# 1AC

## 1AC

### Plan

#### 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.

### 1AC---Innovation ADV

#### Advantage 1 is Innovation:

#### Current standard setting organization and FRAND enforcement is failing now

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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.

#### Holdup is accentuated by FTC v Qualcomm

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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

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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.

#### A trusted and credible system for ICT innovation is critical to rapid tech diffusion and economic growth---absent FRAND, the system will collapse.

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It is easy to take a pessimistic view about whether the system will break. If the current trend continues, the system is likely to break at some point for the simple reason that companies will not trust it anymore. The series of legal disputes witnessed over the past years – sometimes referred to as the “smartphone patent wars” – has been fodder for a pessimistic reading of “the two tales of SEPs”. While it is common in the business world that disputes over patents and licenses are settled in courts, various SEP disputes have revealed problematic aspects of the SEP market that are different from those disputes that follow the normal stream of business and contracts. Often, the SEP disputes are less concerned about the rights and boundaries of patents, and more about antitrust limits to market behavior: they concern market abusive practices and restrictions to competition as much as they are about intellectual property.

If the SEP system actually does break at some point, the consequences would be felt throughout the economy. SEPs have been a critical part of the ICT revolution. SEPs have allowed for the fast rates of innovation diffusion that the world has witnessed over the past quarter of a century. All the computer and Internet related products and services that people are now dependent upon for their private and professional lives are intricate webs of intellectual property. As many as 250,000 patents can be used to claim ownership of some technical specification or design element in a single smartphone (NYT 2012). A laptop, suggests one calculation, implements more than 250 interoperability standards (Biddle et al. 2010), and the number of SEP holders for 3G and 4G standards grew from 2 in 1994 to 130 in 2013 while the number of SEPs rose from fewer than 150 in 1994 to more than 150,000 in 2013 (Galetovic and Gupta 2016). The standardization-body ETSI has registered more than 150,000 declarations of SEPs from companies, and ETSI is just one of many bodies in the world of ICT standardization. For the 3G standard, the same body has about 24,000 patents that have been declared essential. Now, with the economy yet again on the threshold of big technological change, a trusted and credible system for creators and users of technology to standardize proprietary technology would be a boon for innovation, interoperability and – ultimately – the consumers.

And there are reasons for optimism. Although many of the problems in the SEP regimes need to be addressed, the numbers above indicate that the SEP system is in fact attractive to patent holders and SEP implementers. It is easy to see why: neither holders nor implementers are presented with alternative options that on the face of it would be far more profitable for them. In other words, there simply would not be as many patents declared as essential if both creators and users of technology believed the SEP system worked to their disadvantage or was grossly unfair. While the reality for some companies may be that legal disputes and unpredictability prompt them to find other ways than SEPs to get access to key technologies for their products, it remains the case that most stakeholders have strong economic incentives to maintain a balanced SEP system that is trusted.

First, standard essential patents are an asset for creators of technology because, by becoming essential to a standard, their volumes of sales for technologies that users value rise significantly. As many holders want to raise more revenues for their SEPs and – ideally – have the freedom to contract with buyers on their terms, they can expand their customer base when they agree to sell patented technology in accordance with a set of rules that are designed to prevent SEP holders exploiting the weakness of a customer that has grown dependent on having access to their technology.

Second, SEPs are hugely beneficial also to those that buy the licenses – the implementers or users. Through the SEP system, they can access technologies that are interoperable and work with different products and functionalities – and they can do it under conditions that, if history is a guide, in most cases give them stable and predictable terms of contract. As a consequence, both creators and users can focus on their competitive advantages and profit on the economies of scale and specialization. Downstream firms do not need to develop their own upstream technology and upstream firms do not need to package their technologies in end-customer products in order to make their products valuable.

Third, standard-setting organisations (SSOs) also have a big stake in an SEP system that works well – and, like creators and users of technology, they would stand to lose significantly if the SEP system were to collapse.

Lastly, the biggest beneficiaries are individual consumers – those who buy the end products using FRAND-conditioned SEPs. The advent of SEPs and the rules represented by FRAND have enabled a development of fast technology creation and contributed to the rapid diffusion in ICT goods and ICT-based services. The SEP system has also allowed for new competition, both between existing technologies and brands, and from new ones that have stepped into the market with the ambition to disrupt it, again to the benefit of the consumer. It is difficult to imagine that the ICT and digital development would have been as fast as it has been if SEPs had not been a central feature of the market.

The changing fortunes of companies operating in the cellular and smartphone market would not have been possible if there had not been an SEP system that supported competition. Now that the world economy is on the doorstep of new innovations that are dependent on a great number of input technologies – e.g. the Internet-of-Things, transport connectivity and intelligent vehicles – it is crucially important for the consumer that a balanced and functioning SEP system is maintained and that actors in the system converge towards it – which would ultimately meet their economic interests.

#### ICT innovation is key to post-COVID economic recovery and long-term growth.

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Introduction

As the global economy has entered recession in 2020, triggered by the COVID-19 pandemic, the human casualties, and economic damage are perceived to be very large. Even as the health crisis will gradually become manageable, the impact on economic growth can be long-lasting and the recovery path can take several years. In particular, growth drivers such as the pace of job creation, income generation and investment may take several years to get back to pre-crisis trends. Initially the productivity of those growth drivers may be of less concern as the mantra of ‘we’ll do what it takes to avoid worse’ is predominant in this phase of the crisis.

However, once the recovery gets underway the productive use of resources is key to sustained growth. While we do not ignore the short-term challenges of the economic recovery, our primary focus in this paper is on the productivity puzzle from a long-term perspective. Productivity is driven by technological change and innovation which, in turn, depends on investment in human and physical capital as well as in other ‘missing capitals’ often referred to as intangible assets. Indeed, those investments create a positive feedback effect, as the productivity it generates also helps to make more efficient usage of scarce resources in the future. When properly measured and valued, productivity also provides a critical yardstick to realise a fairer distribution of the gains from economic growth to those who bring the resources to bear. It thereby creates the incentives for people to produce and business to invest helping to drive economic growth and raise living standards.

Unfortunately, in the aftermath of the global financial crisis of 2008/2009, many economies around the world, especially advanced economies, have failed to recharge the economy by powering productivity as the key source of growth in the long term. Indeed the latest update of The Conference Board Total Economy Database (July 2020) points at significant weakening in labor productivity growth in Europe up to 2019 (figure 1a–c). While the United States experienced somewhat faster productivity growth from 2017 to 2019 than the Euro Area and the United Kingdom, it still has not recovered to the rates of productivity growth from before the global financial crisis either.

The slowdown in productivity growth over the past 15 years has been well documented. There are multiple causes including an exhaustion of catch-up potential in emerging markets impacting economies along entire global value chains, and the drag from the global financial crisis because of low demand and weak investment, too low interest rates causing misallocations an overreliance on cheap labor, and failing fiscal policies (Bauer et al., 2020; Cette et al., 2016; Crafts, 2018; Dieppe, 2020; Fernald et al., 2017; Syverson, 2016).1 Technical measurement issues regarding inputs and outputs may have played a role as well.

In our earlier work we have stressed the importance of time lags in the adoption of new technologies, and in particular the complexity in generating productivity growth from the latest round of new digital technologies since the early 2010s, including the move toward mobile, ubiquitous access to broadband, the rise of cloud storage and advances in artificial intelligence (AI) and robotics (van Ark, 2016a, 2016b; van Ark and O’Mahony, 2016; van Ark et al., 2016).

While the first priority for economic recovery from the COVID-19 crisis is to restore jobs, it is important that any employment-intensive growth path does go together with a productivity revival. In this paper, we argue that it is possible to avoid another productivity slowdown. Underneath the aggregate figures, there is evidence pointing toward a possible tipping point at which many advanced economies may expect to see more widespread impacts from the adoption and absorption of digital technology on productivity and GDP growth.

In Section 2 we review the latest literature on the productivity impacts of general purpose technologies (GPTs), including the notion of time lapses through which digital technologies result in faster productivity growth. We also look at patterns by which innovation and productivity effects GPTs emerge across industries and disperse across the economy. We explain why the New Digital Economy (NDE) is especially characterised by long lag effects.

In Section 3 we provide an empirical analysis of productivity growth by industry data to observe whether we can detect a distinct pattern across groups of industries pointing to a structural improvement in recent years. We use a taxonomy on digital intensity by industry which was recently developed by the Organisation for Economic Co-operation and Development (OECD) (Calvino et al., 2018), showing that the most digital-intensive industries have experienced a relatively strong performance in terms of labor productivity growth since 2007 and especially since 2013.

In Section 4 of the paper, we discuss the connection between labor and skills in the digital economy, which we believe provides the key to a productivity revival. We developed a new metric on innovation competencies by occupation on the basis of data from the O\*Net database on occupation-specific descriptors in the United States (Hao et al., 2018). When applied to the United Kingdom, we find that innovation competencies point at stronger productivity effects by industry.

In Section 5 we focus on how productivity has been behaving in the short-term during the COVID-19 recession. In particular, we address the potential trade-offs between traditional pro-cyclical recovery effects and scarring effects the recession leaves, especially on the labor market. We argue that increased adoption and usage of digital technologies during the COVID-19 crisis may create a positive productivity effect. In the final section, Section 6, we will review our hypothesis that a productivity revival could be imminent in the light of the recovery from the COVID-19 crisis. In order not to miss this opportunity again, as happened a decade ago, we argue that a coordinated effort from business and policy is needed, and has to be delivered in such a way that the gains from productivity will be more widespread and such that those who provide the resources for growth are incentivised to deliver them in an efficient way.

2. The productivity paradox of the New Digital Economy

It is well known that General Purpose Technologies (GPTs), defined as new methods of producing and inventing new goods and services which are important enough to have a long-term aggregate impact on the economy, can take a significant amount of time to translate to faster productivity growth at the aggregate level of the economy. This is inherent to the three critical characteristics of a GPT as identified by Bresnahan and Trajtenberg (1995).2

1. Pervasiveness –The GPT should spread to most sectors.

2. Improvement –The GPT should get better over time and, hence, should keep lowering the costs of its users.

3. Innovation spawning –The GPT should make it easier to invent and produce new products or processes.

Historical analysis has focussed on productivity trends in previous technology phases (Bakker et al., 2019; Crafts, 2004). Recent literature has shown that the information and communication technology (ICT) revolution of the past 50 years can be characterised as a GPT and doesn’t pale with previous GPTs such as steam technology, electricity and the combustion engine. For example, Hempell (2005) concludes that ‘investment in information and communication technologies (ICT) are closely linked to complementary innovations and are most productive in firms with experience from earlier innovations’. In a more recent analysis of the evolution of the Internet, Simcoe (2015) argues that the modularity of the internet has prevented a fall in return to investments in innovation by ‘facilitating low-cost adaptation of a shared general-purpose technology to the demands of heterogeneous applications’. In a review of the data, Liao et al. (2016) conclude that:

‘...ICT investment does contribute to productivity but not in the usual manner –we find a positive (but lagged) ICT effect on technological progress. We argue that for a positive ICT role on growth to actually take place, a period of negative relationship between productivity and ICT investment together with ICT-using sectors’ capacity to learn from the embodied new technology was crucial. In addition, it took a learning period with appropriate complementary co-inventions for the new ICT-capital to become effective and its gains to be realised. Our findings provide solid, further empirical evidence to support ICT as a general purpose technology’.

#### Growth solves nuclear war.

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What Is To Be Done?

The first marching order is to dodge any kind of perpetual war of the sort that George Orwell outlined in  “1984,” which engulfed the three super states of Eastasia, Eurasia, and Oceania, and made possible the totalitarian Big Brother regime. A long-running Cold War-type confrontation would almost certainly take another form than the one that ran from 1945 until the downfall of the Soviet Union.

What prescriptions can be offered in the face of the escalating competition among the three global powers? First, by staying militarily and economically strong, the United States will have the resources to deter its peers’ hawkish behavior that might otherwise trigger a major conflict. Judging by the history of the Cold War, the coming strategic chess match with Russia and China will prove tense and demanding—since all the countries boast nuclear arms and long-range ballistic missiles. Next, the United States should widen and sustain willing coalitions of partners, something at which America excels, and at which China and Russia fail conspicuously.

There can be little room for error in fraught crises among nuclear-weaponized and hostile powers. Short- and long-term standoffs are likely, as they were during the Cold War. Thus, the playbook, in part, involves a waiting game in which each power looks to its rivals to suffer grievous internal problems which could entail a collapse, as happened to the Soviet Union.

Some Chinese and Russian experts predict grave domestic problems for each other. They also entertain similar thoughts about the United States, which they view as terminally decadent and catastrophically polarized over politics, ethnicity, and the future direction of the country. So, the brewing three-way struggle also involves a systemic contest, which will test the competitors’ economic and political institutions.

At this juncture, the world is entering a standoff among the three great and several not-so-great powers. Averting war, while defending our interests, will prove a challenge, calling for deft policy, political endurance, and economic growth, as well as sufficient military force to keep at bay aggressive states or prevail over them if ever a war breaks out.

#### Holdup threatens the entire IOT economy.

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G. Summary

However, our overall conclusions regarding SEPs are more mixed. Policy and legal changes that have reduced the ability of SEP owners to engage in patent holdup appear to have stalled out, especially as regards reform of the IPR rules at SSOs other than the IEEE. If so, this could have important effects on innovation and efficiency. For example, the “Internet of Things” is a new and growing area where royalty stacking and patent holdup appear to be very real dangers. Devices of all sorts, from thermostats to railroad cars to refrigerators, are being given connectivity using standards developed by SSOs. The price of those chips, and whether the IP contained in them costs $5 or $0.50 or $0.005, will determine the nature of new applications and the rate of adoption.

Failure to prevent patent holdup relating to tomorrow’s information technology and communications standards is likely to cause significant social welfare loss in the years ahead. If new and more effective private solutions relating to standard setting do not emerge to promote innovation and protect consumers, antitrust enforcement is one of the only remaining remedies that seems feasible.

V. Conclusions

Over the past five years, the rewards provided to patent owners in the United States have become more closely matched with the value of the technology they contribute. When rewards and contributions are aligned, economic efficiency is promoted because investments into developing new technologies are commensurate with benefits. These changes have come from legislation, the federal courts, and policy statements and enforcement actions by regulators of various types. However, at this juncture, we see a substantial gap persisting between the ability of some patent owners to monetize their patents and the contributions provided by the technology underlying those patents. With the “Internet of Things” poised to create economic growth, this is a problem worthy of further research and policy attention.

#### 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.

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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.

#### 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>)

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.

#### The plan requires SSO’s to administer reasonable action to prohibit ex post opportunism---that solves

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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 prevent 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.

### 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.

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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.

#### Insecure technical standards cause inevitable systemic grid collapse---extinction.

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The infrastructure was essential, ubiquitous and providing basic functionality for everything in daily life from water to heat and transportation. And in an instant it was gone, plunging tens of thousands of residents into a life-threatening crisis. This is, of course, the narrative of the recent debacle in Texas, where a winter storm overwhelmed the state’s electrical grid and brought the state to a near-total blackout. But it should also be interpreted as a preemptive warning of what Americans will face from the next generation of the internet and the new realm of cybersecurity risk it will dramatically amplify.

Both forms of infrastructure—a state-run electrical grid and the 5G and “internet of things” future to which we are rapidly hurtling—share three attributes. First, their construction reflects a lack of imagination about the danger that can quickly coalesce when seemingly remote threat scenarios become real. Second, compounding a lack of analytic imagination is an absence of preparedness. Third, for both the Texas electrical grid and the emerging internet, public policy protections are either meager or completely absent.

In planning for the resilience of its electrical grid, public officials in Texas discounted the potentially devastating disruption that could occur from unpredictable events—whether related to climate change or just a once-a-century anomaly. They also eschewed precautions other states take seriously by allowing for the interconnection of electrical grid supply chains across their borders, ostensibly because of their ideological rejection of federal regulatory oversight governing such arrangements.

As the United States builds out a new national 5G cyber-physical communications network through private service providers, Americans similarly discount the risks—myriad in their diversity and severity—that are orders of magnitude more significant than what Texas confronted recently. More physical things than people are already connected. The super empowered internet of tomorrow, known among some in the field as the “internet of everything,” will exceed by tens of billions of devices the number of connections between individuals simply communicating via social media or digital screens.

This confronts policymakers with an imminent threat: A cyber outage is no longer about losing digital communications but about losing basic societal functioning and even human life. The failure of imagination is to think of the SolarWinds attack on U.S. federal agencies and tech companies as a worst-case scenario. The failure of imagination is to think of cybersecurity through a content-centric lens rather than as possible attacks on the material world. The emergence of internet-connected cardiac devices, digitally dependent cars, and internet-connected agriculture systems portend the stakes of a cyberattack to health care, economic and social functioning, and food security.

The United States should be prepared for, and certainly not be caught by surprise by, such cyberattacks. Yet, the internet of everything is notoriously insecure. Internet-connected physical objects are not necessarily upgradeable. Nor do they come with adequate default security and encryption. The 5G infrastructure that helps connect digital objects has been at the center of debates over Chinese espionage. Industrial cyber-physical systems are based on technical standards that have not been collaboratively vetted for security and interoperability. One of the most infamous cyberattacks—the so-called Mirai botnet that took down major media sites and corporations—hijacked these insecure objects in homes to carry out the assault. The United States is not yet prepared.

Finally, in the race to conceive and deploy effective public policy responses, the U.S. government as a whole is hardly more anticipatory or synthesized in its response to potential calamity than the state of Texas. The focus of U.S. cyber policy remains on information policy issues such as disinformation, manipulation and violent speech rather than securing the digital world that now powers our material day-to-day lives. The Biden administration confronts an enormous challenge in crafting a comprehensive strategy to the cybersecurity risks foreshadowed by the ruinous experience in Texas and its management of vital infrastructure. While the digital world has leapt from two-dimensional to three-dimensional space, cyber policy has not at all jumped from 2D to 3D.

This failure of imagination, preparedness and policy protection must not be America’s cyber future; the stakes are far too high and the costs are far too great. The Texas disaster is a potent illustration of what has always been true: Our digital society and economy are extremely vulnerable and grow more porous and subject to penetration day by day. As digital sensors and cyber control systems become further embedded in physical infrastructure like energy systems, agriculture and transportation, there is no longer a separation between security of the “real” world and security of the online world. They are entangled and increasingly enmeshed—and policy has yet to catch up to either envisioning or mitigating the looming threats the U.S. confronts.

If the energy grid cannot weather a winter storm, how can it be expected to withstand a major cyberattack? What other vital forms of national infrastructure—ranging from water, bridges, highways and roads, and ultimately our day-to-day financial system—are comparably at risk? As Texas dramatizes, it is neither hyperbolic nor exaggerated to assert that our survival could now depend on securing the inevitable cyber-physical future that is accelerating with stunning rapidity.

#### 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/#_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/#_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/#_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/#_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/#_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.

# 2AC

# 2AC---Round 4

## Innovation

### 2AC---5G Turn

#### 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.

### 2AC---AT: No Patent Holdup---Not Systemic

#### Reject indicts of systemic holdup:

#### 1---there’s no impact to winning this argument.

Cotter et al. 19, \*Thomas F. Cotter, Briggs and Morgan Professor of Law, University of Minnesota Law School; Innovators Network Foundation Intellectual Property Fellow; \*Erik Hovenkamp, Assistant Professor, USC Gould School of Law; \*Norman Siebrasse, Professor of Law, University of New Brunswick Faculty of Law; (2019, “Demystifying Patent Holdup”, https://scholarlycommons.law.wlu.edu/cgi/viewcontent.cgi?article=4667&context=wlulr)

B. Patent Holdup Is Not a Problem, Because It Is Not Systemic

A second, related argument is that there is no empirical evidence of patent owners engaging in pervasive, systemic patent holdup in the very industries holdup theorists are most concerned with (e.g., telecommunications).139 Indeed, according to the critics, if holdup were pervasive one would expect innovation and growth in the affected industries to “stagnate, wither, or die,”140 whereas if one looks “across human history, it is not clear that the commercialization of complex technologies has ever been faster than it is today in those industries that reform proponents point to as most plagued by the patent holdup ‘problem.’”141

Although we agree that whether, or to what extent, patent holdup occurs in the real world is ultimately an empirical matter, the implication that patent holdup is a problem only if it is “pervasive” or “systemic” is a non sequitur.142 If our analysis above is correct—that the ability to engage in patent holdup depends on path dependence, that settings conducive to patent holdup are not uncommon, and that the three components of a holdup royalty can exist independently of one another—patent holdup does not have to be systemic to be capable of reducing social welfare. Seeing how the empirical critiques of patent holdup do “not claim[ ] that individual firms never attempt to engage in behavior that can be characterized as holdup,”143 the conclusion that holdup is not systemic may well be accurate, for all we know, while still being of any limited relevance for purposes of determining whether injunctive relief should issue on the facts of any one particular case.144 If the choice were between always granting an injunction without tailoring or conditions, and never granting any form of injunctive relief, perhaps the question of whether holdup was systemic, at least in a particular industry, would be central. But the traditional approach to injunctive relief looks to the facts of the particular case.145

#### 2---actual holdup is difficult to measure. Licensing negotiations are confidential and ex post, implying neg studies are surface-level. The mere presence of institutions designed to limit holdup is evidence enough it’s significant.

#### 3---the vast majority of holdup skeptics are funded by Qualcomm---that’s Shapiro & Lemley.

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

### L---Royalty Stacking

#### Royalty stacking is real.

Kattan et al. 14, \*Joseph Kattan and Chris Wood are partners in the Antitrust and Trade Regulation practice of Gibson, Dunn & Crutcher LLP; (2014, “Standard-Essential Patents and the Problem of Hold-Up”, http://awa2014.concurrences.com/IMG/pdf/standard\_essential\_patent\_kattan-wood.pdf)

d. Royalty Stacking

The problem of excessive royalty demands is exacerbated by the issue of royalty stacking. Royalty stacking results in higher aggregate royalties compared to the royalty burden that would be imposed by a single licensor that owned all of the licensed patents.71 The potential im- pact of royalty stacking on contemporary high-tech products can hardly be overstated. For example, the court in Microsoft noted that 92 different entities had submitted letters of assurance to the IEEE with respect to licensing of 350 SEPs (and 30 patent applications) for 802.11 patents, and that 59 more companies had filed “blanket” letters of assurance for an unspecified number of additional 802.11 patents.72 Thus, “[i]f each of these 92 entities sought royalties similar to Motorola’s request of 1.15% to 1.73% of the end-product price, the aggregate royalty to implement the 802.11 Standard, which is only one feature of the Xbox product, would exceed the total product price.”73

Some commentators and one court have questioned the existence of royalty stacking. For example, Geradin, Layne-Farrar, and Padilla assert that there is “little evidence of systematic problems of royalty stacking within standard setting that are not already adequately dealt with through existing mechanisms, including cross licensing, patent pools, and repeat play reputation.”74 In a similar vein, the district court in Ericsson v. D-Link characterized the royalty stack- ing problem as merely “theoretical.”75 We disagree. The royalty stack on Wi-Fi chips from a mere three recent judicial decisions—two of which acknowledged royalty stacking as a real problem—demonstrates that the problem is quite serious and, indeed, has not been adequately addressed even by the courts that attempted to remedy the problem.

The decisions in Microsoft, Innovatio, and Ericsson included royalty awards on 802.11 Wi-Fi SEPs. Microsoft involved 11 relatively insignificant Wi-Fi SEPs, Innovatio involved 19 Wi-Fi SEPs that provided significant value to the standard, and Ericsson involved three SEPs as to which the court made no finding regarding significance. All of these SEPs relate to a standard for which the fundamental technology, as Judge Robart found in Microsoft, was in the public domain.76 The universe of Wi-Fi SEPs, as stated earlier, is approximately 3,000 patents, so the patents at issue accounted for approximately 1.1% of all Wi-Fi SEPs. The royalties awarded by these three courts totaled $0.28. The royalty stack implied by these three judgments, if all SEP holders were to obtain comparable royalties, is $25.49, or more than ten times more than the $2.50 Wi-Fi chip price cited in the Ericsson decision. This analysis actually understates the royalty stacking problem because evidence cited in the Ericsson opinion showed that only 17.5% of the features of a Wi-Fi chip “relate[] to” the standard.77 And even if the $0.15 award in Ericsson is disregarded as an outlier, the implied cumulative royalty from Microsoft and Innovatio, two courts that attempted to account for royalty stacking, is $0.13 on 1% of all WiFi SEPs, or ap- proximately $13 on one-sixth of the features of a $2.50 chip!

It is true that cross-licensing would reduce the monetary royalty stack to some extent, but a company that enters into a cross license is providing value, which should not be disregarded in computing the royalty stack. And although it is true that patent pools could also reduce the royalty stack, because they are specifically designed to reduce the Cournot complements problem,78 very few Wi-Fi SEPs are licensed through a patent pool, and the same is true for key mobile telephony SEPs. Critics are left then with the reputational argument, to which the royalty demands of the SEP holders in the three cases discussed offer a sound rebuttal. In short, the evidence refutes the critics’ claim that royalty stacking is nonexistent or merely a theoretical problem.

## Cybersecurity

## T---Per Se

### 2AC---AT: T---Prohibit = Per Se---TL

#### 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.

## K---Capitalism

### 2AC---AT: K---Cap (Short)

#### 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.

## CP---Contract Law

### 2AC---AT: Contract Law CP---TL

#### 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.

## CP---CPL

### 2AC---AT: CPL

#### Patent law isn’t intended to forcefully compel patentholders to honor FRAND.

Leslie 20, \*Christopher R. Leslie, Chancellor’s Professor of Law, University of California Irvine School of Law; (2020,“The DOJ’s Defense of Deception:   
Antitrust Law’s Role in Protecting the Standard-Setting Process”, https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/25382/1\_Leslie\_FNL.pdf?sequence=1&isAllowed=y)

Third, like patent law itself, the eBay test does not provide for any remedy for misconduct by the patentholder. Patent law is neither intended nor designed to compel patentholders to honor their contractual relations. Most of the patent statute is concerned with the standards for patentability, the process of securing patents, and the enforcement of patents, not constraining the actions of patentees.194 Although some patent doctrines, such as inequitable conduct, penalize certain misconduct by a patent applicant committed during the application process, FRAND violations have nothing to do with the patent application process. Instead, the misdeeds happen after the patent has been issued.

#### No solvency advocate for *this counterplan* is a voting issue. It’s unpredictable, not researchable, and they’ve butchered heart of the literature distinctions between antitrust and alternative law. At worst it implicates solvency, because you’ve no idea what the counterplan does.

Leslie 20, \*Christopher R. Leslie, Chancellor’s Professor of Law, University of California Irvine School of Law; (2020,“The DOJ’s Defense of Deception:   
Antitrust Law’s Role in Protecting the Standard-Setting Process”, https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/25382/1\_Leslie\_FNL.pdf?sequence=1&isAllowed=y)

Patent law’s only major post-issuance constraint on a patentee’s misconduct is the equitable doctrine of patent misuse.195 To date, however, courts have held that FRAND violations do not constitute patent misuse.196 Moreover, patent law does not provide monetary remedies to those who are injured by the misconduct of patentholders.197 Antitrust remedies are needed to penalize patent holdup, in part because antitrust remedies can deter misconduct in ways that patent law does not.198

In sum, arguments that antitrust law is unnecessary or inappropriate to address the issue of FRAND violations because patent law is better equipped to handle the problem are flawed. Such vague gestures toward patent law betray a lack of understanding about this body of law and its ability to corral misconduct by patentees.

### 2AC---Perm Do CP

#### Permutation do the counterplan:

#### 1---regulations expands the scope of core antitrust laws by increasing prohibitions.

Bradford and Chilton 18 (Anu Bradford, Henry L. Moses Professor of Law and International Organization, Columbia Law School. Adam S. Chilton, Assistant Professor of Law and Walter Mander Research Scholar @ the University of Chicago. “Competition Law Around the World from 1889 to 2010: The Competition Law Index” , Columbia Law School Scholarship Archive Faculty Scholarship, <https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=3519&context=faculty_scholarship> , 2018, date accessed 9/5/21)

The Scope Index is the closest to the CLI in that it also measures the law in the books, treating prohibitions as elements that increase the scope (or stringency) of the law and defenses as elements that reduce the scope (or stringency) of the law. Basic categories in the Scope Index and our CLI are also the same, even if somewhat differently labeled. For example, we refer to “anticompetitive agreements” where the Scope Index refers to “restrictive trade practices.”

## CP---States

### 2AC---Preemption

#### The Ninth Circuit imposed court-order limitations on antitrust law to preserve its balance with patent law.

Martino et al. 20, \*[Matthew M. Martino](https://www.skadden.com/professionals/m/martino-matthew-m) [Tara L. Reinhart](https://www.skadden.com/professionals/r/reinhart-tara-l) [Steven C. Sunshine](https://www.skadden.com/professionals/s/sunshine-steven-c) [Julia K. York](https://www.skadden.com/professionals/y/york-julia-k), works with clients at Skadden, Arps, Slate, Meagher & Flom LLP; (August 14th, 2020, “Ninth Circuit Strikes Down Sweeping Injunction Against Qualcomm and Reins In Expansive Interpretation of Sherman Act”, https://www.skadden.com/insights/publications/2020/08/ninth-circuit-strikes-down-sweeping-injunction)

In its highly anticipated decision, the Ninth Circuit panel unanimously rejected the lower court’s reasoning, vacating the judgment and reversing the worldwide injunction against Qualcomm. The panel concluded that the district court had erroneously imposed the antitrust duty to deal on Qualcomm, had impermissibly looked outside the relevant antitrust market in order to infer an anticompetitive act and had relied on outdated evidence of agreements that were terminated before the suit was filed to justify a broad, forward-looking global injunction. The Ninth Circuit further rejected the argument that a SEP holder’s violation of FRAND commitments could independently create antitrust liability, instead pointing to patent and contract law as sources for potential remedies. The decision reflects a considered effort to rei

n in the district court’s expansive interpretation of general antitrust principles and their specific application to SEP holders, as well as recognition that the antitrust laws aim to preserve companies’ incentives to innovate and compete. Recognizing that while “[a]nticompetitive behavior is illegal under federal antitrust law[,]” the panel was adamant that “[h]ypercompetitive behavior is not.”[7](https://www.skadden.com/insights/publications/2020/08/ninth-circuit-strikes-down-sweeping-injunction" \l "ftn7)

Rejection of District Court’s Expansive Interpretation of Antitrust Laws

The Ninth Circuit decision contains several notable conclusions regarding the scope of Section 2 of the Sherman Act and what constitutes cognizable antitrust harm.

#### State efforts to impose greater antitrust liability than established by federal courts will be preempted to protect that balance.

Samp 14, \*Richard A. Samp is the chief counsel for Washington Legal Foundation (WLF), a non-profit, public interest law firm in Washington, D.C. WLF filed an amicus brief in support of Love Terminal Partners. (2014, “The Role of State Antitrust Law in the Aftermath of Actavis”, https://scholarship.law.umn.edu/cgi/viewcontent.cgi?article=1062&context=mjlst)

V. ACTAVIS’S PREEMPTIVE EFFECT

Application of state antitrust law to reverse payment settlements is not merely a hypothetical possibility. There are a fair number of pending lawsuits that challenge reverse payment settlements on state-law grounds. The California Supreme Court has agreed to review one such suit.74 In seeking affirmance of the appeals court’s dismissal of the suit, the defendants argue inter alia that the suit is preempted by federal law.75

As noted above, there is precedent for a finding that state antitrust law is preempted to the extent that it conflicts with the policy underlying a federal statute.76 Moreover, in the context of patent law, federal courts have not hesitated to preempt state laws that the courts deem to stand as an obstacle to accomplishing Congress’s objectives (i.e., encouraging efforts to develop new and useful products).77 To the extent that any portions of Actavis’s holding can be deemed to reflect the Court’s perception of Congress’s new-product-development objectives, a state law is preempted if it is inconsistent with that holding and seeks to impose a greater degree of antitrust liability on the parties to a reverse payment settlement.

Actavis’s treatment of settlements involving a compromise entry date appears to meet that description. Actavis held that federal antitrust liability could not arise from a settlement in which the generic manufacturer agrees not compete for a number of years and in return is rewarded with an exclusive license to market its product several years in advance of the patent’s expiration date.78 Accordingly, states are not permitted to impose antitrust liability under similar circumstances because doing so would upset the balance that, according to Actavis, Congress sought to achieve between antitrust and patent law.

Other issues left open by Actavis are likely to be answered in the years ahead. For example, the Supreme Court did not specify whether noncash benefits received by a generic manufacturer in connection with a patent settlement can ever serve as the basis for federal antitrust liability. If the Supreme Court eventually answers that question by stating: “No, federal antitrust law will not examine settlement benefits other than cash that flow to the infringing party,” then it is likely that state antitrust law would be required to conform to that rule. The potential grounds for such a ruling (a desire both to promote settlement of patent disputes and to uphold reliance interests in existing patents) are based largely on values embedded in federal patent law.

There is little reason to believe, however, that the Court would prevent application of state antitrust law to patent settlement agreements where state law is fully consistent with federal antitrust law. Even in areas subject to extensive federal regulation, the Supreme Court has upheld the authority of states to engage in parallel regulation that is not inconsistent with the federal regulation.79 Unless the Court were to determine, as in Connell,80 that states could not be trusted to properly accommodate the objectives of the federal statute at issue (here, federal patent law), there is no reason to conclude that Congress would not have wanted states to be permitted to police the same sorts of anticompetitive conduct that is policed by federal antitrust law. Moreover, states are likely free to impose greater penalties on the proscribed conduct than is available under federal law. As the Court explained in California v. ARC America Corp., state antitrust law is not required to adhere to the same set of sanctions imposed by federal antitrust law.81

It seems reasonably clear, however, that Actavis prohibits states from adopting the procedural devices rejected by the U.S. Supreme Court—either a per se condemnation of reverse payment settlements or a presumption of illegality accompanied by “quick look” review. The Supreme Court rejected those approaches because it determined that in many cases there might well be pro-competitive economic justifications for reverse payment settlements and that presuming their illegality could result in the suppression of economically useful conduct.82 State antitrust laws that adopted the FTC’s proposed presumption of illegality would be subject to similar criticism, and thus would likely be impliedly preempted as inconsistent with the careful balance between antitrust and patent law established by Actavis.

CONCLUSION

Because Actavis left so many questions unanswered regarding the application of federal antitrust law to patent settlement agreements, the extent to which federal law preempts the application of state antitrust law to such agreements remains similarly unsettled. One can be reasonably confident that if private plaintiffs become dissatisfied with the results of pending litigation under federal antitrust law, they will turn with increasing frequency to state antitrust law as an alternative remedy. Even if state law ends up doing no more than “parallel” federal antitrust law, defendants are likely to incur substantial litigation costs fending off such state claims in the years to come.

## DA---Innovation

### 2AC---AT: Innovation DA---TL

#### *Every single* neg innovation claim is false---overdeterrence and “false positives” are wrong, FRAND-ly rates sufficiently motivate innovation, and holdup outweighs.

Leslie 20, \*Christopher R. Leslie, Chancellor’s Professor of Law, University of California Irvine School of Law; (2020,“The DOJ’s Defense of Deception:   
Antitrust Law’s Role in Protecting the Standard-Setting Process”, https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/25382/1\_Leslie\_FNL.pdf?sequence=1&isAllowed=y)

1. Innovation

In his speeches, Delrahim tries to create the specter of antitrust liability destroying innovation incentives if FRAND violations are treated as anticompetitive conduct.152 In particular, Delrahim argues that, even in the presence of FRAND commitments, courts should grant injunctions against alleged infringers in order to “optimize[] the incentive[s] to innovate for the benefit of the public.”153 At times, he asserts that allowing owners of FRAND-encumbered SEPs to enjoin manufacturers from making products is necessary to reward inventors.154 This is counterintuitive. Allowing patentholders to evade their contractual commitments made to SSOs does not “reward[] successful inventors,” as Delrahim argues.155 Rather, it distorts the competitive process through which the standard was initially adopted, which was based on the patentholders’ representations that they would charge FRAND royalties.156 Moreover, there is nothing in patent law that suggests—let alone mandates—that patentholders should be able to maximize their profits by any means they choose.157

Delrahim repeatedly describes FRAND violators as “innovators” and suggests that this characterization alone warrants antitrust immunity, lest liability deter or discourage inventors from inventing.158 But this is a red herring, a distraction. If a patentholder monopolizes a market solely through its innovation, and nothing else, the monopoly is legal. But no one is suggesting that monopolization through innovation should trigger antitrust liability. Rather, it is a patentholder’s deception and/or breach of relied-upon commitments that leads to antitrust scrutiny, because neither of these bad acts represents competition on the merits.159 Delrahim asserts that acquiring market power “as a result of a patent holder’s so-called ‘deception’ about its licensing obligations . . . is not the sort of market-power-enhancing conduct that Section 2 should reach because a cause of action for treble damages would impede the policies underlying the Sherman Act.”160 Delrahim never really explains why monopolization-through-deception is not conduct that violates Section 2. Instead, he expresses concern that patentholders may be liable for treble damages.161 But treble damages are easy to avoid: if the monopolist patentholder does not engage in deception and honors its FRAND commitments, then it will not be on the hook for any damages. In a similar vein, Delrahim notes that “the Supreme Court has cautioned against antitrust standards that would create an unacceptable risk of ‘false positives’ or condemnations of lawful pro-competitive conduct.”162 Invoking that concern, Delrahim asserts that holding innovators liable for their misconduct could deter innovation.163 That is absurd. Liability for misconduct deters misconduct. It does not deter any lawful behavior that is not the basis for liability in the first place. Delrahim offers no explanation for why holding patentees liable for breaking their FRAND commitments after having deceived an SSO into incorporating their patented invention into a standard would be likely to produce “false positives” against patentholders who have not engaged in such behavior.164

Delrahim consistently fails to appreciate how easy it is for an SEP owner to avoid antitrust liability: license the patent on FRAND terms. If there is a dispute about what constitutes a FRAND royalty, the patentholder can go to court and get a ruling on the FRAND rate, instead of suing for an injunction and threatening to drive a manufacturer from the market. Seeking and following judicial guidance on the FRAND rate immunizes the SEP owner against both antitrust liability and a breach of contract lawsuit. Some of Delrahim’s innovation arguments read like a defense of patent holdup writ large. For example, he asserts, “An antitrust duty to license on FRAND terms would also contravene the patent laws’ policy of promoting innovation by offering incentives for holders of valid patents to seek the greatest rewards possible for their inventions.”165 Taken at face value, this approach would eliminate antitrust liability for any patentholders’ anticompetitive conduct (tying, sham litigation, etc.) because such liability would reduce the maximum possible return they could earn on their patent.166 Delrahim’s statement ignores the fact that the patentholder acquired its monopoly power by legally promising not “to seek the greatest rewards possible for [its] invention[].”167

Furthermore, Delrahim is wrong to assert that antitrust liability for willful misconduct weakens incentives for innovation. The patentee is receiving just compensation under the FRAND regime.168 By bargaining to have its patent included in the industry standard, the SEP owner is locking in a steady stream of profits. Delrahim provides no evidence that these FRAND royalties are insufficient to reward and encourage innovation. And, in any event, the patentholder chose to pursue FRAND royalties rather than maintaining its patent outside the standard and retaining the right to set its own royalty rate for its patented technology. To make his innovation-based arguments, Delrahim describes a binary world in which firms are either innovators or implementers, and the “dueling interests of innovators and implementers always are in tension.”169 If this were a tug-of-war match, Delrahim would be loudly rooting for the innovators. Delrahim does not merely champion innovators; he affirmatively disparages implementers and the work of standard-setting organizations, which he accuses of having been “given too little scrutiny when they have acted as a forum to slow down, rather than to facilitate, the adoption of disruptive innovations.”170

The development of advanced technological goods, however, is not a zero-sum game in which one team wins and the other team loses. Delrahim’s description of the relationship between innovators and implementers is deeply flawed because no clear line separates these groups. In response to his first deception-forgiving speech, a group of leaders in the high-tech industry wrote to Delrahim, “We are not mere implementers of standards. Rather, we contribute technologies to standards and drive research, development, investment and innovation throughout the value chain.”171 Signatories to the letter included Apple, Audi, Cisco Systems, Dell, Hewlett Packard, Intel, Microsoft, and Samsung—all major players in the innovation game. In short, Delrahim is wrong to suggest that implementers are not innovators and that recognizing their legal rights would somehow hurt innovation.172

Moreover, Delrahim ignores an entire class of (undisputed) innovators—those inventors who own patented technology that was not included in the adopted standard. Unchosen standards are often rife with innovations. When a patent owner engages in deception to secure a particular standard, the innovators who own patents that would have been SEPs for an alternative standard that was not selected due to another patentee’s deceptive conduct suffer a loss of revenue that could constitute a form of antitrust injury.

Not only is Delrahim’s innovation analysis incorrect, it is counterproductive to its stated goals. The industry letter in response to Delrahim’s first speech explained that the Trump appointee’s approach would “instead threaten US industry and consumer interests, harm US innovation, and interfere with parties’ right to contract.”173 The Department of Justice used to recognize this, noting in its prior joint statement with the PTO that “F/RAND commitments may also contribute to increased follow-on innovation by allowing nondiscriminatory access to networks both to new entrants and to established market participants to introduce new generations of network-operable devices.”174 Patent holdup harms innovation by discouraging firms from participating in SSOs because “[w]here the danger of abuse undermines the collaborative process by threatening to extract supracompetitive prices from competitors, industry members are less likely to participate in SSOs in the future and, as a result, consumers are less likely to benefit from these organizations.”175 Douglas Melamed and Carl Shapiro have explained that “supracompetitive pricing by SEP holders increases the cost of follow-on inventions that build on or improve the technologies claimed by the SEPs. This cost acts as a tax on follow-on innovation, reducing such innovations and impairing the very process of invention that the patent laws are intended to promote.”176 Moreover, because Delrahim looks at the issue only through the eyes of the SEP owner that seeks to evade its FRAND obligation, he overlooks the fact that by delaying the implementation of the standard, the holdout who commits holdup hurts all the other innovators who have SEPs.177 Ultimately, because SSOs facilitate and reward innovation and because patent holdup can chill industry members from participating in the standard-setting process, the failure to deter and remedy patent holdup harms innovation.178 Former FTC Commissioner Terrell McSweeny explained that “[b]y protecting the integrity of the standard-setting process itself, sound antitrust enforcement actually strengthens market opportunities for new technologies, thus improving the incentive for valuable innovation.”179 Thus, while Delrahim is right to praise innovation, he is wrong to argue that permitting deception and FRAND violations is the correct way to encourage innovation.

## DA---FTC

### 2AC — Indict

#### Nowhere does this card even mention a tradeoff — just some previous FTC dude bragging how good he thinks he was in the PAST — also doesn’t establish reverse causality and concedes they can work with low resources!

Muris ’20 – Professor of Law at George Mason, former Chairman of FTC, Senior Counsel at Sidney Austin LLP, JD from UCLA,

Timothy Muris, “Response to Subcommittee on Antitrust, Commercial, and Administrative Law Committee on The Judiciary U. S. House of Representatives” April 17, 2020, <https://judiciary.house.gov/uploadedfiles/submission_from_tim_muris.pdf>

Finally, the Committee asks about agency resources and performance. The last section below briefly addresses the continual need for the antitrust agencies to address business practices as they evolve, as well as their own performance record. Such evaluation is necessary: ever a UCLA Bruin, I remain devoted to legendary coach John Wooden‘s maxim that “when you are through learning, you are through.” The section thus offers multiple examples of successful and bipartisan FTC efforts to improve enforcement to the benefit of consumers. In the key healthcare sector, American consumers continue to benefit from the FTC’s hard work. After losing seven consecutive hospital merger challenges before I arrived, upon my direction the FTC worked to devise a new enforcement plan by incorporating fresh economic thinking and issuing retrospective case studies showing that several hospital mergers had indeed harmed consumers. This plan resulted in a successful challenge to a consummated hospital merger that served as a template for future enforcement, leading to Obama administration victories in three separate courts of appeal endorsing the FTC’s approach. Such success did not require abandonment of the consumer welfare standard, nor a dramatic increase in agency resources. Indeed, as discussed below, my predecessor as FTC chairman, Bob Pitofsky, did much more for American consumers using the consumer welfare standard with just 1,000 staff than did the agency in the 1970s when it had far greater resources (1,800 staff by the turn of the decade), but was motivated by an antitrust policy that was, instead, at war with itself.

### 2AC — FTC Fails

#### FTC fails in healthcare.

Lindsay Killen, 21, vice president for strategic outreach and communications at the Mackinac Center for Public Policy, “Biden antitrust agenda ignores states' complicity on health care monopolies,” TheHill, 2-6-2021, https://thehill.com/opinion/healthcare/537212-biden-antitrust-agenda-ignores-states-complicity-on-health

An antitrust agenda, if the administration were to undertake it, would be an acknowledgement that rapid consolidation of health care services over the past 10 to 20 years has contributed to dramatic increases in health care costs. Even so, it would ignore two critical factors: the outsized influence that ObamaCare has had in increasing this trend, and the outsized responsibility that states have had in maintaining their own laws that favor large hospital corporations at the expense of patient access to quality care.

Let’s consider ObamaCare’s role first, since the president has made it clear he plans to maintain it. In research produced by the National Institute for Health Care Management, James C. Robinson of the University of California-Berkeley examined parts of the ACA that encouraged hospitals and physicians to form accountable care organizations, otherwise known as ACOs. These provisions, he says, have “accelerated provider consolidation” in the health care marketplace. He further notes that “hospitals in concentrated markets charge significantly higher prices to private payers than do their peers in more competitive markets.” This dynamic is a key reason for hospitals to merge. In seeking to recoup financial losses from lower Medicare revenue triggered by the ACA, they are raising prices on the privately insured.

Let’s be clear: Any attempt by the administration to clamp down on hospital consolidation through antitrust laws — given that these mergers have increased health care costs and reduced patient choices — would be like applying lipstick to a pig. Without reforming the ACA and eliminating its perverse incentives, Biden has no chance of relieving patients of the mounting prices they’re paying for their health care services.

# 1AR

## Adv 1

### 1AR- AT: Hold Up

#### Their argument is akin to saying speed limits don’t matter because high ways are safe.

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Conduct that enables a patent owner to evade FRAND commitments should not be lawful. High royalties harm consumers and can impede innovation for technologies for which a patent license is necessary. Some have argued that patent holdup is no more than an academic curiosity because innovation and competition for smartphones and other devices have thrived, despite the fact that these devices implement standards covered by hundreds of SEPs.[26](javascript:void(0)) But this argument is flawed. It does not recognize that prices for smartphones and other devices would likely be much higher if the antitrust authorities and the courts stopped policing FRAND licensing obligations.[27](javascript:void(0)) The fact that it is reasonably safe to drive on highways in the US does not mean that speed limits are unnecessary. FRAND limitations are speed limits on the information superhighway.

#### Patent investments and potential royalty pricing are better statistics to determine if hold up is happening- it is

Shapiro & Lemley 20, \*Carl Shapiro is the Transamerica Professor of Business Strategy Emeritus at the Haas School of Business, University of California at Berkeley; \*Lemley is the William H. Neukom Professor at Stanford Law School and a partner at Durie Tangri LLP; (2020, “THE ROLE OF ANTITRUST IN PREVENTING PATENT HOLDUP”, https://faculty.haas.berkeley.edu/shapiro/patentholdup.pdf)

E. Actual Holdups Are Very Difficult to Measure

As just noted, the extensive empirical support for the general theory of holdup consists primarily of studies showing that firms structure their relationships to avoid or minimize the adverse effects of holdup. Critically, the evidence does not involve quantifying the magnitude of actual ex post holdups.36 Indeed, the empirical literature on holdup has relatively few documented examples of large-scale actual holdups.37 This will be important below when we turn to evaluating the empirical evidence regarding patent holdup in particular.

Anticipating the arguments being made by those who deny that the patent holdup problem is real and significant, it is instructive to ask why the empirical literature on the general holdup problem has not proceeded by measuring the frequency or magnitude of actual holdups.

In part this is for a very good conceptual reason: the theory predicts that market participants will structure their affairs to avoid or mitigate actual holdups. As stressed above, the social costs caused by the holdup problem can be large even if large-scale holdups are very infrequent. The validity of the general theory of holdup, and the importance of the holdup problem, do not hinge on the frequency or magnitude of actual holdups.

But practical considerations also play a big role in explaining why the very large empirical literature on the holdup problem includes few documented instances of actual holdups. Even in situations where such holdups take place, they are exceedingly difficult for researchers to reliably detect and quantify. To see why, denote the holdup (ex post monopoly) price by 𝑃𝐻 and the ex ante competitive price by 𝑃 ∗ . The (perunit) magnitude of the actual ex post holdup is equal to (𝑃𝐻 − 𝑃 ∗ ). Measuring either component of this difference can pose quite a challenge for researchers. Actual transaction prices in complex business-to-business transactions are rarely observable by researchers. Plus, even when a measure of price is available, it typically is confounded by other terms and conditions, making 𝑃𝐻 very hard to observe. Coming up with a good measure of the competitive benchmark price 𝑃 ∗ is even harder, since it reflects a counterfactual and since the transactions at issue are by nature idiosyncratic. Practical considerations also explain why the empirical literature on the holdup problem includes few documented instances in which the prospect of holdup has discouraged investment. The resulting reduction in investment typically will not normally be observable to researchers, much less attributable to holdup.

For all of these reasons, scholars studying the holdup problem widely agree that the general theory of holdup is very well supported empirically without expecting, much less demanding, a body of empirical work measuring actual holdups. This same sensible approach should be applied to patent holdup.

When we turn to look at patent holdup below, we will examine the two types of evidence used in the more general empirical literature on holdup. First, we look for evidence identifying situations in which the patent holdup problem is significant. **The telltale marker that the patent holdup problem is significant in a given setting is the presence of substantial investments specific to a given patent or patent portfolio. Second, we look for evidence that the mechanisms used to manage the patent holdup problem are costly or imperfect**. There is clear evidence that the mechanisms used by SSOs to manage SEP holdup are costly and imperfect.

## Innovation

### AT: Pale

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

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.”

#### Apple case thumps---it’s politicized, and has ripple effects across antitrust.

Albertgotti 9/10/21, \*[Reed Albergotti](https://www.washingtonpost.com/people/reed-albergotti/), Washington Post; (September 10th, 2021, “Judge’s ruling may take a bite out of Apple’s App Store, but falls short of calling the iPhone maker a monopolist”, https://www.washingtonpost.com/technology/2021/09/10/apple-epic-decision-judge-market-monopoly/)

A federal judge fundamentally altered Apple’s App Store business model on Friday in a landmark ruling that accused the iPhone maker of illegal anticompetitive behavior and is likely to have ripple effects across the U.S. antitrust landscape.

In a decision on an antitrust lawsuit brought by Fortnite maker Epic Games, U.S. District Judge Yvonne Gonzalez Rogers ruled that Apple must allow app developers to “steer” customers to alternatives to the tech giant’s payment processing service, which collects a 30 percent fee on most digital transactions. That was previously not allowed by the company, and marks a major victory for developers which have long complained of the tight grip the tech giant holds over its App Store on the roughly one billion iPhones currently in use.

[The blockbuster trial between Apple and the maker of ‘Fortnite’ goes out with a ‘hot tub’ session](https://www.washingtonpost.com/technology/2021/05/24/apple-epic-trial-hot-tubbing/?itid=lk_interstitial_manual_5)

Gonzalez Rogers also found that Apple was in violation of California state competition laws because of the way it forces developers into using Apple’s payment processing service without allowing them to tell customers there are alternatives, which are often cheaper.

She stopped short of ruling in favor of Epic‘s claims that Apple is a monopolist, although she left the door open by suggesting more evidence could have changed her decision.

“The court does not find that it is impossible; only that Epic Games failed in its burden to demonstrate Apple is an illegal monopolist,” she wrote.

Epic spokeswoman Elka Looks said the company plans to appeal the ruling. Tim Sweeney, chief executive of Epic, said in a tweet that, “Today’s ruling isn’t a win for developers or for consumers.”

Apple did not respond to requests for comment.

The ruling, one of the first major legal actions taken against a tech giant in a new era of antitrust scrutiny, is sure to echo loudly both in Washington, where a legislative effort to rein in the power of Big Tech is underway, and in the courts, which are facing the biggest test of existing antitrust laws in decades. Tech giants have come under the microscope in recent years as it became clear that current antitrust law does not effectively address their power, and regulators and lawmakers have been pushing to change that.

### 2AC---LD---Ex Ante Valuation

#### Each facet of their DA is wrong---ex ante policies do not cause withdrawals, delay or impede standardization, or depress royalties.

Contreras 13, \*Jorge L. Contreras is a Presidential Scholar and Professor of Law at the University of Utah with an adjunct appointment in the Department of Human Genetics. He is a graduate of Harvard Law School (JD) and Rice University (BSEE, BA); (Contreras, J. L. (2013). TECHNICAL STANDARDS AND EX ANTE DISCLOSURE: RESULTS AND ANALYSIS OF AN EMPIRICAL STUDY. Jurimetrics, 53(2), 163-211. Retrieved from https://www2.lib.ku.edu/login?url=https://www.proquest.com/scholarly-journals/technical-standards-ex-ante-disclosure-results/docview/1428261870/se-2?accountid=14556)

I. Summary of Observations The goal of the Study was to assess the existing evidence relating to the six predictions made by critics of ex ante licensing disclosure policies. A summary of the Study's findings, in terms of these six predictions, is set forth below. 1. Prediction: Ex ante policies will reduce standardization activity. Observation: Increases in both new standards activity and standards approved at both VITA and IEEE following adoption of their ex ante policies. 2. Prediction: Ex ante policies will cause standards to take longer to develop. Observation: Standardization time measurably decreased at IEEE following adoption of its ex ante policy. Standardization time at VITA increased, but at a slower rate than before the policy adoption, and in a manner consistent with broader industry behavior exemplified by IETF. Perceptions among a significant number of VITA standards developers, particularly those having greater experience with the organization, was that standardization time had either decreased or remained constant following adoption of the ex ante policy. 3. Prediction: Ex ante policies will require standards developers to devote more time to standardization activities. Observation: Among VITA participants having greater experience with the organization or SDOs in general, and among participants who checked for ex ante licensing disclosures, there was a general sense that the adoption of VITA's ex ante policy did not result in an increased individual time commitment. 4. Prediction: Ex ante policies will cause members to withdraw from SDOs that adopt them. Observation: Overall VITA membership has increased since the adoption of its ex ante policy in 2007, despite material year-to-year fluctuations in membership. No evidence suggesting that more than one VITA member resigned from the organization as a result of the adoption of VITA's ex ante policy was found. 5. Prediction: Ex ante policies will cause standards to decrease in quality. Observation: No evidence that the quality of VITA standards deteriorated following adoption of its ex ante policy was found, and some evidence suggesting that quality improved was found. 6. Prediction: Ex ante policies will depress patent royalty rates. Observation: No evidence that affirmatively supports such an association was found. However, because of the inherent limitations of the royalty data available for the analysis, this result remains inconclusive and a desirable subject for further research.

### 2AC---LD---Qualcomm Specific

#### Turn---competition sharpens Qualcomm’s incentives to innovate, and royalties aren’t key.

Kattan 19, \*Joseph Kattan is a partner in Gibson, Dunn & Crutcher’s Washington, DC office.  His practice focuses on antitrust litigation, counseling, and enforcement agency matters; (February 7th, 2019, “The Qualcomm Case and U.S. National Security”, http://actonline.org/wp-content/uploads/The-Qualcomm-Case-and-National-Security\_Final.pdf)

Qualcomm goes further and claims that an FTC victory will undermine its incentive to invest in 5G technology and cede the next generation of wireless telecommunications technology to Huawei. According to Qualcomm, requiring it to comply with U.S. antitrust laws will result in a national security calamity. One of its serial defenders goes so far as to say that the FTC case poses an “existential harm” to Qualcomm and that an FTC victory would bring about “a monumental calamity for the U.S. economy (consumers and businesses) and national security.”26 The evidence that he offers in support of these claims? None, which is understandable given that Qualcomm has plenty of incentive to invest in 5G technology and will continue to have that incentive if the FTC prevails. Let’s examine the evidence.

In 2018, Qualcomm’s modem chip business earned $3 billion in pre-tax profits on sales of $17.3 billion. The modem chip business achieved this enviable level of profitability even though Qualcomm directs its massive licensing royalty revenues and income to a separate licensing subsidiary. In other words, any effect of the FTC case on Qualcomm’s royalties will not bear on the company’s modem chip business. And Qualcomm expects its chip business to become even more profitable as 5G technology takes hold. Qualcomm’s CEO, Steve Mollenkopf, recently told securities analysts that 5G “represent[s] a significant opportunity for Qualcomm to expand revenue and earnings.”27 Its president, Cristiano Amon, said that “we expect 5G to be a significant expansion, even on existing units, both in revenue and earnings for QCT [Qualcomm’s modem chip business].”28 As is now well known, 5G is expected to transform a host of industries beyond the mobile phone market to create a myriad of new always-connected products and services. These new business opportunities will justify a high level of investment in 5G regardless of what happens in the FTC case.

Given the opportunity for profit expansion in what is already a highly profitable modem chip business, it is implausible that Qualcomm will scale back investments in 5G technology if it is required to play by the same rules as all other companies and stop forcing customers to take licenses to extinguished patents. Qualcomm’s modem chip business alone will generate sufficient profits to maintain the incentive to invest in R&D even if Qualcomm earns zero licensing revenues, and no one is contemplating a world in which Qualcomm’s licensing business will go away. In the past three fiscal years, this business has averaged over $5 billion per year in pre-tax profits.29

One need look no further than at the other leading U.S. 5G innovator to see the specious nature of Qualcomm’s claims. Intel has invested in 5G for a number of years even though it earns no royalty revenues whatsoever and its modem chip sales have been, and are expected to remain, a small fraction of Qualcomm’s. Intel has achieved a number of firsts in the 5G race, including the first 5G interoperable device, the first live 5G public network, the first global 5G modem, and the first 5G mm-wave call.

Rather than impairing Qualcomm’s incentives to innovate, having to compete on the merits will sharpen them. Indeed, it was competition from Intel that led to the adoption of the most innovative aspect of 5G technology. Over Qualcomm’s objections, Intel successfully promoted the adoption of millimeter-wave technology in 5G. Millimeter-wave technology is what makes 5G revolutionary. It is this technology that is bringing about the phenomenal speeds and low latency of 5G communications that will proliferate 5G technology beyond the mobile phone space. We would not be enjoying the benefits of this technology had Qualcomm had its way, either when it tried to expel Intel from the market or when it fought to exclude millimeter wave technology from the 5G standards.

The notion that Qualcomm needs to rake in 25% of all intellectual property royalties on all of the products on the planet to justify investing in 5G or even merely to survive, as its more overwrought advocates allege, is self-evidently absurd. It is no wonder then that its claims of threats to the national security of the United States, or even merely to Qualcomm’s own incentives to invest in R&D, are not accompanied by any relevant financial facts or analysis. Similarly, the claim that Qualcomm is all that stands between U.S. leadership and Chinese domination in 5G is equally bereft of factual support.