when to apply them.

#### We meet business practices---ex post opportunism is habitual and widespread.

#### Practice doesn’t necessitate repetitiveness.

Nebraska Supreme Court 82 (CLINTON, Justice. Opinion in MID-SOUTH, ETC. v. Platte Valley Livestock, 315 NW 2d 229 - Neb: Supreme Court 1982, Google scholar caselaw, date accessed 8/25/21)

Most words, including the word "practice," encompass more than one meaning, and the particular meaning intended must be determined from the context in which it is employed. Only two of the multiple meanings of the word practice, as found in the dictionary, can possibly apply in the context of the statute. In Webster's Third New International Dictionary, Unabridged (1968), one meaning is "to make use of: use, employ." Another meaning is "to do something habitually," or "repeated or customary action." 233\*233 The words of the statute, "and every unjust, unreasonable, or discriminatory regulation or practice is prohibited and declared to be unlawful," § 208(a), do not suggest that the word practice includes only that which is done habitually or repetitively by the particular stockyard or marketing agency. (Emphasis supplied.) Rather, as we will later attempt to demonstrate from an analysis of the cases upon which the parties rely, repetition may be important only in determining whether a particular act is an unjust or unreasonable practice included within the evils which the act was intended to cure.

### Regs CP

#### A---consumer-action deficit. Patent infringers have attenuated incentives to cough up high royalties because SSO’s can profit in aggregate by passing costs onto consumers---that’s Melamed and Shapiro. That means widening the plaintiff pool beyond implementers is key---which the counterplan CANNOT do.

Cary et al. 11, \*Messrs. George Cary and Alex Sistla are members of the California and District of Columbia Bars. Mr. Mark Nelson is a member of the New York and District of Columbia Bars. Mr. Steven Kaiser is a member of the New Jersey and District of Columbia Bars; (2011, “THE CASE FOR ANTITRUST LAW TO POLICE THE PATENT HOLDUP PROBLEM INSTANDARD SETTING”, <https://www.clearygottlieb.com/~/media/organize-archive/cgsh/files/publication-pdfs/the-case-for-antitrust-law-to-police-the-patent-holdup-problem-in-the-standard-setting.pdf>)

2. Contract Law

The argument that antitrust should step aside because contract law “out-perform[s] antitrust when it comes to the successful identification and regulation of ex post opportunism associated with patent hold-up”127 fails for much the same reasons. A contract can only be enforced by its parties and by other to whom the parties clearly and explicitly intended to give enforcement rights.128 The victims of anticompetitive patent holdup, however, are also consumers and potential competitors who may not have been part of the SSO. Moreover, contracts can be modified and third parties generally have no enforcement rights as to the original contract. In implementing an industry-wide standard, the parties to the contract may actually prefer high royalty levels that hurt consumers. For example, if participants in the standard-setting process, who agreed collectively to support one technology over all others, mutually agree to license on FRAND terms but then, after the standard is adopted, each independently chooses to increase its royalty significantly, no party to the FRAND “contract” may have incentive to bring a breach of contract action, while implementers of the standard and users of standard-compliant products ultimately pay the bill. Antitrust should be available in such circumstances as a remedy for the parties harmed by the anticompetitive agreement.

#### SSO interests do not align with consumers. Contract law is an insufficient proxy for securing competition.

Speegle 12, \*Adam Speegle, J.D., (May 2012, “Antitrust Rulemaking as a Solution to Abuse on the Standard-Setting Process Setting Process”, https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1128&context=mlr)

Even assuming that SSO members are willing and able to engage in litigation with a firm attempting patent holdup, consumer welfare takes a backseat to the members' financial considerations.3 8 Because the incentives of the SSO members do not align with those of consumers, enforcement actions by firms in the private sector cannot be relied on to adequately protect consumers. 39 This concept is illustrated by a practice known as injunction threats, in which a patent holder threatens to bring an injunction against a manufacturer for violating its patent unless the manufacturer pays a substantial royalty.4 ° While the patent holder's threat may have questionable legal footing, the manufacturer will often pay the royalty instead of engaging in extended litigation.4 This happens for several reasons. First, the manufacturer has a disincentive to engage a patent holder in litigation because the manufacturer will bear the cost of the litigation, the result of which could benefit competitors. 42 Companies will tend to pay the royalty and wait for another company to challenge the practice. 43 Second, the costs associated with challenging injunction threats may be substantial." On top of ordinary litigation costs, if the manufacturer has already begun making and distributing goods based on the patented technology, a potential preliminary injunction could have a devastating effect on its business.4 5 While engaging a patent holder in litigation may collaterally benefit consumers in that increased royalties are not passed through to the price of the ultimate product, this benefit does not tip the scales in favor of manufacturers pursuing such a path.' Thus, reliance on litigation by SSO members or other third parties will not provide a complete solution to patent holdup, as these parties serve as poor proxies for consumers.

#### B---targeting deficit---faulting the entire SSO is key to curtail monopolization---targeting individual SEP holders fails.

Melamed & Shapiro 18, \*A. Douglas Melamed is Professor of the Practice of Law at Stanford Law School; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business at the University of California at Berkeley; (May 2018, “How Antitrust Law Can Make FRAND Commitments More Effective”, https://www-cdn.law.stanford.edu/wp-content/uploads/2018/05/How-Antitrust-Law-Can-Make-FRAND-Commitments-More-Effective.pdf)

Antitrust enforcement aimed only at SEP holders is not sufficient to prevent or remedy ex post opportunism. First, as described in Part I, that kind of enforcement must be implemented separately for each patent holder, and for many standards, there are hundreds or even thousands of SEP holders. Second, some of the most common kinds of opportunism are arguably beyond the reach of antitrust claims against SEP holders. 61 Moreover, enforcement aimed at SEP holders is not directed at the basic problem: the failure of the SSOs to take adequate steps to prevent the ex post opportunism that the SSOs’ conduct enabled.

#### C---deterrence deficit---only antitrust law creates a legitimate cost to misconduct---that’s 1AC Melamed and Shaprio---whereas the loss of a private lawsuit wouldn’t change SEP holder’s calculus.

Tsilikas 17, \*Haris Tsilikas is an IP and Antitrust Consultant, a Doctoral Candidate and Visiting Research Fellow at the Max Planck Institute for Innovation and Competition, Munich; (2017, Antitrust Enforcement and Standard Essential Patents: Moving beyond the FRAND Commitment”, https://www.jstor.org/stable/pdf/j.ctv941t01.9.pdf?refreqid=excelsior%3A92dc720d1ebc7088811b40032a60f575)

Antitrust could play a meaningful role.165 The most important contribution of antitrust enforcement against abuses of SEPs is its deterrent effect.166 Although patent law reforms or contractual binding of subsequent SEPs-holders to FRAND licensing would provide to victims of hold-up useful defences in court, they do not sufficiently deter abusive assertion of SEPs in the first place. For instance, the contractual binding to FRAND could raise counterclaims of breach of contract or/and contractual performance; however, the opportunistic SEP-holder will, in case it loses on such grounds, be left no worse than with a licence on FRAND terms. In the end, a patent hold-up is indeed precluded, but contractual constraints can do little to prevent opportunistic assertion of SEPs in the first place. The victims still suffer the costs of uncertain and resource-draining litigation; most importantly, the reliability of the standards-setting process might still be at risk.

Antitrust enforcement on the other hand, in imposing tortfeasors positive monetary losses in the form of fines, alters the profit-cost calculus of opportunistic behaviour in the first place; opportunistic assertion of SEPs will come at a cost. Of course, a too-heavy-handed approach could have a chilling effect on legitimate patent assertions against implementers that are reluctant to pay FRAND royalties, thus leading to false positives. Antitrust enforcement should carefully examine the specificities of each case, such as the particular PAE conduct, the relationship between PAEs and practicing entities, the structure of downstream markets.167 More importantly, an economically informed antitrust analysis focusing on the actual and potential anticompetitive effects of opportunistic SEPs assertion should prohibit behaviour that is truly harmful to consumers. Safeguarding the inclusive and efficient character of the standards-setting process is a competition law problem. Informed antitrust analysis could provide adequate responses to opportunistic PAE behaviour and privateering.

#### D---contract deficit---FRAND commitments aren’t considered contracts, so they can’t be enforced.

Contreras 14, \*Jorge L. Contreras teaches in the areas of intellectual property law, property law and genetics and the law at the University of Utah. He has recently been named one of the University of Utah's Presidential Scholars, and won the 2018-19 Faculty Scholarship Award from the S.J. Quinney College of Law. Professor Contreras has previously served on the law faculties of American University Washington College of Law and Washington University in St. Louis, and was a partner at the international law firm Wilmer Cutler Pickering Hale and Dorr LLP, where he practiced transactional and intellectual property law in Boston, London and Washington DC; (September 14th, 2014, “Why FRAND Commitments are Not (usually) Contracts”, https://patentlyo.com/patent/2014/09/commitments-usually-contracts.html)

Nevertheless, as I discuss in [a forthcoming article](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2309023), common law contract is a poor fit for the enforcement of most FRAND commitments, and relying too heavily on it is likely to have unwelcome results.  Contract law fails as a general-purpose FRAND enforcement theory on several grounds.  First, the simplified offer-acceptance-consideration model laid out above does not reflect the actual manner in which most FRAND commitments are made.  Most of these commitments are not set forth in an agreement between the patent holder and the SDO.  Rather, they are contained in SDO policies, bylaws and other types of statements.  In addition, many of these policies (including those adopted by leading SDOs such as IEEE) do not actually require the patent holder to commit to license its patents on FRAND terms, but only to disclose to the SDO the terms on which it will, or on which it intends to, license its essential patents.  Moreover, FRAND commitments are typically a sentence or two in length, and fail to set forth any of the relevant details of the promised license agreement, whether they be royalty rates, grant-back requirements, terms on which the license may be suspended or terminated, and the like.  As such, whatever “contract” is formed is likely void for want of detail, a mere “agreement to agree”.  Finally, the attempt to extend third party beneficiary rights to every product vendor in the world, whether or not it competed in the relevant business, or even existed, when the promise was made, stretches this venerable doctrine beyond any sensible boundaries.  As a result, except perhaps in a few cases in which standards are developed by small groups of firms that have actual contractual arrangements amongst themselves, common law contract is a poor choice as a general enforcement mechanism for FRAND commitments.

At least one Administrative Law Judge at the International Trade Commission has recently come to the same conclusion in the ITC’s case against Interdigital (337-TA-868, June 18, 2014), expressly ruling that the FRAND policy adopted by the European telecom SDO ETSI “is not a contract”, and merely “contains rules to guide the parties in their interactions with the organization, other members and third parties.”  I couldn’t agree more.

### Cap K

#### Both advantages impact turn the K---they’re robust defenses of innovation, which the alt can’t solve.

Kornai 13, \*János Kornai is a Hungarian economist and the Allie S. Freed Professor of Economics Emeritus at Harvard and Professor Emeritus at Corvinus University of Budapest; (János, November 6th, 2013, “Dynamism, Rivalry, and the Surplus Economy”, DOI:10.1093/acprof:oso/9780199334766.001.0001, Google Books)

C. There is no competition between producers and sellers. Production is strongly concentrated. Many companies enjoy monopolist positions, or at least a (regional) monopoly in producing an entire group of products. The chronic shortage of products creates monopolistic behavior even when many producers operate in parallel. The shortage economy, one of the strongest system-specific properties of socialism, ~~paralyzes~~ impedes the forceful engine of innovation, the incentive to fight for the favors of the customer ( Kornai 1971 ; 1980; 1992, chapters 11 – 12 ). The producer/seller is not compelled to attract the buyer by offering him a new and better product, since the latter is happy to get anything in the shop, even an obsolete and poor-quality product.

There are examples of inventive activities motivated by chronic shortages: ingeniously created substitutes for missing materials or machinery parts (Laki 1984 –1985). These results of the inventors’ creative mind, however, do not become widespread, commercially successful innovations in the Schumpeterian sense. 25 Table 2.1 features only one revolutionary innovation that did not appear first in a capitalist country but, rather, in the Soviet Union: synthetic rubber. Its inventor had been doing research on the subject for decades; the employment of it in industry was rendered necessary by the shortage of natural rubber.

D. The tight limits of experimenting. Capitalism allows for hundreds or thousands of barren or barely fruitful attempts, so that, afterward, one out of the hundreds or thousands would succeed and bring immense success. In the socialist planned economy, actors are inclined to avoid risks. As a result, the application of revolutionarily significant innovations are more or less excluded, since those always mean a leap into the dark, as success is necessarily unpredictable. As far as followers are concerned, some economies follow up quickly, others slowly. The socialist economies belong to the group characterized by the slowest pace. They prefer to maintain the already known, old production procedures, and produce the old well-tried products; new technologies and new products have too many uncertain characteristics making the planning of the directives difficult.

E. There is no capital waiting to be utilized; investment allocation is rigid. Central planning is not miserly with the resources devoted to capital formation. The share of investment carved out from the total output is typically higher than in the capitalist economies. However, this enormous volume is appropriated ahead of time to the last penny. Moreover, most of the time over-allocation takes place; in other words, the ensemble of all project plans prescribes the requisition of more resources than the required amount to execute the plan. It never happens that unallocated capital is waiting for someone with a good idea. The allocators do not search for an entrepreneur waiting to step forward with a proposal for innovation. Flexible capital markets are unknown. Instead, the rigid and bureaucratic regulation of project activities takes place, and to devote capital resources to activities with possibly uncertain outcomes is unconceivable. No foolish minister of industry or factory manager could be found who would demand money for ventures admitting in advance that the money may be wasted and the innovation may not succeed. 26

#### Economic growth is responsible for drastic improvements in global living standards, and is the only path for future improvements.

Cowen 18, \*Tyler Cowen is a Holbert L. Harris Professor at George Mason University and Director of the Mercatus Center; (October 16th, 2018, “Stubborn Attachments: A vision for a society of free, prosperous, and responsible individuals”, <https://www.goodreads.com/en/book/show/31283667-stubborn-attachments>)

How good is growth, anyway ?

The history of economic growth indicates that, with some qualifications, growth alleviates misery, improves happiness and opportunity, and lengthens lives. Wealthier societies have better living standards, better medicines, and offer greater personal autonomy, greater fulfillment, and more sources of fun. While measured wealth does not exactly correspond to Wealth Plus, these two concepts have come pretty close to one another in the past, especially across the range of outcomes we have observed (as opposed to hypothetical thought experiments and counterfactuals).

We often forget how overwhelmingly positive the effects of economic growth have been. Economist Russ Roberts reports that he frequently polls journalists about how much economic growth there has been since the year 1900. According to Russ, the typical response is that the standard of living has gone up by around fifty percent. In reality, the U.S. standard of living has increased by a factor of five to seven, estimated conservatively, and possibly much more, depending on how we measure prices and the values of outputs over time, a highly inexact science.

The data show just how much living standards have gone up. In 1900, for instance, almost half of all U.S. households (forty-nine percent) had more than one occupant per room and almost one quarter (twenty-three percent) had over 3.5 persons per sleeping room. Slightly less than one quarter (twenty-four percent) of all U.S. households had running water, eighteen percent had refrigerators, and twelve percent had gas or electric lighting. Today, the figures for all of these stand at ninety-nine percent or higher. Back then, only five percent of households had telephones, and none of them had radio or TV. The high school graduation rate was only about six percent, and most jobs were physically arduous and had high rates of disability or even death. In the mid-nineteenth century, a typical worker might have put in somewhere between 2,800 and 3,300 hours of work a year; that estimate is now closer to 1,400 to 2,000 hours a year. 6

Until recently, polio, tuberculosis, and typhoid were common ailments, even among the rich. U.S. presidents George Washington, James Monroe, Andrew Jackson, Abraham Lincoln, Ulysses S. Grant, and James A. Garfield all caught malaria during their lives. Antibiotics and vaccines have existed for only a tiny fraction of human history, and it is no coincidence that they emerged in the wealthiest time period humanity has ever seen. There is also a strong and consistent relationship between wealth and rates of infant mortality; small children do best when they are born into wealthier countries, and that is because wealth supplies the resources to take better care of them.

As recently as the end of the nineteenth century, life expectancy in Western Europe was roughly forty years of age, and food took up fifty to seventy-five percent of a typical family budget. The typical diet in eighteenth-century France had about the same energy value as that of Rwanda in 1965, the most malnourished nation for that year. One effect of this deprivation was that most people simply did not have much energy for life.

In earlier time periods, most individuals performed hard physical labor, and a college or university education—or even a high school education—was a luxury. Leisure time has risen with economic growth. In 1880, about four-fifths of individuals’ discretionary time was spent working, according to economist Robert Fogel. Today we spend about fifty-nine percent of our time doing what we like, and that may rise to seventy-five percent by 2040. 8

The splendors of the modern world are not just frivolous baubles; they are important sources of human comfort and well-being. Imagine that a time traveler from the eighteenth century were to pay a visit to Bill Gates today. He would find televisions, automobiles, refrigerators, central heating, antibiotics, plentiful food, flush toilets, cell phones, personal computers, and affordable air travel, among other remarkable benefits. The most impressive features of Gates’s life, seen from the point of view of a person from the eighteenth century, are those shared by most citizens of wealthy countries today. My smartphone is as good as his. The very existence of an advanced civilization—the product of cumulative economic growth—confers immense benefits to ordinary citizens, including their ability to educate and entertain themselves and choose one life path over another. For further arguments along these lines, I recommend Steven Pinker’s recent book, Enlightenment Now: The Case for Reason, Science, Humanism, and Progress . 9

The economic growth of the wealthier countries benefits the very poor as well, though sometimes with considerable lags. The distribution of wealth changes over time, and not all growth trickles down, but as an overall historical average, the bottom quintile of an economy shares in growth. 10 You can see this by comparing the bottom quintile in, say, the United States to the bottom quintile in India or Mexico.

The richer economy can also do more to elevate the living standards of immigrants. Poor people who move to rich countries usually receive higher incomes and have better living conditions, and their children do better still. The richer the receiving country, the more new immigrants tend to benefit. Central American immigrants to the United States do better than Central American immigrants to Mexico or Nepalese immigrants to India. Immigrants also send remittances back home at a rate that far exceeds governmental foreign aid. Actual upward mobility in the United States far exceeds what the usual numbers indicate, because published statistics on upward mobility do not typically include a comparison with pre-immigration outcomes.

But the chain of benefits does not stop there. Migrants will often return to their home countries, bringing new skills and new business connections. Both India and Israel have developed vibrant technology and software scenes precisely because of their close ties with the start-up scene of the United States. English-language universities in English-speaking countries have trained many thousands of Asian students in science and engineering, again leading to new businesses and, eventually, higher economic growth in their home countries.

New medicines and technologies developed in wealthy nations also make their way to the rest of the world, as illustrated most conspicuously by the rapid spread of the cell phone and now the smartphone. One study predicts that if the leading twenty-one industrial countries were to boost their R&D by half a percentage point of GDP, U.S. output alone would grow by fifteen percent. But it doesn’t end there: output in Canada and Italy would grow by about twenty-five percent, and the output of all industrial nations would increase by 17.5 percent, on average. In the less economically developed countries, output would increase by about 10.6 percent on average. 11

Although these historical processes have often embodied unfairness and long lags of decades or more, economic growth has nonetheless brought wealth to the poor and elevated their status. The Greek city-states and the Roman Empire benefited from maritime trade across the Mediterranean; those regions in turn spread growth-enhancing institutions around Europe, Northern Africa, and the Middle East. The commercial revolution of the late Middle Ages and Renaissance reopened many of the trade routes of antiquity, and eventually human beings started to climb out of the Malthusian trap of very low per capita incomes at subsistence. The wealth of the West helped to enable the export miracles of the East Asian economies. Today, most poor countries seek greater access to wealthier Western and Asian markets, and flourish if they can achieve it. 12

For all the recent increases in inequality within individual nations, global inequality has declined over the last few decades, in large part because of growth in China and India. And the growth in these emerging nations was largely driven by earlier growth in the West and in East Asia. China, for instance, engaged in “catch-up” growth by adopting Western technologies and exporting to the wealthier nations. China has gone from being a quite poor nation to a “middle-income” nation with a sizable middle and upper class.

Although recent media coverage has focused almost exclusively on within-nation magnitudes, recent world history has been an extraordinarily egalitarian time. It is above all else a story about how global economic growth helps the poor. There has been a squeezing of the middle class in the wealthier nations, in part because of increasing global competition. Still, we have seen economic growth, aggregate wealth, and global income equality all rising together over the last twenty-five years. Many citizens in East Asia, South Asia, and Latin America have seen significant gains in their standard of living, and much of this has been a trickle-down effect from the earlier growth of the wealthier countries. Much of Africa is now following suit, bolstered in part by China’s demand for raw materials, and also by the spread of modern technologies such as affordable cell phones. 13

Sometimes extended periods of growth do not confer full or fair benefits to the poor or lower classes, for instance during the early phase of the British Industrial Revolution in the late eighteenth century. Still, the historical record suggests that it was better for Britain to push ahead with economic growth, as this eventually drove the greatest boost in living standards the world has ever seen. To be sure, there were probably better policies which, had they been adopted, would have distributed the benefits of growth more widely (e.g., fewer wars and Poor Law reform and free trade for the British). But even taking misguided policies into account, Britain fared better by pursuing economic growth rather than turning its back on the idea, even though significant real wage gains for the working class often did not arrive until the 1840s.

Nobel Laureate Amartya Sen has promoted the idea of “capabilities” as, if not quite a substitute for economic growth, then an alternative focus. Sen points out that our positive opportunities in life often matter more than the amount of cash in our bank accounts. He also notes that some parts of the world, such as the state of Kerala in India, have relatively good health and education indicators, even though their per capita incomes are relatively low.

Sen’s points are well taken, but they do not put a fundamental dent in the relevance of wealth, or, as I am calling it here, Wealth Plus. The significant benefits accrued from capabilities, such as health benefits, are accounted for in Wealth Plus, even if they are not properly represented in current GDP measures. In other words, Kerala is wealthier than some limited statistical measures imply. Wealth and good social outcomes are still strongly correlated on average, and this correlation is stronger over longer time horizons. For instance, if Kerala does not grow much in more narrow economic terms, it is unlikely to look so impressive in its social indicators fifty or one hundred years from now. Even today, Kerala manages as well as it does in large part because so many Keralans take jobs in wealthier countries, especially in the Gulf States, and send money back home. And compared to other Indian states, Kerala has an above-average measure of wealth, as well as above-average consumption expenditures, both of which are accounted for in traditional statistics. 14

The truth is that economic growth is the only permanent path out of squalor. Economic growth is how the Western world climbed out of the poverty of the year 1000 A.D. or 5000 B.C. It is how much of East Asia became remarkably prosperous. And it is how our living standards will improve in the future. Just as the present appears remarkable from the vantage point of the past, the future, at least provided growth continues, will offer comparable advances, including, perhaps, greater life expectancies, cures for debilitating diseases, and cognitive enhancements. Billions of people will have much better and longer lives. Many features of modern life might someday seem as backward as we now regard the large number of women in earlier centuries who died in childbirth for lack of proper care.

#### Technological innovation successfully dematerializes growth.

McAfee 19, \*Andrew Paul McAfee, a principal research scientist at MIT, is cofounder and codirector of the MIT Initiative on the Digital Economy at the MIT Sloan School of Management; (2019, “More from Less: The Surprising Story of How We Learned to Prosper Using Fewer Resources and What Happens Next”, https://b-ok.cc/book/5327561/8acdbe)

There is no shortage of examples of dematerialization. I chose the ones in this chapter because they illustrate a set of fundamental principles at the intersection of business, economics, innovation, and our impact on our planet. They are:

We do want more all the time, but not more resources. Alfred Marshall was right, but William Jevons was wrong. Our wants and desires keep growing, evidently without end, and therefore so do our economies. But our use of the earth’s resources does not. We do want more beverage options, but we don’t want to keep using more aluminum in drink cans. We want to communicate and compute and listen to music, but we don’t want an arsenal of gadgets; we’re happy with a single smartphone. As our population increases, we want more food, but we don’t have any desire to consume more fertilizer or use more land for crops.

Jevons was correct at the time he wrote that total British demand for coal was increasing even though steam engines were becoming much more efficient. He was right, in other words, that the price elasticity of demand for coal-supplied power was greater than one in the 1860s. But he was wrong to conclude that this would be permanent. Elasticities of demand can change over time for several reasons, the most fundamental of which is technological change. Coal provides a clear example of this. When fracking made natural gas much cheaper, total demand for coal in the United States went down even though its price decreased.

With the help of innovation and new technologies, economic growth in America and other rich countries—growth in all of the wants and needs that we spend money on—has become decoupled from resource consumption. This is a recent development and a profound one.

Materials cost money that companies locked in competition would rather not spend. The root of Jevons’s mistake is simple and boring: resources cost money. He realized this, of course. What he didn’t sufficiently realize was how strong the incentive is for a company in a contested market to reduce its spending on resources (or anything else) and so eke out a bit more profit. After all, a penny saved is a penny earned.

Monopolists can just pass costs on to their customers, but companies with a lot of competitors can’t. So American farmers who battle with each other (and increasingly with tough rivals in other countries) are eager to cut their spending on land, water, and fertilizer. Beer and soda companies want to minimize their aluminum purchases. Producers of magnets and high-tech gear run away from REE as soon as prices start to spike. In the United States, the 1980 Staggers Act removed government subsidies for freight-hauling railroads, forcing them into competition and cost cutting and making them all the more eager to not have expensive railcars sit idle. Again and again, we see that competition spurs dematerialization.

There are multiple paths to dematerialization. As profit-hungry companies seek to use fewer resources, they can go down four main paths. First, they can simply find ways to use less of a given material. This is what happened as beverage companies and the companies that supply them with cans teamed up to use less aluminum. It’s also the story with American farmers, who keep getting bigger harvests while using less land, water, and fertilizer. Magnet makers found ways to use fewer rare earth metals when it looked as if China might cut off their supply.

Second, it often becomes possible to substitute one resource for another. Total US coal consumption started to decrease after 2007 because fracking made natural gas more attractive to electricity generators. If nuclear power becomes more popular in the United States (a topic we’ll take up in chapter 15), we could use both less coal and less gas and generate our electricity from a small amount of material indeed. A kilogram of uranium-235 fuel contains approximately 2–3 million times as much energy as the same mass of coal or oil. According to one estimate, the total amount of energy that humans consume each year could be supplied by just seven thousand tons of uranium fuel.

Third, companies can use fewer molecules overall by making better use of the materials they already own. Improving CNW’s railcar utilization from 5 percent to 10 percent would mean that the company could cut its stock of these thirty-ton behemoths in half. Companies that own expensive physical assets tend to be fanatics about getting as much use as possible out of them, for clear and compelling financial reasons. For example, the world’s commercial airlines have improved their load factors—essentially the percentage of seats occupied on flights—from 56 percent in 1971 to more than 81 percent in 2018.

Finally, some materials get replaced by nothing at all. When a telephone, camcorder, and tape recorder are separate devices, three total microphones are needed. When they all collapse into a smartphone, only one microphone is necessary. That smartphone also uses no audiotapes, videotapes, compact discs, or camera film. The iPhone and its descendants are among the world champions of dematerialization. They use vastly less metal, plastic, glass, and silicon than did the devices they have replaced and don’t need media such as paper, discs, tape, or film.

If we use more renewable energy, we’ll be replacing coal, gas, oil, and uranium with photons from the sun (solar power) and the movement of air (wind power) and water (hydroelectric power) on the earth. All three of these types of power are also among dematerialization’s champions, since they use up essentially no resources once they’re up and running.

I call these four paths to dematerialization slim, swap, optimize, and evaporate. They’re not mutually exclusive. Companies can and do pursue all four at the same time, and all four are going on all the time in ways both obvious and subtle.

Innovation is hard to foresee. Neither the fracking revolution nor the world-changing impact of the iPhone’s introduction were well understood in advance. Both continued to be underestimated even after they occurred. The iPhone was introduced in June of 2007, with no shortage of fanfare from Apple and Steve Jobs. Yet several months later the cover of Forbes was still asking if anyone could catch Nokia.

Innovation is not steady and predictable like the orbit of the Moon or the accumulation of interest on a certificate of deposit. It’s instead inherently jumpy, uneven, and random. It’s also combinatorial, as Erik Brynjolfsson and I discussed in our book The Second Machine Age. Most new technologies and other innovations, we argued, are combinations or recombinations of preexisting elements.

The iPhone was “just” a cellular telephone plus a bunch of sensors plus a touch screen plus an operating system and population of programs, or apps. All these elements had been around for a while before 2007. It took the vision of Steve Jobs to see what they could become when combined. Fracking was the combination of multiple abilities: to “see” where hydrocarbons were to be found in rock formations deep underground; to pump down pressurized liquid to fracture the rock; to pump up the oil and gas once they were released by the fracturing; and so on. Again, none of these was new. Their effective combination was what changed the world’s energy situation.

Erik and I described the set of innovations and technologies available at any time as building blocks that ingenious people could combine and recombine into useful new configurations. These new configurations then serve as more blocks that later innovators can use. Combinatorial innovation is exciting because it’s unpredictable. It’s not easy to foresee when or where powerful new combinations are going to appear, or who’s going to come up with them. But as the number of both building blocks and innovators increases, we should have confidence that more breakthroughs such as fracking and smartphones are ahead. Innovation is highly decentralized and largely uncoordinated, occurring as the result of interactions among complex and interlocking social, technological, and economic systems. So it’s going to keep surprising us.

As the Second Machine Age progresses, dematerialization accelerates. Erik and I coined the phrase Second Machine Age to draw a contrast with the Industrial Era, which as we’ve seen transformed the planet by allowing us to overcome the limitations of muscle power. Our current time of great progress with all things related to computing is allowing us to overcome the limitations of our mental power and is transformative in a different way: it’s allowing us to reverse the Industrial Era’s bad habit of taking more and more from the earth every year.

### Court Clog DA

#### Plan solves---the prospect of antitrust intervention deters violations---that’s Melamed and Shapiro---decreases litigation.

Cheng 13, \*Thomas Cheng, B.A. (Yale), J.D. (Harvard), B.C.L. (Oxon); Attorney & Counsellor, New York State; Associate Professor, Faculty of Law, The University of Hong Kong; (2013, “Putting Innovation Incentives Back in the Patent-Antitrust Interface”, <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1195&context=njtip>), ability edited

Imposing a duty to license on opportunistic patentees may solve this problem. If these patentees know that the courts may step in and mandate licensing at a reasonable royalty rate,214 they will be induced to enter into negotiations with follow-on innovators in good faith.215 The threat of compulsory licensing may become a default background legal rule against which negotiations between initial and follow-on innovators take place. The instances in which the courts need to intervene could be few.

#### Antitrust fervor is at an all-time high---thumps.

Zanfagna 9/7/21, \* [Gary Zanfagna](https://www.paulhastings.com/professionals/garyzanfagna) is an antitrust and competition partner at Paul Hastings LLP; (September 7th, 2021, “Antitrust isn't headed to an inflection point; it's already there”, https://thehill.com/opinion/judiciary/571087-antitrust-isnt-headed-to-an-inflection-point-its-already-there)

The truth is most companies have not had to think too much about antitrust regulations. The basic rules are pretty well known. But that is potentially changing quickly as antitrust concerns focus on not only high-tech companies, but businesses across the economy, from startups to global conglomerates.

It means antitrust is at an important inflection point. Changes are occurring at multiple levels — from [rule reform](https://www.klobuchar.senate.gov/public/_cache/files/e/1/e171ac94-edaf-42bc-95ba-85c985a89200/375AF2AEA4F2AF97FB96DBC6A2A839F9.sil21191.pdf) to [new applications](https://www.hawley.senate.gov/senator-hawley-introduces-trust-busting-twenty-first-century-act-plan-bust-anti-competitive-big) of existing rules to [increased enforcement](https://www.klobuchar.senate.gov/public/index.cfm/news-releases?ID=A4EF296B-9072-4244-90AF-54FE43BB0876). Some of these changes are a reflection of the economic upheaval ushered in by the digital economy, which has prompted businesses and governments to look to antitrust rules to solve their problems. Witness [President Biden](https://thehill.com/people/joe-biden)’s [July 9 executive order](https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy/) whose 72 provisions include requests ranging from asking the FCC to reinstate net neutrality rules to directing the FDA to issue rules to allow more competition in the hearing aid market.

It’s a reflection of a general zeitgeist whose goal is to slow the onslaught of consolidation in technology across industries, from news media to healthcare to agriculture. And it’s gathering momentum as new rules are being proposed from both sides of the aisle.

Many look to the 449-page [“Investigation of Competition in Digital Markets”](https://www.nytimes.com/interactive/2020/10/06/technology/house-antitrust-report-big-tech.html?action=click&module=RelatedLinks&pgtype=Article) report from the judiciary committee on antitrust as the opening salvo. The report took aim at Amazon, Apple, Facebook, and Google, outlining how those once scrappy startups now leverage their market position in ways not seen since “the era of oil barons and railroad tycoons.” The judiciary report’s conclusion: prevent big tech from acquiring smaller tech with tougher policing — and reform antitrust laws.

Both Democrats and Republicans have since voiced their support for such ideas.

Aimed at the seemingly intractable challenges of the digital era, Sen. [Amy Klobuchar](https://thehill.com/people/amy-klobuchar)’s (D-Minn.) “[Antitrust Law Enforcement Reform Act”](https://www.congress.gov/bill/117th-congress/senate-bill/225/text) would create barriers to prevent consolidation across industries, not just in tech, but in any business that might be connected to “dominant digital platforms.” The legislation would have a prescriptive force, creating a presumption against certain mergers, whether they be in biotech or burgers.

Meanwhile, on the Republican side, Sen. [Josh Hawley](https://thehill.com/people/joshua-josh-hawley) (R-Mo.) has rolled out a bill that looks even more severe, blocking some mergers and acquisitions outright. The [“Trust-Busting for the Twenty-First Century Act”](https://www.hawley.senate.gov/senator-hawley-introduces-trust-busting-twenty-first-century-act-plan-bust-anti-competitive-big) would ban any acquisitions by companies with a market cap of more than $100 billion. The act would also make it easier for the FTC to classify a company’s behavior as anti-competitive, and then extract penalties (including profits) based on that behavior.

And it’s not just the Federal government. Several states have proposed their own legislation to prevent and punish what they see as anti-competitive behavior. Arizona narrowly passed initial legislation that would prevent app store operators, specifically Apple and Google, from forcing developers to use their payment systems.

Meanwhile in New York State, the [Twenty-First Century Anti-Trust Act (S933)](https://www.nysenate.gov/legislation/bills/2019/s8700/amendment/a) includes a first-of-its-kind state merger notification of any deal in which the buyer would end up with more than $8 million in assets of the target. It would also create an “abuse of dominance” offense and give the N.Y. attorney general rulemaking authority — whether or not the company was based in New York.

These proposals have a long way to go before becoming law, but they demonstrate potentially significant antitrust adjustments coming.

Expanding antitrust view

The ripple effects will be profound, affecting transportation, communications, banking and healthcare companies. Incumbents looking to diversify their business are vulnerable, as are startups looking for profitable partners. Unhappy competitors who feel stymied may look to antitrust rules for remediation. And private equity moves to consolidate fledgling, fragmented industries will face tougher questions about overlap and industry concentration.

So, we are going to see antitrust being used in industries and in ways that haven’t been considered in many years, with views about market concentration expanding to encompass what used to be considered diverse or vertical markets. In fact, both Sen. Klobuchar’s and Sen. Hawley’s proposals specifically target consolidation across industries. Sen. Hawley’s $100 billion ban explicitly targets vertical acquisitions. It would certainly prevent deals like Facebook’s acquisition of WhatsApp or Google’s purchase of Fitbit.

#### Ex ante valuations streamline innovation by weeding out the nonessentials and rewarding truly essential patents---increases court efficiency.

Arsego 15, \*David Arsego, J.D., Brooklyn Law School, May 2016, Certificate in Intellectual Property Law, B.S. in Mechanical Engineering, Villanova University, May 2010, works at Fay Kaplun & Marcin; (“The Problem with FRAND: How the Licensing Commitments of Standard-Setting Organizations Result in the Misvaluing of Patents”, <https://brooklynworks.brooklaw.edu/cgi/viewcontent.cgi?article=1416&context=bjil>)

A common theme in current FRAND litigation is inflated claims for damages and desired royalty rates. Judge Holderman in In re Innovatio IP Ventures reduced IP Ventures’ award to a few percentage points of its original claim. He justified this action by stressing the importance of the patent to the standard at issue and ruled that patents of lesser importance are not entitled to as high of rates as patents of greater importance. This proposed valuation framework intends to assess that very same importance, ex ante and prior to any negotiations or litigation. The intent is for contracting parties to have an initial understanding of the patent value prior to negotiations. In the same way that Judge Holderman’s judgement turned on the classification of the at-issue patents as “of moderate to moderate-high importance to the standard”, an opinion from ETSI that assesses this same importance would give negotiation parties a relatively clear picture of the importance of their patents.

D. The Effects of Such Valuation

The intended effect of this mandatory patent valuation is not to solve every patent-licensing disagreement that parties will have. It is merely a proposed tool that will help companies come to an agreement more efficiently. Both parties will be aware if one party has a portfolio full of patents with little importance and will not waste time debating the value. Similarly, if two parties are in litigation regarding whether or not a royalty rate is FRAND, the judge will not have to perform an independent analysis of the patent’s importance herself, but can instead rely on ETSI’s determination. The effect of this reliance, and the initial determination of essentiality, will be far reaching. Duplicitous patent holders that may claim essentiality for meritless patents will now be barred from asserting SEP rights.246 Important innovators with valuable patents will be more justly rewarded for their innovation, not only by having an “important” label on their SEPs, but by no longer competing for royalties with patents that are deemed to be nonessential.

#### Antitrust intervention preserves and strengthens innovation incentives.

Cheng 13, \*Thomas Cheng, B.A. (Yale), J.D. (Harvard), B.C.L. (Oxon); Attorney & Counsellor, New York State; Associate Professor, Faculty of Law, The University of Hong Kong; (2013, “Putting Innovation Incentives Back in the Patent-Antitrust Interface”, <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1195&context=njtip>), ability edited

IV. AN APPLICATION OF THE PROPOSED APPROACH: UNILATERAL REFUSAL TO LICENSE

To demonstrate the application of the proposed approach, this Section will focus on how it applies to the analysis of a unilateral refusal to license a patent.198 Unilateral refusal to license a patent is one of the most controversial areas of the patent-antitrust interface. To those staunch defenders of intellectual property rights, imposing a duty to license on a monopolist patentee constitutes a direct affront to private property. In some ways, compulsory licensing has become a taboo in the U.S. antitrust circle.199 Mention of compulsory licensing seems to be greeted with skepticism, if not derision.

The most common defense against imposing a duty to license is that it will undermine innovation incentives. The conventional wisdom is that if an innovator is forced to share its creation with competitors, it will be less likely to invest in innovations in the future. Other innovators will be similarly deterred. By refusing to order compulsory licensing, the courts will effectively force rivals to develop their own technologies, which leaves society better off. Therefore, compulsory licensing undermines the innovation incentives of the patentee, the putative licensees, and potential future inventors. This innovation incentive argument presumes that any reduction in patentee reward will reduce innovation incentives, and that the putative licensees possess the technological capacity and commercial interest to innovate.

As has been repeatedly asserted in this Article, the former presumption is not true. So long as the innovator is compensated for its innovation costs, including the opportunity cost of innovation, innovation incentives will be preserved. Prominent commentators and empirical evidence have affirmed this view. Hovenkamp has advocated a nuanced and balanced stance on compulsory licensing:

One corollary of the principle that an IP right is simply property is that no special deference is due to the IP laws when courts fashion remedies for proven antitrust violations. For example, ordering compulsory licensing for a proven antitrust violation is no different than fining a firm or ordering divestiture of a plant. While we do not want to deter innovation, we do want to deter antitrust violations either.200

In fact, it seems that patent lawyers and economists are less apprehensive about compulsory licensing than antitrust lawyers themselves.201 Levin and his co-authors concluded that compulsory licensing does not undermine innovation incentives in any significant manner.202 Scherer found that “the substantial amount of evidence now available suggests that compulsory patent licensing, judiciously confined to cases in which patent-based monopoly power has been abused . . . would have little or no adverse impact on the rate of technological progress . . . .”203 He further referred to specific conversations with executives of Xerox, which had been subject to compulsory licensing order in the 1970s, that refuted the popular belief that compulsory licensing had adversely affected the firm’s R&D.204 Scherer goes so far as to conclude that “a massive antitrust attack on business firms’ use of patents to monopolize markets or enhance profit returns appears to have had negligible adverse consequences for the vigor of innovative activity in the United States.”205

While this Article in no way advocates a massive attack on patent rights, this author believes that imposing a duty to deal in limited instances will enhance social welfare. Preservation of innovation incentives cannot be treated as a trump card in every refusal to license case. It must be scrutinized with care to verify that those incentives will truly be undermined if compulsory licensing is ordered. In particular, the applicability of the innovation incentive argument depends on market conditions. There are at least two circumstances under which the argument is unlikely to be valid: (1) aftermarkets; and, (2) patent holdup.

A. Aftermarkets

As suggested earlier, the conventional argument against a duty to license presumes that reduced patentee reward will undermine innovation incentives and that the spurned rivals would have developed their own technologies. The extent to which the latter is true depends on a variety of factors. Of particular interest to us is the consideration about the level on which the rivals compete with the innovator. If the rivals do not compete in the primary technology market and only compete in the aftermarkets in the provision of derivative products or services, denying them access to the technology will be unlikely to encourage innovation in the primary market. They will simply exit the aftermarkets altogether. This is aptly illustrated by the Federal Circuit CSU v. Xerox case,206 and the Ninth Circuit Image Technical Services v. Kodak case,207 which contains practically identical facts as CSU. In those two cases, the request to deal was not made by Kodak’s and Xerox’s rivals in the primary photocopying machine market, but by independent service organizations (“ISOs”) that provide repair services for photocopying machines. It is difficult to see how a rejection of a duty to deal would have spurred these ISOs to develop their own photocopying machine technology to compete with Kodak and Xerox. Compulsory licensing need not undermine the innovation incentives of the putative licensees.

The patentee will no doubt focus on the first presumption and argue that profits generated from the aftermarkets are necessary for it to recoup R&D investment. Unlike the case for the second presumption about rivals’ innovation incentives, it does not seem possible to come up with a categorical rule that will help the courts to distinguish valid and invalid claims about the first presumption. The courts must instead scrutinize such claims closely and not accept them at face value. The patentee should be required to produce concrete evidence to substantiate the claim, including evidence that shows that profits from the primary market is insufficient to cover the R&D costs.

For instance, this claim about aftermarket profits would have been unlikely to hold in Image Technical Services, where Kodak had initially welcomed ISOs to provide maintenance and repair services. It was only after the maintenance and repair market had become lucrative and Kodak had lost an important maintenance contract with the state of California that Kodak altered its prior policy of supplying parts to ISOs.208 If Kodak had considered profits from the aftermarket essential to its recoupment of R&D investment from the start, it would have been unlikely to have adopted an open policy with the ISOs initially. The Ninth Circuit eventually dismissed Kodak’s business justifications for the refusal to deal on the ground that they were pre-textual, focusing on the subjective state of mind of Kodak’s employees.209 This approach has been criticized as being inconsistent with the modern antitrust focus on objective effects rather than subjective intent.210 By focusing on Kodak’s employees’ subjective state of mind, the Ninth Circuit was in fact attempting to verify Kodak’s innovation incentives argument. This focus is clearly correct. The Ninth Circuit’s mistake was its reliance on the wrong type of evidence. To determine the veracity of the innovation incentive argument, the Ninth Circuit should not have relied on what Kodak’s employees thought, but whether profits from the aftermarket were objectively necessary for Kodak to recoup its investment.

B. Patent Holdup

Patent holdup presents another situation in which imposing a duty to license may be appropriate. Patent holdups are detrimental because they are likely to ~~retard~~ slow cumulative innovation. They are also likely to provide a windfall to the patentee that is above and beyond the profit necessary for the recoupment of innovation costs. The previous two Sections explain the importance of cumulative innovation as a major source of social benefits. Among the three models of cumulative innovation, patent holdup may be a particularly serious problem in the trunk-branch and the anticommons models.211 As discussed earlier, both situations present great potential for social welfare loss due to patent holdups. Moreover, in the trunk-branch model, the Ramsey intuition means that antitrust can restrict patent exploitation at the margin without causing much effect on patentee reward. Cumulative innovation hence can be unlocked without substantial loss of patentee rewards. Patent holdup is likely to provide a windfall to patentees.212 In the event of a holdup, the negotiation usually takes place ex post after the innovation has already been made and the R&D costs are sunk. The follow-on innovator is in a very weak bargaining position to secure a surplus from the negotiation that will allow it to recover those costs. It may need to accept any licensing arrangement that allows it to cover its variable costs. In fact, Lemley and Shapiro argue that ex ante negotiation would not significantly improve the follow-on innovator’s bargaining position.213 Cumulative innovation will be deterred over the long haul.

**Court clog is fearmongering.**

**Stern 03** – J.D. Candidate, 2004, University of Pennsylvania Law School; B.A., 2001, The Johns Hopkins University. (Toby J., “FEDERAL JUDGES AND FEARING THE "FLOODGATES OF LITIGATION," UPenn Journal of Law, 2004, <https://www.law.upenn.edu/journals/conlaw/articles/volume6/issue2/Stern6U.Pa.J.Const.L.377(2003).pdf)>

One of the most easily identifiable problems with the floodgates argument is that it is rarely, if ever, followed by a true analysis of the potential litigation of which it speaks. That is, one response to a floodgates argument might be, "Are you sure that a contrary position would yield a flood of litigation?" 82 This criticism is frequently leveled against the floodgates argument, especially in the realm of tort litigation. For example, as one commentator has argued: The "floodgates of litigation" argument has proven wrong time and again. The lifting of the "impact" rule in rewarding damages for mental anguish, allowing third parties to recover under contracts, and the recognition of the right to privacy, were all prophesied to overwhelm the courts with frivolous claims. **They have not**. This argument, one should think, is relatively strong. While the floodgates argument is generally based on policy considerations,8 5 policy arguments are rarely so indeterminate. While moral arguments are certainly not precise--one cannot quantify, say, "fairness" or 'justice"-they are simply used differently. That is, when a judge says that a decision "promote [s] justice,"8 6 ~~he or she~~ [they] is not speaking about a tangible, actual result. In contrast, when a judge expresses that a decision will open the floodgates of litigation, he or she [they] is saying that there will be actual, cognizable caseload results from the decision. Given how often the floodgates do not open when we are warned that they will,"' making the argument without a proper foundation is dangerous. While there certainly are situations in which a judge should consider the implications of a decision on ~~his or her~~ [their] caseload, 8 doing so without considering the factual bases of those implications is problematic.'8 9 And while uncertainty is an unavoidable part of the law,' 90 the language with which the floodgates argument is regularly employed expresses anything but conjecture and uncertainty. The arguments are forceful; they are intended to conjure "[i] mages of a destructive, elemental force."'9' After all, as Judge Posner notes, "So irregular has been the growth of the caseloads of each of the three tiers of the federal judiciary in the past, and so many and poorly understood are the causes of changes in judicial caseloads, that it is impossible to make responsible predictions about future changes.' 92 The failure of judges to recognize this limitation of the argument reduces the weight afforded thereto.

### FTC Tradeoff DA

**Link non-unique---McGinnis is decisive that the FTC lack resources to enforce privacy regs now.**

John O. **McGinnis**\* **and** Linda **Sun**\*\* **20** – \*George C. Dix Professor, Northwestern University, and Associate-Designate, Wilmer Pickering Hale & Dorr LLP. “Unifying Antitrust Enforcement for the Digital Age.” Northwestern Public Law Research Paper No. 20-20. https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=3669087

The FTC needs more **resources** to adequately address the nation’s growing privacy concerns. Currently, the FTC oversees both consumer protection—encompassing privacy—and antitrust,249 making the FTC the chief federal agency on privacy policy and enforcement250 and the nation’s de-facto privacy agency.251 The agency has long-standing experience in enforcing privacy statutes252 and also has special privacy assets, such as an internet lab capable of high-quality tech forensics to track invasions of privacy.253 The FTC, however, has failed to keep pace with the massive growth of privacy concerns—a phenomenon also driven by modern technology. Very few Americans feel conﬁdent in the privacy of their information in the digital age.254 According to a 2019 study, over 80% of Americans feel that they have little to no control over the data collected on them by companies and the government.255 To adequately address privacy concerns, the FTC needs more resources.256 The agency has been explicit that it needs more manpower to police tech companies. In requesting increased funding from Congress, FTC Director Joseph Simons said the money would allow the agency to hire additional staff and bring more privacy

cases.257 A former director of the FTC’s Bureau of Consumer Protection, which houses the

privacy unit, has called the FTC “woefully understaffed.”258

As of the spring of 2019, the FTC had only forty employees dedicated to privacy and data

security, compared to 500 and 110 employees at comparable agencies in the UK. and Ireland, respectively.259 Without more lawyers, investigators, and technologists, the FTC will be forced to conduct privacy investigations less thoroughly, and in some cases, **forgo them altogether**.260 Currently, the FT C’s resources are **spread thin across multiple missions**, to the **detriment of its privacy efforts**. Removing the agency’s antitrust responsibilities would reallocate resources from the antitrust department to its privacy unit and other areas of consumer protection. Further, it would free up the scarce time of the commissioners to oversee this essential effort.261

#### AI privacy regs fail---AI is too fast.

Michael **Spiro 20**. JD from the University of Washington School of Law. LLM in Innovation and Technology Law from Seattle University School of Law. 12/19/2020. “The FTC and AI Governance: A Regulatory Proposal.” https://digitalcommons.law.seattleu.edu/cgi/viewcontent.cgi?article=1001&context=sjteil.

To date, very few laws or regulations specifically address the unique challenges that AI use poses.134 Looking forward, the legal system lacks the resources needed to make effective regulations that will keep up with AI’s rapid pace of research and development.135 The tech industry’s inherent complexities and tendency to reward “time-to-market at all cost” reinforce the pacing and other problems with governing AI effectively.136 A. AI and the Pacing Problem In addition to the sheer complexity of the technologies themselves, some of the major challenges to effective AI regulation are the scale, heterogeneity, and autonomous nature of many AI systems. 137 These challenges are further complicated by the uncertainties about how and in what directions AI will develop in the future.138 The possibility that many of the risks that AI poses are likely unknown and may even be unknowable further impedes traditional methods of regulation.139 Indeed, the uncertainty around AI’s potential makes even categorizing the various risks of implementing AI a complicated and arduous task.140 A major problem that regulators face regarding AI is that technological developments tend to outpace attempts to regulate them.141 Because of the increasing speed of innovation, the technology often disengages or decouples from regulation.142 This issue is known as the “pacing” problem, where attempts to “futureproof” legislation result in regulatory disconnect, whereby the adopted regulations end up being either too general or too vague to provide meaningful oversight or guidance.143 B. Regulators’ Disadvantages: Lack of Knowledge and Resources Of equal significance is the fact that many regulators do not have the resources to adequately address all of the issues that AI technologies present.144 This information and resource constraint can be particularly problematic in regard to new technologies, such as AI, because there is a steep learning curve and the ability to engage meaningfully with industry experts is necessary to gain the expertise needed to fully understand and act effectively in response to such advancements. 145 Even with sufficient knowledge and expertise, the speed of innovation in the field makes it difficult for regulators to react in a timely and appropriate manner. 146 Regulators also are at a disadvantage given that most of the world’s AI is being developed by a handful of large multinational corporations, whose capabilities in the area far outstrip other institutions, including the government.147 On one hand, this imbalance tends to exacerbate the opacity problem, since private firms are more apt to maintain secrecy over their technologies to safeguard their proprietary interests.148 These companies’ heavy investment in AI research and development also leads to “information asymmetries” between those companies and the regulators, the public, and others seeking to understand the technology.14 Compounding the problem of information asymmetry is even if regulators are able to obtain information, they likely will be unable to fully understand the technology or appreciate its impacts.150 Indeed, especially when an emerging technology, like AI, is in its beginning stages, only those directly involved in developing the technology may possess the necessary expertise to adequately assess its risks.151 Further, given demand for such expertise, regulators are less likely to be able to compete with industry for top talent. 152 As a result, regulators may be forced to overly rely on industry when attempting to regulate AI.153 C. Sectoral Issues, Autonomy, and Unforeseeability Another complicating factor is that governance of AI is likely to be overseen by more than one regulator, given that while a particular type of AI may be widely adopted, it will be used by different industries in different ways.154 Moreover, as AI systems become increasingly integrated and embedded into the social and economic environment, the potential for systemic risk becomes amplified, affecting multiple stakeholders, jeopardizing the effectiveness of traditional regulatory models.155 The nature of AI research and development also makes effective regulation more difficult. There are three general ex ante problems with regulating AI research and development: discreetness (AI projects can be developed with little physical infrastructure, and without the need for large-scale, integrated institutional frameworks); diffuseness (AI projects can be carried out by a variety of diffuse actors in widely dispersed geographic locations); and discreteness (parties can, without consciously coordinating with each other, make use of “discrete components and technologies ‘the full potential of which will not be apparent until the components come together’”). Traditional regulators are generally ill-equipped to handle these issues.157 Machine autonomy and algorithmic unpredictability pose other important regulatory concerns. It is inherently difficult trying to control the actions of autonomous systems, particularly when those systems’ decisions or actions are unforeseeable, even to their designers and operators.158 Indeed, the legal system is likely to struggle to manage these issues in such a way as to ensure aggrieved parties are adequately compensated when AI technologies cause harm.159 For instance, the legal system may view the behavior of some machine learning processes as so unforeseeable that it would be unfair to extend liability to their designers for harms they cause, leaving those injured thereby with little recourse.160 Moreover, because the workings of many AI systems are not visible to the public, it can be hard to detect when an AI system’s decision causes harm, or that the system even made the decision, making the concept of redress practically meaningless.161 A related issue concerns AI systems acting in ways that can make them difficult for humans to control.162 In the most extreme case, an AI system becomes so much smarter and faster than its human counterparts, that it can no longer be controlled by humans at all. 163 Flawed programming and design also can lead to loss of “local control,” which occurs when those humans who have the legal responsibility for controlling the AI system are no longer able to do so.164 Loss of control is especially problematic when the emergent nature of the AI system and the interests of its designers are no longer in alignment with each other.165 Given all of these challenges, new, innovative approaches to regulating AI are needed.166 The old state-centric, command-and-control regulatory model is no longer adequate.167 As discussed below, while this does not mean that there is no role for government oversight or that regulators do not have an important part to play–indeed they do–rather it is that the growth of machine learning and the emergence of AI calls for a more inclusive, or coregulatory, approach.

#### No Rogue AI

Tenner 2014 (Edward Tenner, visiting researcher in the Rutgers Department of History and the Princeton Center for Arts and Cultural Policy Studies, author of Why Things Bite Back: Technology and the Revenge of Unintended Consequences and Our Own Devices: How Technology Remakes Humanity, The American, February 7, 2014, "Could Computers Get Too Smart?" http://www.american.com/archive/2014/february/could-computers-get-too-smart)

Kurzweil, who has proposed his own model of the mind, believes that the apparent complexity of the brain may be the result of simple rules, just as a six-character equation is enough to generate the ultra-intricate graphic called the Mandelbrot Set. IBM is investing $1 billion in its supercomputer Watson, which defeated human Jeopardy! champions. This project does not try to replicate the human brain’s structure — Watson could make errors no skilled human contestant would, like considering Toronto a U.S. city — but it also raises hopes and fears about the autonomy of machines. According to its CEO, Virginia M. Rometty, Watson “learns from its own experiences and from our interactions with it — and as it does, it keeps getting smarter. Its judgments keep getting better.” This might make it less necessary to hand-feed advanced machines with millions of commonsense facts; some critics of artificial intelligence, such as the British sociologist of science Harry Collins, believe that there is just too much of this “tacit knowledge” – including the countless facts about human relationships we take for granted — to specify. Even apart from the elusiveness of tacit knowledge, there are many reasons to doubt the imminence of a virtual human brain, let alone one that would become a self-multiplying, possibly civilization-threatening superintelligence. Artificial intelligence researchers themselves acknowledge that many tasks have taken far longer than their predecessors had predicted, leading in the past to disappointing results and funding slumps known as “AI winters.” Computer scientists specializing in computational complexity aren’t sure of whether brain modeling belongs in the category of problems so hard that centuries of hardware and software progress couldn’t solve them. Every so often, strikingly efficient computer procedures take experts by surprise, such as Google’s search algorithm in the 1990s. Artificial superintelligence may seem improbable, but history is full of great minds who said new inventions were impossible. As science fiction writer Arthur C. Clarke said, “Any sufficiently advanced technology is indistinguishable from magic.” In this case, will it be black magic? The most serious reason for skepticism about such technological developments is not a philosophical, physical, or psychological objection but one from everyday experience. I would take warnings about the dangers of superintelligent machines more seriously if today’s computers were able to make themselves more resistant to human hackers and to detect and repair their own faults. Organizations with access to some of the most advanced supercomputers and gifted programmers have been hacked again and again by individuals and groups with modest resources, compromising everything from credit card numbers to espionage secrets. We must balance charts of exponential growth of computing power, like those displayed by Kurzweil in How to Create a Mind, against more sobering ones of continuing electronic fragility.

#### 1---No link---the prospect of antitrust intervention deters violations---that’s Melamed and Shapiro---no enforcement necessary.

Cheng 13, \*Thomas Cheng, B.A. (Yale), J.D. (Harvard), B.C.L. (Oxon); Attorney & Counsellor, New York State; Associate Professor, Faculty of Law, The University of Hong Kong; (2013, “Putting Innovation Incentives Back in the Patent-Antitrust Interface”, <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1195&context=njtip>), ability edited

Imposing a duty to license on opportunistic patentees may solve this problem. If these patentees know that the courts may step in and mandate licensing at a reasonable royalty rate,214 they will be induced to enter into negotiations with follow-on innovators in good faith.215 The threat of compulsory licensing may become a default background legal rule against which negotiations between initial and follow-on innovators take place. The instances in which the courts need to intervene could be few.

#### The DOJ is already prepared to engage in more antitrust litigation over SEP’s---tradeoffs inevitable.

Love 21, \*Bruce Love, writer at the National Law Journal; (June 15th, 2021, “As DOJ Confirms a Change in Antitrust Patent   
Policy, Lawyers Prepare for Shifting Demand”, https://www.mckoolsmith.com/assets/htmldocuments/2021%2006%2016%20As%20DOJ%20Confirms%20a%20Change%20in%20Anittrust%20Patent%20Policyk%20Lawyers%20Prepare%20for%20Shifting%20Demand%20-%20The%20National%20Law%20Journal.pdf)

The Justice Department has confirmed it is looking to develop new policies surrounding how standard-essential patents might be used as tools for anticompetitive practices. The change in policy will mean big business for law firms that can combine highly technical IP advice with their antitrust and litigation practices, with one lawyer likening the demanding skill set to “three-dimensional chess.” Standard-essential patents, or SEPs, are a fundamental piece of intellectual property for business and innovation because they are used under license so frequently by manufacturing companies other than the patent owners. The policy change was hinted at during an online event in late May, when Richard Powers, the acting attorney general of DOJ’s antitrust division, gave an indication that the government might be walking back the relaxed approach implemented by the DOJ under the Trump administration. A DOJ spokesperson confirmed in an email Tuesday to Law.com that it will change its policy on SEPs and antitrust behavior, with the agency still working out the details. The new administration, said the DOJ spokesperson, is rethinking what policies at the intersection of IP and anti- trust will best serve competition and consumers. “New Department leadership is working with career staff on developing a more balanced approach,” said the DOJ spokesperson. “The department wants to develop neutral and balanced policies in this area that recognize the importance of both antitrust enforcement and JUNE 15, 2021 As DOJ Confirms a Change in Antitrust Patent Policy, Lawyers Prepare for Shifting Demand BY BRUCE LOVE U.S. law has often shied away from enforcing essential patent obligations. That’s set to change. The result could be “a significant change in the volume and nature of business for IP trial lawyers and their clients,” one lawyer said. Office of the Attorney General at the U.S. Department of Justice in Washington, D.C. June 6, 2020. THE NATIONAL LAW JOURNAL JUNE 15, 2021 intellectual property protection to our economy and that do not favor one set of interests over others.” Such policy changes could result in a swell of business for law firms with deep, technical IP benches and strong experience representing the industry in enforcement actions, lawyers said. Trump’s DOJ had “taken its foot off the gas” when it came to SEPs as the focus of anti-competitive behavior, said one Washington-based lawyer, speaking on the condition of anonym- ity because he currently has active cases that involve both SEP enforcement and defense. “It didn’t mean we weren’t busy as litigators. There was a lot of work enforcing SEPs against infringers and defending against infringement allegations,” he said. “But we weren’t busy in the antitrust arena. A greater focus on SEPs—not just by the DOJ but also other agencies—might mean more litigation, but it will also mean a more transparent field of play. It doesn’t do companies any good for there to be unfettered SEP enforcement.”

#### Turn---the prospect of antitrust intervention deters violations---that’s Melamed and Shapiro---no enforcement necessary.

Cheng 13, \*Thomas Cheng, B.A. (Yale), J.D. (Harvard), B.C.L. (Oxon); Attorney & Counsellor, New York State; Associate Professor, Faculty of Law, The University of Hong Kong; (2013, “Putting Innovation Incentives Back in the Patent-Antitrust Interface”, <https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1195&context=njtip>), ability edited

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Fiat solves the links

#### Biden’s XO solves---he’s devoting all resources on deck to prosecuting antitrust.

Posner 21, professor at the University of Chicago Law School (Eric, 7-21-2021, "The Antitrust War’s Opening Salvo", Project Syndicate, <https://www.project-syndicate.org/commentary/biden-antitrust-executive-order-what-it-does-by-eric-posner-2021-07>. Accessed 7-22-21)

The executive order is ambitious in its scope and style. In strongly worded passages, it accuses businesses of monopolistic and unfair practices in major industries, including technology, agriculture, health care, and telecommunications. It laments the decline of government antitrust enforcement, and identifies numerous harms that have resulted – including economic stagnation and rising inequality.

The order also establishes a new bureaucratic organization in the White House to lead the anti-monopoly effort. Demanding a “whole-of-government” approach, it calls on the vast resources of numerous agencies, and not just the two that traditionally oversee antitrust (the Department of Justice and the Federal Trade Commission).

## 1AR

### FTC Tradeoff DA

#### Yes nuke winter

Steven **Starr 17**. 1/9/2017. Director, University of Missouri’s Clinical Laboratory Science Program; senior scientist, Physicians for Social Responsibility. “Turning a Blind Eye Towards Armageddon — U.S. Leaders Reject Nuclear Winter Studies.” Federation of American Scientists. <https://fas.org/2017/01/turning-a-blind-eye-towards-armageddon-u-s-leaders-reject-nuclear-winter-studies/>

Now 10 years ago, several of the world’s leading climatologists and physicists chose to reinvestigate the long-term environmental impacts of nuclear war. The peer-reviewed studies they produced are considered to be the most authoritative type of scientific research, which is subjected to criticism by the international scientific community before final publication in scholarly journals. No serious errors were found in these studies and their findings remain unchallenged. Alan Robock et al., “Nuclear winter revisited with a modern climate model and current nuclear arsenals: Still catastrophic consequences,” Journal of Geophysical Research: Atmospheres 112 (2007). Owen Brian Toon et al., “Atmospheric effects and societal consequences of regional scale nuclear conflicts and acts of individual nuclear terrorism,” Atmospheric Chemistry and Physics 7 (2007). Michael Mills et al., “Massive global ozone loss predicted following regional nuclear conflict,” Proceedings of the National Academy of Sciences of the United States of America 105, no. 14 (2008). Michael Mills et al., “Multidecadal global cooling and unprecedented ozone loss following a regional nuclear conflict,” Earth’s Future 2. Alan Robock et al., “Climatic consequences of regional nuclear conflicts,” Atmospheric Chemistry and Physics 7 (2007). Working at the Laboratory for Atmospheric and Space Physics at the University of Colorado-Boulder, the Department of Environmental Sciences at Rutgers, and the Department of Atmospheric and Oceanic Sciences at UCLA, these scientists used state-of-the-art computer modeling to evaluate the consequences of a range of possible nuclear conflicts. They began with a hypothetical war in Southeast Asia, in which a total of 100 Hiroshima-size atomic bombs were detonated in the cities of India and Pakistan. Please consider the following images of Hiroshima, before and after the detonation of the atomic bomb, which had an explosive power of 15,000 tons of TNT. The detonation of an atomic bomb with this explosive power will instantly ignite fires over a surface area of three to five square miles. In the recent studies, the scientists calculated that the blast, fire, and radiation from a war fought with 100 atomic bombs could produce direct fatalities comparable to all of those worldwide in World War II, or to those once estimated for a “counterforce” nuclear war between the superpowers. However, the long-term environmental effects of the war could significantly disrupt the global weather for at least a decade, which would likely result in a vast global famine. The scientists predicted that nuclear firestorms in the burning cities would cause at least five million tons of black carbon smoke to quickly rise above cloud level into the stratosphere, where it could not be rained out. The smoke would circle the Earth in less than two weeks and would form a global stratospheric smoke layer that would remain for more than a decade. The smoke would absorb warming sunlight, which would heat the smoke to temperatures near the boiling point of water, producing ozone losses of 20 to 50 percent over populated areas. This would almost double the amount of UV-B reaching the most populated regions of the mid-latitudes, and it would create UV-B indices unprecedented in human history. In North America and Central Europe, the time required to get a painful sunburn at mid-day in June could decrease to as little as six minutes for fair-skinned individuals. As the smoke layer blocked warming sunlight from reaching the Earth’s surface, it would produce the coldest average surface temperatures in the last 1,000 years. The scientists calculated that global food production would decrease by 20 to 40 percent during a five-year period following such a war. Medical experts have predicted that the shortening of growing seasons and corresponding decreases in agricultural production could cause up to two billion people to perish from famine. The climatologists also investigated the effects of a nuclear war fought with the vastly more powerful modern thermonuclear weapons possessed by the United States, Russia, China, France, and England. Some of the thermonuclear weapons constructed during the 1950s and 1960s were 1,000 times more powerful than an atomic bomb. During the last 30 years, the average size of thermonuclear or “strategic” nuclear weapons has decreased. Yet today, each of the approximately 3,540 strategic weapons deployed by the United States and Russia is seven to 80 times more powerful than the atomic bombs modeled in the India-Pakistan study. The smallest strategic nuclear weapon has an explosive power of 100,000 tons of TNT, compared to an atomic bomb with an average explosive power of 15,000 tons of TNT. Strategic nuclear weapons produce much larger nuclear firestorms than do atomic bombs. For example, a standard Russian 800-kiloton warhead, on an average day, will ignite fires covering a surface area of 90 to 152 square miles. A war fought with hundreds or thousands of U.S. and Russian strategic nuclear weapons would ignite immense nuclear firestorms covering land surface areas of many thousands or tens of thousands of square miles. The scientists calculated that these fires would produce up to 180 million tons of black carbon soot and smoke, which would form a dense, global stratospheric smoke layer. The smoke would remain in the stratosphere for 10 to 20 years, and it would block as much as 70 percent of sunlight from reaching the surface of the Northern Hemisphere and 35 percent from the Southern Hemisphere. So much sunlight would be blocked by the smoke that the noonday sun would resemble a full moon at midnight. Under such conditions, it would only require a matter of days or weeks for daily minimum temperatures to fall below freezing in the largest agricultural areas of the Northern Hemisphere, where freezing temperatures would occur every day for a period of between one to more than two years. Average surface temperatures would become colder than those experienced 18,000 years ago at the height of the last Ice Age, and the prolonged cold would cause average rainfall to decrease by up to 90%. Growing seasons would be completely eliminated for more than a decade; it would be too cold and dark to grow food crops, which would doom the majority of the human population.2

#### A---Oil and gas.

Justin **Sink and** David McLaughlin 8/30/21. Staff writer for the Hill and Bloomberg writer. “FTC Targets Oil-and-Gas Deals, Franchises Amid Pain At Pump.” https://www.yahoo.com/now/ftc-targets-oil-gas-mergers-134500600.html

The Federal Trade Commission is examining ways to crack down on mergers in the oil and gas industry and investigate whether gas station franchises are driving up gas prices as part of a Biden administration effort to combat higher costs at the pump.

FTC Chair Lina Khan is directing staff to identify new legal theories to challenge retail fuel station deals and investigate possible collusion by national chains to push up prices, she said in an Aug. 25 letter to White House economic adviser Brian Deese obtained by Bloomberg News.

“I will be taking steps to deter unlawful mergers in the oil and gas industry,” Khan said. “Over the last few decades, retail fuel station chains have repeatedly proposed illegal mergers, suggesting that the agency’s approach has not deterred firms from proposing anticompetitive transactions in the first place.”

The FTC is planning to ratchet up investigations into abuses in the retail fuel station franchise market, she added.

Pennsylvania. She is also an alumna of the Fellowships at Auschwitz for the Study of Professional Ethics, a program in Germany and Poland that explores the ethics of reporting on politics, war and genocide (Alexandra, “How Biden's tech trustbuster could change health care,” *Politico*, <https://www.politico.com/newsletters/future-pulse/2021/08/25/how-bidens-tech-trustbuster-could-change-health-care-797333>)

#### B---Health care.

Levine 8-25-2021, master’s degree from the Columbia University Graduate School of Journalism and a bachelor of arts in English from the University of Pennsylvania. She is also an alumna of the Fellowships at Auschwitz for the Study of Professional Ethics, a program in Germany and Poland that explores the ethics of reporting on politics, war and genocide (Alexandra, “How Biden's tech trustbuster could change health care,” *Politico*, <https://www.politico.com/newsletters/future-pulse/2021/08/25/how-bidens-tech-trustbuster-could-change-health-care-797333>)

Lina Khan’s Federal Trade Commission has its eyes on health care. The agency known for efforts to rein in Big Tech companies like Facebook and Amazon is also enmeshed in high-stakes health care and health tech battles that extend well beyond Silicon Valley. Case in point: The FTC trial that kicked off yesterday examining monopoly concerns in the market for cancer screening technology. (More on that below.) That closely watched antitrust case — involving the giant Illumina and startup Grail — predates Khan’s confirmation as FTC chair. But it underscores how health issues are looming over the agenda, particularly heading into the pandemic's second year. The way health care companies and consumer health apps handle sensitive data “is an area that I'm sure [Khan’s] very, very interested in,” said Jessica Rich, former director of the FTC’s consumer protection bureau, adding that the Biden administration's FTC will also be closely scrutinizing hospital mergers. “I expect her and the commission to take a very bold approach to what constitutes harm for both,” Rich said. “I expect her to pay close attention to algorithms and potential discrimination in health care, both denials and pricing issues which the FTC's laws can address.” The FTC’s jurisdiction touches nearly the entire health economy. While its competition bureau looks at health care mergers like the Illumina-Grail deal, its consumer protection side is focused on health privacy and data security issues, as well as fighting bogus medical claims on everything from weight loss to Covid cures. When Congress passed the Covid-19 Consumer Protection Act last year, the agency was granted new authority to police Covid scams. Although Khan hasn't spoken publicly about her health care agenda, she's likely to take issue with health apps and companies whose business models maximize, incentivize and monetize data collection. Of particular concern is how firms disclose what they’re doing with consumers’ data — and whether it may still be deceptive or unfair.

#### C---Section 5 rulemaking

Caitlin Styrsky 8/17/21. Staff writer at Ballotpedia. “Checks and Balances: FTC expands interpretation of its antitrust enforcement authority.” https://news.ballotpedia.org/2021/08/17/checks-and-balances-ftc-expands-interpretation-of-its-antitrust-enforcement-authority/

The Federal Trade Commission (FTC) on July 1 voted 3-2 to broaden its interpretation of the commission’s Section 5 authority, which authorizes the FTC to investigate and challenge what it deems “unfair methods of competition in or affecting commerce.” The change could allow the agency to expand enforcement proceedings against companies that don’t expressly violate federal antitrust statutes.

The new interpretation departs from the commission’s 2015 precedent, established through internal guidance, that relied on the consumer welfare standard to determine what constitutes antitrust activity. According to the consumer welfare standard, only companies that artificially raise prices qualify as monopolies for the purposes of FTC enforcement. The FTC did not pursue companies via this standard if enforcement through the Sherman Act or the Clayton Act could address the competitive harm.

Under the FTC’s broadened interpretation of its authority, the commission can issue civil penalties to challenge what it deems to be anti-competitive behavior regardless of whether the behavior violates federal antitrust statutes. The change could allow the FTC to bring enforcement proceedings against tech companies that do not qualify as monopolies but that, in the opinion of FTC Chair Lina Khan, have been alleged to have exhibited anti-competitive practices.

“Withdrawing the 2015 Statement is only the start of our efforts to clarify the meaning of Section 5 and apply it to today’s markets,” wrote Khan in a statement. “Section 5 is one of the Commission’s core statutory authorities in competition cases; it is a critical tool that the agency can and must utilize in fulfilling its congressional mandate to condemn unfair methods of competition.”

#### D---Big tech.

Mike Scarcella 9-10. Legal affairs reporting for Reuters Legal in DC. "Week Ahead in Antitrust: Sept. 13, 2021." Reuters. 9-10-2021. https://www.reuters.com/legal/litigation/week-ahead-antitrust-sept-13-2021-2021-09-10/

(Reuters) - Here are some upcoming events of interest to the antitrust community. Unless otherwise noted, all times are local, and court appearances are virtual due to the COVID-19 pandemic. Monday, Sept. 13 4:15 p.m. - Shearman & Sterling's Matthew Readings, the firm's global antitrust practice group leader, is participating as a panelist at a Concurrences-sponsored discussion about merger controls in Asia. Stephen Ridgeway, a commissioner on the Australian Competition and Consumer Commission, is also a panelist. Stephen Crosswell, a Baker McKenzie partner in Hong Kong, will moderate. Find registration information here. Tuesday, Sept. 14 3 p.m. - Baker McKenzie is hosting a series of panel discussions over several days focused on compliance, including antitrust issues. Today's discussion, featuring competition law partners in London, Brussels and Washington, D.C., focuses on global antitrust "hot topics." A discussion on Wednesday will confront antitrust developments in distribution and the supply chain. Find more information here. No time - U.S. District Judge Amit Mehta in Washington, D.C., has asked lawyers for Google Inc and non-party Yelp to file a joint status report by Tuesday telling him whether there are any unresolved issues concerning Yelp's response to a document subpoena from the tech and search giant. Mehta is presiding over the U.S. Justice Department's antitrust case against Google, which has denied anticompetitive behavior. The judge is overseeing discovery issues now involving other non-parties, including Apple Inc and Microsoft Corp. The case is United States v. Google, U.S. District Court for the District of Columbia, No. 1:20-cv-03010. For the United States: Kenneth Dintzer of the Justice Department. For Google: John Schmidtlein of Williams & Connolly. For Yelp: Douglas Dixon of Hueston Hennigan and Serine Consolino of Aegis Law Group. For Microsoft: Caroline Simons of Orrick Herrington & Sutcliffe. For Apple: Steven Sunshine of Skadden, Arps, Slate, Meagher & Flom. Wednesday, Sept. 15 11 a.m. - The U.S. Federal Trade Commission is set to hold its third virtual open meeting under the Biden-era leadership of Chair Lina Khan. The tentative agenda includes a review of the 2020 vertical merger guidelines, and a vote on whether to issue a policy statement on privacy breaches by health apps and connected devices. Agency staff will present findings of the commission inquiry into technology companies' unreported acquisitions, deals that can be too small to trigger disclosure to enforcers. More information is here. Thursday, Sept. 16 9:30 a.m. - U.S. Magistrate Judge Laurel Beeler in San Francisco will preside over a discovery hearing in an antitrust action alleging Gilead Sciences Inc participated in a scheme to suppress competition for an HIV drug. Gilead, which has denied the claims, is seeking to keep certain details redacted--based on attorney-client privilege--in discovery filings. The plaintiffs' lawyers contend the documents at issue are "quintessential" business records. For plaintiffs: Daralyn Durie of Durie Tangri; Steve Shadowen of Hilliard & Shadowen; and Steve Berman of Hagens Berman Sobol Shapiro. For defendants: Heather Burke, Christopher Curran and Heather McDevitt of White & Case. 1 p.m. - Cooley is hosting a virtual discussion about the Biden antitrust scrutiny on life sciences. "Signs abound that this scrutiny is very likely to reach new levels in 2021 and beyond," the firm said. Jacqueline Grise, chair of the firm's antitrust and competition practice group, will be on the panel with partners Tanisha James and Dee Bansal. Find more information here.