# 1AC

## Blockchain

## 1AC---Full Text

### 1AC---Blockchain ADV

#### Contention 1 is BLOCKCHAIN.

#### Blockchain development is inevitable, but beyond the scope of antitrust---the narrow focus on the ‘firm’ is fundamentally inapplicable, that creates an anticompetitive environment that’ll centralize applications and limit uptake.

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5 A WIN-WIN THEORY

The creation of a legal fiction around blockchain nuclei will benefit both antitrust and blockchain communities. By facilitating the enforcement of the rule of law, blockchain participants will indeed be able to enforce antitrust laws or be sanctioned when infringing them.

5.1 A Win for Antitrust

The theory of granularity helps create a legal fiction for public permissionless blockchains and private ones (whose governance is not vertical). Surely, other legal fictions will be proposed in the coming years. Regardless of its name, creating a legal fiction is a prerequisite for applying the rule of law to blockchain layer 1. The ability to do so is crucial.

First, the creation of a legal fiction ensures that blockchains do not escape antitrust enforcement for theoretical reasons. This is a prerequisite before discussing the technical barriers to enforce antitrust against illegal practices (see the following chapters). Second, assigning liability to the right entity ensures that whoever controls blockchains will have a strong(er) incentive to comply with legal requirements. The urge to play by the rules is always stronger when one knows that the rules could actually be enforced. As such, antitrust will not only protect actors that lie outside of blockchain ecosystems; it will also protect those inside the blockchain who cannot stop the anticompetitive practices. Antitrust will free blockchain layer 1 from these practices.

5.2 A Win for Blockchain

Creating a distinct legal fiction centered on blockchains’ nucleus will present an important step forward for related ecosystems. First, the creation of such fiction will attribute rights to blockchains’ nuclei. This will legitimize collaboration between blockchain participants in the nucleus that would otherwise have been prohibited. Indeed, I have explained that antitrust law defines a legal fiction (e.g., the firm) and then applies only to the effects that occur outside of it. Decisions that produce an effect outside of the blockchain nucleus will be submitted to antitrust law. In contrast, decisions taken by the nucleus whose effects are purely internal to that entity will be exempt from antitrust scrutiny.98

Second, creating a legal fiction will increase legal certainty pertaining to the application of antitrust law and regulation. Decades of research suggest that doing so will encourage investments,99 and will make entrepreneurs want to “embark” on the creation of innovative products and services.100 Blockchain communities say so themselves: regulatory issues and accompanying legal uncertainty are the most important reasons preventing greater investment and adoption of blockchain technology.101 The sooner a legal fiction is created, the better for the ecosystem. In its absence, one could imagine court decisions holding all blockchain participants liable for wrongdoings, even though most of them will not have the power to prevent these illegal practices.

Finally, the creation of a legal fiction will give the nucleus the right to institute legal actions and claim damages in cases of antitrust violation, whether caused by another nucleus or a non-blockchain entity. Going back to Christopher Stone’s writing, blockchain’s legal fictions will be able to institute legal actions in their name; courts will calculate injury to them, and relief will be run to their benefit. For example, one could imagine that a blockchain layer 1 (illegally) excluded from the market by another blockchain that engaged in predatory pricing could introduce a valid claim before the courts or antitrust agencies. In the following chapters, I will explain how this will play out when it comes to collusion and monopolization practices.

For all these reasons, creating an antitrust-related legal fiction will be invaluable for blockchain ecosystems and, ultimately, for decentralization. It will protect them from illegal practices that could hinder blockchain’s capacity to decentralize the economy. There is no doubt that centralized companies will multiply illegal behaviors toward blockchain ecosystems in the years to come, as we will see in the coming chapters. Being recognized as a legal entity will allow them to protect their interests and innovate toward decentralization.

6 CHAPTER SUMMARY AND BEYOND

In this chapter, 1 have used the theory of granularity to open the blockchain “black box.” First, I have discussed blockchain governance and shown how the influence of different participants neutralize their position. As no block- chain participant can control the blockchain by itself - and ensure its survival - I have explained that a group of participants may want to come together to achieve common goals. By doing so, they free themselves from other participants’ constraints and end up forming the blockchain nucleus.

The blockchain nucleus gives rise to an entity that should benefit from rights, but could also be held liable for illegal conducts. I have shown how this would work by analyzing relevant markets and market power, evaluating anticompetitive practices and assigning liability.

#### Anticompetitive exclusions and lack of legal certainty over the applicability of antitrust dry up investment and innovation, which artificially consolidates digital ecosystems.

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2 THE SPECTER OF NEUTRALIZATION

I hope to have convinced readers that antitrust law and blockchain contribute to similar, if not identical, objectives (i.e., preserving agents’ ability to act freely in the market, which entails the decentralization of decision-making processes).42 For that reason, one might expect that both communities would work hand in hand to achieve decentralization. And yet, despite pursuing a common goal, blockchain and antitrust may end up canceling each other out. Here’s why.

2.1 One Goal, Two Methods

Blockchain seeks the decentralization of decision making by eliminating intermediaries, while antitrust aims to achieve it by eliminating anticompetitive practices. They converge toward the same objective. That said, one should not be candid about how easy it will be to make them cooperate. First, the Sherman Act is concerned with trusts43 - hence the name “anti-trust”. Since there is no trustee in the sense of a third-party fiduciary in blockchain’s first layers, the target of antitrust laws is absent.44 Blockchain may thus undermine the *raison d'etre* of antitrust law, which will trigger epidermal reactions.

Furthermore, blockchain and antitrust may at times attack each other. Blockchain may be used to implement anticompetitive practices and be enforcement resistant, while antitrust may reinforce the role of intermediaries in the economy (by protecting them from different forms of anticompetitive exclusions) and label various blockchain behaviors as anticompetitive - regardless of the overall usefulness of these blockchain features.

In fact, antitrust law and blockchain ecosystems seek decentralization at two different levels. Antitrust law prohibits certain categories of conduct, creating tensions with tech communities without focusing much on digital architectures. Blockchain, on the contrary, seeks to decentralize by providing its users with a specific digital architecture. It does not prohibit (anticompetitive) practices where code allows. This creates tensions between them, as I show in Part 2 of this book. Their cooperation will require the identification of ways to deal with these mutual provocations, as I will explain in Part 3.

As things stand, both of these communities exhibit what Veblen called “trained incapacity” - the difficulty to think beyond a set of constraints and assumptions. Policymakers tend to believe that the law should be the most important constraint organizing our lives. For that reason, legal rules are often applied without looking for ways to coordinate with other constraints, including digital architectures.45 In the meantime, blockchain communities tend to view legal enforcement as an adversary, and not as an ally. As John Perry Barlow stated in 1996: “I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.” After all, the law liberates, but it also implies illegality, lawsuits, liability assignment and sanctions. The antitrust and blockchain communities will gain from over- coming these biases.

2.2 The (Long) Road Ahead

If we want antitrust and blockchain to collaborate on a long-term basis, we need to talk about the problems that their cooperation will encounter along the way. The challenge before us is intricate.46 On the one hand, it is a matter of getting legal minds to recognize that technology can help achieve objectives that the law cannot achieve on its own. There are three reasons for this. First, blockchain provides a technical approach to the subject. It serves as a framework for decentralizing the economy by default, while antitrust mostly applies ex post by correcting past behaviors.47

Second, antitrust agencies’ detection rate remains low, meaning that illegal behavior often goes unpunished.48 And enforcement is costly, which makes it impossible to pursue all potentially illegal practices. This is particularly problematic in a world where illegal practices can be implemented through coding that quietly and immediately affects billions of users. Also, the rule of law is (unfortunately) inapplicable in some places. This is the case when the state bypasses legal constraints,49 and when jurisdictions are mutually unfriendly and do not enforce foreign laws.50 For example, enforcement of U.S. court judgments abroad can prove especially difficult in light of divergent rules on jurisdiction, requirements for special service of process, reciprocity and some foreign countries’ public policy concerns,51 including in Europe.52

Finally, antitrust law is complex and cannot be fully mastered by all companies - the compliance costs are high and many firms unwittingly infringe the law. Blockchains could therefore supplement antitrust by creating an architecture that leads to fewer anticompetitive practices.

On the other hand, blockchain communities would gain from working with (not against) antitrust law enforcers. That is because antitrust would eliminate practices that artificially centralize blockchain ecosystems and that blockchain architecture cannot stop or prevent. 1 will analyze them in Part 2. Doing so would also provide legal certainty, thus fostering investments and benefiting all the actors involved in commercial activities that rely on blockchain. For these reasons, one should think of antitrust and blockchain as allies - not enemies - as they both seek the same objective, while presenting complementary strengths and defects. Doing so would lead policymakers to promote and implement a new “law + technology” approach that recognizes that the benefits of cooperation outweigh those of one-off confrontations. A game theorist would represent that approach as illustrated in Figure 5.1.

#### Averting the consolidation of blockchain allows scalable transaction validation.

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2 BLOCKCHAIN INTERNAL FACTORS

The evolution of blockchain also depends on internal balances in terms of design and governance. Overall, choices that will be made within each blockchain will prove important for their evolution. As I show, it all comes down to human interactions.

2.1 The Trifecta: Intra-blockchain Evolution

A blockchain trilemma has emerged in the literature over the last several years. It can be summed up as follows: ensuring blockchain’s decentralization, scal- ability and security entails tradeoffs, at least in the short term. Although this makes sense on a technical level, it does not capture the entirety of our subject. Let us take a closer look. I have discussed decentralization at length through- out this book. It is blockchain’s central feature, in terms of both architecture and philosophy. “Scalability” refers to the ability to validate large volumes of transactions rapidly. Last, blockchain’s security hinges upon its ability to maintain integrity: that only desirable transactions take place - for example, by preventing double spending.42

To a certain extent, we have seen together that the mechanisms that ensure decentralization at different blockchain layers may conflict with security.43 This is what Awemany’s story in Chapter 1 revealed. Decentralization implies the distribution of power, limiting the ability to act unilaterally in case of an emergency. At the same time, decentralization can also affect the scalability of blockchain: Proof of Work is decentralized by nature, but it prevents the rapid validation of large transaction numbers. Conversely, a private blockchain can restrict access to the ledger or certain functions, raising security and scalability issues.44

In the long run, however, these three objectives are mutually reinforcing. The more a blockchain is decentralized, the more it stands out from the centralized platforms and services that readers know only too well. By differentiating themselves, blockchains attract users by offering a different value proposition. In turn, this generates scalability. The same goes for security, as the more participants use a public blockchain, the harder it becomes to alter the registry or perform a 51 percent attack. The blockchain trilemma is thus useful for thinking about what needs to be done, but it cannot provide a coherent analytical framework in the long term. It will become less relevant with technical advances, to the point where some blockchains will maximize these three objectives. Those who manage to do so will prosper.

#### That is vital to secure critical infrastructure (CI) AND the integrity of the IoT.

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Today’s Internet of things is mostly used smart devices in many applications. Internet of things when integrates together, they create a network of smart devices called computing infrastructure. This computing infrastructure needs to be properly maintained and secure against many available beaches or critical attacks. Internet of things is an emerging collaborative research environment for today’s researchers, because it creates/provides many other benefits like building cyber physical system and autonomous cars. But, when these devices are being used on a large scale and generate a lot of data, and this data is stored at cloud (public, private and hybrid). This data needs to be protected against many serious attacks, and this task can be fulfilled by “Blockchain technology”. Blockchain technology concept in 2008– 2009 by anonymous user/group of users in cryptocurrency [1], and this concept has been introduced in many applications [2] like finance, manufacturing, medical care, agriculture and autonomous cars.

The Internet of things (IoT) will connect not only computers and mobile devices, but it will also interconnect smart buildings, homes and cities, as well as electrical grids, gas and water networks, automobiles, airplanes, etc. IoT will lead to the development of a wide range of advanced information services that need to be processed in real-time and require data centres with large storage and computing power. The integration of IoT with cloud and fog computing [3, 4] can bring not only the required computational power and storage capacity, but they enable IoT services to be pervasive, cost-effective and can be accessed from anywhere using any device (mobile or stationary). However, IoT infrastructures and services will introduce grand security challenges due to the significant increase in the attack surface, complexity, heterogeneity and number of resources. Some of the examples of IoT technology usage and major implications during cyber-attacks are:

1. Maritime shipping: There are multiple usage of IoT technology in Maritime shipping as the shipping companies have equipped their fleets with a variety of sensors to monitor critical vessel systems, weather and sea conditions, and cargo. The Marine industry can be impacted cyber-attack [5] on terminal computer system, navigation system and point of sale system. Possible consequences are business interruption, damage to data, theft of property through alternation of shipping contacts, bodily injury and property damage.
2. Aviation: There are several usage of IoT in both commercial and military aviation [6]. Connecting IoT to aviation will help to access real-time data for engine performance improvement, accurate weather forecast and pilot monitoring. The cyber risk in aviation may allow hackers to gain access to some sensitive data such as the location of troops or detailed mission plans for IoTconnected military planes. There could be remote terrorism acts where the hacker could gain access to an aircraft’s control system and weaponry, similar to drone hacks, and use it against the enemy.
3. Smart City: A Smart City [7] can be equipped with IoT platform has multiple usages such as smart parking, public safety and traffic balancing. Smart grid is one of the examples which are implemented in Smart City to realize great cost savings and efficient troubleshooting. If there is no effective cyber security maintained, Hacker can gain access to such public infrastructure from his computer to shut down an entire city’s electrical supply.
4. Critical infrastructure: Because of the networked nature of IoT, i.e. that each connected object uses data from other connected objects–there is also the risk that a malfunction could lead to catastrophic system failure. The critical infrastructure like dams, bridges embedded with censors to monitor structural integrity as well as environmental conditions are vulnerable to cyber threats. Malfunctioning of these sensors may bring risk of a catastrophe if those objects fail and could lead to massive property damage or even loss of life.

Amit and Shamila [8] discussed some more examples, where Internet of things devices can be enhanced/used in everyday examples.

On another side, such infrastructure requires secure cyber security mechanisms, i.e. no more breaches/attacks on public networks. This chapter has provided introduction of Industry 4.0/smart manufacturing using IoT [9] while mapping the relevant security and privacy challenges, threats, risks and attack scenarios. This chapter presents an IoT security framework for smart infrastructures such as smart homes (SH) and smart buildings (SB) [10]. Also, it presents a general threat model that can be used to develop a security protection methodology for IoT services against cyber-attacks (known or unknown) with provisioning several issues and challenges in respective IoT-based cyber-infrastructure. The vast diffusion of connected devices in the IoT has created enormous demand for robust security in response to the growing demand of millions or perhaps billions of connected devices and services worldwide. The number of threats is rising daily, and attacks have been on the increase in both number and complexity. Not only is the number of potential attackers along with the size of networks growing, but the tools available to potential attackers are also becoming more sophisticated, efficient and effective.

Cyber-infrastructure is a word commonly used but lacking a single, precise definition. One recognizes intuitively the analogy with infrastructure, and the use of cyber to refer to thinking or computing but what exactly is cyber-infrastructure as opposed to information technology infrastructure? [11] propose definition of cyberinfrastructure as: “cyber-infrastructure consists of computing systems, data storage systems, advanced instruments and data repositories, visualization environments, and people, all linked together by software and high-performance networks to improve research productivity and enable breakthroughs not otherwise possible”. In this chapter, we discuss the origin of the term cyber-infrastructure based on the history of the root word infrastructure, discuss several terms related to cyber-infrastructure and provide several examples of cyber-infrastructure. Cyber security is a necessary task in building and proposing an attack-free infrastructure (using by public users). Note that some elements of cyber security are application security, information security, network security, disaster recovery/business continuity planning, operational security, end-user education. Also, some benefits of using/requirement of cyber security to secure an infrastructure:

* Business protection against malware, ransomware, phishing and social engineering.
* Protection for data and networks.
* Prevention of unauthorized users.
* Improves recovery time after a breach.
* Protection for end-users.
* Improved confidence in the product for both developers and customers.

Internet of things (IoT) is an emerging concept describing a wide ecosystem where interconnected devices and services collect, exchange and process data in order to adapt dynamically to a context. IoT is tightly bound to cyber physical systems and in this respect is an enabler of smart infrastructures by enhancing their quality of service provisioning. Cyber physical systems and autonomous applications are IoT-based application development, major development/invention of the previous decade. Both the IoT critical infrastructures and cloud are subject to cyberattacks [12]. Cloud environments experience the same threats (at a high level) as traditional data centre environments; the threat picture is the same. That is, cloud computing runs software, software has vulnerabilities, and adversaries try to exploit those vulnerabilities. However, unlike information technology systems in a traditional data centre, in cloud computing, responsibility for mitigating the risks that result from these software vulnerabilities is shared between the cloud service provider (CSP) and the cloud consumer. A secure cyber-infrastructure is need of many organization/research communities (especially computer science) around the world. Hence now, the remaining part of this chapter is organized as (in further sections):

Sect. 2 discusses work related to Blockchain used to secure Internet of things (IoTs)-based cyber-infrastructure smart contact, i.e. evolution of smart contract with Blockchain technology’s growth.

Sect. 3 discusses motivation behind this work, i.e. intention behind choosing area related to Blockchain-enabled and IoT-based cyber-infrastructure.

Sect. 4 discusses necessity of secure cyber-infrastructure today and tomorrow, i.e. in current century.

Sect. 5 discusses tools or mechanisms available for securing a cyber-infrastructure and Internet of things-based infrastructure

Sect. 6 discusses many issues, problems and challenges in using Blockchain technology during securing respective (cyber) infrastructure.

Sect. 7 discusses opportunities for future researchers and computer science community.

Finally, this chapter is concluded in Sect. 8 with some future research directions (including some research gaps).

2 Related Work

Internet of things (IoT) as a technological term is around 16 years old, but the actual idea of connected devices had been around longer, at least since the 70 s and at that time it was referred to as “embedded Internet” or more as to say “pervasive computing”. The coining of the actual term “Internet of things” was done by Kevin Ashton during his work at P&G in the late 20 s. Kevin used to manage supply chain optimization and wanted to attract senior management’s attention to a new exciting technology called RFID, now as because the Internet was one among the burning trends during the late 20 s so it somehow made sense, he called his presentation “Internet of things” and thus giving a new identity to the technology. By the year 2010, the Internet of things (IoT) started gaining popularity because of the leakage of information of Google took people into guesses that it might be Google one of the new strategies to index not only the Internet but also the entities in the physical world. Followed by this, in the consecutive years the technology took off after which different countries, market research companies and many other organizations took over it very seriously and started researching into this particular emerging new phenomenon and now it is predicted that by the end of 2020, IoT would have gained a huge stake over the market. Currently, the technology has outgrown to such an extent that there has been mass-market awareness. From dominance motivation behind the present, a critical number of the establishments that help and oversee current lives, social requests and work practices will appear to be dull, level and still. The more settled the establishment, the more certified this feels: we consider boulevards until we can drive impact on them, and thereafter in a flash neglect (until induced by setbacks, advancement and vehicle over-burdens to re-examine). We drink from the city water supply until we cannot, and a short time later examine water. Once here, amazing establishments appear as everlasting, unsuspected, even regular features of contemporary life. This sort of naturalization and disregarding is critical to the ampleness and significant estimation of establishment and is to be certain maybe the most raised want. Be that as it may, it in like manner makes it attempting to audit what is being referred to with establishment (which winds up being an extensive sum) or to plot the methodology by which systems create and change. This is an insightful issue for capable understudies of history and social scientists; for would-be makers of a system, it is something more. Computerized establishment was developed with the arrangement to help customers with winning through our high IT aptitudes and to get new work open entryways in India and help in the country’s social improvement. CIS continues creating at a pace of 300% consistently. Advanced structure continues developing its assortment of organizations and advancement portfolio to get new markets and spaces. Advanced establishment encounters critical improvements with respect to structure, bunch size and overall reach.

Hence, this section discusses work related to Internet of things, cyberinfrastructure, also Blockchain role in IoT-based applications in detail. In next section, we will discuss motivation behind this work in brief.

3 Motivation

Internets of things (IoTs) are used in building cyber physical systems, i.e. largescale cyber-infrastructure. For that, we require proper rules and cyber security to prevent from any breaches/attacks. In general terms, cyber security is safeguarding the Internet-connected systems, including hardware and software data, from cyberattacks, whereas information security, which is devised to preserve the confidentiality, integrity and availability (CIA) of data, is a fragment of cyber security. There are many cyber threats like malware, ransomware, social engineering and phishing on existed infrastructure (build by integration of IoT/smart devices). Such infrastructure requires strong and secure mechanism/algorithms to provide reliable and efficient services to end-users. As we have discussed many popular attacks have been mitigated (in the past decade) like Stuxnet [13], this attack has downgraded many nuclear facilities in Iran in 2010. Further, [14, 15, 16] have discussed many examples of cyber-crime in their work. But, due to getting rapid growth in innovation, we need Blockchain type of solution to secure an infrastructure. Hence, Blockchain technology has been started using in many applications for protecting critical system/infrastructure. Providing efficient and reliable services to end-users and more security to the same users is our higher (main) priority. Blockchain [17] concept fulfilled this goal in this current era. So, we started to write some important work on Blockchain, which can play an essential role in IoT-based cloud infrastructure or IoT-based infrastructure in making a secure cyber-infrastructure. Hence, this section discusses motivation behind this work, and it provides answer to many questions, i.e. related to topic of interest and how this work will be useful to society or researchers/readers. Now, next section will discuss the necessity of cyber-infrastructure or IoT-based cyber-based physical systems in current century.

4 Necessity of Cyber-Infrastructure in Current Century

There exists a positive national framework for the general public for its smooth working and thus making it powerful. The significance of these is generally comprehended and has since quite a while ago perceived the requirement for interest in their creation and upkeep. Such frameworks will, in general, give widespread administrations, range national and universal limits and are inherently depended upon by people and associations. The need for the digital framework is difficult to disparage, and even generally minor disappointments can affect huge quantities of individuals. Disappointments can bring about genuine ramifications for the working of society, and this has additionally been perceived by assailants who have focused on these national frameworks as a method for disturbing enormous quantities of individuals generally effectively. While the profoundly interconnected nature of pc frameworks can experience challenges related to frameworks security, it can likewise be utilized as a method for upgrading it as well. A considerable lot of the techniques and advantages that identify with the utilization of processing for the basic foundation have as of late gone to the fore. Organized frameworks can give expanded vigour against both focused on assaults and incidental disappointment. These incorporate perception procedures to give mindfulness and displaying capacities; frameworks of frameworks security to all the more likely comprehend the security results of associations between numerous frameworks. Utilizing these methods in a bound together manner will give benefits as far as better seeing, ongoing mindfulness and the improvement of security strategies customized to assurance against disappointment and assault of basic framework frameworks. The genuine advantage to be picked up from combining the strategies digital foundation is to give procedures that length innovative limits. cyber-infrastructure that help our general public are produced using an accumulation of frameworks and systems worked over registering advancements and data frameworks. cyber-infrastructure are going under expanding dangers, the insurance of basic foundations requires a superior comprehension of how the control should be structured to cover all the parts of these frameworks.

Hence, this section discusses “why we require cyber-infrastructure in today’s era”? Now, next section will discuss several tools available for securing cyberinfrastructure/IoT-based infrastructure in detail.

5 Tools Available for Securing Cyber-Infrastructure and Internet of Things-Based Infrastructure

There is a great significance of tools that are being developed to secure cyberinfrastructure; Blockchain is one of them. Risks, vulnerabilities, threats, cyber-crimes and frauds are increasing exponentially with the world being digitalized. To get a shield from these potential threats, Blockchain is gaining tradition today but still, significant phases of the world are unaware of it. Critical infrastructure in many countries will soon become vulnerable to cyber terrorism. Ingenious uses for Blockchain technology are already becoming incorporated of fields other than cryptocurrencies [18] and can be exclusively useful to boost cyber security. Several security techniques and approaches have been developed using Blockchain that plays a major role in securing many IoT applications. A Blockchain system depends upon the participation of allocated nodes to build a loyal chain-connected network, in which every decision is made based on the consent. The required system is proposed to have specific major components such as Blockchain-based distributed data repository and verification platform, Internet of things (IoT)-based noticeable environment and cloud-based versatile assistance delivery system. The parts sum up together to develop an infrastructure and a dynamic functional operational environment for overall entities in generation, transmission and delivery. As IoT is an ordinary result of the sensing technology and wireless sensor network, IoT technology will in future enter into each segment of the energy system and connects with other components of the cyber-infrastructure (Blockchain and cloud).

Blockchain takes the involvement of very basic technologies into IoT to make it secure. First of all, it decentralizes the data storage which is its backbone and uses consensus mechanism, this structure ensures data is not traceable nor even tamper able thus as a result giving a no-point fault system so that it can be used in the upper-level application. The connection between the blocks of data is done with a smart contract which is based on contrasting application logic. The information in Blockchain is transferred on a trusted mechanism that verifies and authorizes the user based on agreements, intellectual property rights and so on. In summary, Blockchain along with IoT in phases of cloud coordinated can work together to form a guarded, effective, service-oriented environment, which can strongly support various applications in various domains. Blockchain has promising applications across the domain of network security. IoT can contribute to big data at any level of abstraction, data acquisition could be applied at any level but the main point of data security lies in hands of Blockchain. The complete infrastructure has complete reliability and dependency on its security parameters which should be fault-tolerant, which can be smoothly accomplished through Blockchain. The monitor, control and coordination of units of the cyber-infrastructure should be supported by a dynamic cyber physical system. In any of the proposed cyber-infrastructure model, the cyber-infrastructure is mainly the backboned level of abstraction and security achieved. Under reliable supervision of IoT through Blockchain could help us in attaining a better cyberinfrastructure for a better tomorrow.

#### BUT widespread adoption is reliant on further innovation AND continued decentralization.

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Blockchain technology (in near future) will attract attention from several research communities and can be used in the following areas like Internet-connected things, banking, retail and health care. Such applications are requiring Blockchain, due to the property of distributed digital data (encrypted form, using Hash Keys). Many applications or future uses of Blockchain have been included in Fig. 2. Such functionality in Blockchain is provided by distributed ledger. Using Blockchain technology (a decentralized technology), in respective application, we can secure/store data safely with efficient authentic mechanism at remote location (also in form of Cloud). Data stores at remote location are in inconvertible and immutable using Blockchain/distributed ledger in it.

Blockchain technology has its powerful use in business domain, insurance being one of the prime commercial commodities. The trend of Blockchain within insurance will help in transforming insurance into Insurtech (i.e. Insurance + Technology). One of the many examples where Blockchain can help is in Travel Insurance, i.e. delays and cancellation of flights, can be prevented by Travel Agencies using Blockchain. Blockchain, which was just a virtual ledger, is spreading like a wave across extensive number of industries. Also, businesses are expected to spend colossal amount of money on this powerful technology in this year. From Insurance to gaming to cannabis, almost all industries are looking to develop and apply Blockchain technology, there is hardly any domain not looking for Blockchain applications because this technology is more likely to transform the industries.

Since Blockchain technology does not hold any central supervision and acts on decentralized platform, it has made Blockchain having a prominent feature of being resistant to fraud.

Diagram

Description automatically generated

Companies are striving hard to implement Blockchain technology as it will provide veracity to the stored digital data information. Here are many other industries who are mobilizing the power of Blockchain technology:

* Speculative Funds: With a vast range of Numerai, systems have started adopting hedge fund model with a firm support included by First Round Capital and Union Square Ventures, it involves employment of a group of stockbrokers and quants and then regionalizing it. The distribution of data through Numerai is done when it sends its numerous quants to various distinct locations, encrypts the datasets and then is preceded by building protective models and the one among with best of them is awarded with Numerai token known as Numeraire [19]. Further, the strategy is to strategize and develop a meta-model to make trades.
* Medical Management: The medical reports associated with a person are one of the vital parameters of an individual’s security, preserving this data is sole responsibility of the organization whosoever beholds it. While sharing the data among different platforms, the data may get leaked which may lead to some unavoidable circumstances. So in order to prevent this data to falling into dangerous hands, Blockchain technology allows hospitals [20], other institutions/organizations and payers to split access to their networks without compromising or suspecting data security and integrity.
* Public Mobility: Due to increase in use of public transport of vehicles, it becomes difficult for government in cities to know the status of public transportation being used, so on implementing Blockchain technology will help the cities to know and understand that how the public mobility is being used by their residents and how can they develop some different options for transportation.
* Track of Credit History: On the basis of past records, lenders tend to reduce the risk that is posed by lines of credit or loans to small ventures which also makes credit bureau to have all powers in terms of loans. It also works as a trusted platform where business owners can build a trusted network.
* Charity: Using Blockchain technology in charity institution or organization will help donators to track where their donations are going and who is going to use it. Blockchain will provide transparency and security to all the financial records and will give a greater visibility to the donors.

As mentioned above, there are many other similar industries that have great potential future with implementation of Blockchain in them like loyalty programs, natural resource management, education, advertisement, public assistance, publishing, gaming, travelling and even more. Moreover this, some other opportunities with Blockchain in near future are summarized (also included in Fig. 3) here as:

* Improve social media functionalities
* Digital ownership revolution
* Keeping our ID (Identification) and personal information secure
* Keep your identity safe and location privacy safe.

Blockchain provides digital freedom by using smart contracts: It means that the system is not governed by any central authority so that any kind of manipulation cannot be done by them. Note that Blockchain is more popular in mortgage industry, i.e. with its transparent system, speed (when compared to the typical mortgage underwriting process) and immutability that will secure your home for as long as you own it. Hence, this section discusses several opportunities for future readers and research communities. Now, next section will wrap up this work (including some research gaps) in brief.

8 Summary

Blockchain is the necessity of the future in building trust among peers and providing more privacy-preserving too many applications (like location-based services, etc.), also security to computing environments. This concept is enhancing everyday with its uses in many applications. Today’s Blockchain is the most trusted technology among all existing mechanisms (for protecting an infrastructure). Generally, Blockchain technology allows distribution of digital information in decentralized manner, but not duplicated. Blockchain also allows us to own digital assets, goods and data through its novel concept. Similarly, we face several cyber-crimes and attacks on many critical or cyber-infrastructure, [21] discussed several privacy issues), for that we suggested Blockchain to be used for the same infrastructure for providing sufficient level of security layers. This chapter has discussed several interesting components of Blockchain with Internet of things-based infrastructure and other cyberinfrastructure. We also discuss several benefits, disadvantages, issues and challenges (including opportunities) of Blockchain in securing an infrastructure, and this information will help future researchers/scientists or readers in continuing their research work in near future. In near future, some possible changes are possible with Blockchain are “Distributed Web (new Internet with Blockchain)”, “Decentralized Autonomous Blockchain” and “Blockchain-based Cloud”. For providing more efficient services, the world is watching and waiting for more innovations in technologies.

#### Collapse of CI triggers nuclear retaliation.

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Over the July 4 weekend, the Russian-based cybercriminal organization REvil claimed credit for hacking into as many as 1,500 companies in what has been called the largest ransomware attack to date. In May, another cybercriminal group, DarkSide, also apparently located mainly in Russia, shut down most of the operations of Colonial Pipeline, which supplies nearly half the diesel, gasoline and other fuels used on the East Coast — setting off a round of panic buying that ended only when the company handed over a ransom. These incidents were bad enough. But imagine a much worse cyberattack, one that not only disabled pipelines but turned off the power at hundreds of U.S. hospitals, wreaked havoc on air-traffic-control systems and shut down the electrical grid in major cities in the dead of winter. The grisly cost might be counted not just in lost dollars but in the deaths of many thousands of people.

Under current U.S. nuclear doctrine, developed during the Trump administration, the president would be given the military option to launch nuclear weapons at Russia, China or North Korea if that country was determined to be behind such an attack.

That’s because in 2018, the Trump administration expanded the role of nuclear weapons by declaring for the first time that the United States would consider nuclear retaliation in the case of “significant non-nuclear strategic attacks,” including “attacks on the U.S., allied, or partner civilian population or infrastructure.” The same principle could also be used to justify a nuclear response to a devastating biological weapons strike.

But our analysis suggests that using nuclear weapons in response to biological or cyberattacks would be illegal under international law in virtually all circumstances. Threatening an illegal nuclear response weakens deterrence because the threat lacks inherent credibility. Perversely, this policy could also wind up committing a president to a nuclear attack if deterrence fails. While the American public would indeed be likely to want vengeance after a destructive enemy assault, the law of armed conflict requires that some military options be taken off the table. Nuclear retaliation for “significant non-nuclear strategic attacks” is one of them.

The Biden administration is now conducting its own review of the U.S. nuclear posture. The 2018 Trump change is an urgent candidate for reevaluation, but people have generally ignored it up to now. As officials work on this process, they have the chance to take full account of what could be called the “nuclear law revolution” — a growing recognition that international-law restrictions on warfare, and especially those that protect civilians, apply even to nuclear war.

Most Americans are aware of the strategic revolution that nuclear weapons themselves kicked off: The massive destruction they created made deterrence the highest national security priority. Soon after the bombing of Hiroshima in 1945, for example, Bernard Brodie, a preeminent early Cold War strategist, wrote: “Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them.”

Inherent in the idea of deterrence for decades was the notion that the United States would rain “assured destruction” on the cities of any nation that attacked us or our allies with nuclear weapons. During the height of the Cold War, for instance, U.S. nuclear war plans were designed to destroy “at least 70% of the urban industrial bases of the USSR and Communist China” and expected to kill “30% of the people,” according to declassified top-secret documents from the Nixon administration written in 1969 and 1971.

But such plans were manifestly not reconcilable with the central principles of the international law of armed conflict. This helps explain why the U.S. government asserted at the time of its negotiation that the 1977 Protocol I to the 1949 Geneva Conventions did not apply to nuclear weapons. That later treaty codified the obligation of all state parties to follow in war the principles of distinction (drawing a line between military targets and civilians), proportionality (making sure the unintended or “collateral” civilian harm resulting from a legitimate attack does not exceed the military advantage of that attack) and precaution (doing everything feasible to avoid or at least minimize collateral civilian deaths). U.S. nuclear war plans in the 1970s didn’t follow any of these rules.

In 2013, however, the Obama administration’s official nuclear weapons employment guidance announced that henceforth, “all plans must also be consistent with the fundamental principles of the Law of Armed Conflict.” From then on, even nuclear war plans would apply the principles of distinction, proportionality and precaution.

The Obama guidance document was categorical: “The United States will not intentionally target civilian populations or civilian objects.” According to Gen. C. Robert Kehler, the head of U.S. Strategic Command from 2011 to 2013, implementing this guidance led the command to develop nuclear delivery “tactics and techniques to minimize collateral effects,” and to “expand non-nuclear strike alternatives and add significant flexibility to our contingency plans.” The Trump administration’s 2018 Nuclear Posture Review reaffirmed the U.S. commitment to “adhere to the law of armed conflict” in any “initiation and conduct of nuclear operations” — but its interpretation of the law (allowing nuclear weapons to be used in response to a massively destructive biological or cyberattack) was flawed.

The unambiguous embrace of the application of international law to nuclear weapons means that if a future president ordered a Hiroshima-like attack, striking a city to kill as many enemy civilians as possible, it would be an illegal order that senior generals would be required to disobey. This would be true even if the order came in response to a nuclear attack on an American city; nations are not permitted to flout the rules of war protecting civilians simply because their enemies do. (A theory called “belligerent reprisal” holds that states may strike back at civilian populations in a proportionate way if the intent is to get the enemy to stop its own illegal warfare. We and other scholars have argued that this practice is not compatible with current understandings of international law.)

Yet it is not only pundits and the public that have failed to notice this legal revolution. Some writings by nuclear strategists, even those seeking to limit the dangers of nuclear war, have ignored the shift. In 2018, for instance, the late Princeton research scholar Bruce Blair proposed a policy of what he and others have called “minimal deterrence”: His version involved cutting the U.S. arsenal to fewer than 700 warheads, from some 2,000 today, and aiming them to guarantee “the annihilation of scores of [Russian] cities housing banking and oil infrastructure as well as key manufacturing and leadership facilities.” But a policy targeting civilian infrastructure would clearly violate international-law rules that Washington recognizes apply to nuclear targeting.

This is not to say that the laws of war preclude all use of nuclear weapons (a conclusion that some legal scholars have embraced). The principle of proportionality permits some U.S. nuclear attacks against military targets — for example, when the harm such a strike would prevent to U.S. and allied populations would exceed the foreign collateral damage it caused. (Any associated civilian deaths would have to be truly incidental and unavoidable. Deliberately causing purported “collateral” civilian damage to force an enemy to stand down would be illegal.) Those planning a nuclear counterattack would also be obliged to use the lowest-yield weapons necessary to destroy or neutralize the legitimate military targets they place in their sights.

If the laws of war strictly constrain nuclear retaliation for a nuclear attack on the United States, they all but certainly bar such a strike in response to a cyber- or biological attack — even one causing many civilian casualties. In almost any imaginable scenario, the use of nuclear weapons would violate the principle of precaution, the requirement to minimize harm to civilians if feasible. That’s because the formidable U.S. military has the capacity to halt, or to induce the adversary to halt, ongoing cyberattacks through conventional or cyber-responses that would cause less harm to foreign civilians than would a retaliatory nuclear strike.

There are a few possible, but largely hypothetical, exceptions to this rule. One would be if the individuals or organization responsible for the cyber- or biological attack were in an underground bunker that couldn’t be destroyed any other way. Another hypothetical option, a nuclear demonstration strike against an isolated military target, might be legal, but it would be strategically stupid, as it would actually demonstrate lack of resolve. A stronger response would directly target — through conventional means — the perpetrators and their ability to launch further attacks on us or our allies.

Using nuclear threats to deter cyberattacks is also inherently less credible than threatening retaliation with conventional weapons or in kind (that is, with cyber-retaliation). The states that we worry most will launch cyberattacks — Russia, China and North Korea — also have nuclear weapons, and their leaders might reasonably calculate that any U.S. president would be reluctant to use nuclear weapons against a nation that can retaliate in kind. An adversary might also believe that the U.S. military would refuse to use nuclear weapons in response to non-nuclear attacks precisely because of questions around legality. Such suspicions undermine the deterrent force of nuclear weapons; in contrast, if the United States were to commit to only conventional or cyber-retaliation to “significant non-nuclear strategic attacks,” adversaries would have fewer doubts that we would follow through.

Not only might a U.S. nuclear threat against a cyber- or biological attack be perceived as a bluff, it could be doubly dangerous if it subjected the president to what has been called the “commitment trap.” If Washington threatens a nuclear response to deter a cyberattack, but adversaries go ahead anyway because the threat is deemed not credible, then there would be increased pressure on the president to order a nuclear strike to rebut domestic political claims of weakness and shore up international perceptions about the credibility of future threats. But succumbing to such political pressure or the urge for vengeance would create an unacceptable risk of further nuclear escalation.

#### CI collapse metastasizes---extinction.

Benjamin Monarch 20, University of Kentucky College of Law, J.D. May 2015, LLM in Energy, Natural Resources, and Environmental Law and Policy from the University of Denver Sturm College of Law, Deputy District Attorney at Colorado Judicial Branch, and Term Member at the Council on Foreign Relations, “Black Start: The Risk of Grid Failure from a Cyber Attack and the Policies Needed to Prepare for It,” Journal of Energy & Natural Resources Law, vol. 38, no. 2, Routledge, 04/02/2020, pp. 131–160

In the industrial world, when a switch is flipped, we take for granted that it will produce light, boot a computer, illuminate a stadium or activate a power plant. We know, of course, that power losses can and do occur. Many of us have lit candles during a thunderstorm or brought out extra blankets when a blizzard takes down transmission lines. As of this writing, the most populated state in the United States, California, is experiencing rolling blackouts.1 Yet even in prolonged power outages, we expect that electricity will be restored and, consequently, life will return to normal. Perhaps we need ask, however, what if power cannot be restored in a timely manner? Concern is growing that in the not-too-distant future our electricity supply could be irreparably compromised by a cyber attack. The issue when considering a systemic grid failure of this nature is twofold: how did we reach a point where something so critical to routine life now presents an existential threat, and what can we do to mitigate the risk of a catastrophic grid attack?

This article posits that the emergence of cyber attacks on industrial control systems, as a means of war or criminal menace, have reached a level of sophistication capable of crippling those systems. This article argues that a new grid security policy paradigm is required to thwart catastrophic grid failure – a paradigm that recognises the inextricable link between commercial power generation and national security. In section 5, seven policy recommendations are outlined that may, in part, mitigate a future where grid attacks pose existential risk to nations and their citizenry. Those recommendations are: first, develop a comprehensive insurance programme to minimise the financial risk of grid disruption; second, train more cybersecurity professionals with particular expertise in industrial control systems; third, institute a federally mandated information-sharing programme that is centralised under United States Cyber Command; fourth, subsidise and/or incentivise cybersecurity protections for small to mid-size utilities; fifth, provide university grants for grid security research; sixth, integrate new technologies with an eye towards securing the grid; and, lastly, formulate clear rules of engagement for a military response to grid disruption.

The purpose of this article is to provide the reader with an introduction to this complex topic. It is the aim of the author to give orientation to this issue and its many branches in the hope that better understanding will animate further curiosity and, ultimately, positive action on the part of the reader. Although many skilled and earnest people work tirelessly to prevent a grid failure scenario, it is essential that more be added to their ranks each day. Advisors, engineers, regulators, private counsel to power generators, and many others who play roles in electric power production are crucial to this subject. So, while this article provides entrée to the topic of grid security, its long-term objective is to spur action by the entire energy-related community. In the end, no one is immune to consequences of grid failure and, therefore, everyone is responsible, in part, for promoting grid integrity.2 In this regard, lawyers who represent various actors in the energy sector are going to be faced with questions and potential legal risks of a magnitude that they have never experienced before.

1.2. Turning the power back on in a powerless world

‘Black start’, not to be confused with the term ‘blackout’, is the name given to the process of restoring an electric grid to operation without relying on the external electric power transmission network to recover from a total or partial shutdown.3 At first glance, this description is unremarkable, but it implies a disturbing catch-22 – how might one restore power if the entire external transmission network is compromised?

If an electric disruption occurs at a household level, some homes may be equipped with a modest gasoline generator to temporarily restore power. If a hospital loses power, it will almost invariably be resupplied by automatic, industrial-scale generators. These micro considerations hardly give anyone pause; they are hiccups on a stormy night or a snowy day. In other words, their ‘black start’ is a quick and effective process for restoring power. But what happens, at a macro level, when an electric grid supplying power to large portions of the United States goes black, or worse, what happens if all of the United States’ electric grids go down simultaneously?4 In that scenario, how might enough non-grid power be harnessed and transmitted to turn the United States’ lights back on? Moreover, how might such a catastrophe occur in the first place? Perhaps the more ominous question is not how, but whether or not we can survive such circumstances if they persist in the long term.

The United States electric grid (‘the grid’) is the ‘largest interconnected machine’ in the world.5 It consists of more than 7000 power plants, 55,000 substations, 160,000 miles of high-voltage transmission lines and millions of low-voltage distribution lines.6 The scale and complexity of the grid in the context of the modern digital world are beyond comprehension because within it are innumerable industrial control systems; incalculable connections to digital networks; millions, if not billions, of analogue or digital sensors; many thousands of human actors; and trillions of lines of programming code.7 Further complexifying the grid is that it is comprised of generations of technologies, stitched together in ways that are not inherently secure in a world of cyber threats.8 The vastness of the grid makes security of it challenging. Likewise, the vastness of the grid makes the opportunities for intrusion seemingly infinite.

By any measure, grid failure will unleash a parade of horrors. Stores would close, food scarcity would follow, communication would cease, garbage would pile up, planes would be grounded, clean water would become a luxury, service stations would yield no fuel, hospitals would eventually go dark, financial transactions would stop, and this is only the tip of the iceberg – in a prolonged grid failure social chaos would reign, once-eradicated diseases would re-emerge and, increasingly, hope of returning to a normal life would fade.9 The notion of complete grid failure, once relegated to science fiction comics or James Bond movies, is now not only possible but also one of the most pressing national security threats today.10

#### IoT enables effective climate mitigation.

Huawen Tian et al. 22, Law, Shandong University of Science and Technology; Liwen Jiang, Economics & Management, Shandong University of Science and Technology; Jie Zhang, Management, Shandong University of Technology, "Construction of Wireless Sensor Model for Carbon Neutralization and Environmental Protection From The Perspective Of Energy Internet Of Things Transformation," Journal of Sensors, 01/17/2022, Hindawi.

Climate change has a profound impact on the earth’s environment, which is a great challenge facing mankind [1]. In order to cope with global climate change and realize the progress of human civilization and the sustainable development of the earth’s ecosystem, the 21st United Nations Climate Change Conference adopted the Paris climate agreement, which proposed to achieve the goal of “net zero emission” of CO2 around 2050, that is, carbon neutralization [2]. Broadly speaking, carbon neutralization refers to the dynamic balance between carbon source systems such as human fossil energy utilization, land use, and natural volcanic eruption carbon emission and carbon sink systems such as earth’s carbon cycle system, marine carbon dissolution, and biosphere carbon absorption. In a narrow sense, carbon neutralization refers to the CO2 emission of an organization, group, or individual in a period of time, which is offset by forest carbon sink, artificial transformation, geological storage, and other technologies to achieve “net zero emission” [3]. Carbon neutralization is an important way to effectively control the rapid rise of global temperature, promote the green transformation of energy utilization, and promote green, low-carbon, and other technological progress [4]. It is a new driving force for world economic development and growth [5]. Realizing carbon neutralization will improve the earth’s ecological environment on which human beings depend and reduce environmental problems caused by human activities [6]. In 2019, the World Health Organization announced that air pollution and climate change ranked first among the top ten health threats in the world [7]. It is estimated that from 2030 to 2050, climate change will cause about 250000 new deaths from malnutrition, malaria, diarrhea, and excessive temperature in the world every year, and 7 million people will die prematurely from diseases such as cancer, stroke, heart disease, and lung disease every year [8]. Carbon neutralization will promote the transformation of human energy system to green, low-carbon, and carbon-free, realize the substitution of carbon-free new energy for high-carbon fossil energy, and drive the growth of jobs and GDP in the field of new energy industry [9]. It is estimated that by 2050, the average annual investment in the field of global energy low-carbon transformation will exceed US $3.2 trillion, the cumulative investment will exceed US $95 trillion, and more than 100 million jobs will be provided [10]. Carbon neutralization is the common goal and pursuit of all mankind. The global cooperation mechanism with consultation as the main body is the premise and guarantees to achieve carbon neutralization [11]. In the process of actively promoting carbon neutralization all over the world, it is necessary to carry out carbon neutralization research guided by scientific issues [12].

The automatic identification center established by MIT proposed a radio frequency identification system-item loading sensing equipment [13]. Through the application of RF technology, it is connected with other objects to realize the interconnection of objects and form an intelligent control system [14]. Internet of things is another widely concerned network in the network field after the Internet. It is based on standards and has the ability of self-configuration and management [15]. The Internet of things supports the direct information interaction between people and things, and wireless sensor networks only support the information exchange between things, in order to provide users with the environmental information they need [16]. Therefore, wireless sensor network is the technical basis of the Internet of things and a branch network of the Internet of things. From the historical background of the emergence of wireless sensor network technology, wireless sensor network has experienced wireless data network, wireless ad hoc network, and wireless sensor network [17]. The traditional environmental detection method is to manually obtain various material samples in the environment, such as air, water, and soil, and test the collected samples on the instruments in the laboratory [18]. Such a sample acquisition method can only collect limited data, and the data is not reliable. In order to meet people’s demand for various resource monitoring in the future and maintain the sustainable development of economy and environment, we need to obtain a large amount of environmental information timely and accurately [19]. Because of its own characteristics, wireless sensor networks are different from traditional fixed networks. They have the characteristics of limited resources, self-organization, dynamic network, wide scale, and high density [20]. The characteristics of wireless sensor network, such as single deployment, low cost, network self-configuration, and no manual maintenance, make it suitable for the field of environmental monitoring. Multiple nodes carrying various sensors are distributed in the required monitoring environment, and the nodes cooperate to complete the remote monitoring task [21]. Although the research time of wireless sensor network is very short, a large number of sensor network research and application make its technology develop rapidly. With the continuous exploration of wireless sensor networks all over the world, the application of wireless sensor networks has widely existed in all fields of production and life [22]. It is the research focus and application technical basis of wireless networks in the future. Wireless sensor networks (WSNs), which combine sensor technology, microelectronics technology, and wireless technology, are a powerful network. It has been widely used in road traffic, military safety, environmental monitoring, intelligent life, and other aspects. Today’s society is affected by the technology and application of WSN [23]. Wireless sensor networks play an important role in monitoring, such as the concentration of carbon dioxide in the air, air humidity, and light intensity. The monitoring of these indicators can well reflect the results of carbon neutralization and provide an important basis for the early realization of carbon neutralization. This paper analyzes the development background and research status of energy Internet of things technology at home and abroad and determines the overall design scheme of environmental monitoring Internet of things system. Then, the wireless sensor network model is applied to the detection of air quality in the environment to detect the content of CO2 in the air more accurately, which is of great significance to achieve the goal of carbon neutralization as soon as possible.

2. Related Work

The Internet of things takes data networking as the essential core, while the energy Internet of things has a large number of users and devices, and the data collected by its measurement and perception is very valuable. On the one hand, the use of massive data enables the energy industry to fully understand its own characteristics and provide new technical support means for low-carbon green development, energy efficiency improvement, energy conservation and consumption reduction, economic operation, and system planning of the energy industry; on the other hand, data analysis and processing based on deep learning, artificial intelligence and other technologies can improve the production efficiency of the energy system, provide better consumer services for users, and provide more efficient decision support for system operators. The Internet of things and wireless sensor networks have been widely favored all over the world. In 1991, the concept of “pervasive computing” proposed by the United States involved perceptual technology, and then, MIT first proposed the “Internet of things” [24]. IBM announced the “smart earth” plan to the outside world in November 2008. Immediately, the plan received strong support from the government and jointly developed smart grid and smart medicine [25]. Carbon neutralization means that enterprises, groups, or individuals calculate the total amount of greenhouse gas emissions directly or indirectly generated within a certain period of time to offset their own carbon dioxide emissions through afforestation, energy conservation, and emission reduction, so as to achieve “zero emission” of carbon dioxide. As a new form of environmental protection, carbon neutralization has been adopted by more and more large-scale events and conferences. Some other developed countries have also set development goals and taken a number of feasible measures to promote their rapid development. In the field of agricultural environmental monitoring, data transmission technology and environmental data acquisition technology have been developed [26]. In terms of data transmission, there are two measures to ensure the correctness of data transmission: the optimal network protocol and the appropriate network deployment [27]. The correctness of agricultural environmental data transmission first needs the optimal network protocol. The agricultural environment monitoring based on wireless sensor network needs to deploy the network according to the characteristics of the monitoring area. When wireless sensor networks need a single network in a small-scale agricultural monitoring environment, the physical layer and data link layer of the network protocol are the same [28]. However, when wireless sensor networks need composite networks in complex environments, different network layer and application layer specifications are formulated due to specific network protocols. It can be seen from the literature that the fusion between networks requires standards to agree on the communication between different networks [29]. According to different monitoring environments, the research focus of routing algorithm is also different. It can be seen from the literature that the protocols related to wireless sensor networks are appropriately tailored to meet the characteristics of agricultural monitoring environment. Second, select the appropriate topology to deploy the network nodes to make the network reach the optimal state, so as to transmit data reliably [30]. Wireless sensor networks deployed in various regions as the experimental field of project research have promoted the rapid development of Internet of things related technologies. Gong and Jiang [31] proposed a smart city Internet of things system for monitoring indoor temperature, humidity, and CO2. It uses PIC24F16KA102 chip as the main control and NRF24L01 RF module with 2.4 GHz bandwidth as the transmitting and receiving node to collect temperature, humidity, CO2, and other sensing data, transmit it to PC through USB, and transmit the data to mobile phone app through the Internet, so as to obtain, save, and process environmental data. Liu et al. [32] proposed a low-power Internet of things system for long-term monitoring of outdoor environment. It is composed of sensor node, gateway node, application server, and back-end alarm equipment. The sensor node collects temperature data through the main control and sends the sensor data to the gateway equipment through CC1150 RF module; the gateway device collects RF data through the 433 module and drives the GPRS module to transmit the data to the application server through the main control module; the application server stores and provides data support for the back-end alarm device; the back-end alarm device runs data query and alarm functions. Vijayalakshmi et al. proposed a real-time environment monitoring Internet of things system using solar energy self-power supply [33]. It is composed of solar panel, power management module, main control module, XBee RF module, and sensor module. Solar panels generate electric energy during the day, provide electric energy for system operation, and charge 50 f capacitors; The main control module collects the information of temperature, humidity, CO, CO2, and LDO sensors and transmits the data through XBee module. The power consumption of the whole system is about 4.907 mW. At the same time, the 50 F capacitor can be charged to 4.6 V by the solar module during the day; when the operating voltage of the system is between 3.6 V and 4.6 V, the 50 F capacitor can provide the power of the whole system for 12 hours at night [34]. Muthukumaran et al. [35] put forward a cloud service monitoring system for diabetes patients. In the system, the sensor node layer is composed of two parts. One part collects indoor environmental information, such as temperature, humidity, time, location, and air quality, and the other part collects patient information, such as heart rate and body temperature; the gateway is responsible for local data storage, data packaging, data push, and other functions; the cloud service layer is responsible for cloud data storage, data query, and other functions; the equipment terminal can view the information of patients and rooms in real time. The sensor node layer communicates through a 2.4 GHz radio frequency module; the sensor node and gateway transmit data through WiFi module.

3. Research Methods and Key Technologies

3.1. Transformation of Energy Internet of Things

This paper will explore the path description and research methods of energy Internet of things transformation and discuss how to use power system, Internet of things, and social factors to strongly support energy transformation. In 2015, the proportion of nonfossil energy power generation was 30%. The schematic diagram of energy transfer path is shown in Figure 1, showing the change curve of the proportion of renewable energy in primary energy. Under the goal that the proportion of nonfossil energy power generation will reach 80% in 2050, there can be different paths to achieve this goal, and different paths will have different effects on the national economy. How to plan the energy transfer path can take into account the constraints of coordinated economic development and carbon emission, which is worthy of in-depth research.

[Figure omitted]

In many paths, the transformation task can be allocated to each year by linear method; we can also increase the amount of renewable energy as soon as possible, so as to obtain carbon emission benefits as soon as possible and save resources. However, due to immature technology and other reasons, the investment will increase. Or use the opposite method to accumulate experience at the beginning and accelerate the pace of transformation when the technology is mature. Therefore, among many paths, how to find a feasible method to compare different paths and select the optimal path has become an urgent problem to be solved. The proportion of nonfossil energy power generation is used as the characteristic quantity of energy transformation, as shown in Figure 1. The time series trajectories of different transformation curves are marked with typical power functions. The power of the transformation curve is represented by , the linear transformation curve is a special case where the power is equal to 1, and represents the power of the transformation curve. represents the initial proportion of new energy, represents the target proportion, and represent the starting year and target year, respectively. In year , the proportion of new energy can be expressed as

[Equation omitted]

3.2. Key Technologies of Energy Internet of Things

The network nodes in the energy Internet of things can ensure the comprehensive monitoring of the external environment and improve the overall quality of data transmission. In environmental monitoring, we need to improve the security and stability of data transmission. Combined with the actual characteristics of the Internet of things, we can optimize the design of link layer data transmission and enhance the security of data. We can also establish the reliability analysis method of data transmission of the Internet of things system and take corresponding management measures to ensure the overall effect of data transmission of the Internet of things. The Internet of things system mainly includes three parts: application layer, perception layer, and network layer. The sensing layer is composed of various sensor devices, including reader, terminal camera, and GPS. It can sense the external environment and collect a variety of signals and physical information. The network layer refers to the IOT network communication system, including information processing center and intelligent control center, which can process information quickly and timely.

A large number of microsensor nodes are arranged in the monitoring area to realize the self-organizing network system by means of wireless communication. Various microsensors can be integrated to realize the real-time reception and transmission of information. Wireless communication transmits various data information, and the information obtained by the sensor can also realize the development of integration, miniaturization, and networking, as shown in Figure 2. Wireless sensor network integrates embedded computing, sensor technology, wireless communication technology, and modern network technology, which can enhance the perception ability of the whole device. It is an important prospect in the field of Internet of things.

[Figure omitted]

3.3. Construction of Wireless Sensing Model under Energy Internet of Things Technology

Under the condition of Internet of things technology, it is necessary to analyze the application characteristics of ecological environment, meet the overall needs of system architecture, and improve the overall quality of service monitoring. Wireless sensor nodes with self-organizing function are connected in the form of wireless transmission, which can conduct three-dimensional and comprehensive monitoring of the ground, underground, and air environment, forming a 3D Internet of things environment monitoring system, as shown in Figure 3. The detection system uses Ethernet to monitor different indicators in the environment, such as temperature and humidity. Then, it is transmitted to the remote client through the network.

[Figure omitted]

The core node design of the Internet of things needs to be composed of control and information processing unit, storage unit, and communication unit, and the distributed power supply is used to provide support. Build a monitoring system suitable for the ecological environment of different villages and towns, analyze it combined with the Internet of things node technology and ecological environment sensing data, and develop a sensor module to meet the monitoring of multi environmental parameters such as gas, water, and soil. In order to improve the security and reliability of data and information transmission in the Internet of things, it is necessary to effectively control the nodes of the whole data transmission, design specific methods such as error recovery, congestion control, and flow control, establish sensor models, comprehensively optimize the deployment and coverage of regional sensor nodes, and take corresponding management measures to ensure the quality of information transmission.

The whole IOT monitoring system can realize two working modes to adapt to different application environments.

The situation in the working mode of the area coverage monitoring system is as follows. As shown in Figure 4, the regional monitoring system includes LAN nodes, main control module, and data cloud platform. It can carry out real-time environmental monitoring for large areas, upload data to the data platform in real time, and synchronously monitor the information of each node (impact, temperature, humidity, light and general ad data, etc.).

[Figure omitted]

The working mode of the fixed-point direct connection monitoring system is as follows. Based on the regional coverage monitoring system, the fixed-point direct connection monitoring system removes the monitoring ability of multinode environment and retains the passive wireless impact sensor node network. Its environmental data collection mainly comes from the data collection of the main control module (impact, temperature, humidity, light, dust, general AD data, etc.). At this time, the monitoring range of fixed-point direct monitoring becomes smaller, but the data acquisition frequency increases, which is mainly applicable to scenes with high data requirements. Its design architecture is shown in Figure 5.

[Figure omitted]

4. System Test and Analysis

This chapter mainly tests the environment monitoring Internet of things system, including passive wireless impact sensing module, area coverage monitoring system, and fixed-point direct connection monitoring system, tests and detects the overall function of the system, and verifies the function of the whole system.

4.1. Node Circuit Test

For the node circuit, it is necessary to test the energy storage capacitance and the operation of the control circuit. The energy storage capacitor is a 10 uF tantalum capacitor. After receiving the DC voltage converted by the impulse signal, its voltage test is shown in Figure 6. As can be seen from the figure, the maximum output voltage can reach about 7.2 V, and the voltage shows an exponential attenuation trend with time, which can realize the storage of electric energy and meet the power supply of ultralow power RF module. Since the back-end control circuit will turn on when it is above 3.2 V, the output voltage is the energy storage capacitor voltage, and the voltage of 7.2 V will burn the ultralow power RF module chip, a voltage stabilizing diode must be added at the output voltage to protect the RF chip.

[Figure omitted]

Add the control circuit after the energy storage capacitor and test its output voltage, as shown in Figure 7. When the energy storage voltage of the energy storage capacitor increases from 0 V to 3.2 V, the voltage of the control circuit is 0 V; when the voltage of the energy storage capacitor is greater than 3.2 V, the voltage of the control circuit changes with the voltage of the energy storage capacitor; after that, the voltage of the control circuit will always follow the voltage of the energy storage capacitor to drop to about 1.6 V, and then turn off the output. The control time of the whole control circuit is about 40 ms, that is, the normal working time of ultralow power RF circuit; the voltage output is 1.6 V to 3.2 V, closely following the voltage change of the energy storage capacitor. The design function of the control circuit is verified.

[Figure omitted]

4.2. Overall Function Test

In the overall function test, the fixed-point direct monitoring Internet of things system will be tested in the field. Through the real-time monitoring of the surrounding environment, the data of dust, temperature, humidity, and illumination of the surrounding environment will be collected in real time to verify the working condition and stability of the whole system. The monitoring time is one hour, and the change curve of each environmental information is obtained, as shown in Figure 8. The system works stably, and all sensing data curves are displayed and saved in real time. At the same time, it can be seen from the data that the system can stably monitor all kinds of data information in the outfield environment.

[Figure omitted]

According to the above tests, the basic functions of the whole Internet of things system have been realized, including the alarm function of passive wireless impact sensing, the cloud real-time monitoring function of environmental data, and the real-time sending function of cloud instructions. The real-time monitoring of indoor and outdoor environment has been realized under two working modes, and the task objectives set in the early stage of the whole system have been realized. The test results show that the environmental monitoring Internet of things system can realize the real-time acquisition and data transmission of passive wireless impact sensing signals, use 10 uF tantalum capacitor to store energy and complete about 20 m RF data transmission with about 42 uJ energy supply; the completed area coverage monitoring system uses five ZigBee sensor nodes and master control nodes to collect a variety of sensor data (temperature, humidity, and light) and interact with the data instructions of ONENET cloud platform, with stable operation and reliable performance; the completed fixed-point direct connection monitoring system can collect a variety of sensing data and interact with the data instructions of Alibaba cloud platform, with strong reliability and stable operation. The system achieves the expected design and functional objectives.

5. Conclusion

Internet of things technology can automatically analyze the concentration, emission, and emission speed of toxic and harmful substances in the natural environment. It can also transmit data information to the environmental monitoring and management department in real time, formulate scientific and reasonable pollution management strategies, and ensure the rapid and timely treatment of pollution problems. Wireless sensor networks are widely used in environmental monitoring. Atmospheric monitoring is mainly online monitoring or mobile monitoring. Online monitoring can realize synchronous monitoring and monitoring prediction. Comprehensively analyze the future atmospheric environment conditions, and install fixed monitoring equipment at the discharge of pollution sources to form a distributed network to comprehensively control specific pollutants. Various wireless sensor network devices can be used to collect the data of sulfur dioxide and inhalable particles of nitrogen oxides in the atmospheric environment in an all-round way and use the network to transmit the real-time data to the monitoring center to automatically analyze the environmental quality and clarify the overall effect of environmental data processing. Aiming at the environment under the background of carbon neutralization, this paper carries out the research on the technology of environmental monitoring Internet of things system, focuses on the key technologies such as multisensor terminal, local area network communication, wide area network communication, and data cloud platform, and develops a complete set of Internet of things system, which realizes the monitoring of dust, light, temperature, and real-time monitoring of humidity and other environmental parameters, and on this basis, support the scalability of the system to meet the needs of different environmental conditions. We have added relevant contents as follows: today’s world is experiencing great changes that have not been seen in a century. The ecological environment is related to human survival and sustainable development, which requires the unity and cooperation of all countries to jointly meet the challenges. Carbon neutralization is a consensus reached by mankind in response to global climate change. Countries all over the world actively commit to achieving the goal of carbon neutralization. Carbon substitution, carbon emission reduction, carbon sequestration, and carbon cycle are the four main ways to realize carbon neutralization, and carbon substitution is the backbone of carbon neutralization.

#### Absent that, extinction.

Simon Beard et al. 21, Centre for the Study of Existential Risk, University of Cambridge; Lauren Holt, Centre for the Study of Existential Risk, University of Cambridge; Asaf Tzachor, Centre for the Study of Existential Risk, University of Cambridge. Cambridge Global Food Security Interdisciplinary Research Centre, University of Cambridge; Luke Kemp, Australia National University; Shahar Avin, Centre for the Study of Existential Risk, University of Cambridge; Phil Torres, Institute of Philosophy, Leibniz University Hannover; Haydn Belfield, Leverhulme Centre for the Future of Intelligence, University of Cambridge, "Assessing Climate Change’s Contribution to Global Catastrophic Risk," Futures, Vol. 127, March 2021, ScienceDirect.

While most of the impacts of climate change so far have fallen within the range of what was experienced during the Holocene, the rate of change is faster than in the Holocene and we are now beginning to see climate change push beyond these boundaries. In the latest edition of the planetary boundaries’ framework, climate change is placed in the zone of increasing risk, implying that while this boundary has been breached, there remains some potential for normal functioning and recovery (Steffen et al. 2015). It thus lies between what the authors identify as the ‘safe zone’ and other ‘high risk’ transgressions, such as disruption to the biochemical flows of nitrogen and phosphorus and loss of biosphere integrity.

As part of their discussion of BRIHN Baum and Handoh (2014) note that climate change is the planetary boundary for which the risk to humanity has received most meaningful consideration and they suggest that this attention is deserved. Yet little research attention has been paid to climate change’s extreme or catastrophic effects. Kareiva and Carranza (2018) argue that, despite currently falling outside of the area of high risk, climate change has the clear potential to push humanity across a threshold of irreversible loss by “changing major ocean circulation patterns, causing massive sea-level rise, and increasing the frequency and severity of extreme events… that displace people, and ruin economies.” Even if humanity was resilient to each of these individual impacts, a global catastrophe could occur if these impacts were to occur rapidly and simultaneously.

One scenario that has received comparatively more attention is that of the global climate crossing a tipping point that would trigger environmental feedback loops (such as declining albedo from melting ice or the release of methane from clathrates) and cascading effects (such a shifting rainfall patterns that trigger desertification and soil erosion). After this point, anthropogenic activity may cease to be the main driver of climate change, making it accelerate and become harder to stop (King et al. 2015).

Other scenarios can be discerned from the numerous historical cases in which the modest, usually regional, climatic changes experienced during the Holocene have been implicated in the collapse of previous societies, including the Anasazi, the Tiwanaku, the Akkadians, the Western Roman Empire, the lowland Maya, and dozens of others (Diamond 2005, Fagan 2008). These provide a precedent for how a changing climate can trigger or contribute to societal breakdown. At present, our understanding of this phenomena is limited, and the IPCC has labelled its findings as “low confidence” due to a lack of understanding of cause and effect and restrictions in historical data (Klein et al. 2014). Further study and cooperation between archaeologists, historians, climate scientists and global catastrophic risk scholars could overcome some of these limitations by identifying how the impacts of climate change translate into social transformation and collapse, and hence what the impacts of more rapid and extreme climatic changes might be. There is also the potential for larger studies into how global climate variations have coincided with collapse and violence at the regional level (Zhang 2005; 2006). However, these need to be interpreted and generalized with care given the differences between pre-industrial and modern societies.

Societies also have a long history of adapting to, and recovering from, climate change induced collapses (McAnay and Yoffee 2009). However, there are two reasons to be sceptical that such resilience can be easily extrapolated into the future. First, the relatively stable context of the Holocene, with well-functioning, resilient ecosystems, has greatly assisted recovery, while anthropogenic climate change is more rapid, pervasive, global, and severe. Large-scale states did not emerge until the onset of the Holocene (Richerson et al, 2001), and societies have since remained in a surprisingly narrow climatic niche of roughly 15 mean annual average temperature (Xu et al, 2020). A return to agrarian or hunter-gatherer lifestyles could thus have more devastating and long-lasting effects in a world of rapid climate change and ecological disruption (Gowder 2020).[12] Second, modern human societies may have developed hidden fragilities that amplify the shocks posed by climate change (Mannheim 2020) and the complex, tightly-coupled and interdependent nature of our socio-economic systems makes it more likely that the failure of a few key states or industries due to climate change could cascade into a global collapse (Kemp 2019b).

A third set of plausible scenarios stem from climate change’s broader environmental impacts. Apart from being a planetary boundary of its own, Steffen et al. (2015) point out that climate change is intimately connected with other planetary boundaries (see Table 1). Climate change is thus identified by the authors as one of two ‘core' boundaries with the potential “to drive the Earth system into a new state should they be substantially and persistently transgressed.” This transformative potential was elaborated on in subsequent work exploring how the world could be pushed towards a ‘Hothouse Earth’ state, even with anthropogenic temperature rises as low as 2°C (Steffen et al. 2018).

[Figure omitted]

The connection between climate change and biosphere integrity (the survival of complex adaptive ecosystems supporting diverse forms of life) is particularly strong. The IPCC is highly confident that climate change is adversely impacting terrestrial ecosystems, contributing to desertification and land degradation in many areas and changing the range, abundance and seasonality of many plant and animal species (Arneth et al. 2019). Similarly, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has reported that climate change is restricting the range of nearly half the world’s threatened mammal species and a quarter of threatened birds, with marine, coastal, and arctic ecosystems worst affected (Diaz et al. 2019). According to one estimate, climate change could cause 15-37% of all species to become ‘committed to extinction’ by mid-century (Thomas et al. 2004).

Disruption to biosphere integrity can have profound economic and social repercussions, ranging from loss of ecosystem services and natural resources to the destruction of traditional knowledge and livelihoods. For instance, desertification, which threatens a quarter of Earth’s land area and a fifth of the population, is already estimated to cost developing nations 4-8% of their GDP (United Nations 2011). Many other rapid regime shifts involving loss of biosphere integrity have been observed, including shifts in arid vegetation, freshwater eutrophication, and the collapse of fish populations (Amano et al. 2020). There is a theoretical possibility of still more profound regime shifts at the global level (Rocha et al. 2018). However, the contribution of loss of biosphere integrity to GCR is yet to be assessed. Kareiva and Carranza (2018) argue that it is unlikely to threaten human civilization, due both to a lack of plausible mechanisms for this threat and the fact that “local and regional biodiversity is often staying the same because species from elsewhere replace local losses.” However, in their classification of GCRs, Avin et al. (2018) suggest the potential for ecological collapse to threaten the safety boundaries of multiple critical systems with diverse spread mechanisms at a range of scales, from the biogeochemical and anatomical to the ecological and sociotechnological. Note that both these studies were conducted for largely conceptual purposes and should not be taken as rigorous analyses of this risk, this topic warrants further investigation.

3.2 Classifying Climate Change’s Contributions to Global Catastrophic Risk

Climate change's contribution to GCR goes well beyond its impact on the earth system. Taking Avin et al.’s list of critical systems, we note that previous studies have mostly focused on the effects of climate change on physical and biogeochemical systems (e.g. global temperature and sea-level rise) or the lower-level critical systems that are most directly related to human health and survival (e.g. Heath Stress). However, these represent a very limited assessment of risk as it only accounts for climate change as a direct hazard/threat and our "ontological" vulnerabilities to it. A more comprehensive risk assessment must consider the higher-order critical systems threatened by climate change passively (through a lack of alternatives) and actively (through intentional design).

The probability of a global catastrophe is higher when socio-technological and environmental systems are tightly coupled, creating a potential for reinforcing feedback loops. If environmental change produces social changes that perpetuate further environmental change, then this could actively work against our efforts at adaptation. When this change has the potential to produce significant harm, via human vulnerabilities and exposure, we describe such loops as ‘global systems death spirals.’ These spirals could produce self-perpetuating catastrophes, whereby the energy and resources required to reverse or adapt to collapse are beyond the means of dwindling human societies. Feedback loops like this could thus create tipping points beyond which returning to anything like present conditions would become extremely difficult. Global systems would shift to very different states in which the prospects for humanity would likely be bleaker.

In the rest of this section, we explore just one potential spiral, between an ecological system (the biosphere) and two sociotechnological systems (the human food and global political systems). We explore each system and its interactions. Figure 2 illustrates our model of this spiral.

[Figure omitted]

The human food system

Climate change’s impact on biosphere integrity (discussed in the previous section) could harm the human food system due to loss of ecosystem services, disruption of the cycles of water, nitrogen and phosphates, and changes in the dynamics of plant and animal health (Bélanger and Pilling 2019). Crossing this planetary boundary is already having severe implications for global food security, including loss of soil fertility and insect-mediated pollination (Diaz et al. 2019).

Systems for the production and allocation of food are already enduring significant stress. The sources of stress include climate change, soil erosion, water scarcity, and phosphorus depletion. The natural resource base, arable land and freshwater upon which food production rely are being degraded. While global food productivity and production has increased dramatically over the past century to meet rising demand from an expanding global population and rising standard of living, these constraints and risks are increasing the vulnerability of our global food supply to rapid and global disruptions that could constitute global catastrophes (Baum et al. 2015).

Climate change will further reduce food security in at least three interconnected ways. First, it will affect growing conditions, including direct threats to agricultural yields from heat, humidity, and precipitation in many regions; although initially improving conditions in some (Lott, Christidis and Stott 2013). Second, it will increase the range of agricultural pests and diseases (Harvell 2002). Third, it will increase the occurrence of extreme weather events that impair the integrity of food production and distribution networks, from production to harvest, post-harvest, transport, storage, and distribution, thereby increasing our vulnerability and exposure to supply shocks (Bailey et al. 2015). The IPCC estimates, with medium confidence, that at around 2°C of global warming the risk from permafrost degradation and food supply instabilities will be ‘very high’, while at around 3°C of global warming the risk from vegetation loss, wildfire damage, and dryland water scarcity will also be very high (Arneth et al. 2019). Very few studies have considered the impacts of 4°C of global warming or more; however, the IPCC highlighted one study finding that any potential agricultural gains from climate change will be lost by this point and there could be a decrease of 19% in maize yields and 68% in bean yields in Africa, an 8% reduction in yields in South Asia, and a substantial negative impact on fisheries by 2050 (Porter et al. 2014). Furthermore, multiple extreme weather events could disrupt food distribution networks (Baily and Wellesley 2017).

While there are opportunities to adapt, disruption to the entire global food system cannot be resolved via food aid alone. Indeed, there is the potential for isolationist or heavy-handed responses that would do more harm than good. Given the high degree of interconnectivity and feedback within the global food system, our initial research suggests that any one of these climate change effects could trigger scenarios that would critically undermine the global food system’s ability to meet the minimum nutrition for well-being; making food security for all an unachievable goal, let alone rise to the challenge of continuing to grow (Tzachor 2019a; 2020); this would constitute what Kuhlemann (2019) terms a ‘threshold of significance.’

The global political system

Disrupting the global food system can create and exacerbate conflict and state failure (Brinkman and Hendrix 2011). However, once again, this needs to be seen against the backdrop of a global political system under stress, with climate change as a significant contributing factor. Climate change influences political systems in many ways, from being a locus of activism and a stimulus for reform to driving rising inequality and population displacement (Arneth et al. 2019, Diffenbaugh and Burke 2019). This is not a new phenomenon, changes in the climate are believed to have contributed to conflict between people and states throughout human history, driven by resource scarcity, population displacement, and inequality (Lee 2009, Mach et al. 2019). As part of a comprehensive risk assessment of climate change, David King and colleagues (2015) conducted an extensive literature review on climate change and conflict and used this to inform a series of international wargaming exercises. These found that climate change is expected to increase international conflict while highlighting the role that population displacement, state failure, and water and food insecurity would play in this (see also Natalini, Jones and Bravo 2015, Mach et al. 2019).

Quantitative studies of the impact of climate change on violence and conflict have provided more mixed results. A survey of empirical studies by Detges (2017) found that there may be multiple differing trends: extreme weather events appear to have more significant effects on violence than do long-term climate trends, while levels of small-scale conflict and interpersonal violence appear to be more affected than large-scale conflicts and international war. Empirical studies also highlight how climate change’s impact on conflict is predominantly as a risk multiplier and intensifier. Thus, climate change may contribute more by increasing our vulnerability to other conflict-inducing factors, such as loss of livelihood, forced migration, environmental change, and food insecurity, than by acting as a direct cause of conflict (Schubert et al. 2008, Hsiang et al. 2013, Abel et al. 2019).[13]

Of particular relevance to GCR is the effect of climate change on the risk of nuclear war (Parthemore, Femia and Werrell 2018). However, to our knowledge, this has never been rigorously assessed, although the potential is certainly there. One recent model of the risk of nuclear war highlighted how varied, and common, incidents with the potential to trigger a nuclear exchange are (Baum, de Neufville and Barrett 2018). It outlined 14 different causal pathways to an exchange, including the escalation of conventional wars and international crises, human error, and the emergence of new non-state actors. For all but two of these, they identify historical examples of potentially precipitating incidents, with 60 incidents in total (i.e. a little less than one a year). This suggests that the absence of nuclear war was less due to a lack of potential causes, than the global political system’s ability to defuse them. Thus, the real significance of climate change may be its capacity to undermine this system: the combination of social, political, and environmental disruption, a lingering sense of global injustice, and rising food, water, and energy insecurity could increase the probability that crises escalate or that false alarms are mistaken for genuine emergencies. This topic needs further research.

3.3 The emergence of a global systems death spiral

Yet, we should not conclude that a nuclear exchange is the only, or even most likely, scenario in which political instability might produce a global catastrophe. Conflict and political instability, even of moderate severity, are themselves two of the most significant drivers of biodiversity loss due to breakdowns in monitoring, governance, and (public and private) property rights (Baynham-Herd et al. 2018). This closes a potentially reinforcing feedback loop between loss of biosphere integrity, food insecurity and political breakdown.

The mechanisms by which these cascading failures might spread include many of the natural, anthropogenic, and replicator effects identified by Avin et al. (2018), making them harder to contain. At the natural level, climate change involves changes to the global atmospheric and biogeochemical systems and poses other naturally spreading harms, like global ecological collapse. At the anthropogenic level, the global interconnectedness of sociotechnological systems means that while small shocks are easier to recover from, larger shocks can be harder to contain and control. Finally, biological and informational replication can also spread the negative impacts of climate change, from vector-borne diseases and invasive species to climate fatalism and dangerous geoengineering technologies.

Given these numerous spread mechanisms, critical system failures could precipitate global catastrophes. Furthermore, the spiral we have explored is unlikely to be the only set of interlinked systemic disruptions that climate change could initiate (other death spirals could involve bio-insecurity and disease), nor are these the only causal connections between these three systems. Until we understand the nature of such death spirals better, we must act cautiously. We now turn to consider what this would mean.

#### Federal antitrust signals a balanced, light-touch approach that reinvigorates U.S. global leadership on blockchain.

Matt Sandgren 21, Former Staff Director of the Senate Republican High-Tech Task Force, Former Senior Counsel on the Senate Judiciary Committee, Final Chief of Staff to Senator Orrin G. Hatch, Executive Director of the Orrin G. Hatch Foundation, “How New Regulations from Washington Could Lead to a Blockchain Brain Drain”, The Hill, 10/27/2021, https://thehill.com/blogs/congress-blog/technology/578834-how-new-regulations-from-washington-could-lead-to-a-blockchain

The internet is what it is today—with its ability to connect people across countries, time zones, and cultures—thanks to the friendly regulatory climate it was born into. Sadly, the regulatory climate of 2021 is far less welcoming to disruptive technologies. This is bad news for the future of U.S. innovation and the emerging blockchain industry.

Whether Washington takes a heavy-handed or a light-touch approach to crypto regulation over the next few months could make a multitrillion-dollar difference over the next few years. To understand how much we stand to lose as a result of bad blockchain policy, it’s first important to understand just how much we have gained as a result of good internet policy in the ’90s.

It’s easy to forget that the success of today’s internet behemoths was anything but certain in the early years of the tech boom. During the Dotcom Bubble of the late '90s, for example, many companies were dismissed as scams (and some of them were). But even the most promising companies were still seen as speculative bets, and their stock prices were subject to extreme volatility.

It’s also easy to forget that the very concept of the internet was foreign to most people in its early years. By today’s standards, it was slow, overly complex, and difficult to use by anyone without a strong technical background. Many dismissed the internet as a fad, including Nobel Prize-winning economist Paul Krugman, who made this prediction in 1998: “By 2005 or so, it will become clear that the internet’s impact on the economy has been no greater than the fax machine’s.”

Noted.

“A scam,” “a fad,” “a bubble,” “overly complex,” “too volatile.” Does any of this sound familiar? History doesn’t rhyme so much as it plagiarizes. And it’s impossible to ignore that the crypto skeptics of today use the same vocabulary as the internet naysayers of yesteryear.

Now imagine if U.S. policymakers had heeded the words of the internet’s critics in the mid-to-late ’90s. Imagine if they had cracked down on e-commerce, digital publishing, and fledgling social media platforms to preserve the old way of doing things. Imagine if they had shaped regulations to stem the free flow of physical goods, ideas, and information made possible by the internet.

The American people would have missed out on trillions of dollars in economic opportunity—and the bounties of the digital age would have gone to countries with more tech-friendly policies.

This is the risk we face today.

We find ourselves at the dawn of a new age of American innovation. Like the internet before it, crypto has the potential to redefine everything we know about how business, politics, media, finance, and even relationships work. But if legislators give in to crypto’s critics by taking a draconian approach to regulation, the U.S. will fail to reap the economic rewards of this world-changing technology—and entrepreneurs will flee to friendlier shores.

Even now, the stage is being set for a blockchain brain drain. Take the Senate-passed infrastructure bill, which includes a provision that would define crypto miners, validators, and even software developers as “brokers,” requiring them to report information to the IRS about anonymous blockchain participants that they would have no way of obtaining. In effect, this provision would kill the nascent DeFi (decentralized finance) industry and make it almost impossible for everyday Americans to invest in new cryptocurrencies. In other words, this latest move sends a hostile message to blockchain advocates: “We don’t want you here.”

At best, the Senate proposal belies a gross misunderstanding of how cryptocurrencies work; at worst, it exposes regulatory capture and the willingness of legislators to give in to special interests.

Sadly, the threat of bad regulation doesn’t end there. SEC Chair Gary Gensler has expressed his belief that many digital assets are not commodities but securities and should be regulated as such. Following this same logic, he’s signaled his intent to crack down on the use of stable coins—cryptocurrencies pegged to the value of the U.S. dollar. Americans are using stable coins to earn 4 to 8 percent APY on their savings through various lending programs. But the SEC wants to put a stop to these lending programs, ostensibly “to protect investors.” (What’s unclear is which government agency will protect investors from the unlimited money printing that is devaluing their dollar savings at a rate of 5.3 percent per year.)

Washington has gotten off on the wrong foot when it comes to crypto. But it’s not too late to correct course.

Regulation of crypto is not necessarily a bad thing. In fact, it’s a key step on the path to mainstream adoption. It’s critical, however, that policymakers shape regulation in a way that minimizes the risks of this new technology without eliminating its benefits. Congress found a way to do this with the internet in the ’90s. Section 230—while far from perfect and in need of reform today—paved the way for a flexible regulatory environment that allowed for many online companies to thrive. In the famous words of Jeff Kosseff, Section 230 contains “the 26 words that created the internet” (and, it’s worth adding, “trillions of dollars in economic wealth”).

Indeed, regulatory clarity is key to extracting maximum value from the emerging crypto economy, whether that value comes from DeFi protocols, decentralized forms of social media, tokenized assets, NFTs, or some other application of blockchain technology that we can’t even imagine today.

As policymakers seek to find the right balance on regulation, they should remember that the U.S. didn’t become the tech capital of the world by choking innovators with red tape. The U.S. became what it is today by taking a prudential approach to regulation—one that enabled the entrepreneurial spirit.

This is the same entrepreneurial spirit that inspired the private sector technological advances that made the Apollo moon landing possible. It’s the same spirit that brought about smartphones millions of times more powerful than the Apollo 11 guidance computers. And it’s the same spirit that has motivated a group of visionaries to push the boundaries of the digital frontier through blockchain technology.

Will Washington’s leaders stifle that spirit to the detriment of our economy and our reputation as a global leader in innovation? Or will they nourish that spirit to usher in the next chapter of the digital revolution?

Let’s hope they choose the latter.

#### That allows international standard-setting that leverages it for public benefits internationally.

Lou Kerner 18, Head Crypto Analyst at Quantum Economics, Partner at Blockchain Coinvestors Acquition Corp, MBA from the Stanford University Graduate School of Business, BA in Economics from UCLA, “A Call For U.S. Leadership in Crypto”, Medium, 7/6/2018, https://loukerner.medium.com/a-call-for-u-s-leadership-in-crypto-4b74d6deb4ad

Despite the striking fact that most of the programmers the U.S. has ever known are alive and working today, despite the fact that the U.S.’s technical capabilities are growing exponentially, despite that, the vast stretches of the unknown and the unanswered and the unfinished still far outstrip our collective comprehension.

No man can fully grasp how far and how fast we have come, but condense, if you will, the 50,000 years of man’s recorded history in a time span of but a half-century. Stated in these terms, we know little about the first 40 years, except at the end of them man had learned to use the skins of animals to cover them. Then 10 years ago, under this standard, man emerged from his caves to construct other kinds of shelter. Five years ago man learned to write and use a cart with wheels. The printing press came this year, and two months ago, the steam engine provided a new source of power. Last month electric lights and telephones and automobiles and airplanes became available. Only last week did we develop penicillin and television. Two days ago the internet browser was introduced. And earlier today, Satoshi wrote his white paper.

This is a breathtaking pace, and such a pace cannot help but create new ills as it dispels old, new ignorance, new problems. Now, when refer to “Crypto”, I mean the four technologies (blockchain, cryptocurrency, smart contracts, and zero knowledge proof), which collectively enable decentralization, all fueled by community. Surely these technologies promise disruption and high reward.

So it is not surprising that when it comes to Crypto our government would have us stay where we are a little longer to rest, to wait. But this city of New York, and this country of the United States was not built by those who waited and rested and wished to look behind them. Technological breakthroughs are driven by those who move forward — and we will continue to do so.

If this capsule history of our progress teaches us anything, it is that man, in his quest for knowledge and progress, is determined and cannot be deterred. The development of Crypto will go ahead, whether the U.S. regulators joins in or not. And I believe Crypto is one of the great adventures of all time, and no nation which expects to lead the world in technology can expect to lead while staying behind in the development of Crypto.

Our forefathers made certain that the U.S. rode the first waves of the industrial revolutions, the first waves of modern invention, and the first wave of the internet. This generation does not intend to founder in the backwash of the coming age of Crypto. We mean to be a part of it — we mean to lead it. For the eyes of the world will increasingly look at Bitcoin and blockchain and beyond. And those of us in Crypto are working to see it governed by a banner of freedom. We have vowed that we shall not see Crypto filled with scammers, but with scalable protocols that make the world a better place.

Yet the promise of Crypto can best be fulfilled if we in this Nation are there, and leading the way. In short, our leadership in technology, our hopes for a better future, our obligations to ourselves as well as others, all require us to make this effort, to solve these mysteries, to solve them for the good of all men, and to become the world’s leading Crypto nation.

We set sail on this new sea because there is new knowledge to be gained, and new rights to be won, and they must be won and used for the progress of all people. For Crypto, like all of technology, has no conscience of its own. Whether it will become a force for good or ill depends on [hu]man[s], and only if the United States occupies a position of pre-eminence can we help decide how this new technology evolves. I do not say that we should or will go unregulated against the misuse of Crypto any more than we go unprotected against the hostile use of cyber warfare. But I do say that Crypto can be developed and mastered without repeating the mistakes of past regulatory overreach.

Crypto’s development deserves the best of all [hu]mankind and its opportunity for community. But why, some say, Crypto? Why choose this as our next computing platform? And they may well ask why climb the highest mountain? Why, 75 years ago, fly the Atlantic?

We choose to to develop Crypto, and do the other things, not because they are easy, but because they are hard, because the goal of decentralization will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win.

It is for these reasons that I’m concerned by the inaction of our government to provide greater regulatory clarity. In the last months, we’ve seen progress in scaling like the Lightning Network. We’ve seen securities infrastructure like Templum and OpenFinance and Polymath being built.

To be sure, from a regulatory standpoint, we are behind. But we should not stay behind. This year, we should make up and move ahead. The growth of our science and education will be enriched by new knowledge of Crypto, by new decentralized governance mechanisms, by new token economics.

The Crypto community itself, while still in its infancy, has already created a great number of new companies, and tens of thousands of new jobs. Crypto is generating new demands in investment and skilled personnel, and New York and the U.S. can share greatly in this growth.

To be sure, all this comes with uncertainty of the role of government and fiat in the future. I recognize that the belief in Crypto’s potential is in some measure an act of faith , for we do not now know what benefits await us.

But I believe that we can develop a decentralized currency that can be used as a means of exchange. I believe we can leverage blockchain technology to provide identity for the 23 million children on this planet without identity papers. I believe we can use these technologies for voting purposes, and ensuring our elected officials follow through on their promises.

However, if we’re going to do all those things, and countless other positive things for mankind, then we must pass accommodating regulations. I‘m encouraged that New York and the United States are playing a big part in the development of Crypto,. With more regulatory clarity, we can solidify our leading position in Crypto, the greatest adventure on which [hu]man[ity] has ever embarked.

#### Globally collaborative blockchains prevent nuclear war from miscalc, accidents, and arms racing AND builds global co-op, stopping existential threats.

Dr. Lyndon Burford 21, PhD in Politics and International Relations from the University of Auckland, Visiting Research Associate at the Centre for Science and Security Studies at King’s College London, Member of the New Technologies for Peace Working Group, a Part of the Vatican’s COVID-19 Commission, “Could Blockchain Technology Help Advance Nuclear Disarmament?”, Medium International Affairs Blog, 2/19/2021, https://medium.com/international-affairs-blog/could-blockchain-technology-help-advance-nuclear-disarmament-6efaab35e277

New and maturing technologies are often seen as possible drivers of conflict, not least in the context of rising nuclear risks. In 2019, for example, the UK House of Lords Select Committee on International Relations concluded, “The risk of the use of nuclear weapons has increased, in the context of rising inter-state competition, a more multipolar world, and the development of new capabilities and technologies.” In a recent policy report published by the Centre for Science and Security Studies at King’s College London, I explored the flipside of that coin. The trust machine: blockchain in nuclear disarmament and arms control verification looks at how blockchain technology could help to reduce nuclear risks, by strengthening systems to verify the dismantlement of nuclear warheads.

The ‘trust machine’

Blockchain is best known as the technology that underpins the cryptocurrency Bitcoin, but it already has a wide range of alternative uses in areas such as medicine, transport, manufacturing, finance and governance. During the COVID-19 crisis, blockchain was used to produce a cheap, reliable solution for contact tracing. In Syria, blockchain is being used to create a permanent record of potential war crimes, increasing the security and integrity of the data and strengthening its admissibility as evidence in future war crimes prosecutions.

Contests of legitimacy and value: the Treaty on the Prohibition of Nuclear Weapons and the logic of…

Blockchain is a de-centralized, digital record-keeping technology. It combines cryptography and social/economic incentives to build a shared, permanent, and virtually un-hackable record of events, without needing to trust a third party authority to manage the data. Unlike Bitcoin, which is a ‘public’ network that allows anyone to interact with it, a private blockchain creates a ‘permissioned’ network of participants who collectively store and manage data in a way that allows them to maintain extremely high confidence in the integrity of the data. The result is a shared, digital record of events — a blockchain — that is practically immutable, establishing a single, collective, and irrefutable ‘truth’ about the nature and sequence of events within the network. In a post-truth world, blockchain thus offers an invaluable technical foundation for cooperation among parties that have a limited basis to trust each other, leading to its nickname, ‘the trust machine’.

Blockchain as a disarmament mechanism

At present, extremely low levels of international trust hamper efforts to advance nuclear disarmament. The ongoing development of new nuclear weapons, warheads and increasingly capable ballistic missile defences are undermining the theories and practices of deterrence, and point to the resurgence of a spiral of mistrust that characterized the Cold War nuclear arms race. Developing robust, multilateral verification tools and processes could help to mitigate the trust deficit. It would enable countries to pursue their shared interests in nuclear disarmament — reduced costs, less chance of escalation and nuclear use, greater scope to cooperate on global threats like climate change and pandemics — by increasing confidence that other countries are fulfilling their disarmament commitments in good faith. One way to strengthen verification would be to use a private blockchain to manage and store the data that a disarmament process creates.

In a verified disarmament process, parties need to track and record things like the status and movements of individual inspectors and weapon parts, and the status and material holdings of different facilities. These activities create large amounts of data that need to be stored in a secure, permanent and transparent manner that also allows for its easy retrieval by permissioned actors. The core attributes of blockchain correspond closely to these requirements. The technology would allow parties to maintain very high confidence in the immutability of verification data, creating a strong technical foundation for future cooperation from a shared, trusted baseline.

International collaborations like the 25-country International Partnership for Nuclear Disarmament Verification and the Quad Nuclear Verification Partnership (made up of Norway, Sweden, the United Kingdom and the United States) are already exploring how nuclear-armed and non-nuclear-armed states can cooperate in verifying the dismantlement of nuclear warheads without revealing sensitive information. Blockchain could complement their approach, enabling countries to create a permanent, immutable record of verification data.

Nuclear weapons threaten the survival of humanity and divert tens of billions of dollars each year away from efforts to address other collective security challenges like mitigating and adapting to climate change and responding to pandemics like COVID-19. As such, we all share an interest in disarmament processes that can reduce the likelihood of deliberate or accidental nuclear explosions and free up urgently needed resources for other global security priorities. We owe it to ourselves and to future generations to consider all options that could help to advance nuclear disarmament. In addressing the regular obstacle of distrust between the nuclear powers, blockchain is one technological option that we should be exploring.

#### It ensures a credible verification system.

Michal Onderco & Madeline Zutt 21, Associate Professor, International Relations, Erasmus University Rotterdam; Research Associate, Erasmus University Rotterdam, "Emerging Technology and Nuclear Security: What Does the Wisdom of The Crowd Tell Us?" Contemporary Security Policy, Vol. 42, Issue 3, pg. 299-302, 2021, T&F.

Our third finding focuses on whether emerging technologies could enhance or impede nuclear disarmament efforts. Some work has already exposed how new technologies have the potential to strengthen nuclear disarmament and verification measures. A prototype “SLAFKA” was recently jointly developed by a nuclear regulator in Finland (STUK), the University of New South Wales in Australia, and the Stimson Center in the United States which tests whether a distributed ledger technology (DLT) can effectively safeguard nuclear material (Stimson Center, 2020). A DLT platform is “a system of electronic records that enables independent entities to establish consensus around a “ledger”—without relying on a central coordinator to provide the authoritative version of the records” (Rauchs et al., 2018, p. 23). Blockchain is the most well-known type of distributed ledger. Importantly, blockchain is structured in such a way that all who participate in the shared ledger must agree upon a set of records or data, and this data cannot be changed or tampered with by one actor alone (Rockwood et al., 2018). When it comes to accounting for nuclear materials, blockchain could be used by member states to confidentially and securely provide data to the IAEA (Vestergaard, 2018). By using a shared ledger system, the transmission of data by a member state would be visible to other member states, while maintaining the anonymity of participants (Rockwood et al., 2018).

In a recent report, Burford (2020) notes that the characteristic features of blockchain, namely its immutability and security as a data management tool, are uniquely suited to “help to build technical capacity among [non-nuclear weapons states] and habits of cooperation among NPT parties, while protecting proliferation-sensitive data” (p. 21). Finally, others have noted that advances in image-recognition software combined with the increased sophistication in and availability of satellite imagery could open up space for more actors to get involved in verification activities (Kaspersen & King, 2019). This would make verification more robust by allowing a greater number of states to participate in what has traditionally been the domain of states that are more technologically superior.

The security, transparency, and confidence-building features of these emerging technologies could thus enhance verification by strengthening the safeguards system as well as increasing trust and cooperation among states normally suspicious of one another. These features could prove useful in helping to close both institutional and compliance gaps within the non-proliferation regime. That said, as with any other global governance regime, a compliance gap is very difficult to fully bridge. On this point, Sagan notes that even with advances in verification technology “there will remain the problem of what to do if an erstwhile nuclear nation is caught secretly preparing to rearm” (see Sagan in Sagan & Waltz, 2010, p. 90). While the inclusion of new technologies in verification and safeguards will not wipe away the challenges associated with verification, emerging technologies can play a role in strengthening verification and safeguarding measures.

Since we were interested in whether the experts and policymakers considered the positive applications of new technologies on disarmament efforts, our final question in the survey asked experts to express their views on nuclear disarmament.

Table 3 illustrates that the majority of our experts across regions agreed that complete nuclear disarmament would happen when leaders are confident that technology will allow for its verification, underlining the pivotal role verification plays in disarmament. This was echoed by some of the policymakers whom we spoke to who said that AI and remote sensing could help make verification measures more robust (Interviewee I & F). On the other hand, Table 3 also highlights that European and American experts are more skeptical (than experts in other regions) of the fact that nuclear disarmament will occur when leaders believe new technologies make nuclear weapons unnecessary.

#### Policy must be certain and originate at the federal level to signal U.S. commitment to accommodative blockchain policy.

Michele Benedetto Neitz 21, Professor of Law at the Golden Gate University School of Law, Member of the California Blockchain Working Group, Affiliated Scholar at LexLab at the U.C. Hastings College of the Law, “How to Regulate Blockchain's Real-Life Applications: Lessons from the California Blockchain Working Group”, Jurimetrics Journal, 61 Jurimetrics J. 185, Winter 2021, Lexis

A. Why Create Laws Related to Blockchain Technology?

1. Protecting the Public from Harm

Blockchain technology is a complicated field, and innovation in this space is developing rapidly. This innovation will occur regardless of a legislature's reluctance or willingness to draft laws to regulate this industry. As state and federal legislators are struggling to define a regulatory scheme, members of the public who are excited about the possibilities of investing in something new like digital assets may suffer from harm.

This has, of course, already happened in various ways. In a recent high-profile example, members of the public were invited to invest in initial coin offerings (ICOs), buying tokens as a way to invest in start-up companies. 25 One study reported that approximately 78 percent of the ICOs offered in 2017 were actually scams. 26 In the United States, 33 percent of ICO investors believe that ICO operators "deceived them or withheld information from them." 27 The ICO market significantly cooled as federal prosecutors and the SEC began aggressively taking action against leaders of fraudulent ICOs, demonstrating how regulatory enforcement can indeed protect investors from harm. 28

[\*190] However, cryptocurrency scams are persisting beyond the ICO craze. The FTC recently warned the public that scammers are continually finding new ways to "trick people." 29 Members of the public are clearly at risk of a multitude of foreseeable--and unforeseeable--problems as applications of this technology develop, including fraudulent investments, breaches of privacy on blockchain platforms, digital identity theft, and insufficient data protection. Given these threats to the public, it is not appropriate for regulators to dawdle as blockchain applications continue to rapidly advance.

2. Attracting Innovation

While they work to protect the public, legislators and regulators can also use laws to signal their commitment to attracting blockchain-related companies to their locations. Some jurisdictions, including countries like Estonia and Switzerland 30 and U.S. states like Wyoming, 31 have already implemented regulatory schemes designed to win the interjurisdictional competition for blockchain business. 32

The resulting tension between protecting the public while promoting innovation lies at the heart of regulating digital assets and other applications of blockchain technology, as discussed in more detail in Section III.A. Despite the need for blockchain-related regulation, numerous challenges exist for lawmakers seeking to draft laws in this area--starting with the fact that the word "blockchain" does not have a commonly understood definition.

B. The Legislative Definition Problem

What is the legal definition of blockchain? This simple question has proved to be exceedingly difficult to answer. States considering blockchain legislation have focused on different characteristics of this new technology, meaning that "[d]efinitions in legislation introduced in 2018 in California, Florida, Nebraska and Tennessee differ[ed] from those of industry groups and from each other." 33 In some cases, the definitions were in conflict. 34 These inconsistent definitions [\*191] are problematic, as they "actually introduce legal uncertainty where it did not previously exist, and invite unnecessary and expensive litigation." 35

A clear definition of blockchain is necessary for legislative purposes as well, as it is required to help a jurisdiction create clear policies. 36 Moreover, a state's definition should enable policymakers and the public to focus on "the most unique value that the technology can deliver. It should be accessible to and understandable by the public, and yet technically specific enough to ensure that the [jurisdiction] can reap maximum benefit." 37 With such a high bar, legislators have understandably struggled to construct a working definition for this new technology.

The California Blockchain Working Group, after much discussion and debate, created a new definition of blockchain in 2020 for state legislative purposes:

"Blockchain" is a domain of technology used to build decentralized systems that increase the verifiability of data shared among a group of participants that may not necessarily have a pre-existing trust relationship.

Any such system must include one or more "distributed ledgers," specialized datastores that provide a mathematically verifiable ordering of transactions recorded in the datastore. It may also include "smart contracts" that allow participants to automate pre-agreed business processes. These smart contracts are implemented by embedding software in transactions recorded in the datastore. 38

The New York Senate took a simpler approach, defining blockchain as "a mathematically secured, chronological, and decentralized consensus ledger or database, whether maintained via internet interaction, peer-to-peer network, or otherwise used to authenticate, record, share and synchronize transactions in their respective electronic ledgers or databases." 39

Both of these definitions are technically correct, and they both reflect the policy decisions of their respective states. For example, California deliberately used the more flexible term "datastore," instead of "record" or "log," to reflect the verifiability of data shared amongst participants, the many use cases of this type of ledger, and the fact that many datastores could exist at once. 40

[\*192] One could argue that the lack of a uniform statutory definition is partly responsible for the patchwork nature of state blockchain regulation. After all, without a similar definition, it is nearly impossible to set policy goals and pass parallel legislation in multiple jurisdictions. However, the problem of inconsistent definitions is just the tip of the iceberg of interjurisdictional competition. 41 This competition is unlikely to subside even if the federal government or the Uniform Law Commission enacted a well-accepted, standardized definition of blockchain technology.

C. The Fast Pace of Blockchain Technology Development

Law always moves slower than technology. 42 This is partly because lawmakers and agencies can "struggle to capture emerging technologies in dusty regulatory frameworks." 43 For example, securities laws drafted in the 1930s could not have anticipated the sale of digital assets. 44 Even more recently drafted laws and regulations relating to the Internet do not fit blockchain technology. 45 Lawmakers must decide whether to fit this revolutionary technology within existing legal frameworks or start all over with new legislative schemes.

The constantly evolving nature of blockchain technology presents another challenge. This "industry is in its early stages of maturation," making it difficult to determine the initial policy choices that would lead to effective regulation. 46 There are also technical concerns still lurking within blockchain technology, such as locating the "weak points" that might be "gamed by bad actors," which could give rise to unanticipated legal problems. 47

Finally, even at this early stage, lawmakers must consider which aspects of the technology are important enough to regulate. Some of these are obvious, such as cryptocurrency and other forms of digital assets that involve sales to members of the public. But even within this category, it is "still too early to tell exactly which of the drivers of digital asset excitement is dominant," putting [\*193] "regulatory bodies in a tough position." 48 In this way, the wide variety of blockchain projects and the speed at which they are developing creates an additional barrier to effective regulation.

As an example, imagine a developer creates a brand-new digital asset and offers it to the public. How should regulators approach the regulation of this asset? Should regulators first consider the substance of the project, its connection to a decentralized ledger, its effect on consumers' privacy and security, or its potential to evade anti-money laundering and "[k]now [y]our [c]ustomer" laws 49 (or all of the above)? An effective regulatory scheme would need to include rules that are flexible enough to manage future technical developments as well as today's technologies. Otherwise, laws may need to be reconsidered and amended whenever a new technical application emerges.

D. Blockchain Technology's High Learning Curve for Lawmakers

Blockchain technology can be complicated and intimidating, and few lawmakers have training in computer science. A 2016 survey found only that only four of the 535 members of Congress had formal computer science degrees. 50 While the technical aspects of blockchain can be difficult to explain, most legislators can learn enough to understand the fundamentals. 51

New York's State Senate offers a case in point. The Senate's technical advisor reported that in 2019, "staffers and senators asked basic questions about blockchain and distributed ledger technology, prompting [the technical advisor] to develop an explainer presentation." 52 One year later, in 2020, many of the senators "appear more comfortable with the technology, which helps them see the value of [potential] legislation." 53

Legislators need not dive into minor technical details of blockchain to be able to regulate it. It is more important for legislators to focus on the function of blockchain and its practical applications, asking not "what is blockchain?" but [\*194] "what can blockchain do?" 54 Policymakers should focus on the use cases of blockchain, rather than its underlying technology. 55

Professor Angela Walch offered prescriptive recommendations for regulators learning about blockchain, advising them to cultivate their expertise (including self-education), consult with other regulators, follow the activity of standards organizations and academia, and "[w]atch and [l]earn" as the technology stabilizes. 56 Professor Walch also counsels lawmakers to "[a]dopt a [c]ritical [m]indset" in this educational process, to ensure they are not unduly influenced by hype or unreliable sources. 57

Legislators could also learn more about blockchain through the use of legislative working groups or task forces. For example, California's Blockchain Working Group drafted a report in accessible language, enabling state legislators to learn more about the technology and its potential applications for California in one comprehensive document. 58 The federal government has tried to follow this path. In 2019, a bipartisan group of senators proposed a bill directing the Secretary of Commerce to establish a federal Blockchain Working Group in 2019. 59 However, the bill, entitled the "Blockchain Promotion Act," is still currently in committee. 60

As a law professor who taught the first Blockchain and the Law class in San Francisco, I can anecdotally report that blockchain and cryptocurrencies are not easy concepts for nontechnical learners to grasp. However, over the course of one semester, my law students (most of whom did not have any technical training beforehand) were able to draft final reports and presentations not just describing the technology, but also analyzing the use cases deploying the technology. With a bit of time and effort, state and federal lawmakers can understand the potential for blockchain to transform their jurisdictions.

II. FIVE FACTORS FOR LEGISLATIVE CONSIDERATION

In light of the difficult nature of regulating blockchain, this Part offers five factors lawmakers should consider as they work to draft blockchain and crypto regulation.

[\*195] A. Policy Decision: Innovation vs. Protecting the Public Interest

In an ideal world, governments would be able to promote both innovation and the public interest. In reality, however, legislators usually need to debate and choose whether they will prioritize innovative technological development or consumer/public protection. This is especially true in the context of blockchain, since the public perception of blockchain varies widely. Many members of the public first heard of blockchain through Bitcoin, the digital currency. But early illegal use cases of blockchain technology also made headlines, including the infamous Silk Road darknet marketplace 61 and repeated cases of fraudulent theft through Initial Coin Offerings. 62 While the technology is neutral, blockchain can be used in malicious ways that harm the public. 63 Even well-meaning technology can implicate privacy and data protection concerns. 64

It is therefore "essential for both the industry and society that consumers and the capital market are protected from abuse." 65 No state or federal jurisdiction should enable blockchain technology to develop without guardrails to protect the public. The question is where those guardrails should lie. If states wait too long to regulate, the public may be harmed, and the costs of imposing requirements on industries that have already been established will be too great. However, if states develop restrictive regulations too early or the laws "become onerous," 66 businesses will relocate to more friendly jurisdictions. States in this position risk killing off innovation or pushing it to other states. 67 [FOOTNOTE] Blockchain businesses will move for regulatory reasons. See Daniel Kuhn, The Cryptocurrency Act of 2020 Is 'Dead on Arrival,' Washington Tells Sponsors, COINDESK (Mar. 11, 2020, 1:19 P.M.), https://www.coindesk.com/the-cryptocurrency-act-of-2020-is-dead-on-arrival-washington-dc-tells-sponsors [https://perma.cc/AP8X-KULR] ("Many projects are simply choosing to move elsewhere" because of regulatory uncertainty.). [END FOOTNOTE]

Part of the reason blockchain technology's applications are so challenging to regulate is that it "is difficult, if not impossible, for regulators to construct a framework that achieves clear rules, market integrity, and financial innovation." 68 This complex question explains the spirit of experimentation among states discussed in Part V, with some choosing restrictive regulatory structures, some choosing permissive approaches, and others choosing the middle. Regardless [\*196] of a jurisdiction's ultimate direction, legislators drafting blockchain legislation must evaluate how to protect the public while encouraging creative technological development.

B. Ethical Considerations

California was the first (and so far, the only) state to consider ethical considerations in the early stages of regulation. This author published the first law review article analyzing ethics in the blockchain industry in December 2019, 69 and also served as the primary drafter of the Ethical Considerations section in California's Blockchain Working Group report. 70

Depending on the type of blockchain at issue, numerous ethical issues may come up for regulators. For example, the increasing centralization of permissionless blockchains and the rise of permissioned blockchains may raise concerns about personal ethics, such as bias and conflicts of interest. As trends suggest that governance of blockchain systems is moving toward centralization, 71 individuals may have power to influence decisions made on that blockchain. If so, there is a potential for that individual's bias and conflicts of interest to come into play. 72

Although ethical discussions around blockchain appear slower to develop than the technology itself, several paradigms have been put forth advocating ethical considerations in this industry. 73 For example, the World Economic Forum recently asked participants and policymakers to sign on to its "Presidio Principles," an agreement to consider transparency and accessibility, agency and interoperability, privacy and security, and accountability and governance. 74 MIT's Digital Currency Initiative included the topic of blockchain ethics at its 2019 "Cryptoeconomics Systems Summit." 75

[\*197] In addition, the Beeck Center for Social Impact + Innovation at Georgetown University published the "Blockchain Ethical Design Framework," with a focus on six "root issues": "governance, identity, access, verification and authentication, ownership of data, and security." 76 This structure more specifically applies to developers, and is not a code of conduct or a legislative model, but it reiterates the idea that "we all share the responsibility to . . . demand intentional ethical approaches in the design and application of data and technology for social good." 77

California's Blockchain Working Group considered ethical issues related to social impact, including fairness, equity, accessibility, trust and transparency, and sustainability. 78 The Group proposed an ethical framework for the adoption of blockchain technology that is directed toward lawmakers as well as industry players. 79 This framework encompasses three main principles:

i. Address key ethical design goals

a) Seek societal benefit: Maximize good and minimize bad. b) Equity: Does this benefit all Californians, or only a few? c) Efficiency and effectiveness: How can we achieve ethical design and use cases without slowing innovation?

ii. Consider ethical uses of blockchain technology

a) Fairness: Is this technology designed and deployed in a fair, nondiscriminatory manner? b) Accessibility: Design to include the most vulnerable user. c) Responsibility: Anticipate and design for all possible uses. d) Sustainability: Create technology to advance sustainability, public health, and corporate social responsibility.

iii. Minimize unintended consequences

a) Are there unintended biases or conflicts in the design or use of this technology? 80 [\*198] b) Are any populations being unintentionally harmed by the way this technology is developing? c) Does this technology promote violations of local, national, or international law? 81

This useful framework offers guidance to regulators seeking to make sure they do not inadvertently violate ethical considerations, especially with hastily drafted legislation. Two examples illustrate the usefulness of this approach. First, it could be relatively easy to create a certification process for blockchain developers who provide services to the State of California. But will that certification process limit approval to developers with degrees from elite institutions? This type of action would raise equity concerns, as the blockchain industry should be working more toward diversity in gender, cultural backgrounds, and perspectives of industry participants. Second, could companies who advance environmentally sustainable blockchain development receive tax credits from the state? Although different jurisdictions may embrace different ethical principles, legislators should discuss these issues as they contemplate ways to regulate this new technology.

C. Transparency

Since "the rule of law requires transparency," 82 jurisdictions in the United States are governed by transparency laws. The federal government's administrative agencies must abide by the Administrative Procedure Act, which (among other things) orders federal agencies to act "transparently and fairly." 83 California's Bagley-Keene Act requires state boards or commissions (including working groups) to "publicly notice their meetings, prepare agendas, accept public testimony and conduct their meetings in public unless specifically authorized to meet in closed session." 84

Legislators are likely already aware of the government transparency laws in their jurisdiction, but there are other reasons transparency is especially important in the context of blockchain regulation. First, all stakeholders should be given the opportunity to weigh in on laws governing this nascent industry. 85 The industry players on the front line have valuable perspectives to share with legislators, and input from various stakeholders will create more efficient regulation. Moreover, the technology is moving quickly, and there may be applications of blockchain in development that legislators do not even know about yet. As the Cryptocurrency Act of 2020 revealed, 86 drafting laws without the collaboration of diverse stakeholders is ineffective.

[\*199] Second, although blockchain technology may eventually touch all areas of business, members of the public may be unaware of blockchain technology's potential. Legislative debates could double as community education opportunities, allowing people who would not ordinarily be interested in blockchain to attend Working Group meetings, task force briefings, and other public discussions of this new technology. Such meetings could be advertised to nontechnical professions and community organizations, and should be held in easily accessible public places and online. Legislators themselves could reach out to their nontechnical constituents and offer ways to connect them to educators and leaders in the blockchain industry. Such transparency could create a culture of innovation in a particular jurisdiction, while increasing public credibility for whatever regulations eventually develop.

D. Interjurisdictional Competition

States have been competing with each other since the beginning of the republic, and the competition has not decreased as our economy has become more complex. 87 In corporate law, interjurisdictional competitions are a common affair. The state that "wins" the race, creating the environment to attract the most businesses to that state, can secure both tax revenue and additional jobs for state residents. Delaware indisputably won the fight for corporate charters among states, with over 1.5 million legal entities, including 67 percent of all Fortune 500 corporations, incorporated there. 88 The reasons for Delaware's success include specialized legislation that is updated each year to adapt to technical and other changes, as well as a corporate-specific chancery court that can move cases quickly along. 89

When Limited Liability Companies (LLCs) were created in Wyoming in 1977, another interjurisdictional race was on. 90 Despite concerns that interstate LLCs would have problems without uniform LLC statutes among the states, "most states enacted LLC statutes before efforts to develop standardize statutes came to fruition." 91 As a result, only twelve states ultimately adopted uniform acts, and there is less uniformity for LLC statutes than for other business forms. 92

The same is happening now with statutes related to blockchain technology. States who can win the race to attract blockchain businesses to incorporate and domicile in their state can earn more than just increased tax revenues from start-up companies. Such a state could also create a reputation for being friendly to [\*200] technological innovation, a reputation that would have impacts beyond blockchain technology. For this reason, some states (including Wyoming, the first state to draft LLC statutes in 1977) jumped out first to enact permissive blockchain-and crypto-friendly regulations. 93

Before enacting regulations, however, state legislatures should ensure they are clear on the policies underlying those regulations. For example, as discussed in Section II.A above, states should consciously strike a balance between protecting the public and encouraging innovation. Without establishing prioritized policies in advance, a state may win the interjurisdictional competition in the short term but create unintended consequences, such as unnecessary litigation or public harm, in the long term.

E. Uniformity

As a member of the California Blockchain Working Group, this author asked industry leaders in late 2019 what they preferred to see in blockchain regulation. Each of them clearly and unequivocally stated that uniformity of regulation across the United States would be good for business. It would be much easier for blockchain businesses to plan and expand their operations if states were aligned on regulatory issues, particularly in the area of digital assets.

The Uniform Law Commission (ULC) has made several attempts to create a standardized approach to digital asset regulation. 94 In 2017, the ULC proposed the Uniform Regulation of Virtual-Currency Businesses Act to provide "a statutory framework for the regulation of companies engaging in 'virtual-currency business activity.'" 95 An accompanying "Supplemental Act" in 2018 provided rules related to commercial law and the Uniform Commercial Code. 96

These model acts had a short and controversial lifespan. No state enacted the model legislation, and only a handful of states introduced it. 97 Wyoming actively resisted the ULC's request to withdraw Wyoming's pending blockchain [\*201] legislation in favor of adopting the ULC's approach. 98 Wyoming's legislators noted that the ULC's model acts had not yet been enacted by any jurisdictions, and explained why they considered Wyoming's regulatory approach to be the superior one. 99 One month later, the ULC recognized the need to convene a committee to study how the Uniform Commercial Code could be amended in order to "deal with emerging technologies." 100 The ULC urged "states to refrain from enacting legislation pending the result of the committee's work," 101 an act suggesting that the ULC recognized flaws in its proposed acts. 102 Given the ongoing interjurisdictional race described in Section II.D, it seems absurd to ask states to wait on enacting blockchain legislation.

As of December 2020, only one state (Louisiana) had passed a virtual currency licensing statute based on the ULC's uniform act. 103 It is clear that, much like the race for corporate and LLC charters, the uniformity train has left this station. In the absence of federal legislation or effective model acts, states have already invested time and energy into drafting new laws. States like Wyoming, which has "actively decided to lead the charge in ensuring solvent, blockchain based" companies, 104 will not willingly give up their leading positions in this area.

III. THE CURRENT UNEASY MIX OF FEDERAL AND STATE BLOCKCHAIN REGULATION

Federal and state regulators are struggling to keep up with the fast pace of blockchain technology development. This Part will demonstrate how this struggle is creating a wide variety of regulatory approaches.

[\*202] A. Patchwork Agency Regulation

The federal government's attempt to regulate blockchain technology, particularly cryptocurrencies, is (to put it bluntly) a mess. Federal authorities interpret laws relating to blockchain and cryptocurrencies differently. 105 This confusing, piecemeal approach is epitomized by the struggle to determine how to even classify digital currency for regulatory purposes. The Internal Revenue Service (IRS) views cryptocurrency as property, the Securities and Exchange Commission (SEC) classifies such currencies as securities, and the Commodity Futures Trading Commission (CFTC) considers cryptocurrency to be a commodity. 106 There is clearly a need for a unified methodology, even just within blockchain's narrow use case of cryptocurrencies, but this confusion is not a surprising result when "neither Congress nor the SEC has formally elucidated which digital assets are securities and which are not." 107

Different agencies are sending different messages, creating "regulatory whiplash." 108 Some, like the CFTC, are inclined toward experimentation to support blockchain and cryptocurrency development, while others are more cautious. 109 All of the agencies seeking to regulate blockchain technology and its applications would benefit from consideration of the five factors listed in Part III. Below is a short explanation of three distinctive agency approaches.

[\*203] 1. SEC Safe Harbor Provision--A Work in Progress

The SEC missed its chance to establish a clear regulatory framework early in the life span of blockchain technology, instead adopting an approach characterized by delay and a series of reversals on important decisions. 110 The SEC's delay "simultaneously encouraged unscrupulous actors to take advantage of ambiguous regulations" and issue fraudulent tokens to Americans, while "driving away conscientious developers and entrepreneurs" to places with more developed laws. 111 The SEC's attempt to clarify its position in a limited area with the April 2019 issuance of a "Framework for 'Investment Analysis' of Digital Assets" has been called "too little too late." 112

In the meantime, SEC Commissioner Hester Peirce has earned the nickname "Crypto Mom." 113 In early 2020, she offered her take on the legislative problems related to blockchain technology, saying "[i]t is important to write rules that well-intentioned people can follow. When we see people struggling to find a way both to comply with the law and accomplish their laudable objectives, we need to ask ourselves whether the law should change to enable them to pursue their efforts in confidence that they are doing so legally." 114 Peirce clearly views law and regulation as a way to promote, not thwart, the development of blockchain and its use cases.

In February 2020, Peirce proposed a safe harbor provision for firms in the cryptocurrency space selling tokens to the public. 115 Peirce described her proposal as recognizing "the need to achieve the investor protection objectives of the securities laws, as well as the need to provide the regulatory flexibility that allows innovation to flourish." 116 The safe harbor proposal includes disclosure requirements for issuers and good faith obligations to ensure that token issuers are not fly-by-night companies. It also sets forth rules related to the purpose of token issuances and efforts to create liquidity for token users. 117

[\*204] The idea underlying the proposal is to "give new projects some breathing room where they can do their work without fear of being fined, arrested or having their offices raided." 118 This also filters "out the bogus projects that have no intention of building a workable, decentralized product." 119 Peirce appears to be seeking a way to protect consumers from unscrupulous token issuers while allowing companies to move forward with technical developments.

Many members of the blockchain industry welcomed the safe harbor proposal. The General Counsel for a cryptocurrency exchange declared, "Today we both congratulate and thank SEC Commissioner Hester Peirce . . . . This is a great day for the blockchain industry and the United States." 120 But the proposed safe harbor is just that: a proposal. It is not yet law, and may never become law. 121 Even so, the willingness of Commissioner Peirce to think outside of the box with this proposal has reinforced her reputation (and her nickname) within the blockchain community.

2. The Federal Reserve's Digital Dollar

The Federal Reserve revealed in February 2020 that it was working toward a potential central bank digital currency (CBDC). 122 A CBDC, colloquially [\*205] known as a "digital dollar," is not a token based on a decentralized blockchain. 123 It would instead be a "debt notation on a centralized ledger maintained by the Federal Reserve," which would use a centralized database to track consumer or business balances. 124 Individuals could "access funds through digital dollar wallets, which would also be managed by the Fed." 125

Although the digital dollar is different from a crypto asset on a blockchain, the policy issues at hand are quite similar. The Federal Reserve recognizes that these policies include financial stability and legal considerations, such as privacy concerns and protections for data and digital identity safety. However, the Federal Reserve clearly wishes to be on the cutting edge of the digital dollar debate, with one of its members noting that "it is essential that we remain on the frontier of research and policy development regarding CBDC." 126

At the time, there was pressure on the Federal Reserve to begin researching a digital dollar. China is creating a digital yuan, 127 and some argue that the United States is already "falling behind" other countries in developing a CBDC. 128 In addition, the surprise release of Facebook's Libra in 2019 (now rebranded as "Diem") apparently inspired the Federal Reserve to accelerate its research on the potential of a CBDC. 129 The arrival of the COVID-19 pandemic expedited the discussion, as millions of people around the world moved toward cashless payments. 130

The discussion of a digital dollar jumped quickly during the pandemic from the Federal Reserve to Congress. Drafts of congressional emergency pandemic relief legislation in March 2020 included a digital dollar concept to speed up the delivery of stimulus payments. 131 A Congressional Task Force on Financial [\*206] Technology held hearings on the issue in June 2020. 132 Indeed, "the question might be not if digital currencies will find their way into the financial system, but when--and how." 133 As federal lawmakers move toward the creation and regulation of a CBDC, they should be pondering how to encourage innovation while protecting consumers. In addition, anyone involved with the CBDC should consider transparency issues involving the input of multiple stakeholders, as well as ethical considerations such as concerns for unbanked populations.

3. Treasury Department Regulations to Increase Cryptocurrency Transparency

Unlike SEC Commissioner Hester Peirce and the Federal Reserve, U.S. Treasury Secretary Steven Mnuchin has taken a more cautious (and arguably negative) approach to cryptocurrency. 134 In February 2020, Secretary Mnuchin told the Senate Finance Committee that the Treasury Department would be enacting "stricter regulations around digital currencies to help expose 'secret' accounts and other nefarious activities." 135 Although Mnuchin acknowledged that "[w]e want to make sure that blockchain technology moves forward," he also noted that "[w]e want to make sure cryptocurrencies aren't used for the equivalent of old Swiss secret number bank accounts." 136

The goal of Treasury regulations will be to "ensure law enforcement can see where the money is flowing, and that it's not used for money laundering." 137 A March 2020 press release from the Treasury Department announced that the Department had held a meeting of "industry thought leaders and compliance [\*207] experts" on the issue of cryptocurrency regulation. 138 The press release also explained that as these regulations develop, Treasury will remain focused on preventing illegal conduct by "money launderers, terrorist financiers, and other bad actors." 139 The repeated use of such negative terms indicates the Department's adverse stance toward cryptocurrencies, as well as an example of lawmakers and regulators "still cling[ing] to an outdated trope where cryptocurrencies are used to underwrite criminal activity." 140

What can we make of this patchwork approach to regulation among U.S. federal agencies? Some may argue that it is better for the federal government to allow the blockchain industry and cryptocurrency markets to evolve before finalizing a regulatory structure. There can also be benefits to regulatory divergence, such as enhanced innovation as agencies compete to become the preferred regulator in a particular field. However, the absence of "intelligent rules and regulations that provide a clear and predictable framework for investors, issuers, and their lawyers" is complicating that evolution. 141 How can lawyers advise clients--such as start-up companies desiring to operate in the cryptocurrency sphere or offer tokens to investors--if it is unclear how such assets would be regulated? Policymakers are not sufficiently considering important factors, including transparency and uniformity, under this current approach.

Perhaps the problem is a lack of unity among federal agencies, who appear to be tripping over themselves to get in on the digital asset regulatory action. Federal policymakers may be concerned that they are not yet educated enough to make cohesive decisions about overarching regulatory frameworks, or they are waiting for Congress to step up. In any case, this confusion at the federal level is wreaking havoc on the blockchain industry in the United States. Innovative companies must risk inadvertently violating regulations (and having to pay the ensuing fines) just to push the industry forward. 142 Alternatively, companies are choosing to leave the U.S for other jurisdictions with better regulatory [\*208] clarity. 143 Piecemeal regulation among federal agencies is "not a substitute for transparent legislation or judicial rulings to guide market participants." 144

### 1AC---FTC ADV

#### Contention 2 is FTC.

#### FTC credibility is tanked by both unwillingness to launch bold antitrust AND a track record of losing in court, but Khan’s appointment is a window to revamp its policy.

Kiran Stacey 21, Washington Correspondent for The Financial Times, Graduated from Oxford University, Postgraduate Diploma from City University, London, Former South Asia Correspondent, “Washington vs Big Tech: Lina Khan’s Battle to Transform US Antitrust”, Financial Times, 8/10/2021, Lexis

Since taking over at the FTC, Khan has quickly begun to remodel it. Some of these changes look like technical internal reforms, while others are major policy statements. Almost all have been fiercely opposed by Republicans and the business community.

In the past few weeks, Khan has begun holding commission meetings in public - something Democrats say makes the commission more open to scrutiny, but which the two Republican commissioners say makes it harder for them to negotiate compromises.

She has banned staff from making public appearances such as conference panel sessions, saying the commission has too much work to do. She has passed a rule which allows FTC staff greater leeway to pursue investigations in certain priority areas, giving them the power to issue their own subpoenas for documents and testimony.

Khan is also promising to help rewrite the US merger guidelines, a complex set of documents laying out what kinds of evidence regulators look for when deciding whether a merger is illegal.

And, in a pair of crucial decisions, she and her fellow Democratic commissioners voted to rescind two key FTC policy statements.

The first was written in 1995 during Bill Clinton's first term as president, and deemed that companies that had previously proposed unlawful mergers no longer had to notify the FTC before completing future transactions in the same market.

By undoing that policy, Khan said she hoped to stop companies simply trying again and again to complete a merger even after it had been rejected by regulators. The second statement was written in 2015 during the Obama administration and set down limits on when the FTC would prosecute a company for socalled "unfair methods of competition".

"These changes are going to make dealmakers think about things differently," says one senior Democrat working for the commission. "They are not filing an application, we are investigating as to whether there is a violation of the law. That is a fundamentally different way of thinking about things."

Meanwhile, the White House has given the FTC the even bigger task of helping rewrite the rules that underpin the American economy. Under the terms of a sweeping order signed by Biden last month, the commission has been asked to devise rules which would ban companies from stopping employees moving to rivals, and prevent pharmaceutical companies from paying generic rivals not to enter a certain market for a period of time.

The moves have delighted progressives, who say Khan's willingness to push through reform quickly shows she is serious about putting the commission back at the heart of Washington rulemaking and enforcement.

"The commission has been lazy," says Matt Stoller, director of research at the American Economic Liberties Project and a former colleague of Khan at the Open Markets Institute. "It has been a place where you send political cronies who don't have to do any work if they don't want to.

"This is such a different form of politics from the normal bullshit."

Republican concerns But if the reforms have pleased Khan's supporters, they have worried conservatives who say the commission lacks both the legal authority and the institutional capacity to do what is being asked of it.

For example, Khan says she wants to renew the commission's appetite for bringing cases against companies for "unfair methods of competition" - a vague category of corporate behaviour which allows the FTC to act even when there is no merger in question or when a company is not large enough to be a monopoly. She and fellow progressives argue that by not pursuing such cases the FTC has taken away one of its most powerful weapons.

Such behaviour is often very hard to prove, however. When the FTC charged Abbott Labs in 1994 with trying to rig a bid to supply the Puerto Rico government with infant formula, for example, it alleged the company's choice not to bid in one of the rounds provided evidence of collusion with rivals. Abbott Labs' lawyers, however, successfully used game theory to explain why a "no bid" could in fact have made rational economic sense.

More controversial is the idea that the commission is going to start writing wide-ranging new rules of its own, as envisioned in Biden's competition order. This would test the limits of the FTC's powers in both court and on Capitol Hill, critics say, and could end in Congress clipping its wings as it did in 1980 when the FTC was forced to subject its rules to Congressional review.

Sean Heather, senior vice-president for antitrust at the US Chamber of Commerce, says: "The FTC is writing its own rules and acting as prosecutor, judge and jury. This is deeply concerning for a regulatory agency with broad powers."

Christine Wilson says: "I believe competition rulemaking is institutional suicide."

If Khan wanted an indication of how courts might view her approach, she got one within weeks of taking over the commission. In June, a federal judge dismissed the commission's complaint against Facebook, its most high-profile in years.

The commission had argued the social media company had engaged in anti-competitive conduct for years, including by buying up potential rivals such as WhatsApp and Instagram. In June, however, a federal judge ruled the commission had failed to prove that Facebook had monopoly power.

Khan's critics worry that if the commission loses a series of high-profile court cases it will fatally undermine its authority. "If you lose enough cases your credibility evaporates," says William Kovacic, a former Republican chair of the commission. "You can lose it all - not right away, but you can lose it all."

For Khan's supporters, however, this criticism borders on the absurd. "Don't you think the FTC is already seen as weak?" says Rohit Chopra, a Democratic commissioner.

Progressives argue the FTC has for years only enforced competition rules against large companies in a fraction of the cases it should have. "Do you think there are only 10 anti-competitive mergers a year?" says Chopra. "I'm not sure it can get any worse."

"The FTC can put together legal teams that can match the best in the bar, punch for punch, in a major case," says Kovacic. "But the number of those teams is a couple, it is not 10."

For years the commission's budget and staffing levels have been chipped away. It now has roughly 50 per cent of the staff it had in 1980 and is currently trying to review a record number of mergers. In the first nine months of this fiscal year, the FTC received 2,573 notifications ahead of a large merger - already 50 per cent more than were received in the whole of last year.

Last week, the commission published a statement warning that it would not be able to review all mergers within 30 days of a notification being made, as required by law. Instead, the FTC said, if it had not had time to review a merger before it took place, it would reserve the right to take action even after it had been completed.

The commission is also facing an uphill battle to retain staff. Some people say they feel demoralised by the pace of change and irritated they have not yet met their new chair - something Khan's allies say is an unfortunate result of the pandemic. "There are only so many times you can hear that your institution has failed for years before you start to doubt your place in it," says one staff member.

#### Specifically, blockchain is key.

Dr. David Morris 21, PhD in Media Studies from the University of Iowa, Former Academic Sociologist of Technology, CoinDesk’s Chief Insights Columnist, “Biden’s New FTC Chair Could Be a Big Web 3.0 Ally”, The Crypto Daily News, 6/16/2021, https://thecryptodailynews.com/2021/06/bidens-new-ftc-chair-could-be-a-big-web-3-0-ally/

Yesterday, the Biden administration named Lina Khan, a 32-year-old Columbia Law professor, as the brand new head of the Federal Trade Commission. Khan, who would be the youngest FTC head ever, is called a fierce critic of massive tech monopolies like Amazon. While there’s typically a knee-jerk resistance to regulation and regulators amongst blockchain advocates, Khan’s considerations make her a potential ally on huge points like privateness. Her antimonopoly work might additionally create substantial market alternatives for brand new sorts of tech companies – together with these constructing decentralized techniques and “Web 3.0.”

Enforcing U.S. antitrust regulation is a main a part of the FTC’s mandate, and Khan might be greatest identified for serving to redefine simply what a “monopoly” is. She has been essential, together with throughout seven years on the Open Markets Institute, in growing and selling the concept a firm could be a monopoly even when its practices drive prices down – even, the truth is, if its product is free to customers. That principle largely hinges on how the companies collect and use knowledge: Khan has been among the many loudest critics of the way in which Amazon makes use of knowledge gathered by its storefront, akin to by leveraging sales data to compete with third-party sellers who’re, a minimum of buyers, its prospects.

#### Failing to control blockchain violations will outstrip federal enforcement capacity, making traditional antitrust completely ineffective.

Drew Stanko 21, JD Candidate at St. John's University School of Law, BS in Economics from Villanova University, “Recent Developments and the Need for Nuance”, Journal of Civil Rights & Economic Development, 4/8/2021, https://www.jcred.org/shortreads/efforts-to-modernize-antitrust

I. IS NEW SCHOOL OFFICIALLY HERE?

In January 2007, the Economic Analysis Group at the Department of Justice Antitrust Division published a Discussion Paper entitled "Does Antitrust Need to be Modernized?" The paper reviewed whether "globalization and rapid technological change" necessitated changing federal antitrust laws. This Discussion Paper has proven prescient; it identified as a "key issue" the growing need for improving antitrust enforcement of alleged exclusionary conduct related to intellectual property.

Bipartisan support for antitrust reform has grown immensely since January 2007 due to heightened market concentration and Mergers & Acquisitions (M&A) rates in an increasingly complex digital economy. Senator Amy Klobuchar introduced antitrust reform legislation in February that would provide substantial funding increases to the FTC and the DOJ Antitrust Division, and the Biden Administration appears to be supporting efforts to modernize antitrust enforcement.

Recently, President Biden indicated intent to name two prominent "New School" antitrust attorneys and scholars, Lina Khan and Tim Wu, to positions in his administration. Kahn, who rose to prominence as a student at Yale Law School for "Amazon's Antitrust Paradox" and has since held positions at the Open Markets Institute and the FTC, will reportedly be nominated to serve as the Commissioner of the Federal Trade Commission. Wu is famous for coining the term "net neutrality" and authoring "The Curse of Bigness: Antitrust in the New Gilded Age," and he will serve on the National Economic Council as a special assistant to the president for technology and competition policy. Kahn and Wu have helped establish and develop the "New School" of antitrust jurisprudence, and both have taught related courses at Columbia Law School. Generally, the New School aims to prioritize "innovation, entrepreneurship, privacy, freedom of the press, and economic and civil liberties" rather than strictly focusing on "consumer welfare."

II. SENATOR KLOBUCHAR'S COMPETITION AND ANTITRUST LAW REFORM ACT:

Senator Amy Klobuchar, who spoke passionately about her concerns related to antitrust enforcement throughout her Presidential campaign, introduced antitrust reform legislation in February.

Sen. Klobuchar's proposal, the Competition and Antitrust Law Reform Act, aims to "give federal enforcers the resources they need [to] . . . strengthen prohibitions on anticompetitive conduct and mergers, and make additional reforms to improve enforcement." In order to accomplish these goals, the proposal would provide increased funding for the DOJ Antitrust Division and the FTC and would create a new FTC "Market Analysis" Bureau. While these structural and administrative reforms may receive bipartisan support, Sen. Klobuchar's proposal would also substantially alter the legal standards used to evaluate antitrust challenges under the Sherman and Clayton Acts, a change likely to be met with pushback by conservative economists and lawmakers. Sen. Klobuchar's proposal aims to accomplish important goals, but some argue the Sherman and Clayton Act amendments included in the legislation would "add friction to M&A Activity, stalling capital markets, reducing innovation and investment, and frustrating economic growth."

1. CLAYTON ACT REFORMS

Senator Klobuchar's proposal would modify the Clayton Act to "restore its original intent by amending it to include reference to 'exclusionary conduct.'" The legislation would define exclusionary conduct as "any conduct that would materially disadvantage . . . actual or potential competitors, or foreclose the ability of or incentive to compete." Currently, antitrust challenges require the plaintiff provide prima facie evidence that alleged anticompetitive effects of proposed mergers would result, and "proponents of the merger are then permitted to rebut by providing evidence that the merger will not have the feared anticompetitive effects."

The amendments would shift the presumption that "exclusionary conduct" presents a violative "appreciable risk" where such conduct is taken by a firm with a market share greater than 50% or otherwise wields significant market power. In turn, the burden would be on firms to prove the procompetitive market effects of the challenged conduct or merger rather than on the challenging entity to establish the anticompetitive impacts of the conduct that would result.

While it is important that antitrust reform efforts prioritize enforcement of anticompetitive exclusionary conduct, the legislation arguably defines the term overbroadly. Accordingly, the proposal may result in disincentivizing innovation that would ultimately benefit consumers and the overall economy. By presuming the illegality of any conduct taken by large firms that disincentivizes market entry or competition, the proposal risks unintentionally penalizing firms for achieving beneficial economies of scale or otherwise innovating to provide higher quality products more cheaply than competitors. Arguably, threatening firms with costly antitrust litigation whenever they undertake innovative conduct that negatively impacts competitors risks disrupting market incentives and stalling economic growth.

2. SHERMAN ACT REFORMS

Similarly, the Sherman Act would be modified to allow civil penalties of either 15% or 30% of a firm's US revenues for anticompetitive exclusionary conduct. Sen. Klobuchar has indicated that civil penalties are necessary because the existing remedies—injunctions, equitable monetary relief, and private damages—have not sufficiently deterred anticompetitive conduct. This may be true, but civil penalties of this size likewise risk stifling and disincentivizing innovation.

3. FUNDING ENFORCEMENT AGENCIES, FINANCING NEW "MARKET ANALYSIS BUREAU"

While the Sherman and Clayton Act reforms are unlikely to garner significant support from conservative lawmakers, the funding increases and creation of the FTC Market Analysis Bureau are more likely to win bipartisan support.

Increasing the funding available to the FTC and the DOJ would enable the agencies to hire more attorneys and would finance the creation of the Market Analysis Bureau. The MA Bureau would supplement the FTC's existing Competition, Consumer Protection, and Economics Bureaus. It would be tasked with conducting market, industry, and retrospective merger analyses aimed at helping the FTC develop a better understanding of the competitive conditions and underlying economic dynamics affecting complex markets. The creation of the MA Bureau is likely to gain support because it would demonstrate a commitment to ensuring continued reliance on empirical analyses rather than judicial or political discretion. Accordingly, these reforms would likely bolster enforcement efforts without necessarily adopting the "Big is Bad" approach that has historically divided lawyers and economists.

III. MODERNIZING ANTITRUST ECONOMICS

The Market Analysis Bureau would theoretically improve enforcement agencies' understanding of the economics underlying complex markets. This would provide enforcers with the tools needed to prosecute anticompetitive conduct that may have otherwise skirted enforcement due to the difficulty of establishing the negative economic effects of the conduct in question.

The complexity of the digital economy and increasing market concentration has made it more difficult for prosecutors to prove these anticompetitive results, but advances in machine learning and computational antitrust may assist in identifying and consistently enforcing antitrust violations.

While computational antitrust is certainly in its nascent stages of development, the early returns from Stanford's new Computational Antitrust Project are promising. The project's seminal article, authored by Project Director Thibault Schrepel, defines computational antitrust as a "new domain of legal informatics which seeks to develop computational methods for the automation of antitrust procedures and improvement of antitrust analysis." There are more than fifty global antitrust enforcement agencies participating in the project, including both the US FTC and the DOJ Antitrust Division.

Schrepel situates computational antitrust within "Antitrust 3.0," which he explains "is emerging but remains incomplete." At the core of Antitrust 3.0 is the goal of developing consistent enforcement frameworks designed to combat anticompetitive conduct in digital markets.

IV. OUTLOOK

In "The End of Antitrust History Revisted," Kahn "reviews" Wu's The Curse of Bigness and explains that the "task facing reformers is to translate their critiques into a positive vision, including legal rules and analytical frameworks." These analytical frameworks will be critical to ensuring that antitrust law promotes free market economics, rather than subjects firms to inconsistent judicial interpretation and prosecutorial discretion.

The majority of federal antitrust law applicable today was authored prior to 1915, and the unique challenges associated with prosecuting exclusionary conduct in digital markets have presented concerns for nearly twenty years. While bipartisan support for antitrust reform and emerging scholarship both provide legitimate reason to be optimistic about efforts to modernize federal antitrust law, it is important that reforms are nuanced enough to confront the complex problems they are enacted to address.

Accordingly, while Senator Klobuchar's proposal is certainly "well-intentioned," the budgetary reforms and creation of the Market Analysis Bureau should be separated from and passed without the proposed Sherman and Clayton Act amendments included in the legislation. The newly-appointed experts in the Biden Administration should be afforded the requisite resources to capitalize on the promise of New School antitrust jurisprudence and the development of Antitrust 3.0. By providing these resources, those leading antitrust modernization efforts will be equipped with the tools needed to create nuanced legal frameworks that reflect modern critiques and ensure consistent enforcement practices.

#### It creates a legitimacy crisis that threatens the foundational credibility of the FTC.

Dr. Thibault Schrepel 19, PhD in Antitrust Law from Université Paris-Saclay, LLM in International Law and Legal Studies from the Brooklyn Law School, Associate Professor of Law at VU Amsterdam University, Faculty Affiliate and Creator and Director of the Computational Antitrust Project at the Stanford University CodeX Center, “Collusion by Blockchain and Smart Contracts”, Harvard Journal of Law and Technology, 33 Harv. J. Law & Tec 117, Fall 2019, Lexis

V. CONCLUSION

Blockchain is a new and yet little-explored territory. It is, amongst other things, the Amazon 228 of tomorrow's collusive agreements: full of different life forms and new possibilities, the technology will give rise to unidentified creatures and dangerous species that we do not really know how to approach.

I have first shown that blockchain will be used to enhance the functioning of collusive agreements as we know them and that new forms of collusion linked to the technology conditions of access and use will appear as well. Second, blockchain will increase the stability of collusive agreements, providing them with a good life. Depending on whether the blockchain is public or private, a double paradox could emerge. One paradox is related to the visibility of all practices to colluders while ensuring their opacity to non-colluders. The other is associated with the fact that collusive agreements will be more robust during their lifetime by eliminating a large proportion of deviant behaviors, but will die in more brutal ways.

For these reasons, one can expect an increase in the number of collusive agreements along with an increase in their profitability, but not necessarily in their duration. The number of leniency applications may also drop because blockchain will reinforce trust during the lifetime of collusive agreements. This is largely due to the potential use of smart contracts because once again, "[o]ne of the greatest checks on crime is not the cruelty of punishments, but their inevitability," 229 which is precisely what smart contracts provide by automating punishments.

[\*164] The time has now come to detect collusion by blockchain and smart contracts, however difficult that may be. I have shown that some blockchains are more likely to induce collusive agreements than others. Antitrust and competition authorities may start with focusing their efforts on these blockchains and creating safe harbors for the others, for instance, by ensuring that no sanction will be imposed under antitrust and competition law for a specified number of years. Antitrust and competition authorities may also, when sending questionnaires to undertakings, ask whether they use blockchain, and if so, what type of blockchain, using which consensus, and for what purpose.

But perhaps it is even more urgent to adapt existing legal toolboxes before they become entirely ineffective, which implies considering a "law is code" approach and, generally speaking, transforming part of antitrust and competition law to become allies to blockchain core developers rather than mere threats. 230 It is said that "it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail." 231 As true as this statement is, all we have in existing laws is one size of pliers. With the wrong tools, the most sophisticated technology requiring great precision will not be as adjusted as it could be. Antitrust and competition agencies are currently not equipped to fight collusive agreements by blockchain. This may cause a legitimacy crisis for antitrust and competition law that may become ineffective sooner than expected. Indeed, it is more than likely that the use of current regulatory tools will be prevented by the technical characteristics of blockchain. Agencies further need to start analyzing code and software programming. Without doing so, most illegal activities on blockchain will remain safe. The same is true for all practices outside of blockchain which use the Internet. To date, antitrust and competition agencies refuse to analyze the programming of platforms and software. This creates a legal loophole and encourages companies to commit anti-competitive strategies precisely here. 232

Without fundamental research on this subject, palliatives will continue to be present, risking the survival of blockchain 233-- or antitrust [\*165] and competition law. 234 Some propose the creation of an identity management system so that the real identities of blockchain users can be revealed. 235 Others have suggested "adding a regulatory node in the blockchain" to spy on it 236 or imposing fines to the core developers when blockchain is used for illegal activities. 237 Going even further, it has been said that public blockchains "governed by international institutions from the legal tradition" such as the United Nations should be created. 238 But in fact, these solutions are either ineffective or would jeopardize the utility of the technology as its applications rely on the key characteristics that I have exposed in our introduction and that would be challenged by these various initiatives. Let us recall first and foremost that blockchain is a fundamental technology that may create good for the world. 239 The creation of safe harbors 240 and regulatory sandboxes 241 will enable competition agencies to respond quickly to the challenges posed by blockchain, but in the end, only a re-conceptualization of the law will provide a satisfactory answer. 242 Without it, antitrust and competition law will face a second legitimacy crisis arising from the absence of decentralized regulatory mechanisms. After all, how can decentralized transactions be properly regulated by pyramidal rules and institutions?

#### Failure of FTC legitimacy crushes the effectiveness of the agency.

William E. Kovacic 15, Global Competition Professor of Law and Policy at the George Washington University Law School and Non-Executive Director of the United Kingdom Competition and Markets Authority, “Creating A Respected Brand: How Regulatory Agencies Signal Quality”, George Mason Law Review, 22 Geo. Mason L. Rev. 237, Lexis

Introduction

One determinant of a government agency's effectiveness is its reputation, or "brand." Much like a commercial enterprise, an agency develops a brand that signals quality to various observers. A good reputation can help the agency recruit skilled personnel, gain deference from courts, build credibility with business managers, and build popular support that can yield larger budgets and enhancements to its powers. An agency with a strong brand stands a greater chance of being effective than one with a weak brand.

This Essay considers how branding can affect the performance of the Federal Trade Commission ("FTC") and other agencies responsible for economic regulation. It analyzes how investments in building a good brand enable the regulatory agency to signal quality to various observers - insiders such as agency staff and outsiders such as businesses, consumer groups, courts, and legislators. Part I of this Essay defines the concept of a brand for public agencies. Part II then discusses why an agency's brand can be important to its effectiveness and identifies what types of agency activities either enhance or degrade an agency's brand.

The examination of agency branding has several purposes. One aim is to improve our understanding of how public agencies build a reputation, and to study the role of reputation in determining effectiveness. A closely related goal is to give public officials a better understanding of how they should approach the task of deciding what their agencies must do to prosper.

A further aim is to underscore the impact of institutional design and managerial incentives on agency performance and to illuminate how design choices and incentive schemes influence the development of a well-respected, coherent agency brand. Various design choices - for example, whether to give the competition agency a single function or a multi-purpose substantive mandate, whether to govern the agency by a single executive or [\*238] by a board, whether to integrate the tasks of prosecution and adjudication in a single body or to unbundle them among distinct entities - affect the capacity of the agency to enhance the quality of its brand. Incentives that give incumbent leaders reason to make investments in long-term agency capacity and quality have the same effects.

I. Brands and Public Institutions

Public institutions, such as competition or consumer protection agencies, build reputations or "brands" that the agency's own employees and external observers associate with the agency. 1 Brands perform two functions for the public agency. The first function is informational. 2 A good brand conveys a good sense of what an agency does. It communicates, at least in a general way, the scope of the agency's responsibilities and the aims that motivate the agency in the exercise of its powers.

A brand also signals institutional quality. For an agency such as the FTC, the foundations for a good brand are sound substantive programs (e.g., cases, regulations, reports), sound procedures (e.g., meaningful disclosure of information, rigorous testing of evidence, regular assessment of outcomes), strong capabilities (e.g., deep expertise in economics and law), and a healthy culture (e.g., thoughtfulness, integrity, courage, and a commitment to continuous improvement). 3 For several reasons, explained below, a strong brand is a valuable asset for a regulatory agency.

#### Its credibility’s key to global cooperation to contain spyware.

Ari Schwartz 12, Deputy Director of the Center for Democracy and Technology, “Federal Trade Commission Reauthorization”, Hearing Before the Subcommittee on Interstate Commerce, Trade, and Tourism of the Committee on Commerce, Science, and Transportation United States Senate One Hundred Tenth Congress First Session, Government Printing Office, https://www.govinfo.gov/content/pkg/CHRG-110shrg75970/html/CHRG-110shrg75970.htm

Mr. Schwartz. Thank you very much, Chairman Dorgan. Thank you for holding this public hearing today and inviting CDT to participate.

As more consumers' services move online, consumer protection agencies are facing new challenges. The Federal Trade Commission has played a leadership role to meet these challenges, including overcoming such difficulties as locating the perpetrators of online schemes, keeping up with the rapid pace of technological evolution, and following the increasing financial motivation of Internet fraudsters.

In particular, the FTC has been the lead law enforcement agency in the world in the fight against spyware. Spyware has become one of the most serious threats to the Internet's future. Consumer Reports magazine estimates that consumers will lose $1.7 billion this year to spyware attacks alone. The magazine estimates that almost 1 million consumers simply gave up fixing their spyware-riddled computers and had to throw them away.

The good news is that consumer losses are down dramatically from 2006, when they peaked at $2.6 billion. The main reasons for this decrease in the spyware threat are, first, the improvement in anti-spyware technology; second, the public pressure on companies advertising with nuisance or harmful adware; and, finally, the enforcement of consumer protection law, led by the work of the FTC and some State attorneys general.

The FTC recognized the profound threat posed by the rising tide of spyware early, and actively moved to limit its spread. The Commission has been the leading enforcer against spyware, pursuing 11 cases to fruition in the past two and a half years, including three based, at least in part, on the petitions brought my organization, the Center for Democracy and Technology. CDT has learned, through our own research, that, as consumer fraud increases, the FTC's ability to work internationally becomes more important. Congress passed the SAFE WEB Act late last year to provide the FTC powers to promote international cooperation. The FTC's ability to use this new law, and staff resources that it will need, will be very important to monitor.

#### Spyware norms are solidifying but require strong U.S. leadership---success stops human rights crackdowns.

Marietje Schaake 21, International Policy Director at Stanford University’s Cyber Policy Center, Senior Advisor for Tech & Geopolitics at Eurasia Group, President of the Cyberpeace Institute, “We Need a New Global Standard to Curb Intrusive Spyware”, Financial Times, 11/10/2021, Lexis

After more than a decade, democratic governments are finally waking up to the hazards of commercial spyware. Recent media coverage has exposed how authoritarian regimes are using NSO Group’s Pegasus software to spy on journalists and politicians. The EU has now tightened its rules on the export of surveillance technology, and the US Department of Commerce last week determined that Israel-based NSO Group and three other hacking companies were “engaging in activities that are contrary to the national security or foreign policy interests of the United States”. However, these modest steps do not go far enough: what’s needed is a global standard to reign in technologies that violate the rights to privacy, free assembly as well as free expression.

From ~~crippling~~ [devastating] ransomware to questionable neural algorithms which use AI to identify suspicious non-verbal activity, to face and emotion-detecting technologies, there is a proliferation of software applications which conflict with liberal democratic values.

Traditionally, export controls are imposed on products that threaten national security, such as those that could boost the manufacture of nuclear weapons. The EU has recently extended its export regime to include spyware technologies, and added human rights violations as a criterion for potential harm. But since the NSO Group is based outside the EU, it lies outside Brussels’ jurisdiction. Without a wider international agreement, options for curbing these companies are limited.

The absence of global restrictions brings further credibility risks: how can liberal democracies lobby against human rights abuses by authoritarian regimes, when they are in effect permitting the development and marketing of digital weapons?

While restricting exports may help prevent the flow of intrusive technologies from democracies to dictatorships, imports and domestic uses remain unaddressed. The Pegasus Project revealed how, in the heart of the EU, Hungarian prime minister Viktor Orban has deployed commercial surveillance systems to target the few remaining independent media outlets within his own country.

Even some democratic states, such as the Netherlands, are guilty of procuring hacking and surveillance systems, but do not disclose which ones. Undoubtedly, they will claim these are only ever used to track down the most serious criminal and terror suspects. Yet this lends credibility and capital to an exceedingly harmful industry. If democracies are serious about curbing surveillance, they should exercise greater transparency and lead by example.

More than ad hoc measures or restrictions applied to individual companies, the US should partner with the EU and other willing countries to set a new international standard for the use of, and trade in, spyware. This would be a tangible outcome for President Biden’s upcoming Summit for Democracy, a US-led virtual meeting in early December aimed at preventing authoritarianism, fighting corruption, and promoting human rights.

Beyond spyware, a variety of other technologies deserve greater scrutiny and regulation. Illegitimate mass surveillance systems, facial recognition software and tools used for illegal cyber operations are traded across borders to facilitate repression, conflict, and instability. Poor cyber security is now a source of systematic risk which threatens national resilience. Greater co-ordination is necessary to ensure that technologies which are currently legal do not provide the means for widespread rights violations.

Moreover, an international agreement between democratic states against malicious uses of technology will help set multilateral norms. UN human rights experts this week raised the alarm once more about how tech companies serve as modern-day “mercenaries”. “Private actors provide a wide range of military and security services in cyber space, including data collection, intelligence and surveillance,” they warned.

In the future, a licensing requirement should be the default for tech companies that contravene the human rights standard of democratic states. This would ensure better controls of end use and exports. Regulation would also allow for mapping of how software is being deployed, and enable greater transparency. Equally, companies should strengthen their own risk-management. The very credibility of democracies is at stake when tech companies can undermine global security unhindered.

#### Those trigger nuclear conflict.

Gregory Treverton 17, Chair of the National Intelligence Council, Office of the Director of National Intelligence, National Intelligence Council Unclassified Strategic Assessment Of Global Trends, Authored by ODNI Personnel Including the Chairman of the NIC, “The Near Future: Tensions Are Rising”, 2017, <https://www.dni.gov/index.php/global-trends/near-future>

These global trends, challenging governance and changing the nature of power, will drive major consequences over the next five years. They will raise tensions across all regions and types of governments, both within and between countries. These near-term conditions will contribute to the expanding threat from terrorism and leave the future of international order in the balance.

Within countries, tensions are rising because citizens are raising basic questions about what they can expect from their governments in a constantly changing world. Publics are pushing governments to provide peace and prosperity more broadly and reliably at home when what happens abroad is increasingly shaping those conditions.

In turn, these dynamics are increasing tensions between countries—heightening the risk of interstate conflict during the next five years. A hobbled Europe, uncertainty about America’s role in the world, and weakened norms for conflict-prevention and human rights create openings for China and Russia. The combination will also embolden regional and nonstate aggressors—breathing new life into regional rivalries, such as between Riyadh and Tehran, Islamabad and New Delhi, and on the Korean Peninsula. Governance shortfalls also will drive threat perceptions and insecurity in countries such as Pakistan and North Korea.

* Economic interdependence among major powers remains a check on aggressive behavior but might be insufficient in itself to prevent a future conflict. Major and middle powers alike will search for ways to reduce the types of interdependence that leaves them vulnerable to economic coercion and financial sanctions, potentially providing them more freedom of action to aggressively pursue their interests.

Meanwhile, the threat from terrorism is likely to expand as the ability of states, groups, and individuals to impose harm diversifies. The net effect of rising tensions within and between countries—and the growing threat from terrorism—will be greater global disorder and considerable questions about the rules, institutions, and distribution of power in the international system.

Europe. Europe’s sharpening tensions and doubts about its future cohesion stem from institutions mismatched to its economic and security challenges. EU institutions set monetary policy for Eurozone states, but state capitals retain fiscal and security responsibilities—leaving poorer members saddled with debt and diminished growth prospects and each state determining its own approach to security. Public frustration with immigration, slow growth, and unemployment will fuel nativism and a preference for national solutions to continental problems.

* Outlook: Europe is likely to face additional shocks—banks remain unevenly capitalized and regulated, migration within and into Europe will continue, and Brexit will encourage regional and separatist movements in other European countries. Europe’s aging population will undermine economic output, shift consumption toward services—like health care—and away from goods and investment. A shortage of younger workers will reduce tax revenues, fueling debates over immigration to bolster the workforce. The EU’s future will hinge on its ability to reform its institutions, create jobs and growth, restore trust in elites, and address public concerns that immigration will radically alter national cultures.

United States. The next five years will test US resilience. As in Europe, tough economic times have brought out societal and class divisions. Stagnant wages and rising income inequality are fueling doubts about global economic integration and the “American Dream” of upward mobility. The share of American men age 25- 54 not seeking work is at the highest level since the Great Depression. Median incomes rose by 5 percent in 2015, however, and there are signs of renewal in some communities where real estate is affordable, returns on foreign and domestic investment are high, leveraging of immigrant talent is the norm, and expectations of federal assistance are low, according to contemporary observers.

* Outlook: Despite signs of economic improvement, challenges will be significant, with public trust in leaders and institutions sagging, politics highly polarized, and government revenue constrained by modest growth and rising entitlement outlays. Moreover, advances in robotics and artificial intelligence are likely to further disrupt labor markets. Meanwhile, uncertainty is high around the world regarding Washington’s global leadership role. The United States has rebounded from troubled times before, however, such as when the period of angst in the 1970s was followed by a stronger economic recovery and global role in the world. Innovation at the state and local level, flexible financial markets, tolerance for risk-taking, and a demographic profile more balanced than most large countries offer upside potential. Finally, America is distinct because it was founded on an inclusive ideal—the pursuit of life, liberty, and happiness for all, however imperfectly realized—rather than a race or ethnicity. This legacy remains a critical advantage for managing divisions.

Central and South America. Although state weakness and drug trafficking have and will continue to beset Central America, South America has been more stable than most regions of the world and has had many democratic advances—including recovery from populist waves from the right and the left. However, government efforts to provide greater economic and social stability are running up against budget and debt constraints. Weakened international demand for commodities has slowed growth. The expectations associated with new entrants to the middle class will strain public coffers, fuel political discontent, and possibly jeopardize the region’s significant progress against poverty and inequality Activist civil society organizations are likely to fuel social tensions by increasing awareness of elite corruption, inadequate infrastructure, and mismanagement. Some incumbents facing possible rejection by their publics are seeking to protect their power, which could lead to a period of intense political competition and democratic backsliding in some countries. Violence is particularly rampant in northern Central America, as gangs and organized criminal groups have undermined basic governance by regimes that lack capacity to provide many basic public goods and services.

* Outlook: Central and South America are likely to see more frequent changes in governments that are mismanaging the economy and beleaguered by widespread corruption. Leftist administrations already have lost power in places like Argentina, Guatemala, and Peru and are on the defensive in Venezuela, although new leaders will not have much time to show they can improve conditions. The success or failure of Mexico’s high-profile reforms might affect the willingness of other countries in the region to take similar political risks. The OECD accession process may be an opportunity—and incentive— for some countries to improve economic policies in a region with fairly balanced age demographics, significant energy resources, and well-established economic links to Asia, Europe, and the United States.

An Inward West? Among the industrial democracies of North America, Europe, Japan, South Korea, and Australia, leaders will search for ways to restore a sense of middle class wellbeing while some attempt to temper populist and nativist impulses. The result could be a more inwardly focused West than we have experienced in decades, which will seek to avoid costly foreign adventures while experimenting with domestic schemes to address fiscal limits, demographic problems, and wealth concentrations. This inward view will be far more pronounced in the European Union, which is absorbed by questions of EU governance and domestic challenges, than elsewhere.

* The European Union’s internal divisions, demographic woes, and moribund economic performance threaten its own status as a global player. For the coming five years at least, the need to restructure European relations in light of the UK’s decision to leave the EU will undermine the region’s international clout and could weaken transatlantic cooperation, while anti-immigration sentiments among the region’s populations will undermine domestic political support for Europe’s political leaders.
* Questions about the United States’ role in the world center on what the country can afford and what its public will support in backing allies, managing conflict, and overcoming its own divisions. Foreign publics and governments will be watching Washington for signs of compromise and cooperation, focusing especially on global trade, tax reform, workforce preparedness for advanced technologies, race relations, and its openness to experimentation at the state and local levels. Lack of domestic progress would signal a shift toward retrenchment, a weaker middle class, and potentially further global drift into disorder and regional spheres of influence. Yet, America’s capital, both human and security, is immense. Much of the world’s best talent seeks to live and work in the United States, and domestic and global hope for a competent and constructive foreign policy remain high.

China. China faces a daunting test—with its political stability in the balance. After three decades of historic economic growth and social change, Beijing, amid slower growth and the aftereffects of a debt binge, is transitioning from an investment-driven, export-based economy to one fueled by domestic consumption. Satisfying the demands of its new middle classes for clean air, affordable houses, improved services, and continued opportunities will be essential for the government to maintain legitimacy and political order. President Xi’s consolidation of power could threaten an established system of stable succession, while Chinese nationalism—a force Beijing occasionally encourages for support when facing foreign friction—may prove hard to control.

* Outlook: Beijing probably has ample resources to prop up growth while efforts to spur private consumption take hold. Nonetheless, the more it “doubles down” on state owned enterprises (SOEs) in the economy, the more it will be at greater risk of financial shocks that cast doubt on its ability to manage the economy. Automation and competition from lowcost producers elsewhere in Asia and even Africa will put pressure on wages for unskilled workers. The country’s rapidly shrinking working-age population will act as a strong headwind to growth.

Russia. Russia’s aspires to restore its great power status through nationalism, military modernization, nuclear saber rattling, and foreign engagements abroad. Yet, at home, it faces increasing constraints as its stagnant economy heads into a third consecutive year of recession. Moscow prizes stability and order, offering Russians security at the expense of personal freedoms and pluralism. Moscow’s ability to retain a role on the global stage—even through disruption—has also become a source of regime power and popularity at home. Russian nationalism features strongly in this story, with A Chinese man rides a bike among luxurious cars. China’s dramatic economic growth has highlighted greater gaps between rich and poor.

President Putin praising Russian culture as the last bulwark of conservative Christian values against the decadence of Europe and the tide of multiculturalism. Putin is personally popular, but approval ratings of 35 percent for the ruling party reflect public impatience with deteriorating quality of life conditions and abuse of power.

* Outlook: If the Kremlin’s tactics falter, Russia will become vulnerable to domestic instability driven by dissatisfied elites— even as a decline in status suggests more aggressive international action. Russia’s demographic picture has improved somewhat since the 1990s but remains bleak. Life expectancy among males is the lowest of the industrial world, and its population will continue to decline. The longer Moscow delays diversifying its economy, the more the government will stoke nationalism and sacrifice personal freedoms and pluralism to maintain control.

An Increasingly Assertive China and Russia. Beijing and Moscow will seek to lock in temporary competitive advantages and to right what they charge are historical wrongs before economic and demographic headwinds further slow their material progress and the West regains its footing. Both China and Russia maintain worldviews in which they are rightfully dominant in their regions and able to shape regional politics and economics to suit their security and material interests. Both have moved aggressively in recent years to exert greater influence in their regions, to contest the US geopolitically, and to force Washington to accept exclusionary regional spheres of influence—a situation that the United States has historically opposed. For example, China views the continuing presence of the US Navy in the Western Pacific, the centrality of US alliances in the region, and US protection of Taiwan as outdated and representative of the continuation of China’s “100 years of humiliation.”

* Recent Sino-Russian cooperation has been tactical, however, and is likely to return to competition if Beijing jeopardizes Russian interests in Central Asia and as Beijing enjoys more options for cheap energy supply beyond Russia. Moreover, it is not clear whether there is a mutually acceptable border between what China and Russia consider their natural spheres of influence. Meanwhile, India’s growing economic power and profile in the region will further complicate these calculations, as New Delhi navigates relations with Beijing, Moscow, and Washington to protect its own expanding interests. A Chinese development firm—with links to the Chinese Government and People’s Liberation Army— today announced that it recently purchased the uninhabited Cobia Island from the Government of Fiji for $850 million. Western security analysts assess that China plans to use the island to build a permanent military base in the South Pacific, 3,150 miles southwest of Hawaii.

Russian assertiveness will harden anti-Russian views in the Baltics and other parts of Europe, escalating the risk of conflict. Russia will seek, and sometimes feign, international cooperation, while openly challenging norms and rules it perceives as counter to its interests and providing support for leaders of fellow “managed democracies” that encourage resistance to American policies and preferences. Moscow has little stake in the rules of the global economy and can be counted on to take actions that weaken US and European institutional advantages. Moscow will test NATO and European resolve, seeking to undermine Western credibility; it will try to exploit splits between Europe’s north and south and east and west, and to drive a wedge between the United States and the EU.

* Similarly, Moscow will become more active in the Middle East and those parts of the world in which it believes it can check US influence. Finally, Russia will remain committed to nuclear weapons as a deterrent and as a counter to stronger conventional military forces, as well as its ticket to superpower status. Russian military doctrine purportedly includes the limited use of nuclear weapons in a situation where Russia’s vital interests are at stake to “deescalate” a conflict by demonstrating that continued conventional conflict risks escalating the crisis to a large scale nuclear exchange.

In Northeast Asia, growing tensions around the Korean Peninsula are likely, with the possibility of serious confrontation in the coming years. Kim Jong Un is consolidating his grip on power through a combination of patronage and terror and is doubling down on his nuclear and missile programs, developing long-range missiles that may soon threaten the continental United States. Beijing, Seoul, Tokyo, and Washington have a common incentive to manage security risks in Northeast Asia, but a history of warfare and occupation along with current mutual distrust makes cooperation difficult. Continued North Korean provocations, including additional nuclear and missile tests, might worsen stability in the region and prompt neighboring countries to take actions, sometimes unilaterally, to protect their security interests.

Competing Views on Instability

China and Russia portray global disorder as resulting from a Western plot to push what they see as self-serving American concepts and values of freedom to every corner of the planet. Western governments see instability as an underlying condition worsened by the end of the Cold War and incomplete political and economic development. Concerns over weak and fragile states rose more than a generation ago because of beliefs about the externalities they produce— whether disease, refugees, or terrorists in some instances. The growing interconnectedness of the planet, however, makes isolation from the global periphery an illusion, and the rise of human rights norms makes state violence against a governed population an unacceptable option.

#### Containing spyware prevents the complete erosion of Indian democracy

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Under a collaboration called the Pegasus Project, 17 media organisations from around the world have recently released startling information about the way several governments have allegedly used spyware made by Israeli firm NSO to snoop on perceived adversaries.

Pegasus spyware, classified as a weapon to be used against criminals and terrorists, was allegedly used in India to spy on opposition politicians, bureaucrats and journalists, among others. While the Indian government has denied the charges, all the evidence points to the executive branch running amok.

The unravelling of Indian democracy offers important lessons for the United States, especially with recent revelations regarding former President Donald Trump’s final days in office and the reluctance of his Republican Party in the legislature to hold him accountable.

The destruction of Indian democratic institutions under Narendra Modi since he came to power in 2014 is well documented. If these new allegations are left unaddressed, which is the most likely outcome, their chilling effect on society will ensure India’s swift decline into a sham democracy like Russia.

If true, the implications of such surveillance are not limited to political, bureaucratic, journalistic, or judicial opponents of the current government. They will affect the economic climate, open-minded academic inquiry, and spirited debates among students and civil society, which are all essential for a thriving democracy.

#### Backsliding obliterates containment of disease, pollution, and nukes---extinction.

Akshai Vikram 21, Doctoral Candidate in Security Studies at the University of Central Florida, Roger L. Hale Fellow at the Ploughshares Fund, M.A from Johns Hopkins University SAIS and B.A. from Johns Hopkins Baltimore, “Indian Democracy Is on The Ropes. The US Must Act”, Defense One, 6/12/2021, https://www.defenseone.com/ideas/2021/06/indian-democracy-ropes-us-must-act/174679/

Even as the U.K. hosted President Biden on a visit to “rally the world’s democracies,” Britain’s reopening is under threat from a new strain of the COVID-19 virus. This new variant, which originated in India, is directly related to Narendra Modi government’s disappointing and less-than-democratic handling of the pandemic. The new coronavirus strain is just one example of the threat that awaits U.S. interests if India, the world’s largest democracy, should complete its slide into authoritarianism. Thankfully, the U.S. still has a number of options to combat, if not prevent, democratic backsliding in India.

Democratic or not, India’s relevance is assured. Its size alone guarantees this. India’s largest state, Uttar Pradesh, boasts a population of over 200 million people, larger than any individual country in Africa, Europe, or Latin America. This hard fact has led Republicans and Democrats to agree on India’s importance, with both sides emphasizing its potential role as a regional counterweight to China. The Trump administration’s National Defense Strategy stressed the benefits of a “free and open Indo-Pacific region” and promised to “strengthen our alliances and partnerships in the Indo-Pacific…to preserve the free and open international system.” The Biden administration made similar pronouncements in its Interim National Security Guidance, saying it will “reinvigorate and modernize our alliances and partnerships,” partially to “hold countries like China to account.” The Biden administration specifically promised to “deepen our partnership with India” as part of this effort.

This strategic logic presumes the United States will be dealing with a democratic India that prefers a “free and open international system,” rather than an authoritarian India that domestically more closely resembles “countries like China” than it does a full-functioning democracy.

But the pace of Indian democratic backsliding has noticeably quickened. It was an ominous warning when Narendra Modi, who was banned from the United States for turning a blind eye to a virtual pogrom against Muslims while chief minister of Gujarat, was elected Prime Minister in 2014. After seven years in power, Modi and his Hindu nationalist Bharatiya Janata Party, or BJP, have further eroded Indian democracy, leading the nonprofit Freedom House to rank India as “partly free” for the first time in 30 years.

Modi’s authoritarian actions have ranged from the pseudo-scientific and laughable to the egomaniacal and lethal. Most notoriously, the BJP sought in 2019 to openly discriminate against Muslim immigrants. The law passed, and when it drew mass protests across the country, the BJP met them with authoritarian force. Later in the year, India stifled the Internet in Kashmir.

India’s democratic backsliding has also hurt its lackluster COVID-19 response. Modi’s BJP has propagated a number of inane myths about the disease, especially quack cures. Party leaders from Modi on down have set bad examples, appearing at large rallies, without masks, and turning the Hindu Kumbh-Mela festival into a superspreader event because “the faith in God will overcome the fear of Covid-19.”

The Modi government has also moved to stifle dissent, especially investigative journalism on its pandemic response. In April, the chief minister of Uttar Pradesh threatened to seize the property of people propagating “rumors” of oxygen shortages. And just last month, when information on the Indian variant was desperately needed, a top Indian virologist on a government panel to investigate the variant suspiciously resigned, after he had been quoted in the New York Times criticizing the government. All this suggests that continued democracy in India is no sure thing.

A fully authoritarian India could take a number of forms, with disparate effects on its relationship with the United States. Shared concerns about China could lead the U.S.-India relationship to mirror the path of American relations with Vietnam, where the two countries have managed to work constructively despite their tempestuous past and Vietnam’s one-party rule.

Perhaps more likely, India under Modi could present a challenge not dissimilar to that of the Philippines under Duterte, a country too strategically important for the U.S. to ignore in its efforts to counter Chinese influence in the region, but one whose authoritarian streak routinely impedes greater cooperation.

Most detrimentally for the United States, India could even one day seek to follow the path of Russia, prioritizing allegiance to right-wing authoritarian ethno-nationalism rather than its historical and geographic disputes with China. This worst case scenario is not as far-fetched as it once might have seemed: in the last few months alone, Russia and India have taken eerily similar steps to stifle Twitter in response to domestic critics.

No matter how authoritarian the government in New Delhi becomes, the United States will need to engage with it constructively on certain issues, especially transnational threats like climate change and nuclear weapons. Fortunately, the Biden administration has already demonstrated its capability to do just that by cooperating constructively with Russia on nuclear arms control and with both China and Russia on climate change, while at the same time confronting both countries on other issues as necessary.

However, there is no scenario where further democratic backsliding in India would make life easier for the United States. At the very least, an increasingly authoritarian Indian would jeopardize the push for cooperation among ‘like-minded’ democracies, especially when it comes to countering China.

International partnerships, like the recent project of coordinated vaccine production from the emerging ‘Quad’ countries—India, Australia, the U.S., and Japan—could conceivably continue even if India moves further from the democratic camp. Even so, they would surely be less resilient if based solely on common interests rather than common values. Efforts by the European Union to increase ties to India would also likely be undermined.

#### The plan solves:

#### 1. UPDATING.

#### Prohibiting violations at the infrastructure level establishes a collaborative relationship between blockchain and antitrust that infuses technological principles into legal enforcement.

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1.2 Enforcement

1.2.1 Not this...

Enforcement is the second pillar of a collaborative approach between law and tech, antitrust and blockchain. I realize that this may seem counterintuitive; enforcement is, by definition, confrontational. In reality, distinct types of enforcement can lead to varying degrees of confrontation: some harm the entire blockchain, while others target the sole perpetrators of illegal practices. One should avoid the former, as it would reduce blockchain’s usefulness and thus deprive policymakers and regulators of an important ally. It is in the interests of both communities to encourage the latter.

I concluded the first part of this book by underlining that making law and tech work toward the same objective implied bearing with some assaults by each on the other. This means that blockchain communities should not only tolerate antitrust sanctions, but also facilitate them, because they ultimately lead to further decentralization. It also means that antitrust agencies and courts should direct their enforcement activities in a specific way. Overall, they should seek to preserve blockchain. This will be challenging, as agencies generally conduct their enforcement activities one case after the other, without such a long-term objective. That being said, agencies could still achieve the overall goal of enabling blockchain technology to flourish while ensuring case-by-case enforcement.

For that, agencies should avoid enforcement activities against practices that directly arise from the intrinsic characteristics of a blockchain. For example, public permissionless blockchains distribute information throughout the marketplace, including the number of transactions implemented by specific users, the fees being paid and so on. This transparency could lead to antitrust concerns, especially when it comes to tacit collusion.14 Nevertheless, because this essential feature makes markets more fluid and mitigates information asymmetry,15 enforcement activities should not be directed at it.

The same goes for the opacity that blockchains create. As we have seen together, the identity of a blockchain’s participants and the content of their transactions are protected by encryption. Yet one should not consider this a relevant element in European competition law for presuming the intention to collude (moral component), for systematically making cartelization on block- chain a restriction “by object” rather than “by effect,” or for easing the burden of proof on antitrust agencies. Doing so would deter legal uses of blockchain.

More generally, it is important to underline that all blockchain participants agree to the same set of rules. That should not be seen as an illegal agreement between them, even though it affects their economic behavior. Agreeing to the same rules is, in fact, necessary for blockchain’s survival, as it creates consistency in the blockchain ledger in the absence of central coordination. It solves the Byzantine Generals Problem, according to which a central power is always needed to coordinate actions and maximize outcomes. That applies to forks, which should only rarely be seen as illegal (as I discussed in Chapter 8), because they create checks and balances within each blockchain. Let me reiterate that without consensus regarding the rules and their modification, the whole system would collapse, as the ledger integrity could not be maintained. All practices engaged by the blockchain nucleus to ensure survival, such as their forks and modifications of the core client, should thus be presumptively legal as far as antitrust enforcement is concerned.

1.2.2 ...but that!

I recommend that antitrust agencies focus their enforcement activities on practices that affect the “real space”, and on practices that defeat blockchain’s purpose.

As I discussed in Chapters 9 and 11, the first type of practice covers the use of blockchains to support firms’ efforts to collude or monopolize markets. These practices have a strong and direct impact on consumers. Detecting this type of behavior will require proactive actions by antitrust agencies. If they engage in such actions, enforcement in the field will increase consumer welfare.

The second category concerns practices that centralize blockchain ecosystems artificially. More specifically, agencies should target practices that centralize the infrastructure level of a blockchain. As I have explained, that level has a critical influence on the decentralization of other levels. Prohibiting artificial forms of centralization at that layer will free most of the ecosystem from coercive forms of power. In doing so, it will make blockchain a more potent ally to antitrust law. Furthermore, this type of enforcement will prove increasingly important over time. If blockchain adoption continues to increase, it could very well become a key infrastructure for the world economy. At that point in time, the artificial centralization of blockchain will become antitrust agencies’ top enforcement priority.

Overall, directing enforcement activities toward these two types of practices would free blockchain, and its economic ramifications, from the most restrictive practices without diminishing its usefulness or creating resentment within blockchain communities. Antitrust would thus become the ally of blockchain ecosystems and would start being perceived as such.

#### 2. LEADERSHIP.

#### Going bold builds FTC’s brand and secures a foothold for future experimentation.

Philip J. Weiser 17, Hatfield Professor of Law and Dean Emeritus at the University of Colorado Law School, Former Senior Advisor for Technology and Innovation to the National Economic Council Director in the White House, “Entrepreneurial Administration”, Boston University Law Review, 97 B.U.L. Rev. 2011, December 2017, Lexis

Introduction

A core failing of today's administrative state and modern administrative law scholarship is the lack of imagination as to how agencies should operate. On the conventional telling, public agencies follow specific grants of regulatory authority, use the traditional tools of notice-and-comment rulemaking and adjudication, and are checked by judicial review. In reality, however, effective administration depends on entrepreneurial leadership that can spearhead policy experimentation and trial-and-error problem-solving, including the development of regulatory programs that use non-traditional tools.

Entrepreneurial administration takes place both at public agencies and private entities, each of which can address regulatory challenges and earn regulatory authority as a result. Consider, for example, that Energy Star, a successful program that has encouraged the manufacture and sale of energy efficient appliances, is developed and overseen by the Environmental Protection Agency ("EPA"). 1 After the EPA established the program, Congress codified it and, eventually, other countries followed suit. 2 By contrast, the successful and complementary program encouraging the construction of energy efficient buildings, the well-respected Leadership in Energy and Environmental Design ("LEED") standard, was developed and is overseen by a private organization. 3 After it was developed, a number of governmental authorities endorsed it and [\*2013] have encouraged LEED-certified construction projects with both carrots 4 and sticks. 5 Significantly, although neither the Energy Star program nor the LEED standard were originally anticipated by any regulatory statute, both have had tremendous impacts.

The Energy Star and LEED case studies exemplify the sort of innovative regulatory strategies taking root in the modern administrative state. 6 Despite the importance of entrepreneurial administration in practice, scholars have failed to examine the role of entrepreneurial leadership in spurring policy innovation and earning regulatory authority for an agency (or private entity). 7 This oversight is most unfortunate in the case of technologically developing fields where experimental regulatory strategies - as opposed to traditional notice-and-comment rulemaking or adjudication - are often essential. 8 In short, administrative law needs an account of agency action that explains why entrepreneurial leadership matters in government and how agencies should operate. 9

[\*2014] This Article: explains that the conventional view of agency behavior - following the specific direction of Congress or the President and using notice-and-comment rulemaking or adjudication processes - does not capture how public agencies and private entities develop innovative regulatory strategies and earn regulatory authority as a result. In particular, this Article: explains how governmental agencies like the EPA and private entities like the United States Green Building Council ("USGBC") (which oversees the LEED standard) depend on entrepreneurial leadership to develop experimental regulatory strategies. It also explains how, in the wake of such experiments, legislative bodies have the opportunity to evaluate regulatory innovations in practice before deciding whether to embrace, revise, reject, or merely tolerate them. To be sure, such experimental strategies are not always preferable to traditional administrative rulemaking and adjudication, but considering experimental strategies and evaluating whether they would be more effective than traditional regulatory approaches is.

Legal scholarship on experimental regulation is well-developed in the context of states serving as laboratories of democracy. 10 Scholars have not, however, discussed the significant role that federal agencies and private bodies can play in experimenting with regulatory strategies in advance of congressional action. 11 Scholars have also failed to examine the role of entrepreneurial leadership in developing successful experiments. This Article: does just that, highlighting the importance of entrepreneurial leadership in government, discussing a number of [\*2015] emerging regulatory experiments, and suggesting how Congress should evaluate such experiments.

This Article: proceeds in four parts. Part I examines the traditional model of regulation and the emerging alternative models of agency action through co-regulation, developing best practices through convening, and encouraging private regulation. In so doing, it underscores that entrepreneurial leadership and a culture of experimentation and trial-and-error learning is essential to developing the best solution. Part II discusses the relevant criteria for evaluating such experiments and examines potential objections to the earned regulatory authority model. Part III discusses four case studies of experimental regulatory strategies: (1) the USGBC's development of the LEED standard; (2) the Federal Trade Commission's ("FTC") oversight of information privacy and data security practices; (3) the National Institute of Standards and Technology's ("NIST") development of a strategy for cybersecurity readiness; and (4) the Department of Health and Human Services' ("HHS") oversight of electronic health records. In all of these cases, the private body or federal agency acted to oversee an emerging technology or issue (often in advance of explicit congressional direction and guidance), allowing Congress to observe the strategy in action and evaluate it after the fact. Part IV examines the concept of policy entrepreneurship, explaining both the barriers and opportunities it faces in the modern administrative state.

I. The Traditional Model and Emerging Realities

The traditional model of regulation relies on notice-and-comment rulemaking and agency adjudication. 12 Under this model, the output - the starting point for traditional administrative law analysis - is generally a form of positive law developed and enforced by a government agency through traditional tools (rulemaking or adjudication). 13 As Professors Charles Sabel and William Simon have observed, this model, "pejoratively called command and control, is identified with rule-bound bureaucracy and deference to ineffable expertise." 14

The traditional model can be depicted neatly as a hierarchy. 15 Congress sets a specific policy direction and empowers an administrative agency to implement that policy. The agency, in turn, uses either its rulemaking or adjudication authority to implement that direction. Finally, owing to the agency's expertise and congressional authorization, courts review the agency's action with deference.

[\*2016] Driven by technological changes and globalization, regulatory agencies increasingly are looking to alternative regulatory strategies, many of which fit under the "New Governance" label. 16 In some cases, innovative regulators experiment with new approaches to address emerging issues and fill gaps in the existing regulatory regime. In other cases, an agency might experiment with a co-regulatory strategy (where the agency integrates its authority with private sector efforts); exercise its authority in creative ways, such as developing best practices through convenings; or rely on private regulation. In that last category, as is the case with Energy Star, the government agency (or private entity, for that matter) can certify compliance with best practices, thereby sharing valuable information with the public and shaping norms of behavior. 17 In each of the above examples, the regulatory agency acts not within a hierarchy, but within a network. 18

[\*2017] The traditional, hierarchical model follows a familiar, step-wise approach to regulation. 19 The first step is establishing a standard of conduct. 20 The second step is implementing that standard of conduct, generally through a monitoring regime. 21 The final step is enforcement, in which parties are sanctioned for any failures to comply with the rules. 22 This model of regulatory action still holds strong in some areas, but it is no longer - and should not be - the exclusive strategy for addressing emerging policy issues.

In the emerging, networked environment, regulatory agencies find themselves with a range of options and tools for developing standards of conduct, monitoring behavior in the marketplace, and enforcing or encouraging compliance. The conversation around such emerging solutions has taken a number of forms, sometimes under the headings of "responsive regulation," "experimentalism," or "New Governance." However framed, there is a pressing need for more adaptable approaches that can operate effectively in technologically changing environments or in fields where the circumstances differ across geographic (or other) contexts. 23 To address emerging challenges, regulatory agencies will increasingly be called upon to experiment with non-traditional regulatory strategies, requiring legislatures to monitor and evaluate the effectiveness of innovative regulatory initiatives after the fact.

A. The Limits of the Traditional Regulatory Approach

The traditional model of regulation is coming under strain in the face of increasing globalization and technological change. 24 Consider, for example, the traditional model of drug and medical device approval used by the Food and Drug Administration ("FDA"). The legacy model of regulation envisioned the FDA reviewing a drug and making an up-or-down decision on whether to approve the marketing of the drug. 25 By putting all of the pressure on the front [\*2018] end (ex ante), the legacy model creates two sets of challenges: (1) the pre-approval process takes a long time, costs a lot of money, and, in some cases, unnecessarily delays access to potentially beneficial drugs; and (2) the lack of a post-approval review process allows drugs to "be marketed despite evidence that they were doing unanticipated harm." 26 Unfortunately, the second type of error - a lack of responsiveness to on-the-ground realities - reinforces the first type of error, creating more pressure on the FDA to withhold approval until it satisfies itself that the relevant drug or device will not cause harm. 27

Congress is well aware of the limits of traditional ex ante regulation. In the food and drug arena, it has worked to update the FDA's model of regulation. In the Food and Drug Administration Amendments of 2007, for example, Congress gave the FDA increased flexibility to approve drugs and require ongoing research as to how the drugs work, called for an improved Adverse Event Report System at the agency, and mandated a framework for monitoring drug efficacy in practice. 28 More recently, the FDA established fast-tracks for approving drugs and medical devices that promise life-saving breakthroughs. 29 As the FDA explained with respect to the medical device review process, "reducing premarket data requirements while increasing postmarket requirements for devices subject to a [Pre-Market Approval], when appropriate, can assist the FDA in making medical devices available to patients sooner than if following the traditional premarket review pathway." 30

[\*2019] This Article: , while sympathetic to the need to reform existing regulatory structures, does not focus on this issue. 31 Rather, it explains how considerable flexibility for a range of alternative options exists within current structures and is already being used by agencies and private entities to great effect. As such, this Article: describes the underappreciated model of earned regulatory authority, calls for a more self-conscious use of this model, and explains how agencies can spearhead and implement this model successfully through entrepreneurial leadership and a culture of trial-and-error problem solving. 32

The role of a more imaginative approach to regulation relates back to the "responsive regulation" movement led by Ayres and Braithwaite. On their account, regulatory strategies can be conceptualized as an "enforcement pyramid," with "persuasion" on the bottom and "license revocation" at the top (as the regulatory equivalent of the death penalty for a regulated firm). 33 In all cases, a responsive regulation approach emphasizes dialogue and engagement around the impact of regulatory efforts in practice. 34 In so doing, it underscores that regulators need not always use their traditional tools (notice-and-comment rulemaking and adjudication). Rather than reflexively adopting traditional approaches, regulatory agencies can (1) embrace and oversee self-regulation (enforced self-regulation or co-regulation), (2) convene stakeholders to develop best practices, or (3) persuade parties to develop private regulatory initiatives. The next three Sections discuss each strategy in turn.

[\*2020]

B. The Promise of Co-Regulation

Even when using its traditional authority, an agency can operate more nimbly and effectively by integrating its efforts with private bodies who have expertise in the field. Where that integration involves the explicit embrace, oversight, and enforcement of actions by private bodies, the model of regulation is aptly described as "co-regulation." 35 For a successful use of co-regulation, consider the FCC's use of frequency coordinators to assign rights to use the wireless spectrum. As I have explained previously:

One notable self-regulatory program that the FCC has overseen is the use of frequency coordinators, which manage voluntary cooperation in the use of point-to-point microwave links and private land mobile radio systems. In that context, the coordinator evaluates requests for new licenses and certifies that such new licenses will not cause undue interference to established users. Consequently, while the FCC is the authority that grants or denies licenses as a formal matter, it routinely relies on and defers to the judgment of the frequency coordinator. This deference to the frequency coordinator facilitates cooperation around the use of the relevant licenses. 36

The importance of this co-regulation model is that the FCC's delegation of authority enables practical problem-solving on the ground by the frequency coordinator. As Dale Hatfield, a former Chief Engineer at the FCC, explained, this system works because it encourages the local engineers to "sit down together, solve these problems, and say let's figure out how to do it," limiting the need for the FCC to use its backstop authority. 37

The FTC's partnership with the Better Business Bureau's National Advertising Division ("NAD") operates in a functionally similar fashion to the FCC's use of frequency coordinators. 38 Notably, the NAD has developed an [\*2021] effective model of dispute resolution around misleading advertising issues, deciding an array of issues and referring cases, where necessary and appropriate, to the FTC. 39 Because the NAD has developed such a trusted program, FTC leaders have praised its work and relied on it to carry the laboring oar in this area, 40 leaving the FTC's residual authority as a backstop. In particular, the NAD refers cases to the FTC where a party refuses to participate in its process or comply with a decision. 41

Learning from the NAD model, the European Union is working with the European Advertising Standards Alliance to develop a similar approach to overseeing false advertising claims. 42 In this case, however, the governmental authority is actively involved in developing and supporting this body rather than integrating its work after the body developed on its own. 43 In short, government can either embrace existing bodies as part of a co-regulation strategy or stimulate and steer the development of new ones.

C. The Role of Best Practices and Agency Convened Efforts

For many regulatory agencies, the opportunity to act as a "convenor," to develop best practices, and to create "soft law" or norms is an important part of their mission. As former FTC Chair Bill Kovacic explained with regard to the FTC, "Congress gave the FTC capacity to serve as a convenor - to engage in a diverse array of activities that facilitate norms development," including "what we now call "soft law' measures (e.g., self-regulatory standards, proposed guidelines)." 44 In particular, Congress specifically authorized the FTC to collect information and develop reports on topics not immediately related to cases or regulatory matters before the Commission. 45 In Kovacic's view, the FTC has used its convening authority effectively, "improving understanding, building consensus, and supplying focal points for norms development" through thoughtful reports that distill key issues. 46

[\*2022] For a range of agencies, the role of developing and championing best practices is on the rise, 47 reflecting a number of trends. First, many agencies find themselves without sufficient authority to promulgate binding rules as new technologies emerge. Second, even where an agency may have formal authority, it might be reluctant to use it in the face of an emerging technology where it needs to act more quickly than formal notice-and-comment rulemaking allows. Third, the agency may lack sufficient confidence that a prescriptive rule is warranted and thus leaves open a range of options, merely narrowing the field of possibilities and pointing entities in the right direction. 48

To develop best practices effectively, an agency must invest significant resources in the enterprise. Stated generally, this effort involves "horizontal modeling rather than hierarchical direction" and is "a method of regulation in which central administrators provide advice and disseminate information, instead of mandating a one-size-fits-all regulatory scheme." 49 In an increasing number of cases, best practices focus not only on U.S. firms, but also those across the world, requiring that the regulatory agency coordinate its international counterparts. 50 Moreover, to develop emerging best practices, it is important that agency staff take the time to learn the details of "the regulated entities first-hand, develop a strong sense of emerging processes, and … [share] knowledge of these processes with staff at other locations." 51

Where an agency (or a private entity) identifies and disseminates a best practice, it acts as a "norm entrepreneur." 52 As discussed in Part III, the FTC has performed this role in the online privacy and data security contexts, articulating and recommending a set of best practices. 53 One virtue of this role - like soft law more generally - is that it may well make the adoption of more formal regulation less necessary. 54 To the extent that the articulation of the relevant [\*2023] norm itself does not overcome the collective action problem and catalyze compliance with a norm, a certification regime (like Energy Star) for those who are compliant (along with naming and shaming) might do so.

One path for catalyzing compliance, which can be labeled as "jawboning" or "threats," involves the use of apparent legal authority - say, opening up an investigation - to achieve a desired result. In a provocative article, Professor Tim Wu defends the use of "threats," calling for norm entrepreneurship by agency leaders and the development of limiting principles for the practice. 55 In criticizing Wu's argument, some commentators have characterized it as condoning lawless conduct. 56 In that spirit, I previously criticized the FCC's use of its merger review authority to secure outcomes in other contexts that were not specifically related to the merger. 57 I also called the FCC's use of "arm twisting" controversial when done without full transparency and a willingness to take formal action. 58 Finally, I noted that the tactic is "dangerous" if the agency is not willing and able to follow through with formal regulation if the called-for behavior does not take place, as the meaningless nature of the threat will become plain and the agency will lose credibility. 59

Any agency that develops best practices should be aware of the potential risks of such an effort. For starters, if an agency's identified best practices are allowed to become stale, some private actors might stick with them and fail to improve their practice. Second, given that there is no judicial oversight of best practices development, 60 it is important that agencies pre-commit to a level of procedural regularity and fairness in how they develop them. Third, without either carrots or sticks related to best practices, an agency may find it difficult to generate attention or catalyze compliance. 61

[\*2024]

D. Private Regulation

As exemplified by the LEED building standard, a private regulatory initiative can drive behavior toward a social goal. Given the need to respond to emerging issues more adaptably than traditional regulatory processes allow, public agencies may be tempted to rely on private bodies. 62 In the internet environment, for example, a range of issues are managed by multi-stakeholder organizations, which use "dialogue to develop voluntary norms and best practices." 63 Similarly, in the environmental field, a range of "private activity generates pressure on environmental behavior without resulting in a statute, regulation, agency enforcement action, or court decision for review by scholars and policymakers." 64

The role of private, multi-stakeholder efforts in internet governance is the U.S. government's official policy. 65 Since the development of the internet's basic technical standards in the 1980s and 1990s by groups like the Internet Engineering Task Force ("IETF") and the World Wide Web Consortium ("W3C"), "these entities have largely established the norms and standards for the global internet, but they are little known to the general public." 66 The U.S. government recently fully embraced this model, recognizing the need for internet policy and governance issues to be developed in an adaptable and global fashion. 67 This embrace includes supporting the Internet Corporation for Assigned Names and Numbers ("ICANN") as an independent, international body to oversee the internet's numbering system. 68

In the internet context, two private regulatory efforts bear notice, as both exist in tandem with legal and regulatory oversight. First, the Copyright Alert System (overseen by the Center for Copyright Information) was a cooperative effort between broadband providers and content providers focused on addressing [\*2025] piracy in peer-to-peer networks. 69 This initiative, which existed for four years, 70 provided some measure of guidance to the broadband industry on what sort of "repeat infringer" policy was reasonable. 71 In light of recent court decisions holding a broadband provider liable for failing to develop an appropriate repeat infringer policy, the guidance from this organization could be considered best practice and protect a provider from liability, 72 although its cessation of operations may limit its impact. Second, the Broadband Internet Technical Advisory Group ("BITAG") is a multi-stakeholder organization that seeks to define best practices and broadband network management ahead of any FCC action under its network neutrality regime. 73 In its most recent regulatory decision on network neutrality, the FCC highlighted its openness to "obtaining objective advice from industry standard-setting bodies or similar organizations," specifically citing BITAG as an example. 74

Both the Center for Copyright Information and BITAG relied on a mix of industry representatives and public interest advocates and operated in an open, transparent, and consensus-based manner. 75 Like frequency coordinators and the [\*2026] NAD, the bodies confronted the challenge of earning their legitimacy and claim to regulatory authority. If such efforts succeeded, the FCC and copyright courts would regard their guidance as meaningful, just as the FTC and courts do with respect to the actions of the NAD. 76

In the environmental realm, the Marine Stewardship Council ("MSC") is an instructive case study on how a multi-stakeholder private regulatory initiative can have a major impact. The MSC, founded by the World Wildlife Fund and Unilever, was launched to address the concern about fisheries operating in a sustainable fashion. 77 As one commentator explained, "the MSC administers standards for sustainable fisheries, updates the standards periodically with input from a stakeholder advisory group, evaluates fisheries, and allows those fisheries that meet certain criteria to label their fish as MSC-certified." 78 The MSC standard focuses on three core concerns: (1) maintaining sustainable fish stocks; (2) minimizing any adverse environmental impact; and (3) managing the fishery effectively, including compliance with relevant legal requirements. 79 Under the MSC-administered regime, independent private auditors must assess compliance with the relevant standards and compliant products can be labeled as such. 80 Indeed, the MSC regime allows any organization with concerns related to certification to make a formal objection during the certification process. 81

[\*2027] The MSC provides a powerful example of how private regulation can work even when not reinforced by public regulation. 82 By 2012, sixty percent of the fish caught in U.S. fisheries for human consumption were MSC-certified and major corporations, such as Wal-Mart and McDonald's, had committed to selling only MSC-certified, wild-caught fish. 83 Moreover, the MSC's private regime drove compliance with the nonbinding Code of Conduct, developed by the United Nations Food and Agriculture Organization, by making it part of its requirements. 84 After surveying this regime and formal regulatory efforts to address the issue, one commentator concluded that the MSC model was more successful than traditional regulatory efforts in this area and that "private regulation is best situated to address the complex problem of fisheries depletion." 85

In short, private regulatory efforts, such as those led by multi-stakeholder organizations, can influence private behavior whether they operate in tandem with public regulatory oversight or in a vacuum created by a lack of regulatory oversight. Whether they operate in the backdrop of public oversight or as a standalone effort, private bodies need to establish their legitimacy to influence behavior on the ground. To do so, they must have sufficient independence from those they oversee, enabling both regulators and consumers to trust their judgments (including determinations of compliance). 86

[\*2028]

E. Hacking the Bureaucracy

In most situations, Congress and agencies think along traditional lines and agency leaders continue on the established path of agency regulation, under-utilizing the alternative models discussed above. 87 There are a number of reasons for this dynamic, including the power of "path dependency and bureaucratic entrenchment." 88 Even more powerfully, the incentives for policymakers are often to avoid Type 1 errors - those visible errors of commission - that arise when trying a new strategy that might fail. By contrast, the hidden Type 2 errors - ones of omission - are permissible and a regular feature of bureaucratic inertia. 89

On one account, the challenge of leading a bureaucracy is captured by the reality that governmental employees, who enjoy civil service protection, can tell their politically-selected leaders, "I was here long before you arrived and will be here long after you are gone." In practice, such explicit defiance is the exception. Regardless of whether bureaucratic inertia is willful or based on an entrenched tradition governmental agencies are built to continue the same course. Consequently, any course corrections require energetic leadership. 90 And governmental employees are generally conditioned "to be quiet, take orders, and do their jobs in a repetitive way." 91 On the positive side, governmental employees tend to have a service orientation and are mission driven, meaning [\*2029] that effective engagement around the mission and purpose of the agenda can catalyze innovation and collaboration. 92

Bureaucratic inertia and autopilot administration not only prevent innovative programs from being developed, but also can lead existing programs to be administered badly. Take, for example, the development of the healthcare.gov website. After Congress passed the Affordable Care Act, a health care economist, David Cutler, encouraged the White House to treat the administration of the law more like "launching a start-up than passing a law." 93 In particular, Cutler made clear that the default strategy - using the existing personnel at the Center for Medicare and Medicaid Services ("CMS") - for administering the law was a recipe for failure. 94 In an assessment ignored by the White House, he explained that CMS "is demoralized, the best people have left, IT services are antiquated, and there are fewer employees than in 1981, despite a much larger burden." 95

Cutler's call for an entrepreneurial approach to implementing the Affordable Care Act was rejected by President Obama. 96 Perhaps fearing the need to manage political warfare with House Republicans or responding to the HHS' interest in protecting its turf, President Obama agreed to, in Cutler's words, pile "new responsibilities onto a broken system." 97 As this episode underscores, even when the current system is flawed, the pressure to use it is powerful. As a result, the healthcare.gov website cost $ 800 million to develop, whereas Twitter, which serves a similar number of users and is of comparable complexity, cost only $ 60 million. 98

The redeeming part of the healthcare.gov story is that it demonstrates that treating a government project like a startup can work. After the failed rollout of healthcare.gov (which only enabled six people to sign up for insurance on its first day), President Obama essentially embraced Cutler's recommendation, [\*2030] authorizing Todd Park, Mikey Dickerson, and a team of entrepreneurs to operate in a new structure that was called "tech surge." 99 This project, like a good startup, approached the challenge of building an effective website from first principles. Rather than ask how the government had done IT projects before, the team innovated (for government) in a number of important ways, including using Amazon Web Services to support the site. 100 In developing the new website, it broke from the traditional bureaucratic process of "waterfall" development (where every step is prescribed and locked-in) and used "agile" development (where the process is iterative and evolves along the way). 101 Finally, the team built a login system for $ 4 million (with annual maintenance costs of $ 1 million) to replace the initial version that did not work well and cost $ 250 million to build (with $ 70 million annual maintenance costs). 102

In an important legacy of this effort, Park and Dickerson continued to work in government after fixing healthcare.gov, developing the new U.S. Digital Service ("USDS"). 103 The goal of the USDS is to lure a range of talented technology professionals to the federal government, including data scientists, product managers, and product designers. 104 The USDS, in turn, provides guidance to government agencies on questions like how they can use Amazon Web Services. 105 In short, the USDS supports entrepreneurial leadership in government; and as Park said, it develops "people who can hack the technology, as well as people who can hack the bureaucracy." 106

The healthcare.gov story now has two parts. The first is the cautionary tale about government's traditional inertial default setting - that is, to do things as they were done before. The second underscores that entrepreneurial leadership [\*2031] in government is both possible and important, and can lead to transformative results. 107

The positive legacy of the healthcare.gov story is that entrepreneurial leaders in government can free their agencies from "the mental grip of conventional structures on the capacity to consider alternatives." 108 In so doing, such leaders can facilitate the development of alternative regulatory strategies. Similarly, governmental agencies face the challenge of overcoming the institutional bias that "experts may myopically focus on issues within their area of expertise and thereby fail to recognize that a decision would benefit from accessing other bodies of knowledge or ways of thinking." 109 In short, an important role of entrepreneurial leadership in government is to examine issues through the lens of first principles. 110

The concept of policy entrepreneurship recognizes that an entrepreneurial mindset and skillset can be applied to governance to foster innovative results. Professor Adam Sheingate, for example, defines the concept as the "skillful manipulation of politics [that] somehow results in the creation of a new policy or a new bureaucratic agency, creates a new institution, or transforms an existing one." 111 This type of leadership can also be seen in the development of, for example, the MSC program, the FTC's oversight of online privacy, and the Energy Star program. In a world where the best solutions may well require new models of regulation, it is critical that agency leaders experiment with new solutions. 112

[\*2032] A significant hurdle for entrepreneurial leadership in government - and a foundation of the inertial default setting - is the lack of acceptance of failure as an outcome. In practice, this means that governmental agencies often reflexively turn to traditional regulatory models and do not consider untested alternatives (often out of fear of failure). 113 This instinct mirrors the old private sector saw that "nobody got fired for buying IBM." 114 Citing the fear of failure and risk aversion, former Massachusetts Governor Deval Patrick explained, "there may be no industry less susceptible to innovation than government." 115 There are, however, exceptions, including the Defense Advanced Research Projects Agency ("DARPA"), which makes a conscious effort to promote a "risk-taking and failure-tolerant culture." 116

In the entrepreneurship environment, failure is a normal state, providing data, an opportunity to iterate, and a spur to refine a product offering. 117 Consequently, entrepreneurs celebrate the need to "fail fast" on new experiments by trying them on a small scale and determining as quickly as possible whether they can work. 118 As two advocates of innovation in government put it, "[a] [\*2033] culture of innovation means continuously exploring and adopting new processes in an ecosystem where risk is incentivized, not precluded." 119 Similarly, entrepreneurial leadership in government authorizes calculated risk-taking and, more importantly, provides cover for trial-and-error learning when the trials do not produce the envisioned results. 120 Unfortunately, leaders who support experimentation and are willing to accept the inevitable failures, are the exception, not the rule. 121

The basic entrepreneurial methodology of experiment-measure-iterate is captured in Eric Ries's classic book, The Lean Startup. 122 A core thesis of the book, widely accepted in the entrepreneurial community (and ignored by most legal scholars), 123 is that companies should develop and market a "minimum viable product," solicit feedback from actual customers, and improve it based on that data. 124 At Facebook, this philosophy was adopted and embodied in its mantra, "done is better than perfect." Citing that mantra, one commentator explained that "had Facebook waited so much as a year to perfect its model, the company might very well be where MySpace is today." 125

The Ries philosophy is famously captured in a feedback loop representing the cycle of innovation. 126 The core idea is to embrace experimentation, gather data [\*2034] (whether it signals success or failure), and iterate. 127 The lean startup model, represented by the following diagram, focuses on taking ideas from prototype to feedback to improvement: 128

This lean startup model echoes the style of software development championed by open source software, which calls for releasing code that can be viewed and improved by a community of users and developers. In what Eric Raymond dubbed "Linus's Law," in honor of the founder and coordinator of Linux, the open source maxim is "given enough eyeballs, all bugs are shallow." 129 This approach has spread far beyond open source, enabling "business webs where focused companies partner others to innovate and create value." 130 Although this [\*2035] approach and a commitment to prototyping and testing solutions is novel in government, it is starting to take root, with promising results. 131

With respect to the fear of failure, government operates quite differently than the entrepreneurial world. In government, the perceived costs of failure are sufficiently high that many governmental leaders decline to introduce a new initiative for fear it will fail or refuse to admit that an existing program is failing, even though that admission is a necessary predicate for improvement. To be sure, there are cases like the initial healthcare.gov rollout where the failure is readily apparent and must be fixed. In other cases, however, governmental leaders stand by programs where the data backing up its effectiveness is either uncertain or doubtful.

For an instructive case of governmental leaders refusing to acknowledge the limitations of a program, consider the case of the EPA's Performance Track program. When created, the program was supposed to highlight those companies with stellar environmental records. 132 In practice, however, it ultimately became, as EPA Administrator Lisa Jackson put it, "just one of those window-dressing programs that has little value." 133 Similarly, the EPA Inspector General criticized the program as ineffective, noting that it did not provide "a new model for achieving" its stated goals and very few companies met their stated goals. 134 Nonetheless, the Bush Administration did not make any real changes to the program before the Obama Administration cancelled it. 135

The Performance Track program story, like the failure to acknowledge the failings of the healthcare.gov website earlier, underscores that the hesitancy to acknowledge failure is a major challenge in governmental administration. If governmental leaders refuse to acknowledge failures, they undermine the ability to learn - and iterate - from mistakes and instead allow failed programs to [\*2036] continue during a period of denial. 136 Or, as Lawrence Summers put it while reflecting on the healthcare.gov debacle, it is crucial to resist the "overwhelming temptation for everyone involved [in a project] to circle the wagons and promise rapid repair so as to hold critics at bay." 137

Another challenging dynamic for governmental leaders to address is the impact of unconscious bias. It is normal for those involved in a project to believe that it is working, following what Nobel Laureate Daniel Kahneman calls "confirmation bias." 138 As one commentator put it, a challenge for those evaluating regulatory experiments is that those "deeply involved in the implementation of a particular regulation are likely to see the benefits of such a project far more clearly than the costs." 139 As commentators have explained, there are a number of strategies for overcoming this bias, including using red team-blue team exercises, appointing a Devil's Advocate, and creating a process for deliberate decisionmaking. 140 Of course, as happened in the Performance Track situation, new leadership is able to bring a fresh perspective. Ideally, however, existing leaders can step back and ask, "if a new leader came in and took a fresh look, what would she do?" 141

[\*2037] The role of entrepreneurial leadership in encouraging candid reflection and criticism is essential. As former FTC Chair Bill Kovacic and David Hyman explain, agencies develop an institutional culture and a reputation (or a brand, as they put it). 142 In some cases, that brand can be one of reliability and commitment to data-driven decisionmaking. An important role of an entrepreneurial leader is to develop and maintain that commitment. In the case of Underwriters Laboratory ("UL"), for example, its early leadership did just that, building up "UL's reputation for reliability by creating organizational structures, administrative routines, and oversight systems designed to prevent mistakes and misconduct." 143 To get past the natural status quo bias, an entrepreneurial leader should welcome diverse ideas, criticism, different options, and experimentation. 144 In Part II, to explain how policy entrepreneurship can earn regulatory authority, I discuss how experimental initiatives need to establish their effectiveness, legitimacy, and accountability to be embraced as lasting regulatory regimes.

### 1AC---Plan

#### The United States federal government should prohibit anticompetitive practices by participants in the blockchain nucleus.

### 1AC---Solvency

#### Contention 3 is SOLVENCY.

#### Prohibiting anticompetitive practices by the blockchain nucleus creates a principled basis to apply antitrust to distributed ledgers without overbroadening liability for all users.

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2 BLOCKCHAIN’S LEGAL FICTION

In this section, I introduce the theory of granularity and outline how it enables the application of antitrust law to blockchains. Transactional by nature, that theory aims to explain public permissionless blockchains beyond the simple cost reduction framework. It seeks to translate accurately the governing reality of such blockchains, creating for the purpose a new legal fiction that encapsulates blockchain without forcing it into inadequate boxes.

2.1 Dynamics of Blockchain Governance

The theory of granularity, to which one may want to provide a semantic explanation, frames blockchain governance as a new transactional institution. By doing so, it fills the gap created by the impossibility of applying the theory of the firm to public permissionless blockchains.

2.1.1 Semantic explanation

In “The Nature of the Firm”, Ronald Coase distinguished between organizations and organisms.3 While firms are organizations, blockchains are clusters of organisms that, by nature, are spontaneous. Their functioning must be analyzed and understood this way so that antitrust and competition law can be properly applied when necessary.

The present chapter introduces the theory of granularity for the purpose. Generally, the notion of granularity defines the size of the smallest element in a system - that is, an organism. Thus, this theory aims to analyze the role played by each component of a blockchain. Unlike the firm, where vertical control is exercised over its components, blockchains are made up of horizontal governance mechanisms. This reinforces the importance of each organism, as one cannot merely assume that they will follow one coordinated direction.4 One must then study blockchain’s smallest organisms, the role they play and their dynamism.5 It is only by analyzing the granularity level that blockchain governance can be properly understood.6

2.1.2 Understanding blockchain governance

Blockchain is a space in which different forms of power are being exercised. However, unlike the firm, in which one exercises a power of command and control, I have explained that no single actor can entirely control a public permissionless blockchain.7 As a result, multiple interests can compete within the same blockchain; they may even be opposed. Blockchain “contribute[s] to the realization of a number of individual objectives which no one knows in their totality”8 For that reason, one must study the different types of power that are generally found within public permissionless blockchains to understand which interests may eventually prevail over others. In doing so, we should keep in mind that “people who think the purpose of blockchains is to completely expunge soft mushy human intuitions and feelings in favor of completely algorithmic governance (emphasis on ‘completely’) are absolutely crazy.”9

I study blockchain power games by analyzing what I have described as the fifth blockchain level in Chapter 4: the governance layer. That level sits on top of more technical ones, and it appears to be central in defining the activities at the levels above. Furthermore, different constraints come into play in blockchain governance - namely, economic, political, logical, sociological, architectural and legal ones. Understanding how these constraints interact is a challenge; but it is essential in order to get a grip on who holds control over blockchain layer 1 and how that power is exercised over other participants.

A distinction between all three categories of public permissionless blockchain participants is helpful in this regard - namely, between founders or core developers (I will often present them together for the sake of simplicity), users and miners. I show that although each blockchain has its specificities, the above-mentioned groups will use the same mechanisms to express their preferences,10 and will encounter the same limits if they act on their own. Eventually, their powers may suffer from four constraints that Lawrence Lessig described with his “pathetic dot theory”: law, markets, social norms and architecture.11

As for private blockchains, I have explained that they mimic that structure to different degrees, depending on their original design. The closer they are to public permissionless blockchains, the less the theory of the firm will be transposable to them. The following developments then become relevant for public permissionless as well as private blockchains.

2.1.2.1 The power of founders and core developers'2

Blockchain founders and core developers are those who implement the original rules of a blockchain.13 They design the code software and determine which consensus protocol will be used.14

Although core developers work on the fourth level of blockchain - its infra- structure - they interact with other blockchain participants at the fifth level. Indeed, one may stress that the blockchain architecture limits their power, as they lose any form of direct control over other participants once they put the blockchain online.15 For most blockchains (but not all!),16 founders and core developers cannot unilaterally impose any changes17 or control who may propose protocol updates.18 For instance, any Bitcoin Improvement Proposals must be voted upon, according to miners’ computing power, before they get implemented.19 Indeed,“[t]he nature of Bitcoin is such that once version 0.1 was released, the core design was set in stone for the rest of its lifetime,”20 unless the majority agrees to change it.

The more participants are included in those voting procedures, the more decentralized that blockchain layer is.21 The opposite is also true. For instance, Decred22 and Tezos23 are cryptocurrencies with more centralized governance systems. One of Tezos’ principal characteristics is the ability to amend its consensus when necessary.24 The presence of off-chain and side-chain governance mechanisms, usually controlled by developers, should also be closely studied.25

It remains that core developers do not control who can use the blockchain at the platform layer26 or who can build applications on top of it.27 That is because blockchain founders and core developers cannot impose changes on the blockchain code, interface, application, data or benefice.28 Their main role is thus close to that of “advisors,”29 but their influence is limited by blockchain participants’ desire to maximize their own benefit, which may lead them, should they disagree with core developers, to refuse the implementation of new rules, to move to a rival ecosystem or to fork the blockchain.30 Social norms further limit them because they may fear not being influential enough to prevent hard forks.

Hard forks result in backward-incompatible software updates. When they do not obtain a sufficiently broad consensus among miners,31 hard forks cause the chain to split in two, permanently. Indeed, miners who do not follow the new block validation requirements will be unable to add their blocks to the latest version of the blockchain, as the core client will automatically reject them as non-compliant. Instead, a new chain of blocks will form, creating a split: two chains following different rules. These forks limit the core developers’ willingness to act against the interests of other participants.32 And core developers may also fear soft forks, although to a lesser degree. Soft forks happen when new rules are implemented, but when the blocks following the original rules are not rejected from the chain. These modifications are backward-compatible, accommodating miners who implement the change and those who do not. Nevertheless, one should underline that these limits on core developers’ power are linked to the decentralized nature of blockchain governance, which is not a necessary feature, but needs to be enacted.33 New blockchains may appear in which greater power is given to the founders and core developers.34

However, such blockchains will suffer from two inherent limits. First, the extent to which a (re)centralized blockchain could thrive remains to be seen.35 Such blockchains could deplete trust by confining power in the hands of a few, thus disincentivizing users from joining them. Second, a (re)centralized block- chain could function less efficiently than a truly decentralized one, because all its participants would no longer be in a position to improve it. This lack of efficiency, even if it only concerned certain types of transactions, could hinder these blockchains - which probably explains why, to this day, they have not prospered.

2.1.2.2 The power of users36

On permissionless public blockchains, users propose new transactions. Anyone can become a user.37 Users exercise substantial power over the blockchain, since their decision to use it (or not) is central to the blockchain’s economic and social value.38 Their influence extends from influencing transaction fees39 to providing additional value by developing and using applications running on top of the platform layer.40 They can also force hard forks on the blockchain.41 However, their power is limited by the fact they cannot (easily) exercise coordinated control, as their actions are highly decentralized and spontaneous.42 This creates an architectural limit and makes their behavior primarily dependent on prices.43

2.1.2.3 The power of miners44

On permissionless public blockchains, miners validate transactions assembled into blocks. Any participant can become a miner.45 Miners follow the rules encoded in the fourth blockchain level (e.g., the Bitcoin Core client).46 They can comply with a different set of rules, but they will then waste computing power by producing an orphaned block, thus losing potential rewards. Following the main client’s rules is miners’ dominant strategy.47 If they coordinate their behavior, miners can influence a blockchain by realizing a 51 percent attack,48 thus forcing a soft fork.49 The risk is higher when miners are grouped into mining pools.50 In such a scenario, the blockchain protocol is changed to loosen the rule-set enforced by full nodes.51 Such a change occurs when enough hashing power, or energy expended to mine a cryptocurrency, is devoted to it.52 The power of miners to start soft forks is nonetheless limited by both the blockchain’s architecture53 and social norms - they must convince blockchain participants operating as nodes to run the new version of the software.54 Miners also suffer from market constraints, as initiating a soft fork may decrease the value of the tokens they own.55 The price mechanism also guides their actions, creating a strong market-related constraint. Finally, even if a fork were created, the new community would have the strenuous task of convincing other users to join it.56 For example, Bitcoin had been forked over 100 times at the time of writing. Over 30 of them are considered failures, while another 29 projects are no longer capable of transacting. Among the remaining forks Just a few are considered valuable.57

2.1.3 The blockchain power game

This overall balance of power, common to all public permissionless block- chains, is the general analytical framework (as illustrated in Figure 7.1) within which to analyze whether one of these groups, on a case-by-case basis, has sufficient influence to qualify as control under antitrust or competition law.

On top of all that, core developers, users and miners may also store a copy of the blockchain ledger. When doing so, their computers are labeled as light nodes if they store only a subset of the blockchain ledger and full nodes if they store a copy of the entire blockchain.58

Although these nodes are passive and cannot be designated as actors in the blockchain, they ensure its integrity. This role carries power. First, blockchain participants who are nodes may alter their copy of the blockchain.59 Second, they may also (threaten to) validate blocks in which there is double spending.60 Their job is indeed to prevent users from spending the same token twice by allowing miners to verify the proposed transaction against a list of previous unspent transaction outputs. They protect blockchains value. However, their power is mainly limited by the fact that they cannot either control or influence transactions.61

This is the blockchain power game. It is well balanced, and technical solutions (called “layer 2” solutions) are constantly provided to maintain that balance. But these solutions are insufficient to maintain balance when different groups of blockchain participants come together to escape these constraints to the detriment of the broader ecosystem. When this occurs, they are exercising control over the blockchain.

2.2 The Blockchain Nucleus

Thus far, the theory of granularity has allowed me to determine the different forms of power enjoyed by blockchain participants. I must now detail how to identify a legal fiction controlling the blockchain.62 To this end, I explain what a blockchain nucleus is and then analyze its influence over other blockchain participants. 1 then describe how to define such a nucleus.

2.2.1 Usefulness and challenges

2.2.1.1 The nucleus

None of the three types of blockchain participants - core developers, users and miners - can impose their power on other groups to the point of taking complete control over the blockchain. Blockchains are indeed decentralized. They prevent the exercise of vertical power, and this differentiates them from firms in which a group, or sometimes even an individual, can control the other participants and “force them to collaborate,” so to speak.

That being said, even with horizontal and decentralized governance, a group of participants may achieve a form of control over the blockchain by collaborating, by circumventing (some of) the constraints imposed on them,63 and by changing them in the long run.64

I contend that such a coalition exists for each blockchain (at least, for the surviving ones),65 and I call it the nucleus. The nucleus includes all the participants who have a personal interest (albeit transiently) to collaborate toward the same long-term goal: ensuring the blockchain’s survival.66 Its members do not compete as they are, together, trying to maintain and expand their blockchain. Their short-term interests may diverge from time to time67 - for example, when two miners are racing to mine new blocks.68 Still, they seek to ensure blockchain integrity and systematically promote the same blockchain instead of other ones.

2.2.1.2 Usefulness

Assessing which participants have joined forces and are thus part of the nucleus is essential to determine who ultimately controls the blockchain. Put differently, it leads to identifying the participants that can be held liable for a breach of antitrust law when it is shown that they have anticompetitively exerted their influence.69 Identifying the nucleus amounts to creating a legal fiction to which the law can be applied, but also to which rights can be granted (see Figure 7.2).

The nucleus should indeed become a legal fiction that can be liable for anticompetitive practices, but also able to claim damages. In that regard, determining the nucleus size will prove central. It will prove useful in cases of anticompetitive practices directed at a blockchain nucleus. When a legal entity - whether a blockchain nucleus or a firm - infringes antitrust law and causes damages to another nucleus, the latter must have the means to introduce a legal action, stand by its rights and claim damages. Assigning liability and granting rights to blockchain ecosystems are thus two sides of the same coin.

3 DEFINING THE NUCLEUS SIZE

Courts and antitrust agencies will face the task of determining the nucleus size. The further away a participant will be from the nucleus’s center, the more difficult it will become to genuinely include her or him in the nucleus. With distance, it will prove harder to show that she or he could have influenced other participants’ behavior. Only a case-by-case analysis can elucidate this question. This analysis should nevertheless be based on concrete and quantifiable frameworks to ensure legal certainty, limit legal errors and reduce regulatory costs. To this end, agencies should focus their investigation on economic agents’ ability to exert a horizontal power of command and control. They should also consider their capacity to interfere with the blockchain’s economic value and influence norms.70

Let me be more specific. The first element that should be factored in to determine which participants are part of the nucleus is the technical ability to exert a horizontal quasi-power of command and control. One must assess each blockchain’s architectural characteristics to determine whether a few users may impose such decisions on others. The more a group of users can control others, the more they can single-handedly contribute to the block- chain’s survival, and therefore be considered part of the nucleus. In fact, the original design of a blockchain can give one of the three groups of users more or less power. It can put them in charge of implementing the execution of transactions, designate them as miners or even enable them to change the design a blockchain’s design unilaterally. Some blockchains might also use several mechanisms based on the platform layer to create governance (whether off-chain or side-chain).71

The second element is the ability of each participant to interfere with the blockchain’s economic value.72 When some users govern the pricing structures, the blockchain’s attractiveness or economic incentives, they have indirect control over the blockchain. This ability can be assessed by looking at technical elements. For instance, the capacity to change the size of each block, which may alter the number and types of transactions, is a sign of control. The same goes for the power to propose modifications to the core code to attract new participants. Finally, the more a participant has invested in the blockchain, the more he has an incentive to control its economic value.73 For that reason, previous investments in a blockchain can show agencies where to look for the nucleus.

The third element is the ability to influence a blockchain’s norms.74 Here, “norms” are defined as the “constraints imposed not through the organized or centralized actions of a state, but through the many slight and sometimes forceful sanctions that members of a community impose on each other”75 - that is, the unwritten rules that one often feels compelled to follow.76 The more a participant can incentivize others to behave in a certain way - on pain of rejection from the community - the more they exercise control over the blockchain’s general direction.77 For example, when core developers can influence other participants into accepting all of the modifications they would like to apply to the core (e.g., by arguing about the necessity for technical upgrades, security failures, bugs...), they effectively pilot part of the blockchain.

4 THE THEORY OF GRANULARITY IN ACTION

The theory of granularity would enable agencies to identify a blockchain’s nucleus. It would thus permit the creation of a legal fiction to which antitrust can be applied. In turn, this would impose new obligations upon blockchain participants while simultaneously giving them new means to challenge anti- competitive behavior. This theory would make it possible to analyze relevant markets and market power in antitrust proceedings. The theory of granularity would also make it possible to impute anticompetitive practices to a given set of blockchain participants.

#### Antitrust is limited by application only to the ‘firm’, defined by vertical control---modifying this with targeted prohibitions prevents blockchain centralization.

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The second part of this book is dedicated to artificial centralization - namely, anticompetitive behaviors that take place on blockchains or are facilitated by them. 1 contend that studying these practices is essential to make blockchain and antitrust law function as allies; indeed, no sustainable cooperation is possible without addressing (and preparing for) the situations in which mutual aggressions will occur.

To this end, I first analyze the extent to which antitrust laws are currently applicable to blockchains. I show that the theory of the firm is central to modern antitrust (Chapter 6) and that it cannot be transposed to all blockchains. For that reason, I propose a new approach - dubbed “the theory of granularity”- which allows for the creation of a legal fiction, placing blockchain’s activities (back) under the rule of law (Chapter 7). I explain that implementing that approach would benefit all the players in the blockchain ecosystem. This would clear the way for law enforcers to apply the rule of law and, in turn, would help eliminate the most harmful practices and encourage investments. Once the question of applicability has been cleared up, I turn to how antitrust law could be applied to anticompetitive practices. To this end, I begin by looking at collusive practices, whether they concern the blockchain itself (Chapter 8) or make use of the blockchain to affect the “real space” (Chapter 9). 1 explain that these practices tend to centralize decision making power and thus contribute to the “artificial” centralization of different levels of block- chain ecosystems and the economy.

Part 2 closes by examining abuses of market power. I first show that the analysis of market power on blockchain raises several difficulties, and I offer suggestions to overcome them (Chapter 10). I then analyze the practices that may result from such power and show that they are heterogeneous (Chapter 11). I draw a risk map. Finally, I conclude by studying different forms of blockchain concentration (Chapter 12). I draw a distinction between hostile and mutually agreed concentrations and explain how these may recentralize blockchain.

6. The theory of the firm

1 LEGAL FICTIONS

The concept of “legal fiction” is central to all legal systems, although regulation and court decisions refer to it only infrequently. I first explain its meaning by taking a brief detour through... trees and forests. I then show why it is useful for the present study.

1.1 Trees as a Legal Fiction

Christopher D. Stone is a law professor in the United States. In 1965, after a stint at the University of Chicago,1 he joined the University of Southern California Law School, where he taught several subjects, including public international law and property law. One day in the fall of 1971, as he was nearing the end of a class, he asked his students the following question: “What would a radically different law-driven consciousness look like?” As he walked out of the classroom, down the corridor to his office, he wondered why he had asked such a strange thing. “How could a tree have rights,” after all? Days went by, and still he continued to wonder. He soon became convinced that the answer to his question should be positive and decided to make it known.

In October that same year, he got in touch with the Southern California Law Review's editor in chief. The Supreme Court had taken up a case, Sierra Club v. Morton, that touched upon his question. Although Stone did not think he would be able to publish his article before the case went to trial, he hoped that Justice William O. Douglas - who had agreed to write the preface to a symposium issue of the Review - would at least see the draft of his article. His strategy paid off. Although the Supreme Court decision did not follow his thesis, Justice Douglas wrote a dissent in which he held that: “Contemporary public concern for protecting nature’s ecological equilibrium should lead to the conferral of standing upon environmental objects to sue for their own preservation. See Should Trees Have Standing?”2 In 1974, Stone published a book in which he developed his theory further.

1.2 The Concept of Legal Fiction

Christopher Stone’s book is a pillar of modern thinking on the subject. Of course, the argument concerning what is a legal person - or a legal object to which rights are attributed - did not originate in the 1970s. Since medieval times, scholars have considered what rights should be attributed to corpo- rations3 - a debate they centered on the question of legal fictions. A “legal fiction” is presumably defined as a fact created by courts or legislation to help legal ruling.4 Stone poses three conditions for the creation of a new one:

They are, first, that the thing can institute legal actions at its behest, second, that in determining the granting of legal relief, the court must take injury to it into account; and, third, that relief must run to the benefit of it.5

A company meets these criteria. Legal systems have recognized them as a legal fiction for hundreds of years.6 Corporations are, in the words of John Sherman, “artificial person[s] without fear of death, without a soul to save or body to punish;”7 and yet they are at the center of our modern economies. Not only has the law “been able to exploit to its advantage and to maximize for its needs” the fact that corporations are persons; but also, they can file legal actions, suffer from damages and benefit from relief. One can find traces of that recognition in the Rolls of British Parliament in 1444: “they [the Master and Brethren of the Hospital] by that same name mowe be persones able to purchase Londez and Tenementz of all manere persones.” Here, the Hospital was recognized as a legal fiction.

As for the process of establishing legal fictions - once the criteria are known to be met - three methods have been used,8 whether by the courts (in common law) or by the legislature (in civil law). The first is by assertion, where one thing is declared to be true. For instance, one may say that corporations are persons. The second is by assumption - more specifically, by an irrefutable presumption that may morph into a legal fiction. For instance, one may say that corporations are presumed to be persons. The third is by deeming. Here, X is deemed to be Y, which creates a disconnect between the reality before deeming the fact, and after.

1.3 Legal Fiction and Blockchain

If legal fictions are so convenient, why not create a multitude of them? The first objection is the necessity to agree on the desirability of the objective they ought to achieve. When courts use legal fictions to deny minorities their fundamental rights, the objective is achieved, but society does not come out better.9 The second objection relates to the balance of power. Bentham called legal fictions “the stealing of legislative power” when courts create them. The third objection relates to the difficulty of creating a coherent legal system. Companies are legal persons, and although they can be charged with criminal activity, these crimes are committed by physical entities (persons). One must therefore put in place adequate measures to ensure that any illegal activity by a firm can be put to an end (that its perpetrators cease to act). The fourth and final objection concerns the systematization of the law. The creation of legal fictions leads to the elimination of case-by-case analysis, at least partially. For instance, a firm will always be a legal person. That may create difficulties because it entails giving the firm all the fundamental rights given to us, humans.

On the other hand, creating legal fictions significantly improves legal certainty. First, this applies to the entities directly concerned, which as legal fictions may bring actions under their own name and can thus be compensated for any damage they might unjustly suffer. It also creates legal certainty for all those who interact with these legal fictions, as trading partners can indeed bring legal actions against them. It helps when legal fictions rather than individuals benefit from illegal practices and cases where several individuals are responsible for a behavior. In short, although the creation of legal fictions is an exercise that requires precision, it unlocks a range of potential interactions that can greatly benefit society.

I intend to explain that creating a new legal fiction for blockchains is essential to their decentralization. I have argued that decentralization is the capacity of subjects to determine their competence. That requires recognizing their legal existence before transferring such capacity. Doing so will also allow them to introduce proper legal actions and prevent illegal behaviors being turned against them.

2 THE FIRM IN ANTITRUST

Antitrust’s most common legal fiction is the firm. That legal fiction has developed little since the 1930s and Ronald Coase’s work. For that reason, one may wish to understand its premises to get a grasp of modem antitrust law.

2.1 The Theory of the Firm

The economic literature regarding the emergence of firms emphasizes the importance of transaction costs and the ability to reduce them thanks to top-down control. To this day, that theory has provided the bedrock for modem microeconomic analysis.

2.1.1 Highlights of Ronald Coase’s article

In 1937, when he was 21 years old, Ronald Coase published “The Nature of the Firm.”10 It contains no mathematics and is just 20 pages long, but it remains one of the most-cited publications in economic theory today." One can hardly overstate its impact.12

In it, Coase sought to answer the following question: if markets are efficient, why do firms emerge? Coase responded simply and elegantly, stressing that firms make it easier to organize certain exchanges. Coase introduced the concept of transaction costs without naming it - referring to all the expenses the parties must incur to complete a transaction - and explained that firms exist to minimize these costs.13 Indeed, a transaction involves different costs - the costs of finding economic agents on the market, negotiating, drafting a contract and so on. By internalizing these various externalities, firms reduce the cost of economic transactions. Firms were thus seen as an institutional device for the first time.14 Coase opened the firm “black box.”15

He then explained why firms reduce these costs. His explanations came down to the power of command and control.16 Firms are hierarchically organized: orders and directions are given from the top and trickle down the hierarchy. This reduces the scope for costly opportunistic behavior that might otherwise make transaction unprofitable. Put differently, the reduction of these costs is often achieved by collaboration between employees, while market participants outside the firm are compelled to compete.

In Coase’s words, “in place of the complicated market structure with exchange transactions is substituted the entrepreneur-coordinator, who directs production.”17 Reductions of costs follow, as “by forming an organisation and allowing some authority (an ‘entrepreneur’) to direct the resources, certain marketing costs are saved.”18 Coase thus defines the “firm” as “the system of relationships which comes into existence when the direction of resources is dependent on an entrepreneur.”19 On the contrary, this kind of efficiency is not found in the market, where free economic agents compete under emergent orders. One can thus define the boundary between the firm and the market: where control stops, the firm’s perimeter stops.

Coase particularly emphasized the firm’s ability to deal with contingencies during the performance of a contract. While firms manage long-term relationships, the market mainly permits short-term contracts based on the price mechanism.20 Thus, Coase argued, “it seems improbable that a firm would emerge without the existence of uncertainty”21 in the market. This assumption is based on the theory of incomplete contracts, according to which the contracting parties cannot anticipate all the situations that may arise during their contract’s performance.22 The firm helps in creating a way to settle disputes, which as a result reduces all the upfront costs related to the management of potential conflicts. Here again, Coase put the firm’s ability to exercise control at the center of his demonstration. He was awarded the 1991 Nobel Prize in Economics for “his discovery and clarification of the significance of trans- action costs and property rights for the economy’s institutional structure and functioning.”23

2.1.2 Coase’s impact

Coase’s article put transaction costs at the center of modem economics, making them “the ultimate unit of microeconomic analysis.”24 Although Coase complained in 1988 that the concept was “largely absent from current economic theory,”25 it has transformed the perception of the firm from a pro- duction function into a governance structure.26

This transformation of economic thinking heavily influenced Oliver Williamson, among many others.27 He researched the optimal design of firms28 and helped to open the firm “black box” even further, putting the firm’s “control instruments”29 and the “means by which to infuse order”30 at the center of his analysis. Williamson was awarded the Nobel Prize in Economics in 2009.

Alternative theories to those of Coase have also developed. For instance, incentive theory portrays the firm as an incentive system that uses various instruments combining authority, ownership and compensation to ensure that all employees contribute their best to the firm’s interests.31 The theory holds that firms must adopt institutional arrangements that ensure survival by aligning these incentives. They are thus a nexus of written and unwritten contracts between different economic actors in which each contractual relationship is an agency relationship, whose optimal configuration must be discovered. According to the proponents of this theory, there is no difference in nature between firms and the market. Both are said to depend on contractual relationships that do not imply any exercise of authority or control. As I will explain, none of these alternative theories is currently being used in antitrust and competition law.32

2.2 A Pillar of Modern Antitrust

Although Coase’s theory was developed in the 1930s, modem antitrust is still constructed on the basis of this theory and has not adapted to changes in the nature of firms. Why is that? One may find a satisfying explanation in the fact that the nature of economic hierarchies has changed little to this day. Even the apparition of online platforms and aggregators has not changed the structure consisting of minimizing transaction costs thanks to vertical power. In a nutshell, Coase’s theory is here to stay. As a matter of fact, and as we are about to see, all modem antitrust case laws and regulations are based on the above-mentioned article, whether in the United States or Europe. More specifically, Coase’s theory helps point out where control is being exercised and, therefore, where the firm’s boundaries are. Antitrust and competition law applies to all entities defined accordingly.

2.2.1 The firm’s boundaries in antitrust and competition law

The Sherman Act in the United States and the TFEU in Europe are both the subject of extensive case law. The vast majority of the jurisprudence is not concerned with the question of the firm - that is, the person that is the subject of antitrust and competition law. The firm’s structure has transformed very little since the introduction of these two texts; it has become more complex, but has not changed in nature.33 For that reason, litigation generally involves other issues subject to further disagreement. Nevertheless, blockchain’s emergence forces us to reassess the definition of a “firm,” to analyze whether decentralized groups can be captured by antitrust law as currently conceived or if blockchains should be captured through another theory. In the United States, antitrust provisions apply to all “persons”34 affecting trade and commerce by unlawful restraints and monopolies.35 According to Section 7 of the Sherman Act:

the word ‘person,’ or ‘persons,’ wherever used in sections 1 to 7 of this title shall be deemed to include corporations and associations existing under or authorized by the laws of either the United States, the laws of any of the Territories, the laws of any State, or the laws of any foreign country.36

The text does not further define the term “person”; it simply establishes exemption regimes for which antitrust is not applicable - mainly concerning federal government agencies and instrumentalities.37

The case law is more informative. In *Copperweld*,38 the Supreme Court stressed that although “[n]othing in the literal meaning of [the Sherman Act] excludes coordinated conduct among officers or employees of the same company,”39 there is “general agreement that § 1 is not violated by the internally coordinated conduct of a corporation and one of its unincorporated divisions.” On that basis, the Court held that “there can be little doubt that the operations of a corporate enterprise organized into divisions must be judged as the conduct of a single actor,” therefore exempting these operations from Section 1 of the Sherman Act.

The Supreme Court was dealing with possible intra-group collusion for the first time with this decision.40 One can only guess what would have been its reasoning before Coase’s article (1937). The fact remains that *Copperweld* follows a Coasian logic:41 the firm uses vertical control to save transaction costs; antitrust law must recognize the fact and exempt from Section 1 of the Sherman Act all agreements between two legal entities bound by such a control relationship42 In the words of the Supreme Court:

The intra-enterprise conspiracy doctrine looks to the form of an enterprise’s structure and ignores the reality. Antitrust liability should not depend on whether a corporate subunit is organized as an unincorporated division or a wholly-owned subsidiary. A corporation has complete power to maintain a wholly-owned subsidiary in either form. The economic, legal, or other considerations that lead corporate management to choose one structure over the other are not relevant to whether the enterprise’s conduct seriously threatens competition.

In the end, “courts must examine whether the conduct in question deprives the marketplace of the independent sources of economic control that competition assumes” “when making a single-entity determination.”43 Only when “general corporate actions are guided or determined” by “separate corporate consciousnesses” can two entities be seen as two separate firms in antitrust law.44 One must make no mistake about it: only control makes the firm and defines its scope.45

In Europe, the theory of the firm as defined by Coase is also the basis of modern competition law.46 Article 1 of Protocol 22 to the European Economic Area Agreement defines the “firm” as “any entity carrying out activities of a commercial or economic nature,” but the concept is not properly delimited in the black letter of EU law. However, the case law defines “undertakings” as “every entity engaged in an economic activity, regardless of the legal status of the entity and the way in which it is financed.”47 The legal form of the entity offering the economic activity does not matter.48 In fact, as the CJEU made clear in Shell, “undertakings” are economic units rather than legal units.49 Here again, the concept of undertaking takes Coase’s path-breaking article as a starting point.50

That definition of the “firm” is still incomplete, as it does not define its boundaries. For instance, in Imperial Chemical Industries, the CJEU ruled that the degree to which it carried out “the instructions given” by a company was essential in analyzing the independence of a subsidiary; and that “where a subsidiary does not enjoy real autonomy in determining its course of action in the market,” the prohibitions set out in Article 101 of the TFEU were inapplicable.51 The CJEU further held in Akzo Nobel that “the actual exercise of decisive influence”52 defines firm limits in competition law; and that “it is sufficient for the Commission to prove that the subsidiary is wholly owned by the parent company to presume that the parent exercises a decisive influence over the commercial policy of the subsidiary.”53 In the end, a firm encompasses all the elements over which control is exercised, as in the United States.54 For instance, in Hydrotherm, the CJEU found that a natural person, a limited partnership and another undertaking made up a single economic unit when they were all controlled by the same natural person.55 That logic derives from Coase’s “The Nature of the Firm.”56

2.2.2 The firm as a pillar of antitrust and competition law

The definition of the firm’s boundaries helps in three fundamental steps of antitrust and competition law: (1) determining whether the law should apply; (2) assessing practices; and (3) and assigning liability. First, establishing the firm’s boundaries helps determine the extent to which antitrust and competition law applies. U.S. antitrust law provides several exemptions to different types of entities, which require both the identification of the firm and an understanding of its activities. European competition law applies only to undertakings that carry out an economic activity. Once again, it is then necessary to identify the firm’s boundaries to determine the activities carried out.

Second, establishing the firm’s boundaries is essential when agencies assess the legality of business practices.57 In terms of collusion, U.S. and European courts have recognized that two legal entities that are part of the same eco- nomic unit - that is, the same firm - cannot be held guilty of collusion, as one cannot agree with oneself.58 Antitrust prohibits several forms of cooperation outside the firm, while it always permits cooperation within the firm. The logic is similar in terms of monopolization and abuse of a dominant position. As a company cannot abuse its market power against itself, abuses of power are illegal only when they affect other firms. Above all, defining the boundaries of firms is essential to analyze market power (and thus whether Section 2 of the Sherman Act or Article 102 of the TFEU is applicable to a given case) and the ability to engage in anticompetitive practices. Control indeed confers the firm with the power to implement practices - including the ability to raise prices, which is often central in antitrust cases.

Finally, identifying the boundaries of firms is essential to assign liability.59 Liability for anticompetitive practices rests with the parent company that ultimately controls other entities if such control has been exercised.60 This logic stems from the classic distinction between ownership and control.61

It is safe to assume that antitrust law will capture the activities of blockchain participants at their individual level.62 For example, one could imagine that a miner is considered a company on his own; after all, miners are operating an economic activity. Nevertheless, analyzing whether the entire blockchain layer 1 could be deemed a firm for the purpose of antitrust law is essential if agencies are to understand and apprehend anticompetitive practices that are carried out beyond the simple framework of the individual. For example, suppose a blockchain is implementing practices to exclude another blockchain from the market. In that case, one will want to punish these practices rather than each individual action leading to the entire scheme. I will return to these practices in the coming chapters.

In other words, defining the firm’s boundaries is a necessary step in understanding competitive dynamics, in analyzing practices and eventually, in assigning antitrust liability to the blockchain when, as an entity, it seeks to achieve survival through anticompetitive ways. It is thus essential to carefully consider the elements that are taken into account when defining “firms” under antitrust law. I showed that in the United States, as in Europe, only one element matters: control. This reasoning is problematic when it comes to blockchain.

# 2AC

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### ---Global Blockchain

#### No nuke terror

Dr. John Mueller 20, Professor of Political Science and Senior Research Scientist with the Mershon Center for International Security Studies at Ohio State University, Senior Fellow at the Cato Institute, PhD from the University of California, Los Angeles, “Assessing International Threats During and After the Cold War”, Cato Institute, 5/6/2020, https://www.cato.org/publications/study/assessing-international-threats-during-after-cold-war

In the decade after the Cold War, a similar process of threat identification took place as problems previously considered to be of minor, or at least of secondary, concern were promoted. Anxieties about international terrorism substantially increased during the 1990s and were set into highest relief with the terrorist attacks of September 11, 2001. Extrapolating wildly from 9/11, a terrorist event ten times more destructive than any other in history, terrorism of that sort has repeatedly been taken to present a direct, even existential, threat to the United States or to the West — or even to the world system or to civilization as we know it.6 Wild extrapolations have precipitated costly antiterrorism and antiproliferation wars and huge increases in security spending. In these ventures, trillions of dollars have been squandered and well over two hundred thousand people have perished, including more than twice as many Americans as were killed on 9/11.7 There has been a tendency to see these exercises as misguided elements of a coherent plan to establish a “liberal world order” or to apply “liberal hegemony.“8 However, the overwhelming impetus was far more banal: to get the bastards responsible for 9/11.

Islamist terrorism in the United States has killed some six people per year since 9/11, and far more people in Europe perished yearly at the hands of terrorists in most years in the 1970s and 1980s.9 But there has nonetheless been a tendency to continue to inflate al-Qaeda’s importance and effectiveness.

In fact, al‐​Qaeda Central has done remarkably little since it got horribly lucky in 2001. It has served as something of an inspiration to some Muslim extremists, has done some training, seems to have contributed a bit to the Taliban’s far larger insurgency in Afghanistan, and may have participated in a few terrorist acts in Pakistan. It has also issued a considerable number of videos filled with empty, self‐​infatuated, and essentially delusional threats.10 Even isolated and under siege, it is difficult to see why al‐​Qaeda could not have perpetrated attacks at least as costly and shocking as the shooting rampages (organized by others) that took place in Mumbai in 2008, in Paris in 2015, or in Orlando and Berlin in 2016. And, although billions of foreigners have entered legally into the United States since 2001, not one of these, it appears, has been an agent smuggled in by al‐​Qaeda. The exaggeration of terrorist capacities has been greatest in the many overstated assessments of their ability to develop nuclear weapons. In this, it has been envisioned that, because al‐​Qaeda operatives used box cutters so effectively on 9/11, they would, although under siege, soon apply equal talents in science and engineering to fabricate nuclear weapons and then detonate them on American cities.11

It is possible to argue, of course, that the damage committed by jihadists in the United States since 9/11 is so low because “American defensive measures are working,” as Peter Bergen puts it.12 However, although security measures should be given some credit, it is not at all clear that they have reduced the amount of terrorism significantly. There have been scores of terrorist plots rolled up in the US by authorities but, looked at carefully, the culprits left on their own do not seem to have had the capacity to increase the death toll very much.13 As Brian Jenkins puts it, “Their numbers remain small, their determination limp, and their competence poor.“14 Nor can security measures have deterred terrorism. Some targets, such as airliners, may have been taken off the list, but potential terrorist targets remain legion.15 To a considerable degree, terrorism is rare because as Bruce Schneier puts it bluntly, “there isn’t much of a threat of terrorism to defend against.“16

### Dollar DA---2AC

#### Global blockchain’s inevitable---failing to lead ensures hostile alternatives that are worse for the dollar

Tal Elyashiv 21, Founder and Managing Partner at SPiCE VC, Founder and Board Member at Securitize, MBA from the University of British Columbia, BS in Math and Political Science from Bar-Ilan University, “A New Global Arms Race In Digital Finance Is Heating Up”, CNBC, 1/21/2021, https://www.cnbc.com/2021/01/21/op-ed-a-new-global-arms-race-in-digital-finance-is-heating-up.html

Today, we’re on the precipice of what could be the largest transformational period in global history. With the first Industrial Revolution, new technologies like assembly lines, factories and transportation fundamentally changed society. This time, instead of cogwheels doing the work, blockchain-based digitalization will continue to drive transactions. Specifically, this latest phase of progress has its sights set on a massive industry ripe for disruption: finance.

Digital finance and the monetary system is leveraging decentralized blockchain technology to modernize financial markets. Dominant players in these systems include the world’s biggest financial institutions and global central banks.

The rise of digital currencies and CBDCs

As tokenization is an inevitable trend, central bank digital currencies (CBDC) are surging in adoption, since they are simply one kind of a more generalized digital asset, albeit one that is bound to risk-free central bank money. The global rivalry in digital currencies is heating up as central banks from an increasingly wider swath of countries, including China, Hong Kong, Thailand, the EU, U.K., U.S., and Australia, explore potential use cases for tokenized money.

CBDC is the first place where we see top-down adoption of distributed ledger technology (DLT) from central banks and governments. The adoption of CBDCs will drive significant DLT ecosystem innovation and development that will impact financial organizations. The widespread adoption of DLT will extend beyond finance to other industry verticals like security, supply chains, healthcare, retail and ecommerce.

How institutional investors are buying into crypto via Anchorage

CBDCs will certainly make payments, settlement of deals and trading simpler, especially when it comes to global trade. It will also potentially change the role current institutions are playing regarding money and payments. CBDC implementation will also possibly make cross border payments simpler and much cheaper. One result of that will be the enablement of micropayments, allowing small businesses to be more competitive and eliminate the need for aggregators in order to make them economically viable, resulting in a different distribution of value.

Winners and losers are made from historic periods of societal shifts and advancements. The U.S. was obviously a dominant force during the first revolution. As the world embarks on a new transformational journey, who is driving it? The answer to this question is very complex and currently unclear, but there is an intense financial technology “arms race” brewing between the world’s superpowers for dominance in digital finance infrastructure and technology, spurring short-term competitive innovation with critical long-term implications.

“I believe that if America does not lead innovation in the digital currency and payments area, others will,” David Marcus, head of Diem, the cryptocurrency project founded out of Facebook, said in a statement to the U.S. Senate Committee on Banking, Housing and Urban Affairs.

Huw van Steenis of UBS said there will be a “three-horse race” around the future of money with private tokens and CBDCs developing in parallel with efforts to improve the current system. The implications of winning or losing the digital finance “arms race” are massive and far-reaching.

During the U.S. and USSR space race, NASA harnessed tremendous intellectual and technical capital to enable the moon landing and further space exploration, leading to a variety of spinoff inventions, from global positioning systems (GPS) to advances in flight technology to Velcro and even freeze-dried food. In the same way, blockchain-based digital finance technology is a means to the end of greater technological sophistication.

The three leaders in the digital currency arms race

More than 80% of the world’s central banks are exploring their own versions of digital currencies, but it’s China, the U.S. and the EU that have the resources, technology and infrastructure to determine the future of the digital economy. 2020 started with a major event within the financial world: the World Economic Forum in Davos, where the WEF released a toolkit for policymakers regarding the creation of CBDCs.

China

China is currently testing its digital yuan with a feature allowing people to send money to each other by simply touching their smartphones together. This particular effort is just one of many digital currency trials China is conducting across the country. These coordinated activities, in combination with their leadership in the crypto ecosystem (accounting for nearly 90% of trading volumes and hosting two-thirds of bitcoin mining operations), is giving China somewhat of an advantage.

Leveraging that first-mover advantage, China has ambitious plans to leverage U.S. innovation and its own digital currency to someday dominate other world currencies. As a purely aspirational endeavor, the jury is still out on whether they can actually achieve this goal.

Regardless, China is creating a significant advantage in this global race on CBDCs by investing in the technology and experimenting at a very fast pace. Even in the most isolated and underdeveloped areas, most people already use electronic forms of payment, like WeChat Pay, almost exclusively. We will continue to see advancement from China with regards to the digital yuan, where it’s currently enjoying a first-mover advantage over other digital currencies.

China has made the digital yuan a public priority, and it has an ambitious goal of competing with the U.S. dollar by creating a digital Asian alternative. China will be able to track and control the movement of money in and out of the country, which is much easier to do with a digital yuan. Given its political structure, China is able to move faster than the U.S. or Europe in implementing such changes.

Europe

Europe is in a strong position to create a CBDC, but unlike attempts by smaller, individual countries like Sweden, the size and scale of an EU digital currency would be sustainable long-term and could compete at scale. The European Central Bank is discussing launching a consideration phase for a digital euro this year and launching a digital euro is at least a five-year plan.

United States

The U.S. continues to lead in the innovation, regulation and implementation of blockchain-based digital securities, banking, payments, insurance, etc., but may not be as far along as others when it comes to CBDCs. Over the last decade, American innovators have built compelling innovations in blockchain, digital currency and cryptocurrency aimed at revolutionizing finance and creating new US tech superstars. And, as these technologies advance, they’re innovating industries beyond just finance, including retail, cybersecurity, supply chain management and so many more.

Tech leaders in the space like Securitize are paving the way for widespread adoption and access to liquidity by building the mechanisms for the industry to take hold. The benefits of CBDCs will propel the U.S. implementation of a digital dollar. The release of CBDC is not just a technical change, but it’s also the revamp of a financial system that is centuries old. US policymakers should continue to foster US leadership in technological financial innovation and ensure that the American people enjoy its benefits first.

“The United States usually wins when we unleash the power of our innovative, dynamic private sector, with the government setting the rules rather than building the products,” said Brian Brooks, former acting comptroller of the currency of the U.S. Treasury Department’s Office of the Comptroller of the Currency. “But either way, given the intense focus of other countries in this area, let me say that because of the important role of the US dollar, we need the United States to step forward on this field.”

The future of finance

What happens with CBDCs will have far-reaching implications on the future of digital finance, including cryptocurrency and digital securities. Much like the space race didn’t just put a man on the moon, but also catapulted the invention of important ancillary technologies, CBDC and DLT adoption will influence the forward-moving progress of every industry. There will be an exponential amount of innovations resulting from this digital finance arms race that we don’t even know about yet. The possibilities are endless and we’re just at the starting line.

Whoever leads this race and determines the outcome of its infrastructure and operation will most certainly gain a significant advantage and may have the possibility to spearhead many of the other innovations that come from this technology. The conversation of this tech competition between countries was even brought to the US Senate. China is far ahead in implementing real digital finance and currency programs as we speak, giving them a first-mover advantage in something as simple as experience.

The US and its regulatory bodies are still the gold standard and will ultimately set the pace and the rules. US-based innovators continue to roll out viable solutions, but which powerhouse will roll out the standard solutions first to control the space and our digital economic destiny?

#### Dollar’s resilient, including to crypto AND there’s no impact

Dr. Stephen Kirchner 19, Director of the International Economy Program at the United States Studies Centre at the University of Sydney, Senior Fellow at the Fraser Institute, PhD in Economics from the University of New South Wales, “The ‘Reserve Currency’ Myth: The US Dollar’s Current and Future Role in the World Economy”, United States Studies Centre, 11/11/2019, https://www.ussc.edu.au/analysis/the-reserve-currency-myth-the-us-dollars-current-and-future-role-in-the-world-economy

The US dollar remains the dominant currency for international trade and investment, foreign exchange market turnover and settlements, debt issuance and official foreign exchange reserves. The dominant role of the US dollar in the world economy reflects the unrivalled depth and liquidity of US dollar capital markets, backed by America’s high quality political and economic institutions.

Contrary to popular myth, the US dollar’s role owes very little to its status as a so-called "reserve currency". The fact that the US dollar makes up most of the world’s official foreign currency assets is a symptom, not a cause, of the US dollar’s dominant role. If foreign central banks were to hold less US dollar assets, it would make almost no difference to the US dollar exchange rate or interest rates.

Nor does the role of the US dollar depend on a "strong dollar" policy. So long as the US enjoys a floating exchange rate and an independent Federal Reserve continues to target domestic inflation, the US does not have a meaningful or effective dollar policy. While President Trump has shifted US official rhetoric by signalling a preference for a weaker exchange rate to boost US export competitiveness, this preference means little without backing from Federal Reserve policy. The US Treasury, with or without the support of the US Federal Reserve, could intervene in foreign exchange markets with a view to influencing the value of the exchange rate. However, such intervention would have little to no sustained effect on the US dollar exchange rate and would do little to change US export competitiveness. Such intervention would only serve to increase foreign exchange market volatility. For all the talk of "currency wars", exchange rates are difficult to weaponise.

The role of the US dollar also does not depend on its relative strength against other currencies. The US dollar has seen significant cyclical swings in value against other currencies, consistent with the role of a floating exchange rate in intermediating foreign and domestic economic shocks. Perennial predictions of the US dollar’s demise as the dominant international currency have not been borne out because they misunderstand the sources of the US dollar’s role or because they wrongly assume that a decline in the US dollar exchange rate is inconsistent with its role as the world’s dominant currency.

In principle, the US dollar’s role could be supplanted by other currencies. But the US dollar’s nearest potential are beset with problems. The euro is part of a dysfunctional monetary union that has impoverished some member economies, while enriching others, given rise to political and diplomatic tensions that are tearing the European Union apart. China’s RMB is part of a managed exchange rate regime and a system of capital controls and financial repression that is inconsistent with the RMB achieving international status. RMB-denominated assets suffer from poor quality governance, insecure property rights and a non-existent rule of law. Cryptocurrencies may challenge the role of fiat currencies, but are more likely to displace less dominant currencies before displacing the US dollar. The US dollar is likely to remain the principal benchmark against which cryptocurrencies are priced.

The US dollar typically strengthens at times of international economic and political stress, highlighting the relative strength of US political and economic institutions. This remains the case, even as President Trump has unleashed a chaotic trade war against the rest of the world. While there is some evidence that domestic political partisanship undermines the safe-haven appeal of the US dollar,52 the US dollar’s international role is unlikely to be significantly diminished by the Trump administration and could be reinforced, even if for perverse reasons. The policy uncertainty associated with President Trump’s trade war has led to a 12 per cent appreciation in the US dollar in real terms, exacerbating trade tensions.

#### Reserve status is irrelevant

Dr. Paul Krugman 21, Distinguished Professor of Economics at the Graduate Center of the City University of New York, PhD in Economics from Massachusetts Institute of Technology, Economics Columnist at the New York Times, “Wonking Out: The Greenback Rules. So What?”, New York Times, 5/28/2021, https://www.nytimes.com/2021/05/28/opinion/us-dollars-currency.html

Cryptocurrency was supposed to replace government-issued fiat currency in our daily lives. It hasn’t. But one thing I’m still hearing from the faithful is that Bitcoin, or Ethereum, or maybe some crypto asset introduced by the Chinese, will soon replace the dollar as the global currency of choice.

That’s also very unlikely to happen, since it’s very hard for a currency to function as global money unless it functions as ordinary money first. But still, it’s definitely conceivable that one of these days something will displace the dollar from its current dominance. I used to think the euro might be a contender, although Europe’s troubles now make that seem like a distant prospect. Still, nothing monetary is forever.

But does it matter? My old teacher Charles Kindleberger used to say that anyone who spends too much time thinking about international money goes a little mad. What he meant, I think, was that something like the dollar’s dominance sounds as if it must be very important — a pillar of America’s power in the world. So it’s very hard for people — especially people who aren’t specialists in the field — to wrap their minds around the reality that it’s a fairly trivial issue.

First things first: Dollar dominance is real. These days America accounts for less than a quarter of world G.D.P. at market prices; less than that if you adjust for national differences in the cost of living. Yet U.S. dollars dominate currency trading: When a bank wants to exchange Malaysian ringgit for Peruvian sol, it normally trades ringgit for dollars, then dollars for sol. A lot of world trade is also invoiced in dollars — that is, the contract is written in dollars and the settlement is also in dollars. And dollars account for about 60 percent of official foreign exchange reserves: assets in foreign currencies that governments hold mainly so they can intervene to stabilize markets if necessary.

As I said, this sounds like a big deal. The dollar is, in a sense, the world’s money, and it’s natural to assume that this gives the United States what a French finance minister once called “exorbitant privilege” — the ability to buy stuff simply by printing dollars the world has to take. Every once in a while I see news articles asserting that the special role of the dollar gives America the unique ability to run trade deficits year after year, an option denied to other nations.

Except that this just isn’t true. Here are the current account balances — trade balances, broadly defined — of a few English-speaking countries over the years, measured as a percentage of their G.D.P.:

Yes, America has consistently run deficits. Australia has consistently run even bigger deficits; the U.K. has fluctuated around, but has also run big deficits on average. We’re not special in this regard.

Still, can’t we borrow money more cheaply because the dollar is top dog? If so, it’s a pretty subtle effect. As I write this, 10-year U.S. bonds are yielding 1.6 percent; British 10-years 0.8 percent; Japanese 10-years 0.07 percent. Lots of factors affect borrowing costs, but if the fact that neither the pound nor the yen are major global currencies is a major liability, it’s not obvious in the data.

Now, the pound used to be a major international currency. It wasn’t overtaken by the dollar as a reserve currency until 1955. It was still a major player into the late 1960s. But then its role quickly evaporated. By 1975 the pound was basically just a normal advanced-country currency, used domestically but not outside the country.

So did the value of the pound take a big hit when that happened? No. Here’s the real pound-dollar exchange rate — the number of dollars per pound, adjusted for differential inflation — since the early 1960s:

There have been some big fluctuations over time, reflecting things like Margaret Thatcher’s tight-money policy and Ronald Reagan’s mix of tight money and deficit spending. But the pound has in general been much stronger since it stopped being a global currency than it was before. That’s not a big mystery: It probably reflects London’s continuing role as a global financial hub in an era of financial globalization. But again, it’s hard to see evidence that losing global currency status made much difference.

So is the dollar’s status completely irrelevant? No. The dollar’s popularity does give America a unique export industry — namely, dollars themselves. Or more specifically, Benjamins — $100 bills, which bear the portrait of Benjamin Franklin.

These days the ordinary business of life is largely digital; many Americans rarely use cash. Even the sidewalk fruit and vegetable kiosks in New York often take Venmo. Given that lived reality, it’s jarring to learn just how much currency is in circulation: more than $2 trillion, or more than $6000 for every U.S. resident.

Yep, it’s mainly Benjamins, which by and large can’t even be used in stores. They are used for payments people don’t want easily traced, usually because they’re doing something illicit.

And here’s where the dollar plays a special role: We have a lot more large-denomination notes in circulation, relative to the size of our economy, than other countries. In 2016, the value of large-denomination U.S. notes in circulation was more than 6 percent of G.D.P.; the corresponding figure for Canada was only a third as much. The main reason for the difference, almost surely, is that a lot of $100 bills are being held outside the U.S.

This willingness of foreigners to hold American cash means, in effect, that the world has lent the U.S. a substantial amount of money — maybe on the order of $1 trillion — at zero interest. That’s not a big deal when interest rates are as low as they are now, but in the past it has been worth more — maybe as much as 0.25 percent of G.D.P.

America does, then, get some advantage from the special role of the dollar. But it’s hardly a major pillar of U.S. power. And being the world’s primary supplier of assets used in illegal activity isn’t exactly a role filled with glory.

So is it possible that the dollar will eventually lose its dominance? Yes. Will it matter? Not so you’d notice.

#### Evidentiary barriers will be overcome

Dr. Thibault Schrepel 19, PhD in Antitrust Law from Université Paris-Saclay, LLM in International Law and Legal Studies from the Brooklyn Law School, Associate Professor of Law at VU Amsterdam University, Faculty Affiliate and Creator and Director of the Computational Antitrust Project at the Stanford University CodeX Center, “Is Blockchain the Death of Antitrust Law? The Blockchain Antitrust Paradox”, Georgetown Law and Technology Law Review, 3 Geo. L. Tech. Rev. 281, Spring 2019, Lexis

2. What Remains Possible: Law is Code in Practice

Allowing blockchain technology to emerge does not mean that nothing should be done about the illegal practices implemented on it.

First, it should be stressed that in some situations, the identities of users engaged in anticompetitive practices will be reported to antitrust authorities, despite the pseudonymity principle of blockchain. Such a situation arises when the real-life identity of that user is known to other blockchain users. Accordingly, one might imagine a situation in which a company that is part of the production chain where an anti-competitive practice took place, or even an end-consumer, introduces an antitrust complaint. Thus, blockchain and pseudonymity do not protect blockchain users against all types of detection and identification. In fact, the anticompetitive effects caused by one practice on the market may also lead [\*332] an antitrust authority to launch an investigation. 224 Here, a "law is code" approach is not necessary.

#### No extraterritorial application

NRF 18 – Norton Rose Fulbright, a global law firm, December 2018, “US Courts Retreat From Applying Major Federal Statutes to Extraterritorial Activity,” https://www.nortonrosefulbright.com/en-ca/knowledge/publications/ae5cfa02/us-courts-retreat-from-applying-major-federal-statutes-to-extraterritorial-activity

Business transactions routinely touch the United States in one manner or another. A recent and discernible trend from the US Supreme Court indicates a clear retreat from reflexively applying major federal statutes to extraterritorial conduct.

Multinational businesses frequently engage in activities that may, however circumscribed, touch the US One concern of non-US parties is whether conduct that touches the US in a de minimis manner is enough for a US court to apply its law to those actions. Recent US Supreme Court cases have marked a reversal from the historic trend of expanding the scope of US law. Indeed, the Court has recently stated that “United States law governs domestically but does not rule the world.” To that end, the Court now presumes that a statute does not apply extraterritorially unless the text clearly shows the US Congress intended such a result. With President Trump solidifying a conservative block in the Supreme Court’s majority for the foreseeable future, this trend will likely continue unabated. Commercial disputes practitioners should be familiar with this significant trend in US law.

Threshold matter of personal jurisdiction

Although distinct from the extraterritorial application of US law, a threshold step in any US lawsuit is the court’s determination of whether it may properly exercise jurisdiction over a non-US defendant. There are two types of personal jurisdiction in the US: general and specific. Where an entity is subject to general jurisdiction, US courts may exercise jurisdiction over that entity for any dispute no matter where it occurred, even if it has no connection to the forum. Recent US Supreme Court case law has significantly limited the scope of general jurisdiction. Historically, US courts exercised general jurisdiction over an entity if it conducted business in the forum state on a regular and continuous basis. Now, general jurisdiction is limited to where a party is “home,” meaning the locale in which it is incorporated or has its principal place of business. While the precise contours of this approach will be developed in future case law, for non-US entities with their place of incorporation and principal place of business outside of the US, this likely means they are no longer subject to general jurisdiction in the US. On the other hand, US courts will continue to exercise specific jurisdiction over parties where the claims arise from the party’s transaction of business in the forum state or where it engages in a tort outside the US that causes injury in the forum state. Thus, specific jurisdiction requires a nexus between some aspect of the claim and the forum state; it does not extend to all claims regardless of where they arise. These developments significantly narrow the potential forums to which non-US entities might be subject to suit, and provide greater predictability about where foreign parties may be sued.

The presumption against the extraterritorial reach of federal statutes

The Supreme Court’s presumption against extraterritoriality stems from the conservative majority’s strict adherence to the principle that “legislation of Congress, unless a contrary intent appears, is meant to apply only within the territorial jurisdiction of the United States.” Morrison v Nat’l Australia Bank Ltd., 561 US 247, 255 (2010). Accordingly, “unless there is the affirmative intention of the Congress clearly expressed to give a statute extraterritorial effect,” the Court will “presume it is primarily concerned with domestic conditions.” If a statute has no clear, affirmative indication that it applies extraterritorially, the Court will then examine the statute’s “focus” to determine whether the application of the statute in the case at hand involves a domestic application of the statute in question. RJR Nabisco, Inc. v European Cmty., 136 S. Ct. 2090, 2101 (2016).

The Supreme Court has stated that the presumption “serves to avoid the international discord that can result when US law is applied to conduct in foreign countries” and “also reflects the more prosaic commonsense notion that Congress generally legislates with domestic concerns in mind.” Therefore courts must apply “the presumption across the board, regardless of whether there is a risk of conflict between the American statute and a foreign law.”

The Securities Exchange Act

Although global practitioners may be aware of the Supreme Court’s 2010 groundbreaking opinion in Morrison v National Australia Bank Ltd. holding that Section 10(b) of the Securities Exchange Act (and Rule 10b-5 promulgated thereunder) does not apply extraterritorially, it is helpful to review as it is an important bellwether1.

Section 10(b) is used to challenge material misstatements and omissions made in connection with the purchase or sale of securities. In Morrison, the Court first held that the statutory text of these anti-fraud provisions does not apply extraterritorially. The Court next examined whether the activity at issue – the purchase of securities of a foreign issuer by foreign persons on a foreign exchange – fell within the “focus” of Section 10(b). Plaintiffs argued that because the misstatements at issue arose from the activities of the defendant issuer’s Florida subsidiary and public statements made in Florida, they were seeking a domestic application of the statute that fell within the statute’s focus. The Court disagreed and held that “the focus of the Exchange Act is not upon the place where the deception originated, but upon purchases and sales of securities in the United States.” Accordingly, Section 10(b) would only apply to “transactions in securities listed on domestic exchanges, and domestic transactions in other securities, to which § 10(b) applies.” As the late Justice Scalia stated for the Court: “For it is a rare case of prohibited extraterritorial application that lacks all contact with the territory of the United States. But the presumption against extraterritorial application would be a craven watchdog indeed if it retreated to its kennel whenever some domestic activity is involved in the case.”

The Racketeer Influenced and Corrupt Organizations Act (RICO)

In 2016, the Supreme Court extended Morrison’s reasoning to RICO in RJR Nabisco, Inc. v European Cmty., 136 S. Ct. 2090 (2016). RICO is a major federal statute that encompasses dozens of separate state or federal offenses committed in a pattern of racketeering activity. The acts are termed “predicate acts” and include crimes such as mail and wire fraud, money laundering, bribery, and embezzlement. A private right of action exists for persons injured in their business or property to sue for treble damages, costs and attorneys’ fees. In RJR, the Court first asked, does the statute giving rise to the predicate act in question give a clear, affirmative indication that it applies extraterritorially? This answer might not be straightforward. For example, federal courts are presently split as to whether the federal wire fraud statute applies extraterritorially.

Second, if the predicate act statute does not apply extraterritorially, does the case involve a domestic application of the statute? This question is answered by looking to the statute’s “focus.” According to the Court, “[i]f the conduct relevant to the statute’s focus occurred in the United States, then the case involves a permissible domestic application even if other conduct occurred abroad; but if the conduct relevant to the focus occurred in a foreign country, then the case involves an impermissible extraterritorial application regardless of any other conduct that occurred in US territory.”

Finally, a private plaintiff in a civil RICO action must allege and prove injury in the US to business or property and cannot recover for non-US injuries. The Court held that the statute providing a private right of action did not provide for extraterritorial application, and allowing recovery for non-US injuries in a civil RICO action – including treble damages – presents a danger of international friction.

The Bankruptcy Code

The trend against extraterritoriality has extended into the bankruptcy context as well. In a high-profile decision from the Southern District of New York, the court barred the clawback of subsequent transfers made from offshore feeder funds of Madoff Securities to non-US investors. See Sec. Inv’r Prot. Corp. v Bernard L. Madoff Inv. Sec. LLC, 513 B.R. 222 (S.D.N.Y. 2014). The court determined that the avoidance and recovery statute at issue did not apply extraterritorially and that the “focus” of the statute was on the transfers themselves – which here occurred outside the US The court also recognised that mere passage through a New York bank account did not make a transfer sufficiently domestic to fall within the statute’s reach. In the court’s words, “[i]t cannot be that any connection to a domestic debtor, no matter how remote, automatically transforms every use of the various provisions of the Bankruptcy Code in a [Securities Investor Protection Act] bankruptcy into purely domestic applications of those provisions.”

Notably, the court held that even if the statute applied extraterritorially, it would rule that international comity concerns would preclude its application in this instance. It recognised that many of the foreign feeder funds were currently involved in their own liquidation proceedings in foreign countries, and concluded that “[t]he Trustee is seeking to use SIPA to reach around such foreign liquidations in order to make claims to assets on behalf of the SIPA customer-property estate – a specialised estate created solely by a US statute, with which the defendants here have no direct relationship … [T]hese foreign jurisdictions have a greater interest in applying their own laws than does the United States.”

The Foreign Trade Antitrust Improvements Act (FTAIA)

In the antitrust realm, by statute the FTAIA limits the extraterritorial application of the Sherman Antitrust Act. As interpreted by the US Supreme Court, the FTAIA “initially lays down a general rule placing all (non-import) activity involving foreign commerce outside the Sherman Act’s reach.” F. Hoffmann-LaRoche Ltd. v Empagran S.A., 542 US 155, 162 (2004). The FTAIA then “brings such conduct back within the Sherman Act’s reach provided that the conduct both (i) sufficiently affects American commerce, i.e., it has a direct, substantial, and reasonably foreseeable effect on American domestic, import, or (certain) export commerce, and (ii) has an effect of a kind that antitrust law considers harmful, i.e., the effect must ‘giv[e] rise to a [Sherman Act] claim’.”

### FTC Cred ADV OV---2AC

### ---Spyware

#### It’ll be iteratively refined, case-by-case, with the FTC. They’ll build concrete frameworks based on horizontal power and capacity to interfere with economic value---that’s Schrepel.

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3 DEFINING THE NUCLEUS SIZE

Courts and antitrust agencies will face the task of determining the nucleus size. The further away a participant will be from the nucleus’s center, the more difficult it will become to genuinely include her or him in the nucleus. With distance, it will prove harder to show that she or he could have influenced other participants’ behavior. Only a case-by-case analysis can elucidate this question. This analysis should nevertheless be based on concrete and quantifiable frameworks to ensure legal certainty, limit legal errors and reduce regulatory costs. To this end, agencies should focus their investigation on economic agents’ ability to exert a horizontal power of command and control. They should also consider their capacity to interfere with the blockchain’s economic value and influence norms.70

### T---Scope Exemptions---2AC

#### We meet! Blockchain is immune from antitrust under judicially-crafted exemptions. The scope of law is limited under Sherman to ‘the firm’, defined in *Copperweld* as vertical control. That excludes blockchain, which is entirely horizontal---that’s Schrepel.

[1AC SCHREPEL – FOR REFERENCE]

2.2.1 The firm’s boundaries in antitrust and competition law

The Sherman Act in the United States and the TFEU in Europe are both the subject of extensive case law. The vast majority of the jurisprudence is not concerned with the question of the firm - that is, the person that is the subject of antitrust and competition law. The firm’s structure has transformed very little since the introduction of these two texts; it has become more complex, but has not changed in nature.33 For that reason, litigation generally involves other issues subject to further disagreement. Nevertheless, blockchain’s emergence forces us to reassess the definition of a “firm,” to analyze whether decentralized groups can be captured by antitrust law as currently conceived or if blockchains should be captured through another theory. In the United States, antitrust provisions apply to all “persons”34 affecting trade and commerce by unlawful restraints and monopolies.35 According to Section 7 of the Sherman Act:

the word ‘person,’ or ‘persons,’ wherever used in sections 1 to 7 of this title shall be deemed to include corporations and associations existing under or authorized by the laws of either the United States, the laws of any of the Territories, the laws of any State, or the laws of any foreign country.36

The text does not further define the term “person”; it simply establishes exemption regimes for which antitrust is not applicable - mainly concerning federal government agencies and instrumentalities.37

The case law is more informative. In *Copperweld*,38 the Supreme Court stressed that although “[n]othing in the literal meaning of [the Sherman Act] excludes coordinated conduct among officers or employees of the same company,”39 there is “general agreement that § 1 is not violated by the internally coordinated conduct of a corporation and one of its unincorporated divisions.” On that basis, the Court held that “there can be little doubt that the operations of a corporate enterprise organized into divisions must be judged as the conduct of a single actor,” therefore exempting these operations from Section 1 of the Sherman Act.

The Supreme Court was dealing with possible intra-group collusion for the first time with this decision.40 One can only guess what would have been its reasoning before Coase’s article (1937). The fact remains that *Copperweld* follows a Coasian logic:41 the firm uses vertical control to save transaction costs; antitrust law must recognize the fact and exempt from Section 1 of the Sherman Act all agreements between two legal entities bound by such a control relationship42 In the words of the Supreme Court:

The intra-enterprise conspiracy doctrine looks to the form of an enterprise’s structure and ignores the reality. Antitrust liability should not depend on whether a corporate subunit is organized as an unincorporated division or a wholly-owned subsidiary. A corporation has complete power to maintain a wholly-owned subsidiary in either form. The economic, legal, or other considerations that lead corporate management to choose one structure over the other are not relevant to whether the enterprise’s conduct seriously threatens competition.

#### ‘Expanding the scope’ increases the general range to which antitrust applies. Their distinction is totally arbitrary.

Christopher L. Sagers 21, James A. Thomas Distinguished Professor, Cleveland State University. Law & Faculty Director, Cleveland-Marshall Solo Practice Incubator, "Sagers Email," JDi Debate, December 2021, https://jdidebate.blogspot.com/. brackets inserted for readability.

Jordan Di <jordandi505@gmail.com>

Fri, Dec 3, 11:17 AM

to C.SAGERS

Hi Jordan!

It's very nice hearing from you, and I'm sorry I'm just getting back to you. Your question was stimulating for me to think about, and I'm glad you've had a chance to review and think about that old book I edited.

So, I wound up writing a really long answer that I am afraid will be counter-productive. It seems very possible that you are asking a much simpler question than I thought, and I just misunderstood it. I'm sorry if that's the case, but the following is what I've got to share.

It turns out I've heard about this competition and its reliance on that book, but only because another participant also asked me for clarification. I wasn't involved in setting up the competition or designing the resolution, and questions from participants were the first that I heard anything about it. I also should say that I've never participated in debate and don't know anything about it, so I don't know how useful the following feedback will be.

But I will confess that I don't think the resolution was a very good idea, at least not as it is written.

A. What I Really Think

To me, the problem is that this idea of the "scope" of antitrust has no established legal meaning and very little practical significance. It isn't used in actual practice and it would have no real, legal significance in any actual antitrust case. It was a convenient shorthand that I came up with for organizing the materials in that book, and it also had one theoretical value to me, but that's it. Most antitrust lawyers I've worked with understand it what I meant by it, but it doesn't have any precise meaning or doctrinal significance. I don't think the term was even really used before that book. I almost literally made it up.

So, it sounds like participants in this competition are getting hung up on whether particular exclusions from antitrust liability are issues of "scope" or issues of something else, but I don't believe there is any good reason to worry about it. It almost literally doesn't matter, except maybe in the one theoretical sense that I mentioned. (I'll say something about that in a second.) For example, you mentioned the "investment" exception from the Clayton Act, and you ask whether it should be thought of as a "limit" on the "scope" of antitrust. But I find myself asking . . . so what? What difference would it make if that is a matter of "scope" or it is something else?

Moreover, what even is a "scope" issue? If antitrust is held not to apply in a given case, is it because that conduct was beyond the "scope" of antitrust, or was it because, even though antitrust applied to the challenged conduct, the conduct just wasn't illegal? For example, say that a manufacturer enters into an exclusive distribution agreement for 6 months with a distributor, prohibiting the distributor from carrying the products of a competitor. Contracts like that are so plainly not illegal--because it is for such a short period of time--that some lawyers say they are "per se legal." So, are 6-month exclusive distribution contracts outside the scope of antitrust, or are they subject to antitrust but legal? We could ask the same question about investment purchases under the Clayton Act. They are automatically legal so far as [Section 7] s. 7 is concerned. But does antitrust not apply at all, or does antitrust apply and just hold those purchases legal?

(I can answer these questions for myself, because I have a working definition of my own of what "scope" means. In my mind, the manufacturer and its sales are subject to antitrust, because it is exchanging a thing of value for money, but not all of its conduct is illegal. Likewise, I think of purchases of stock as always being subject to the Clayton Act, but sometimes legal under it. But my working definition in itself has no legal or policy significance, really.)

Like I said, I did have one theoretical purpose for thinking about antitrust "scope" as one, unified doctrine, and encouraging other lawyers to think of all the various doctrines that govern antitrust applicability as one doctrine, that should be made theoretically coherent. But the purpose I had in mind was different than what participants in the competition seem to be thinking about.

I thought that thinking of a "scope" of antitrust could force judges and lawyers to think more coherently or holistically about the several different doctrines that can be used in particular cases to exclude conduct from antitrust applicability. It would make them think about the fact that the different doctrines often clash with one another theoretically--they generate different results on similar facts for no good reason. As one example, the McCarran-Ferguson Act mostly exempts insurance from federal antitrust so long as a given insurance company's conduct is subject to some state legal requirements in a given case. Courts typically don't require active state oversight of the company in order for MFA immunity to apply. The question is just whether there is some regulation. But in non-insurance cases, the mere fact that a defendant is subject to some state law is definitely not enough to exempt it from antitrust. Usually, in those cases, the so-called "state action immunity" requires that a state statute explicitly authorizes the challenged conduct and​ a state actor actively oversees it. So very similar cases could come out with opposite results for no better reason than that one case involves insurance and the other does not.

But a problem, as you might see from this example, is that thinking through the differences in different scope doctrines gets extremely​ complex. Just that one example requires you both to really understand the McCarran-Ferguson Act and its caselaw and​ the law of state action immunity, and​ have a reasonable understanding of substantive antitrust in general, before you can even reasonably think about whether and how the doctrines should be revised for greater coherence. Because I think most practicing antitrust lawyers would find that a challenge, I can't imagine how non-lawyer undergraduate debate competitors are supposed to do it.

OKAY, so, all of that said, I would like to add one other sense in which it does actually kind of matter in real cases whether a legal rule goes to the applicability of antitrust or merely goes to the legality of the underlying conduct. As I'm sure you know, lawsuits can be dismissed before they go to trial. If a defendant moves to dismiss and persuades a court that antitrust doesn't even apply to the defendant's conduct, then the case can be dismissed at a very early stage in the litigation. If the court believes that antitrust applies to the defendant's conduct, but there is some substantial reason to believe that the conduct doesn't violate antitrust, then getting pre-trial dismissal will probably take longer and be more difficult. Real-world parties care about this kind of thing a lot​, because getting early dismissal is much cheaper for defendants and leaves plaintiffs with much less hope of securing any sort of settlement. But I can't believe that procedural niceties like that are actually of interest in your competition.

So, with my apologies, I think it would have been a lot better if the organizers of the competition wrote the resolution in a way that is much more specific. It should have asked something like, "should federal antitrust prohibit XYZ conduct by online commerce platforms" or something like that. Just asking whether the "scope" should change is hardly asking any question at all, because the word has so little clear meaning or significance.

B. What Is Probably More Useful

All of that was probably not hugely useful to you, since it's my background navel-gazing.

I hope the following might be more practical advice, though again I was never involved in debate, so you'll have to be the judge of whether it's useful or not.

If I were to talk about the resolution you quoted, I would begin by saying what I mean by the "scope" of antitrust. To me, it means the general range of conduct to which the Sherman, Clayton, and FTC Acts apply, which roughly means exchanges of things of value within the domestic United States and imports. That is very broad, but then I would point out that that scope is and always has been riddled with specific exceptions. And then I would say that I do (or do not) favor reining in those exceptions. That is, I wouldn't argue about "scope" in some abstract sense, and instead would say that we should read all of the existing exemptions as narrowly as possible. You wouldn't necessarily have to argue about individual exemptions, although discussing particular examples might be helpful. Anyway, to argue that I favor narrowing the existing exemptions, I would point out that when antitrust applies to particular conduct, it effectively requires that conduct to be regulated by the ordinary market forces of capitalism. It requires leaving that conduct to the whims of supply and demand, without interference from private agreements, exclusionary conduct, or anticompetitive consolidations. I would argue that that is generally a good thing--markets do a pretty good job of allocating resources, and ordinarily work better than either government or private intrusions. If you were going to make that kind of argument, you would say that we should generally narrow and limit all those dozens of statutory and caselaw rules that say that antitrust should not apply to particular cases. We should make it really hard, in all cases, for defendants to argue that their conduct should be exempt from antitrust. (Btw, that is nominally what the courts say. Though they now honor it only in the breach, the courts still constantly repeat rote platitudes that markets are great, Congress wants markets to regulate conduct without the interference of private parties, and for those reasons that all exemptions and immunities are narrowly applied.)

If I were required to argue that I disfavor it, I would say that in fact the forces of supply and demand are often ill-suited to regulate particular kinds of conduct. I don't personally believe that, but it's an easy enough argument to make. You say that markets are clumsy, that they have negative and unanticipated consequences in all kinds of ways, and so we have to apply antitrust carefully. You would argue that we should make it relatively easy for a defendant to say that in a particular case it should enjoy protection under some statutory exemption or the statute action immunity or the labor exemption or whatever, because imposing antitrust and the full force of unbridled price competition often harms other values that we care about.

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So, I have a bad feeling that this is too long, too beside the point, and to confusing, and I'm afraid I may have done more harm than good. I hope that some of it was helpful to you, and if I can be of any more help, I will try.

Best of luck to you, and thanks for reaching out.

Chris

### Hashing CP---2AC

#### Firm-centric antitrust precludes remedies to intra-blockchain exclusions---granularity is key

Dr. Thibault Schrepel 21, PhD in Antitrust Law from Université Paris-Saclay, LLM in International Law and Legal Studies from the Brooklyn Law School, Associate Professor of Law at VU Amsterdam University, Faculty Affiliate and Creator and Director of the Computational Antitrust Project at the Stanford University CodeX Center, Blockchain + Antitrust: The Decentralization Formula, p. 131

4.2 Anticompetitive Practices

The theory of granularity enables agencies to analyze the effects of practices by recreating an “inside” and “outside” (the nucleus), which is essential for antitrust analysis. Ultimately, it enables them to assign liability to the nucleus while also granting rights to its participants.

4.2.1 The assessment of practices

Firms decide internally to partake in collusive agreements or monopolization practices, but antitrust law is mostly concerned with such behavior’s external effects.88 That distinction between the effects inside and outside the firm guides the analysis of all potential practices. This prevents the application of antitrust law to public permissionless blockchains. The absence of clearly defined boundaries for such blockchains at the platform layer precludes a distinction between what is inside or outside. Analyzing practices within blockchain ecosystems becomes immensely complex for that reason.

The delimitation of a blockchain nucleus reintroduces the possibility of analyzing internal and external effects, since it recreates borders - namely, inside and outside the legal fiction. One can easily understand this through the example of collusion. As entities cannot collude with themselves, one needs to delimit their boundaries to analyze whether a collusive practice has occurred. In that regard, only agreements between two different nuclei should be worrisome. Agreements between blockchain participants outside of any nucleus, de facto lacking any ability to control, should not trigger antitrust concerns. The same goes for monopolization and abuse of dominance cases. The theory of granularity makes it possible to define a legal fiction whose market power will be assessed in relation to others. In turn, this enables agencies to determine whether a legal fiction abused its power by analyzing the external effects of its behavior. This analysis is not possible when blockchains are seen only from a distance, because blurry decentralized entities in which no one exercises a power of command and control have no visible frontiers. The theory of granularity fixes that.

#### 3. No solvency offense---Liability’s not possible without it.

Dr. Thibault Schrepel 21, PhD in Antitrust Law from Université Paris-Saclay, LLM in International Law and Legal Studies from the Brooklyn Law School, Associate Professor of Law at VU Amsterdam University, Faculty Affiliate and Creator and Director of the Computational Antitrust Project at the Stanford University CodeX Center, Blockchain + Antitrust: The Decentralization Formula, p. 131

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### FTC CP---2AC

#### The FTC is moribund---it must flex its muscles and win in court to revive its capacity for leadership---existing law is insufficient.

Brendan Bordelon 21, Tech and Cybersecurity Policy Reporter at National Journal, BA in International Relations from the University of California, Riverside, “Can Lina Khan fix the FTC?”, National Journal Daily Extra AM, 4/20/2021, Lexis

Progressives who have long fretted over the Federal Trade Commission s hapless attempts to curb big tech s market power are convinced their wait for the agency to flex its muscles is finally over.

But as Lina Khan the 32-year-old antitrust firebrand and President Biden s pick to fill a vacancy at the FTC prepares for her Senate confirmation hearing on Wednesday, some experts warn that aggressive FTC leadership is unlikely to fix the agency s woes all by itself.

The environment is shaped by the courts, by the people who work at the agency, by the powers of the agency, said Fiona Scott Morton, an economist at Yale University and a former antitrust official at President Obama s Justice Department. And if you change the commissioners, you don t change those things immediately.

It s hard to overstate the hope the Democratic Party s left flank has placed in Khan, an antitrust professor at Columbia Law School and former congressional staffer whose 2017 paper, "Amazon s Antitrust Paradox," sent shockwaves across Washington and spurred a fierce debate over the future of U.S. competition policy. Khan s advocacy for a breakup of the big tech firms and an overhaul of the consumer-welfare standard are just two of the radical positions she s staked out since bursting onto the scene fewer than five years ago. And her many boosters across institutional Washington expect she’ll breathe new life into an FTC they believe largely abdicated its responsibility to rein in big tech over the last decade.

It’s so exciting to have someone as progressive as Lina Khan nominated, said Charlotte Slaiman, the director of competition policy at progressive tech group Public Knowledge.

But moribund leadership isn t the only thing that s hamstrung the FTC in recent years. Congress has persistently underfunded the agency, a reality only recently acknowledged by lawmakers who have yet to do anything to solve it. Herbert Hovenkamp, an antitrust scholar at the University of Pennsylvania Law School, said the commission s new antitrust case against Facebook will only exacerbate that challenge.

It s going to be a resource swamp, Hovenkamp said. I don t think they re going to have the means to maintain a lot of cases of that nature unless they get a big injection of funding from Congress.

Experts also point to a deep institutional malaise at the FTC stemming from decades of inaction, and they say changes at the top can t reverse it overnight.

Can commissioners slowly change the people who work at the agency? Yes, but that’s pretty slow, Scott Morton said. Government bureaucrats don t get fired and replaced; they age out and it takes decades.

The agency s antitrust authorities have also withered from misuse, and those it still maintains are under attack by the courts. Late last month, acting FTC Chair Rebecca Kelly Slaughter announced the creation of a rulemaking group that would attempt to revive the agency s ability to set clear antitrust rules, something that hasn’t occurred in decades.

Because they haven t used it in a long time, I think we should be prepared that litigation may come, Slaiman said.

And in the coming weeks, the Supreme Court will rule on a case in which the new conservative majority is widely expected to rip away the FTC s ability to force firms to give up monetary gains made through anticompetitive conduct.

It s like police officers can only give you warning tickets, said Hovenkamp, adding that the Court is on the cusp of making a big mistake that will further weaken the FTC s ability to crack down on the monopolistic conduct of tech firms.

Beyond the FTC s institutional weakness, there s the question of how far one commissioner even someone as driven and high-profile as Khan can push the agency on big tech.

Lina Khan may advocate for breakups as a commissioner, but what s the authority under which you would do that? Scott Morton said. The FTC can t just announce that they d like to break up some corporation.

Having radical ideas is fun, but it s not what the day job is going to be in terms of bringing cases and voting on cases and winning cases, she said.

Others aren t sure Khan can even get confirmed. Sen. Mike Lee, an influential Republican on antitrust issues, is almost certain to oppose her candidacy, making it difficult for her to pick up any GOP votes. And Hovenkamp said the nominee's radical views and lack of experience could spark doubts in one or two Democratic senators, particularly if they re worried that Khan s aggressive views could backfire.

Putting more extremists on the commission is not the way to do better, said Hovenkamp, who pointed to an antitrust case against Qualcomm that the FTC lost at the 9th Circuit last summer. Typically, when you start losing your cases you want to pull it back a little bit and get a little bit more moderate.

Despite all the hopes pinned on Khan, several experts said a real shift at the FTC s highest level will depend on who Biden nominates as the commission s permanent chair.

I think [Biden s] looking for diversity, said Hovenkamp, adding that he expects whoever the White House picks as a third commissioner will look significantly more moderate than either Khan or Slaughter.

Even with the hurdles, and with full acknowledgement of the rocky road ahead, some progressives say they re still hopeful that change is coming to the FTC. And they see some encouraging signs. On Monday, the commission published a blog post suggesting the FTC could bring cases against tech firms that deploy algorithms found to be discriminatory, a significant shift. And on Tuesday, the four sitting commissioners told lawmakers they d still craft rules around digital privacy should Congress fail to pass a comprehensive data-protection law.

Everybody antitrust economists and antitrust practitioners, as well as Congress and public-interest advocates everyone is recognizing the need for more action at the FTC, Slaiman said. So I m hopeful that that pressure can turn it around. And it seems like it already is having an impact.

#### Only bold but clearly bounded and principled FTC action rebuilds agency legitimacy---broad, chaotic enforcement backfires.

William E. Kovacic 15, Global Competition Professor of Law and Policy, George Washington University Law School; Non-Executive Director, United Kingdom Competition and Markets Authority, and Marc Winerman, Formerly of the Federal Trade Commission, Where He Served for Over 31 Years as an Attorney Advisor to Kovacic and to FTC Commissioner Maureen Ohlhausen, and also in the Bureau of Consumer Protection, the Office of the General Counsel, and the Office of International Affairs, “The Federal Trade Commission as an Independent Agency: Autonomy, Legitimacy, and Effectiveness”, Iowa Law Review, 100 Iowa L. Rev. 2085, Lexis

VIII. Means to Preserve Necessary Degrees of Autonomy

Longevity for its own sake is hardly a worthy aim. There is little evident value in preserving a competition agency that ensures its survival by committing itself to unobtrusive law enforcement and declining to confront important and potentially controversial market failures. If a competition agency is to retain an economically significant enforcement role, one must ask how the agency is to perform that role without: (a) succumbing to pressure that undermines its capacity to make merits-based decisions about how to exercise its power to bring and resolve cases or use other instruments in its policy-making portfolio; and (b) losing the accountability and effectiveness that requires some connection to and engagement with the political process. What measures might enable a competition agency to resist suggestions that it undertake fundamentally flawed initiatives? How can one protect meritorious enforcement programs from political attack and intervention by political branches of government as such programs come to fruition? Presented below are some possible solutions.

A. Greater Specification of Authority

One approach is to avoid extremely open-ended grants of authority which application invites objections that the agency has overreached its mandate or inspires political demands that it use seemingly elastic powers to address all perceived economic problems. A fuller specification of powers and elaboration of factors to be considered in applying the agency's mandate can supply a more confident basis for the authority's exercise of power and a stronger means to resist arguments that it enjoys unbounded power.

B. More Transparency, Including Reliance on Policy Statements and Guidelines

Greater transparency in operations can increase the agency's perceived legitimacy and supply a useful barrier to destructive political intervention. The foundations of a strong transparency regime include the compilation and presentation of complete data sets that document agency activity and matter-specific transparency devices, such as the preparation of statements that explain why the agency closed a specific investigation. 59

Competition agencies can usefully rely extensively upon policy statements and guidelines to communicate their enforcement intentions and delimit the intended application of their powers. One purpose of such statements is to suggest how the agency defines the bounds of the more open-ended and inevitably ambiguous grants of authority its enabling statutes. For example, the FTC's policy statements in the early 1980s concerning consumer unfairness and deception were important steps towards defining how the [\*2110] agency intended to apply its generic consumer protection powers. 60 By articulating the bases upon which it would challenge unfair or deceptive conduct, the Commission strengthened external perceptions (within the business community and within Congress) that it would exercise its powers within structured, principled boundaries, and it increased, as well, its credibility before courts. The FTC has never issued a policy statement concerning its authority to ban unfair methods of competition, and the failure to do so has impeded the effective application of this power.

A second important use of policy statements is to introduce plans for innovative enforcement programs. Before embarking upon a new series of initiatives, the competition agency would issue a policy statement that identifies conduct it intends to examine and, in stated circumstances, proscribe. Here, again, the FTC's experience provides a useful illustration. Policy statements would be useful when the agency seeks to use section 5 of the FTC Act to reach beyond existing interpretations of the Sherman and Clayton Acts, or to apply conventional antitrust principles to classes of activity previously undisturbed by antitrust intervention. By issuing a policy statement before commencing lawsuits, the FTC would give affected parties an opportunity to comment upon the wisdom of the agency's proposed course of action and to adjust their conduct. Such an approach would likely increase confidence within industry and within Congress that the Commission is acting fairly and responsibly, and it could well make courts more receptive to the FTC's application of section 5 as well. 61

### CIL CP---2AC

#### 2. CIL defines broad norms, never individual law. Inherent imprecision destroys enforcement.

Monica Hakimi 20, James V. Campbell Professor of Law and Associate Dean for Faculty and Research at the University of Michigan Law School, JD from Yale Law School, BA from Duke University, “Making Sense of Customary International Law”, Michigan Law Review, 118 Mich. L. Rev. 1487, Lexis

Although scholars debate just how ineffective CIL is, they almost always assume that its efficacy depends on its capacity to establish stable primary rules. And many insist that its efficacy is impaired. 93For instance, Karol Wolfke has said that "the frequently expressed doubts about [CIL's] present usefulness . . . seem to be fully justified," "[c]onsidering [its] complexity, imprecision, and relative slowness." 94Carlos Vásquez has asserted that CIL's elasticity presents "opportunities for evasion or contestation" that undercut [\*1504] its efficacy. 95Andrew Guzman agrees: "[T]he lack of precision in CIL rules does indeed undermine the force of the rules and generate skepticism about their importance." 96

The usual response to these criticisms is, like the ILC's, to double down on the rulebook--to insist that CIL's secondary rules limit its elasticity and help establish stable primary rules. 97As I explain below, this response is uncompelling. CIL does not actually conform to a rulebook. Thus, as long as the rulebook conception is the metric for evaluating it, CIL will come up short. But what if the rulebook conception is misinformed? What if the problem lies not with CIL but with the conceptual apparatus that we have been using to assess it?

III. A PRACTICE-ORIENTED ALTERNATIVE

It's hard to overstate just how dissociated the rulebook conception is from CIL's day-to-day operation. As discussed, the process for CIL is extremely messy and produces a lot of disconnected raw data. In the rulebook conception, this process can create CIL only if the output satisfies certain secondary rules and manifests as primary rules. The ILC Conclusions say that, for this to happen, the mix of practice and opinio juris must be sufficiently clear and consistent. Otherwise, the output cannot be CIL.

That depiction of CIL is inaccurate. It does not describe the normative material that global actors in the ordinary course recognize and use as CIL. This material neither derives from secondary rules nor manifests only as primary rules. The reason why is that the disorderly process for CIL largely determines what it is. 98Because this process is so messy, the normative material that it produces does not come only, or even primarily, in the form of rules. It often is contingent and variable. Put differently, although the CIL process sometimes produces norms that have the clarity and stability of rules, most of its normative output is more fragmentary--treated and accepted as CIL by some actors or in certain settings but not by or in others. This material cannot be CIL under the rulebook conception. But it routinely shapes how people understand and interact with CIL. It is in a very real sense CIL.

[\*1505] To be clear, I am here presenting an alternative account of CIL that describes what it is as a real-world sociological phenomenon. Let me address at the outset one likely objection. Some will say that CIL, as I am describing it, is too unmoored or inconstant to be law. A prominent family of jurisprudential theories posits that law is by definition rule-like--that in order for a social practice to constitute law, it must in key ways conform to a rulebook. 99The objection would be that CIL must satisfy the rulebook conception in order to be law.

However, the jurisprudential theories that define law in rule-like terms are not the only available ones; others are compatible with my account. 100Moreover, the idea that all law must conform to the same universal criteria, no matter its social context, is itself suspect. People in this world understand law in all sorts of ways. My goal is not to resolve what law is in some universal sense but rather to describe a particular kind of law. If the material that global actors routinely accept and treat as law does not satisfy a certain jurisprudential theory, the logical conclusion is not that the material is not law but that the theory is incomplete; it is detached from and an inadequate barometer of what law "is" in the real world. After all, law is not just an abstract theoretical proposition. It is a social phenomenon. To understand how CIL functions as law, we need to move beyond those theories--as I do here.

A. The Practice of Customary International Law

CIL's defining characteristics are not clarity or consistency but high levels of fluidity, uncertainty, and contestation. These characteristics are a function of the CIL process. Because this process is so unstructured, it lacks mechanisms to regulate which normative positions are advanced through it or how particular positions play out. Two important points follow. First, the salience of a position within CIL--the extent to which the position is recognized and used as CIL--does not depend on whether it satisfies certain secondary rules. What matters instead is how the group of actors who participate in a given domain of global governance interact with the position. [\*1506] Second, because global actors take different stances on the normative positions that are batted around in the CIL process, these positions do not consistently take the form of conduct rules. They are often inconstant.

#### CIL builds in structural confusion AND is unenforceable

Irit Mevorach 18, Professor of International Commercial Law in the School of Law of the Faculty of Social Sciences at the University of Nottingham, “Modified Universalism as Customary International Law”, Texas Law Review, 96 Tex. L. Rev. 1403, June 2018, Lexis

C. Limitations and Critique

CIL tends to be vague, and the way it emerges is rather unclear. 40 Furthermore, because CIL is based on an evolving experience, it is evidently problematic to ascertain when rules have reached the stage where they can be applied as CIL. 41 There is also a circularity problem. For a rule to qualify as CIL, countries should feel obligated to follow it, but how would countries feel such legal obligation before the rule becomes customary? 42 This uncertainty, as well as CIL's reliance on domestic enforcement mechanisms, also makes CIL prone to nonobservance, especially when it attempts to address difficult cross-border conflicts. 43 [FOOTNOTE] 43 See Barbara C. Matthews, Emerging Public International Banking Law? Lessons from the Law of the Sea Experience, 10 Chi. J. Int'l L. 539, 556-57 (2010) (describing the questionable level of domestic enforcement of CIL and detailing the difficulties of codifying the Law of the Sea). [END FOONOTE] There have also been challenges to CIL for lacking a coherent theory and doctrine. 44 [FOONOTE] 44 See Thirlway, supra note 18, at 231 (noting that CIL is one of international law's "intellectual puzzles"); Karol Wolfke, Custom in Present International Law, at xiii (2d ed. 1993) (describing the ambiguity of the term "custom" with regard to international law). [END FOOTNOTE] It is arguably impossible to observe the universe of countries' practices to be able to ascertain whether references to CIL are made out of obligation. 45 It has also been argued that [\*1410] CIL does not actually affect country behavior and has little impact in view of the lack of enforcement mechanisms on the international level. 46 [FOOTNOTE] 46 Jack L. Goldsmith & Eric A. Posner, The Limits of International Law 39 (2005); see also Guzman, supra note 17, at 128 (discussing the argument that because CIL lacks an enforcement mechanism, CIL does not affect state behavior). [END FOOTNOTE] Another uncertainty revolves around the question of whose practice and opinion should be considered when attempting to identify the existence of CIL, including the extent to which non-state actors' actions should be taken into account, which countries' actions or omissions should be considered, and whether only the actions of countries that are affected or that are capable of taking action regarding a certain matter are relevant. 47 There is also a risk that CIL is too sticky and fails to allow for developments to meet changing circumstances and new needs of countries and of the international business and financial community. 48

### CIL CP---NB---2AC

#### Violations are inevitable in the U.S. and globally, but there’s no impact because i-law’s toothless

Luke Hiken 12, JD, Attorney Who Has Engaged in the Practice of Criminal, Military, Immigration, and Appellate Law, and Marti Hiken, Former Associate Director of the Institute for Public Accuracy and Former Chair of the National Lawyers Guild Military Law Task Force, “The Impotence of International Law”, Foreign Policy in Focus, 7/17/2012, https://fpif.org/the\_impotence\_of\_international\_law/

Whenever a lawyer or historian describes how a particular action “violates international law” many people stop listening or reading further. It is a bit alienating to hear the words “this action constitutes a violation of international law” time and time again – and especially at the end of a debate when a speaker has no other arguments available. The statement is inevitably followed by: “…and it is a war crime and it denies people their human rights.” A plethora of international law violations are perpetrated by every major power in the world each day, and thus, the empty invocation of international law does nothing but reinforce our own sense of impotence and helplessness in the face of international lawlessness.

The United States, alone, and on a daily basis violates every principle of international law ever envisioned: unprovoked wars of aggression; unmanned drone attacks; tortures and renditions; assassinations of our alleged “enemies”; sales of nuclear weapons; destabilization of unfriendly governments; creating the largest prison population in the world – the list is virtually endless.

Obviously one would wish that there existed a body of international law that could put an end to these abuses, but such laws exist in theory, not in practice. Each time a legal scholar points out the particular treaties being ignored by the superpowers (and everyone else) the only appropriate response is “so what!” or “they always say that.” If there is no enforcement mechanism to prevent the violations, and no military force with the power to intervene on behalf of those victimized by the violations, what possible good does it do to invoke principles of “truth and justice” that border on fantasy?

The assumption is that by invoking human rights principles, legal scholars hope to reinforce the importance of and need for such a body of law. Yet, in reality, the invocation means nothing at the present time, and goes nowhere. In the real world, it would be nice to focus on suggestions that are enforceable, and have some potential to prevent the atrocities taking place around the globe. Scholars who invoke international law principles would do well to add to their analysis, some form of action or conduct at the present time that might prevent such violations from happening. Alternatively, praying for rain sounds as effective and rational as citing international legal principles to a lawless president, and his ruthless military.

#### One action does not ‘create’ CIL

Curtis A. Bradley 10, Richard A. Horvitz Professor at Duke Law School, and Mitu Gulati, Professor atDuke Law School, “Withdrawing from International Custom”, Yale Law Journal, 120 Yale L.J. 202, November 2010, Lexis

Despite general agreement on the definition of CIL, there are many uncertainties surrounding this type of international law. It is not clear how much state practice is required in order to generate a rule of CIL, although most commentators agree that there must be "extensive" 25 or "widespread" 26 practice among the states for which the practice is relevant. 27 Nor is it clear how long nations must engage in the practice before it becomes a rule of CIL. Historically, CIL formation was thought to be an inherently slow process, but technological changes in communication, the rise of international institutions, and other developments are thought to have condensed the time period such that CIL can arise very quickly in some circumstances. 28 Indeed, some commentators argue that there can be "instant" CIL. 29 For these and other reasons, it can be difficult to determine when a CIL rule has developed.

There are also questions about the subjective element of CIL. It is difficult to establish the subjective motivations of nation-states (or, more accurately, their leaders). The reasons that nations give publicly for doing something might not be their true reasons. Moreover, they often act without giving any particular reasons. There is also a circularity problem in requiring that nations act out of a sense of legal obligation before they become bound, since it is not clear how this sense of legal obligation would arise. In addition, some [\*211] commentators are skeptical that nations follow practices out of a sense of legal obligation, as opposed to self-interest and coercion. 30 Despite these problems with the subjective element, it might be difficult without that element to distinguish binding custom from practices followed for other reasons, such as habit, policy agreement with the practice, moral commitment, or an applicable treaty. 31

#### It’s resilient, single violations don’t cause collapse, and U.S. isn’t key

Mattias Kumm 17, Professor of Law at New York University and Professor for Global Public Law at the WZB Social Science Research Center and Humboldt University, JSD from Harvard Law School, May 2017, "The End Of “The West” and the future of Global Constitutionalism," LawLog, https://lawlog.blog.wzb.eu/2017/05/16/the-end-of-the-west-and-the-future-of-global-constitutionalism/

Second, the principled grammar of Global Constitutionalism is hard wired into a dense network of treaties, institutions and practices globally and enjoys the general support of a wide range of stake-holders. If the United States and the “West” more generally are reluctant to take a leadership role in the progressive evolution of international law, a coalition of other actors may step in. The current negotiations under way in the UN concerning a Nuclear-Weapon Ban Treaty are taking place without any of the major Western powers. It is an open question how effective the current western boycott will be and whether it can prevent the majority of the international community from establishing a legal prohibition of nuclear weapons, further stigmatizing these weapons and building momentum towards effective nuclear disarmament. But whatever the case may be, the efforts currently underway show a degree of confidence of non-western actors as stakeholders and norm-entrepreneurs within the international system – with Brazil, Indonesia, Malaysia, Mexico, Nigeria and South Africa playing a leading role – that until recently would have seemed unimaginable. Furthermore the inertia and resilience of existing structures is likely to be considerable, both because they are difficult to change without consensus and because they may well become the focal point of resistance or new strategic positioning. If the US gives up on the institutional infrastructure of global trade, for example, this creates an opportunity for China to position itself as a reliable anchor, partner and leader, as Xi Jinping has tried to do at Davos this year. If populist nationalist authoritarians like Trump seek to undermine open borders and global trade, perhaps that will make it easier to forge coalitions among center right and center left political actors elsewhere to support deeper trade relations. The election of Trump has, for example, improved the chances for CETA to be ratified by European Member States as a clear statement against nationalist retrenchment. Of course it will have significant implications that major powers are increasingly led by authoritarian nationalist strongmen – not just in the Transatlantic World, but also in China, Russia and Turkey. There will inevitably be some decay and loss of relevance of international laws, institutions and practices, when powerful actors imagine international relations as zero-sum interactions between powerful leaders, struggling to define and expand their respective spheres of influence. But the story is unlikely to be the demise of Global Constitutionalism, rather than a significantly more complex story in which elements of demise and decay are complemented by resistance, reconfiguration and innovation.

### Biz Con DA---2AC

#### No spillover---blockchain is siloed from other areas

Jiang Jiaying 20, LLB, LLM, SJD, incoming Hauser Global Fellow at NYU School of Law and Co-Leader of the Central Bank Digital Currency Project with the Paul Tsai China Center at Yale Law School, “Regulating Blockchain? A Retrospective Assessment of China's Blockchain Policies and Regulations”, Tsinghua China Law Review, 12 Tsinghua China L. Rev. 313, Lexis

Under the direction of the national policy objective on technology, blockchain-related policies and regulations pursue the same path of innovation. Technology innovation in the blockchain field possesses distinctive implications owing to the novelty of blockchain and its implementations. Thus, three secondary policy objectives unique to blockchain characteristics are: (1) [\*345] building a blockchain ecosystem connecting everything in cyberspace; (2) standardizing the blockchain industry; and (3) acquiring leading innovation capacities for blockchain.

#### There’s a blockchain crackdown now that’s shredding confidence

Kellie Mejdrich 21, Senior Reporter at Law360, Financial Services Reporter at Politico, BA in Journalism from the University of Arizona, “‘Massive Wake-Up Call’: Crypto Faces Growing Legal Crackdown”, Politico, 8/17/2021, https://www.politico.com/news/2021/08/17/cryptocurrency-legal-crackdown-505595

Federal regulators are pursuing cryptocurrency startups in court and striking a growing number of legal settlements for rule violations, triggering complaints from the industry and sympathetic lawmakers who say it threatens a growing sector of the economy.

Over the past month alone, the Securities and Exchange Commission, the Commodity Futures Trading Commission and the Treasury Department announced more than $120 million in penalties aimed at digital currency exchanges and other service providers that officials said weren't complying with federal markets regulations and anti-money-laundering requirements. Several states also escalated their own crypto enforcement crackdowns this summer.

CFTC Commissioner Dan Berkovitz said in an interview that some cryptocurrency companies believe "the rules don't apply to them." He said regulators are now vigorously pursuing legal action to protect customers, ensure market integrity and prevent systemic risk. SEC Chair Gary Gensler also warned this month that crypto was rife with "fraud, scams and abuse" and that his agency was prepared to use its authorities "as far as they go" to police the market.

"This should serve as a massive wake-up call to the crypto industry," said Charley Cooper, a former CFTC chief operating officer now with software and blockchain technology firm R3. "A policy or a posture of ignoring Washington or showing disdain for Washington ... will ultimately be a failed strategy."

The enforcement actions are fueling debate about how cryptocurrency players fit into financial regulations. Federal regulators say the new digital currency platforms must adhere to existing rules, but industry players counter that it's not that simple and that it's time for Congress to pass new laws that are more tailored to crypto.

"This regulation by enforcement that we're seeing is not the way to go because it doesn't create good policy," said Kristin Smith, who advocates for the cryptocurrency industry as executive director of the Blockchain Association. "Regulators — in particular the SEC — think that the laws and regulations are crystal clear and that they're very easy to interpret. But for those of us on the other side of the table that are working in the industry and its ecosystem, the laws aren't clear, and it's very difficult to figure out how to apply them."

The market value of Bitcoin and other digital currencies hit $2 trillion again this week, meaning the stakes have never been higher for companies looking to enter the space. The movement has also spawned a whole sector of decentralized finance applications — so-called DeFi apps — that offer automated, autonomous trading and lending services with minimal human interaction. One such DeFi service, Poly Network, disclosed losing $600 million in a breach earlier this month.

Regulators in recent weeks have made clear they’re zeroing in on crypto exchanges and DeFi platforms.

Two high profile cases in August — a $100 million CFTC and Treasury settlement with crypto derivatives service BitMEX and a $10 million SEC settlement with digital asset exchange Poloniex — revolved around charges that the companies were operating unlicensed trading platforms. Another SEC settlement this month with decentralized lender DeFi Money Market accused its backers of selling more than $30 million in unregistered securities using so-called smart contracts and DeFi technology.

Some of the targeted crypto companies are trying to signal that they now take the rules more seriously. BitMEX CEO Alexander Höptner said in a blog post after his exchange's settlement that "crypto is becoming more responsible."

"We are committed to becoming a regulated exchange and are looking to set the benchmarks in this new era for crypto," said George Godsal, spokesperson for BitMEX operator 100x.

The federal cases came as five states including New Jersey, Texas and Kentucky took action against the startup BlockFi for offering interest-earning accounts that regulators say could be unregistered securities products.

BlockFi spokesperson Madelyn McHugh said the company believes its products and services are lawful and appropriate for crypto market participants, and that "we remain steadfast in our commitment to protect consumers’ rights to earn interest on their crypto assets."

"We’re hopeful that BlockFi will lead the charge in collaborating with regulators to define a regulatory path for our ecosystem going forward," McHugh said.

Lawyers tracking the cases said they showed that, even though some digital assets businesses assert certain laws don't apply to them, that doesn't stop the government from taking action.

"We've all been telling our clients and we've been telling people publicly for years that just because you come up with some name for something doesn't mean that the laws don't apply," said Stephen Palley, partner at the law firm Anderson Kill.

Vincent McGonagle, the CFTC's acting enforcement director, said in a statement that "there is a strong need for regulatory compliance in the digital asset market space and for bad actors to be identified and held accountable."

"The CFTC will continue to use the tools available to us to the fullest extent possible to closely monitor these evolving markets," McGonagle said. "The recent resolution with BitMEX and other enforcement actions by the commission, including those in the spot markets for digital assets, reflect our strong commitment to aggressively pursue actionable conduct within our jurisdiction."

Davis Polk partner Robert Cohen, former chief of the SEC's cyber unit, said that agency has taken an active approach to crypto enforcement since 2017, and it's no surprise it's continued under the Biden administration.

One of Trump-era SEC Chair Jay Clayton's final actions at the helm of the agency last December was to sue financial technology startup Ripple for allegedly selling unregistered securities in the form of the XRP cryptocurrency. The move triggered litigation between the SEC and Ripple that continues to this day over the extent to which digital currency should be regulated as an investment product.

"A question going forward is whether there will be progress on rulemaking and guidance for the community that provides the clarity and certainty needed to operate within the SEC’s regulatory system," Cohen said.

Some lawmakers are beginning to push back on the enforcement crackdown and warn there is an urgent need for Congress to draft new rules for the industry's business model.

Rep. Patrick McHenry of North Carolina, the top Republican on the House Financial Services Committee, said "regulation through enforcement hinders innovation."

"It's creating uncertainty in a really important and growing industry in the United States and globally,” McHenry said in an interview. “If we don't bring regulatory clarity here in this space, it's going to go to other regimes around the world that are more conducive for its development."

Rep. Don Beyer (D-Va.) has introduced legislation that would require the CFTC and SEC to issue new cryptocurrency rules. His bill would give the CFTC — which today regulates derivatives linked to things like oil and also fiat currencies — authority over digital assets. It would give the SEC — the U.S. stock market regulator — authority over digital asset securities.

McHenry has also proposed a bill that would convene a working group between the SEC, CFTC and industry to report on cryptocurrency regulation.

"The lack of legal clarity has hindered investment and innovation, and Congress should provide clear rules of the road for this growing market," Beyer said in a statement.

#### The plan signals intent to go narrow by targeting the root layer AND only the nucleus, a subset of the chain that demonstrates technical competence AND is welcomed by users who hate anticompetitive exclusion---that’s Schrepel.

[1AC SCHREPEL – FOR REFERENCE]

Enforcement is the second pillar of a collaborative approach between law and tech, antitrust and blockchain. I realize that this may seem counterintuitive; enforcement is, by definition, confrontational. In reality, distinct types of enforcement can lead to varying degrees of confrontation: some harm the entire blockchain, while others target the sole perpetrators of illegal practices. One should avoid the former, as it would reduce blockchain’s usefulness and thus deprive policymakers and regulators of an important ally. It is in the interests of both communities to encourage the latter.

AND

The second category concerns practices that centralize blockchain ecosystems artificially. More specifically, agencies should target practices that centralize the infrastructure level of a blockchain. As I have explained, that level has a critical influence on the decentralization of other levels. Prohibiting artificial forms of centralization at that layer will free most of the ecosystem from coercive forms of power. In doing so, it will make blockchain a more potent ally to antitrust law. Furthermore, this type of enforcement will prove increasingly important over time. If blockchain adoption continues to increase, it could very well become a key infrastructure for the world economy. At that point in time, the artificial centralization of blockchain will become antitrust agencies’ top enforcement priority.

Overall, directing enforcement activities toward these two types of practices would free blockchain, and its economic ramifications, from the most restrictive practices without diminishing its usefulness or creating resentment within blockchain communities. Antitrust would thus become the ally of blockchain ecosystems and would start being perceived as such.

#### The signal of a antitrust crackdown has already been clearly sent

Lina Saigol 1-19, Head of Corporate News, EMEA, Dow Jones Media Group, BA from McGill University, “Mergers Are Booming. U.S. Regulators Are Gearing Up to Crack Down on Them.”, Barron’s, 1/19/2022, https://www.barrons.com/articles/mergers-booming-us-regulators-crackdown-51642534456?tesla=y

Aggressive antitrust enforcement is back.

That is the stark message that President Joe Biden has sent the business community, and regulators have already kicked into action, threatening to rein in a record-setting merger boom.

Those charged with delivering Biden’s message are two Big Tech critics: Lina Khan, chair of the Federal Trade Commission, and Jonathan Kanter, head of the Justice Department’s antitrust division. On Tuesday, they outlined a plan to revise how the agencies will review mergers. They want public comment on how to update federal guidelines “to better detect and prevent illegal, anticompetitive deals,” they said in a statement.

“Our country depends on competition to drive progress, innovation, and prosperity,” Kanter said. “We need to understand why so many industries have too few competitors, and to think carefully about how to ensure our merger enforcement tools are fit for purpose in the modern economy.”

That is due in part because the FTC is constrained by limited manpower and budget. Also, regulators don’t have authority on their own to block a merger—federal judges can issue orders blocking it.

“Of course there has been an increased level of scrutiny and managements and boards have raised the bar on what they will consider, but we will continue to see large deals with compelling strategic imperative,” Bruce Evans, global co-head of M&A at Deutsche Bank , told Barron’s.

In December, the FTC sued to block computer-chip powerhouse Nvidia (ticker: NVDA) from spending $40 billion for British technology provider Arm, saying the blockbuster deal would unfairly stifle competition.

Just weeks earlier, the Justice Department sued to halt a proposed $2.2 billion tie-up between publishers Penguin Random House and Simon & Schuster, which would create a mega-publisher in the books market. The agency argues that consolidation would hurt authors and readers.

The lawsuits come after Biden signed a sweeping executive order in July aimed at curbing the power of big business by cracking down on anticompetitive practices in sectors ranging from agriculture to pharmaceuticals to labor.

#### Expanding blockchain massively boosts the economy

Kieran Brown 19, Senior Managing Consultant in London with the Berkeley Research Group, Michael Jelen, Director in the Global Applied Technology Practice at the Berkeley Research Group, and Nabil Manzoor, Director of Health Technology at PwC, “Blockchain Could Unleash Economic Growth—But Only if Governments Step Up with Clear Policy and Leadership”, ThinkSet Magazine, 6/27/2021, https://thinksetmag.com/insights/blockchain-econ-growth

Blockchain Could Unleash Economic Growth—But Only if Governments Step Up with Clear Policy and Leadership

The technology could revolutionize security and transparency, but only if we trust it. That’s where the government comes in.

Blockchain has a trust problem. Or, at least, a *perceived* trust problem.

A decade after the ascents of Bitcoin and later Ethereum, the technology behind those cryptocurrencies—blockchain, a distributed electronic database that records and automates transactions—is still widely misunderstood among the public and even within boardrooms. It’s too often conflated with the unruly markets of cryptocurrencies, enveloping blockchain in a cloud of mistrust and confusion.

The perception that blockchain can’t be trusted is both unfortunate and inaccurate. It’s also preventing blockchain from achieving its potential as a technology that could radically improve transparency and security across a broad range of industries in the public and private sectors.

Getting past blockchain’s trust problem is the key to unlocking the technology’s enormous potential. And the best, fastest way to do that is through regulation and smart policymaking. That might sound like anathema to free-market hawks and cyberlibertarians, but proactive government involvement doesn’t have to be the government-dominated, centrally controlled nightmare they fear. Rather, it is the crucial ingredient needed to unlock this emerging technology’s potential, allowing innovation and business to flourish.

Blockchain beyond crypto

It’s ironic that blockchain, a technology designed to promote trust in transactions, still faces questions about trust. But it’s becoming increasingly clear that many trust issues facing blockchain stem from a lack of understanding.

What’s crucial for business leaders and the general public to understand is that blockchain technology completely transforms the concept of trust (for the better). Trust, of course, is an essential part of how economies and markets operate. It enables and facilitates transactions that create value. Therefore, through the lens of economic theory, blockchain represents a new way of answering an age-old question: How can we create enough trust to peacefully, efficiently enable parties to exchange something of value?

Blockchain is really just a distributed electronic database of transactions, individually secured with a mathematical signature (block) and then linked together (chain). As the MIT Technology Review editors put it, “blockchains distributed across thousands of computers can mechanize trust, opening the door to new ways of organizing ‘decentralized’ enterprises and institutions.” The potential to increase and mechanize the number and efficacy of trusted transactions is enormous. And the more transactions that can be verified (deemed trustworthy) and automated, the more economic opportunities will emerge.

Blockchain is really just a distributed electronic database of transactions, individually secured with a mathematical signature (block) and then linked together (chain).

Blockchain’s ability to enable the frictionless transfer of assets is revealing itself rapidly in fascinating functions in the private and public sectors. Blockchain applications are involved with managing complex shipping and logistical issues at international ports (Maqta Gateway in Abu Dhabi and the Port of Antwerp in the Netherlands), providing a transparent record of trading activity on the Australian stock market and securing end-to-end transactions as part of a pilot program by the UK Land Registry.

Those functions should be viewed as at least as indicative of blockchain’s potential as Bitcoin. But instead, the technology’s conflation with cryptocurrency has created an association with volatile markets, spectacular risk and unsavory dark-web actors—and not the mathematical structure that relies on decentralized nodes for recording and storing data to allow for greater transparency, auditability and security.

Governments, policymakers and regulators are positioned to confer trust and legitimacy on blockchain—and to unlock its transformative economic potential—by promoting its adoption and developing best-use cases. To do this effectively, they need to invest in human capital, subject-matter expertise, a clear permission policy framework and governance. They must educate not only themselves on the applications of blockchain technology, but also their citizens.

How governments can lead expanding blockchain application

The internet’s utility and value aren’t limited to any single industry—it’s a general-purpose technology that has supported an explosion of economic activity and opportunity across every industry around the world. Likewise, we’re starting to see blockchain’s myriad applications beyond the financial sector.

Blockchain has the potential to radically upend traditional business models in a number of different areas: supply chain logistics, fair trade practices, property transactions, personal identity management and government, to name a few. Supply chain matters, where blockchain has made its first inroads outside of the financial sector, involve a complex series of transactions that move through multiple parties and transactions, each with its own contract and fulfillment terms. Blockchain enables the parties to automate and verify fulfilment of the terms at every step along the way, and to send and record payments instantly.

#### Recession’s guaranteed

Paul Hodges 3-27, Chairman of New Normal Consulting, Global Expert for the World Economic Forum, “Prepare for a K-Shaped Recession With Winners & Losers”, Independent Commodity Intelligence Services, https://www.icis.com/chemicals-and-the-economy/2022/03/prepare-for-a-k-shaped-recession-with-winners-losers/

Yet as the chart confirms, oil prices are currently well above the 3% of global GDP that normally leads to recession. And as I noted here a month ago, when the Ukraine invasion began:

“Wars launched by paranoid autocracies aren’t usually like video games with a defined (and quick) beginning and end. And Putin’s war has already led to unprecedented financial sanctions on Russia and its ruling oligarchs.”

Consumption is 70% of the US economy. And the latest data from the Univesity of Michigan’s Consumer Sentiment survey confirms the risk, as the chart shows. It is already at the 1990 level – which led to recession – and is likely headed lower.

The big difference from 1990, 2020 and today is that inflation is soaring around the world – due to supply chain chaos, and rising energy prices. So central banks are finally being forced to refocus on inflation, and raise interest rates into a recession.

This hasn’t happened since the early 1980s, and won’t be good news for financial assets.

Stocks and house prices are selling at record valuations. People were able to borrow seemingly unlimited amounts of cash, at near-zero rates. But already, the US 30-year mortgage rate has risen by 2/3rds to 4.42%, from 2.65% in January last year.

‘THE JOKERS’ MEAN WE NEED TO EXPECT A K-SHAPED RECESSION

The SuperCycle was unique in history. It was the NICE period, with Non-Inflationary Constant Expansion. Geopolitics became less important, as everyone was able to get their share of the “bigger economic pie”. But now it is going into reverse:

* China’s real estate bubble was key to the post-2008 recovery. But now it is bursting with average high-yield debt yields at a record 32.9%. The Ukraine invasion is causing further, major disruption, with widespread sanctions on Russia
* And as discussed here last week, it is leading to major changes in global energy markets. Germany is moving completely away from its dependence on Russian supplies of gas and oil
* Growth will also be much slower in the New Normal due to today’s ageing populations. The central banks’ stimulus programmes were effectively an attempt to support consumption by “printing babies” as discussed here many times. But that folly is now over.

#### Ukraine, inflation, and supply chains thump biz con

Ben Werschkul 3-22, Senior Producer and Writer for Yahoo Finance, “CEO Optimism Dips Amid ‘Unprecedented Times’”, Yahoo News, 3/22/2022, https://finance.yahoo.com/news/ceo-optimism-dips-business-roundtable-report-152841431.html

CEO optimism dipped in recent months as economic headwinds — from the invasion of Ukraine to high inflation to lingering supply chain challenges — took their toll on expectations for the rest of 2022.

The results come from the Business Roundtable’s CEO Economic Outlook for the first quarter of 2022.

The overall outlook dropped nine points to a level of 115. Still, that remains well above the survey's long-term average and comes off a record high in the fourth quarter of 2020. The survey saw declines in every specific measure it tracks: plans for hiring, plans for capital investment, and expectations for sales.

“We once again find ourselves in unprecedented times both domestically and abroad,” Business Roundtable Chair Mary Barra, General Motors (GM) Chair and CEO, said in a statement upon the release.

The Business Roundtable surveys its members each quarter with the intent to gauge CEO expectations for the next six months. This survey was conducted between Feb. 22 — two days before Russia's invasion of Ukraine — and March 11.

‘It is important to strengthen the U.S. economy’

#### But, it’s completely resilient

Clint Rainey 1-19, MA in Journalism from Columbia University, BA in Journalism from the University of Texas, Investigative Journalist and Freelance Writer for NYMag, Fast Company, Businessweek, MIT Technology Review, “For Some Reason, CEOs Are More Optimistic Than Ever About The Economy”, Fast Company, 1/19/2021, https://www.fastcompany.com/90713799/for-some-reason-ceos-are-more-optimistic-than-ever-about-the-economy

Business leaders’ optimism about the short-term economy is at its highest point in a decade despite, well, crises seemingly in every direction you look. (A short list includes a two-year-long global pandemic, record inflation, supply shortages, the Great Resignation, and the past seven years being Earth’s seven hottest on record.)

That’s according to accounting giant PwC’s latest Global CEO Survey, released yesterday.

The annual survey, now in its 25th year, polled 4,446 CEOs worldwide back in late fall of 2021, which, it’s worth noting, was also before the omicron wave broke. Still, just 15% of them said they believe economic conditions can’t get any worse in 2022—a relatable position, perhaps—but the vast majority, 77%, go even further, predicting “a stronger global economy in the coming year.” PwC says this is the “most confident” that global CEOs responding to its survey have been since 2012, when recovery from the Great Recession was in full swing.

It’s fair to say respondents worldwide are optimistic, but breaking their answers down country by country muddies the waters a bit. Optimism was highest in India, where 94% of CEOs anticipate global growth in the coming year, 6 points higher than last year. It climbed among CEOs in Japan as well (up 16 points to 83%), and in the UK (up 5 points to 82%), then leapt a ton in Italy (up 18 points to 89%) and France, which recorded the biggest increase (up 25 points to 85%).

Meanwhile, optimism took a hard tumble in four very big, key countries: the U.S. (down 18 points to 70%), China (down 9 points to 62%), Brazil (down 8 points to 77%), and Germany (down 4 points to 76%). Tellingly, however, American CEOs told PwC they’re just as confident as CEOs in India about their own company’s 2022 growth prospects—in both countries, about 40% are “extremely confident” that they’ll achieve revenue growth this year.

In his statement, PwC’s global chairman, Bob Moritz, writes that this level of optimism “speaks to the strength and resilience of the global economy and the ability of CEOs to manage through uncertainty.” He sums it up like this: “There is nothing ‘normal’ about the world we are working in, but we are getting used to it.”

By teaching their workforce technical, human, and learning skills, organizations will be better prepared for the challenges of tomorrow

The looming question—Why?—is not one PwC answers. Other first-of-the-year reports in recent days paint bleaker pictures for 2022. Last week, the World Bank released one warning that the world’s poorest countries face $35 billion in debt repayments this year, enough to potentially push some to the brink of default. In the run-up to Davos, the World Economic Forum just released its annual global risks report. Answers to a question asking 1,000 global leaders to identify the planet’s most imminent risks read like themes from a Cormac McCarthy novel: “extreme weather,” “livelihood crises,” “infectious diseases,” “debt crises,” and “social cohesion erosion.” Even in PwC’s own survey, CEOs still said despite their optimism that they worry in the coming year about cyber threats, health crises, climate change, geopolitical conflict, social inequality, and “macroeconomic volatility.”

#### Decline doesn’t cause war

Dr. Stephen M. Walt 20, Robert and Renée Belfer Professor of International Relations at Harvard University, PhD in International Relations (with Distinction) from Stanford University, MA in Political Science from the University of California, Berkeley, “Will a Global Depression Trigger Another World War?”, Foreign Policy, 5/13/2020, https://foreignpolicy.com/2020/05/13/coronavirus-pandemic-depression-economy-world-war/

On balance, however, I do not think that even the extraordinary economic conditions we are witnessing today are going to have much impact on the likelihood of war. Why? First of all, if depressions were a powerful cause of war, there would be a lot more of the latter. To take one example, the United States has suffered 40 or more recessions since the country was founded, yet it has fought perhaps 20 interstate wars, most of them unrelated to the state of the economy. To paraphrase the economist Paul Samuelson’s famous quip about the stock market, if recessions were a powerful cause of war, they would have predicted “nine out of the last five (or fewer).”

Second, states do not start wars unless they believe they will win a quick and relatively cheap victory. As John Mearsheimer showed in his classic book Conventional Deterrence, national leaders avoid war when they are convinced it will be long, bloody, costly, and uncertain. To choose war, political leaders have to convince themselves they can either win a quick, cheap, and decisive victory or achieve some limited objective at low cost. Europe went to war in 1914 with each side believing it would win a rapid and easy victory, and Nazi Germany developed the strategy of blitzkrieg in order to subdue its foes as quickly and cheaply as possible. Iraq attacked Iran in 1980 because Saddam believed the Islamic Republic was in disarray and would be easy to defeat, and George W. Bush invaded Iraq in 2003 convinced the war would be short, successful, and pay for itself.

The fact that each of these leaders miscalculated badly does not alter the main point: No matter what a country’s economic condition might be, its leaders will not go to war unless they think they can do so quickly, cheaply, and with a reasonable probability of success.

Third, and most important, the primary motivation for most wars is the desire for security, not economic gain. For this reason, the odds of war increase when states believe the long-term balance of power may be shifting against them, when they are convinced that adversaries are unalterably hostile and cannot be accommodated, and when they are confident they can reverse the unfavorable trends and establish a secure position if they act now. The historian A.J.P. Taylor once observed that “every war between Great Powers [between 1848 and 1918] … started as a preventive war, not as a war of conquest,” and that remains true of most wars fought since then.

The bottom line: Economic conditions (i.e., a depression) may affect the broader political environment in which decisions for war or peace are made, but they are only one factor among many and rarely the most significant. Even if the COVID-19 pandemic has large, lasting, and negative effects on the world economy—as seems quite likely—it is not likely to affect the probability of war very much, especially in the short term.

### Court Clog DA---2AC

#### Tons of antitrust now

Jon Swartz 12-28, Senior Reporter for MarketWatch, “Big Tech Heads for ‘A Year of Thousands of Tiny Tech Papercuts,’ But What Antitrust Efforts Could Make Them Bleed?”, MarketWatch, 12/28/2021, https://www.marketwatch.com/story/big-tech-heads-for-a-year-of-thousands-of-tiny-tech-papercuts-but-what-antitrust-efforts-could-make-them-bleed-11640640776

Antitrust enforcement of Big Tech is expected to take place on a scale never before seen in 2022, following years of escalating rhetoric from Washington.

So far, Wall Street has shrugged as the five companies under the microscope — Google parent Alphabet Inc. GOOGL, -0.92% GOOG, -0.91%, Facebook parent Meta Platforms Inc. FB, -2.33%, Apple Inc. AAPL, -0.35%, Amazon.com Inc. AMZN, -1.14%, and, yes, Microsoft Corp. MSFT, -0.88% — have been targeted by governments and rivals across the globe. Despite a steady drumbeat of negative headlines, tech’s quintet of heavy hitters boasted a cumulative market value of nearly $10 trillion as 2021 neared an end, after producing a collective $2.4 trillion in revenue over the past two years of pandemic misery.

The stock prices of tech companies have only been “minorly impacted because investors do not tend to make decisions based on the mere possibility of legislation,” Ashley Baker, director of public policy at the Committee for Justice, told MarketWatch.

Many investors have simply looked back on history and shrugged, according to one Silicon Valley venture capitalist.

“There is more antitrust noise, but investment people remember the Microsoft and IBM IBM, -0.19% [antitrust investigations] in which waves of innovation followed those investigations and proved they did not own the industry,” Alexandra Sasha Johnson, president of Global Tech Symposium, a Silicon Valley investment conference, told MarketWatch. “Until the Big Tech companies buy each other, this is not a problem.”

For more: Big Tech was built by the same type of antitrust actions that could now tear it down

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This could finally change in 2022 as it did in the late 1990s, when some tech companies struck a cautious stance during the Justice Department’s investigation of Microsoft for monopolistic practices, Syed said.

“The difference is that we’re talking about interconnected companies that own an industry versus just one company [with Microsoft],” she said. “And there is bipartisan support, which makes it easier politically.”

More on the antitrust challenges facing Big Tech in 2022

Amazon has mostly avoided antitrust scrutiny, but that may change in 2022

Possible Justice Department lawsuit looms over Apple, which is facing scrutiny worldwide

Google enters 2022 battling antitrust actions on multiple fronts — with more likely to come

Facebook’s acquisitions of Instagram and WhatsApp are antitrust targets, but its metaverse mergers may be the victims

Microsoft has avoided U.S. antitrust scrutiny, but Europe is a different matter

With more than a dozen pieces of anti-tech legislation, a plethora of lawsuits and regulatory fines escalating in the U.S. and abroad, as well as the Biden administration rounding out Big Tech’s nightmare team of government agency heads, 2022 is shaping up as a seminal year for tech regulation after decades of inaction.

In rapid succession this year, Biden named and nominated an antitrust team of Tim Wu (to the newly created position of head of competition policy at the National Economic Council), Lina Khan (chair of the Federal Trade Commission) and Jonathan Kanter (head of the antitrust division of the Justice Department). Each is a heralded anti-monopolist advocate who has written extensively on the topic or represented companies making antitrust claims against Big Tech.

The trio have been referred to as members of a “New Brandeis movement,” named after Supreme Court Justice Louis Brandeis, whose decisions limited the power of big business in the early 20th century. With the New Brandeis trifecta in place, and Congress evaluating more than dozen possible anti-tech bills, next year is “shaping up to be the year of Tech Takedown,” Bhaskar Chakravorti, dean of global business at the Fletcher School at Tufts University, told MarketWatch.

More troubling for tech CEOs, he said, are the “many tiny actions at the FTC, Justice Department and Congress that will continue to keep feeding the news cycles with a steady stream of actions” that add up to a “a year of thousands of tiny tech papercuts.”

Big Tech’s treacherous path to antitrust enforcement has three potentially damaging roads: federal agencies challenging acquisitions and mergers; legislation tailored to stimulate competition and curtail the influence of tech’s dominant platforms; and federal and state lawsuits.

Closer scrutiny of M&A activity

The biggest immediate impact from the Biden administration’s all-out assault could be a cooling-off period of frenzied mergers and acquisitions by the biggest players. Regulators have been empowered with examining past deals and more strenuously inspecting tech’s latest purchases.

Major movement is already happening on the M&A front because, as lawyers and executives told MarketWatch, the FTC and Justice Department have new leadership empowered to more closely review and approve mergers while they await legislation and court actions. A non-binding presidential executive order largely seen as aimed at Big Tech announced a policy of greater scrutiny of mergers over the summer, and the FTC and Justice Department each would receive $500 million in new funding to boost staff working on antitrust enforcement as part of the House-passed reconciliation bill awaiting Senate action.

The FTC is signaling greater oversight over deals, requiring affirmative consent on certain transactions, which may prolong uncertainty on merger agreements. The agency has already sued to block the largest semiconductor deal ever — Nvidia Corp.’s NVDA, -0.59% proposed $40 billion acquisition of U.K.-based chip-design provider Arm Ltd., saying the deal would “distort Arm’s incentives in chip markets and allow the combined firm to unfairly undermine Nvidia’s rivals.”

Another FTC antitrust probe, into Meta’s plan to acquire VR fitness app Supernatural for $400 million, is underway, according to a report by The Information.

The Justice Department’s direction is less clear at this point, but signals from Kanter’s confirmation hearing point to “vigorous enforcement” of antitrust laws.

“Personnel is policy. With the trifecta of Khan, Kanter and Wu, there is a new sheriff in town,” Luther Lowe, senior vice president of public policy at Yelp Inc. YELP, -0.66%, told MarketWatch. “Efforts by Amazon and Facebook to recuse Khan, and Google’s attempt to recuse Kanter, is like arsonists asking for firefighters to be removed from a fire.”

#### Litigation’s increasing and inevitable

Seyfarth 21 – Seyfarth Shaw LLP, Approximately 900 Lawyers Across 17 Offices, Seyfarth Shaw LLP Provides Advisory, Litigation, and Transactional Legal Services To Clients Worldwide. “Commercial Litigation Outlook.” 3/31/2021. https://www.seyfarth.com/news-insights/commercial-litigation-outlook.html

The upcoming year promises to be hectic and active on the litigation front. To help our clients anticipate and navigate what’s to come, our subject-matter experts provide insights and analysis on what you can expect. As the nation emerges from the pandemic, clients face the double-whammy of delayed resolution of existing disputes (thanks to court shutdowns) and increased litigation activity across the board. The third quarter of 2020 saw significantly increased lawsuit activity, particularly in the area of real estate litigation. The remainder of 2020 had slightly below average lawsuit filings, which we think was attributable more to delayed filing rather than avoided disputes. Indeed, prognostications from a variety of legalwatchers all agree that lawsuits will be on the rise. The burning question for many is, “when will the courts unclog?” With criminal matters taking precedence, many jurisdictions will remain bogged down with civil suits taking a back seat through the rest of the year. But some jurisdictions are already rebooting jury trials, some remote and, with full vaccine distribution possible by summer, civil trials in unclogged jurisdictions are likely by the third quarter of 2021. As you can read in the full Outlook linked below, electric vehicles are shaking up the automotive franchise world, the flood of real estate disputes will continue past 2021, and regulatory framework will trigger heightened compliance obligations for financial services companies. Other key trends in the commercial litigation space addressed in this issue are: Antitrust Biometric Privacy Laws Cybersecurity Data Protection eDiscovery Health Care Litigation Insurance We hope you find this publication informative. Please contact any of the authors for assistance with any of the issues outlined in this publication.

#### ‘Floodgates’ are fake---established docket control works

Meredith M. Render 20, Professor of Law at the University of Alabama School of Law, JD from the Georgetown University Law Center, BA from Boston College, “Fiduciary Injury and Citizen Enforcement of the Emoluments Clause”, Notre Dame Law Review, 95 Notre Dame L. Rev. 953, January 2020, Lexis

First, as previously discussed, there is reason to be skeptical about the efficacy of the CAP rule in terms of reducing the overall number of cases in the federal courts. 315 Moreover, in addition to the fact that the CAP rule likely does little to reduce the overall number of opportunities for federal courts to judge the behavior of coordinate branches, there is reason to [\*1007] believe that the opening-the-floodgates worry itself is overblown. 316 Not only is the floodgates argument in support of the CAP rule lacking in empirical support, 317 but it may also be lacking in a clear, germane, and substantive content when used by various members of the Court. 318F or example, Professor Marin Levy has observed that "recent cases show the justices vacillating between providing assurances that their decision will not result in a deluge of new claims, and accusing each other of being driven by an improper desire to stave off such a deluge." 319 The floodgate alarm has been used in diverse and internally inconsistent contexts without the mooring benefit of evidentiary support, such that it has taken on more the character of epithet than of a serious constitutional obstacle. 320Justice Ginsburg, writing in dissent, has succinctly summarized this development, stating: "The 'floodgates' argument the Court today embraces has been rehearsed and rejected before." 321

The fact that the floodgate rationale is frequently used to support both sides of a contested determination by the Court suggests that it may lack a stable normative content. 322 The floodgate rationale is, at heart, a prediction about how future litigants will behave if the Court adopts a new rule. Yet the ordinary norms of prediction with their attendant empirical safeguards seem not to obtain. 323 Those invoking the floodgate alarm have not felt [\*1008] obliged to supply evidence of past instances in which the federal courts were in fact "flooded" as the result of similar rule changes, and that the Federal Rules of Civil Procedure were inadequate to address the "flood." 324 Given that members of the Court have so frequently predicted a litigatory deluge as a consequence of a rule change, it would seem a simple matter to confirm that a deluge has, in fact, occurred. 325 However, evidence of past flooding has yet to emerge within the floodgate discourse. 326

It is possible that the reason that the floodgate worry has not been documented may be because it has yet to come to pass. There is ample reason to believe that the Federal Rules of Civil Procedure are generally commensurate to the task of qualitatively stemming the tide of litigation. 327 The Federal Rules of Civil Procedure are designed to weed out duplicative, harassing, frivolous, and meritless cases. 328While no standing rule - including the CAP rule - prevents nonmeritorious cases from being filed in federal court, such cases are generally resolved on a Rule 12(b)(1) motion to dismiss. 329The Rule 12(b)(1) motion to dismiss is also the first opportunity during which a defendant can challenge standing. 330There is no strategic advantage to [\*1009] defendants - in terms of the expenditure of resources - to having a case dismissed for want of standing as compared to any other grounds for dismissal under Rule 12(b)(1). 331Likewise, doctrines and mechanisms designed to conserve both judicial and defendant resources, such as claim preclusion, issue preclusion, abstention, joinder, and case consolidation, all operate to prevent horizonal lawsuits alleging the same nexus of operative facts from going forward simultaneously in multiple district courts - a point that is especially important in the emoluments context where presumably any citizen suit would allege the same operative facts. 332

#### Work gets delegated OR new resources are added

Marin K. Levy 13, Associate Professor of Law at the Duke University School of Law, JD from Yale Law School, “Judging the Flood of Litigation”, University of Chicago Law Review, 80 U. Chi. L. Rev. 1007, Lexis

To be sure, judicial workload is a critical concern. As noted earlier, the lower courts have faced rising caseloads over the last several decades 285 - a fact the justices have emphasized. 286 Today, both federal district and appellate judges must contend with hundreds of filings per year, 287 meaning that their ability to give attention to individual cases is greatly reduced. Employing the tools at hand, district judges have come to rely more heavily on the aid of magistrate judges, 288 and appellate judges have come to rely on the assistance of staff attorneys and other case-management tools to cope with their workload. 289 Still, judges and scholars alike have called for an expansion of the bench 290 and limiting the flow of cases 291 to alleviate the strain on the federal courts. Thus, when the justices express their desire to avoid inviting new claims into federal courts, the underlying concern is not a trivial one. 292 The critical question, though, is [\*1066] whether considerations of judicial workload can stand as an independent factor in shaping the Court's interpretation of substantive law.

#### Congress will adjust before any impact

Marin K. Levy 13, Associate Professor of Law at the Duke University School of Law, JD from Yale Law School, “Judging the Flood of Litigation”, University of Chicago Law Review, 80 U. Chi. L. Rev. 1007, Lexis

Now, it is important to recognize that counseling Courts against considering caseload volume in this kind of decision making does not mean that there is no recourse when it comes to docket concerns. Our system provides several ways to relieve caseload pressure short of the courts not recognizing causes of action or deciding not to hear particular sets of cases. Specifically, our constitutional system gives Congress the authority to adjust laws so as to stem that flow. 305 And Congress has indeed exercised that power. As noted earlier, Congress passed the Supreme Court Case Selections Act 306 to alleviate the Court's then "unmanageable workload" by eliminating most of the Court's mandatory jurisdiction. 307 With respect to the rest of the federal court docket, Congress has repeatedly enacted targeted legislation to reduce frivolous filings. For example, Congress passed the PLRA precisely as a way of "addressing a flood of prisoner litigation in the federal courts." 308 Similarly, part of the purpose of the Private Securities Litigation Reform Act of 1995 309 was to limit frivolous securities claims. 310 This is not to [\*1070] suggest that Congress could not do more in this vein; rather the point is simply that there is still a branch of government that has the clear authority to take the courts' caseload into account in substantive decision making and has done so repeatedly in the past.

### Court Clog DA---AT: Patents---2AC

#### Patents tubed and courts aren’t key

Gene Quinn 19, Patent Attorney and Editor and President & CEO of IP Watchdog, Inc; IP Watchdog, “It May Be Time to Abolish the Federal Circuit”, IP Watchdog, 7/19/2019, <https://www.ipwatchdog.com/2019/07/09/may-time-abolish-federal-circuit/id=111122/>

The state of patent law in America is this: You might as well appeal because if you get lucky and draw the right panel you will win. And like it or not, that is precisely what our patent justice system has become under the Federal Circuit. A crapshoot. And we all know it to be true.

The current state of utter disarray at the Federal Circuit, with panels doing whatever they want, judges not agreeing on anything, and ignoring en banc decisions as if they never happened isn’t what the Federal Circuit is meant to have become. The Federal Circuit is a disaster and the collective unwillingness of the judges to come together is making a mockery of an institution that is a critical piece in the U.S. innovation system. Indeed, the fact that the Federal Circuit is absent and unwilling to provide predictability and certainty, which literally was their only job, is why so many people are turning to Congress to solve the problems of the patent system.

The Federal Circuit is the entity within our system that the patent community has turned to for help since 1982, but they are not present currently. The Federal Circuit is so afraid of being overturned by the Supreme Court that they have lost their ability to distinguish even easily distinguishable cases. After all, Mayo dealt with an exceptionally poor claim where the Supreme Court took a shortcut using 101 instead of using 102 or 103. In Alice, they were told by the patentee’s attorney it was a trivial piece of software that could be coded over a weekend by a college student. These cases are easily distinguishable from any life sciences innovation of consequence or something like artificial intelligence or autonomous driving, for example. Yet, the Federal Circuit has expansively read these cases despite the explicit language of the Supreme Court telling them to narrowly read the cases lest all of patent law would be swallowed.

#### Innovation’s inevitable---patents aren’t key

Dr. Joël Blit 17, Senior Fellow at the Center for International Governance Innovation, Ph.D. in International Economics from the University of Toronto, M.A. in Economics from the University of Western Ontario, M.B.A. from INSEAD, M.Sc. in Computer Engineering from the University of Waterloo and B.Sc. in Engineering Science from the University of Toronto, “Are Patents Really Necessary?”, Center for International Governance Innovation, 4/25/2017, https://www.cigionline.org/articles/are-patents-really-necessary/

Are Patents Really Necessary?

Importantly, the simple model assumes that innovations can be imitated quickly and at zero cost. In practice, it may take time for potential competitors to learn of the new innovation, let alone imitate it. This could give the original innovator a first-mover advantage that, even in the absence of patent rights, provides sufficient incentives for the inventor to develop his or her idea. Alternatively, if imitation costs are non-zero, the result would be limited entry, a positive equilibrium price and, potentially, sufficient profits for the inventor to cover development costs. Irrespective of the speed and cost of imitation, some markets may also have significant regulatory or other barriers to entry that limit competition and, thus, provide a profit for the innovator. Therefore, it may well be that, in practice, most innovation would occur even without the additional incentives of patents.

Patents are also not the only way to incentivize innovation. While patents have the advantage that they fully decentralize decision making and governments need not have knowledge of innovation opportunities or the value of innovations, and that under a patents regime the costs of development are ultimately borne by the innovation’s users and not by the public, patents are in general less efficient in terms of overall welfare than many alternative mechanisms to incentivize innovation.

One alternative to patents, and a first-best from a welfare perspective, is for a sponsoring agency or government to offer the inventor a prize for producing the innovation. If the size of the prize is equal to the consumer surplus in Figure 1, Panel A, the prize has the added benefit that the inventor will choose to develop his or her idea into an innovation when it is socially optimal to do so (that is, when the cost of developing the innovation is less than the value that it generates) and will choose not to develop it otherwise. An additional benefit of this approach is that it can incentivize basic innovation and not just the applied variety, such as patents. Prizes are already being used effectively by groups such as the XPRIZE Foundation to spur innovation. And based on figures compiled by Dean Baker (2005), prizes or direct funding of research and development (R&D) could be more effective than patents to spur pharmaceutical innovation. Baker notes that, in 2005, the United States spent US$210 billion on prescription drugs and estimates that the cost would have been closer to US$50 billion in the absence of patents. And this additional US$160 billion expenditure generated, at most, US$25 billion of R&D spending (the total R&D spending of the US pharmaceutical industry in 2005).

In addition to prizes and direct funding of R&D, numerous related mechanisms for incentivizing innovation have been proposed, including buying out patents either through direct negotiation with the innovators3 or by determining the value of an innovation through a (shadow) auction of the innovation (Kremer 1998).

Conclusion

The model presented here makes the case that patents trade off DWL for increased innovation, and that there is an optimal patent term that achieves the best trade-off between them. However, patents are not the only way to incentivize innovation, nor are they necessary to obtain innovation in most practical cases. As a simplified model, it ignores the reality that innovation is cumulative and that firms respond not just to domestic intellectual property rights but also to the regimes in foreign countries. As another essay in this series will examine, in these more realistic scenarios, not only may patents not promote innovation, but they could even stifle it.

#### The patent system’s resilient

Dr. Michael J. Meurer 21, PhD, Professor of Law at Boston University, and Janet Freilich, Associate Professor of Law at Fordham University, “Patent System Often Stifles The Innovation It Was Designed To Encourage”, The Conversation, 3/16/2021, https://theconversation.com/patent-system-often-stifles-the-innovation-it-was-designed-to-encourage-148075

Over his career Thomas Edison garnered more U.S. patents than anyone in his time. Edison profited from his patents, but he was also exposed to the dark side of the patent system. He had to contend with lawsuits by other patentees who sought – and sometimes won – a piece of his success. While the patent system is designed to spur innovation like Edison’s, it also hampers it.

Easy copying and imitation discourage innovation, because why make the effort if someone else will profit from it? The patent system works by enabling inventors to block unauthorized use of patented technology.

Most technologies are developed by many inventors over many years, a process called “cumulative” innovation. Too often, however, early inventors get a patent on a small and perhaps insignificant piece of the technological puzzle, yet their patent covers the entire puzzle. Inventors who solve subsequent parts of the puzzle may need to pay royalties to the patentee, even if their contributions are larger.

As legal experts who focus on technology law and policy, we suggest that the problem boils down to two issues: too many patents and too little accurate information about them.

Too many patents

The U.S. is awash in patents. Over 350,000 U.S. patents were granted in 2019, four times the per capita rate in 1980. From the perspective of research managers at big firms, patents are cheap and easy to get. For example, in the early 2000s Bill Gates decided that Microsoft was patent-poor, and within a few years the company increased annual patent applications by 50%.

# 1AR

#### Nuclear terror is impossible

John Mueller 21 & Mark G. Stewart, Mueller is Woody Hayes Senior Research Scientist, Mershon Center for International Security Studies, and adjunct professor of Political Science, at Ohio State University, also a Senior Fellow at the Cato Institute in Washington; Stewart is Professor of Civil Engineering and Director of the Centre for Infrastructure Performance and Reliability at The University of Newcastle in Australia, “Terrorism and Bathtubs: Comparing and Assessing the Risks,” Terrorism and Political Violence, vol. 33, no. 1, 01/02/2021, pp. 138–163

The likelihood that anyone outside a war zone will be killed by an Islamist extremist terrorist is extremely small. In the United States, for example, some six people have perished each year since 9/11 at the hands of such terrorists—for an annual fatality rate of about one in 50 million for the period.

This might be taken to suggest, as one writer has characterized it, that “terrorism is such a minor threat to American life and limb that it’s simply bizarre—just stupefyingly irrational and intellectually unserious—to suppose that it could even begin to justify the abolition of privacy rights as they have been traditionally understood in favour of the installation of a panoptic surveillance state.” 1 And terrorism specialist Marc Sageman characterizes the threat terrorists present in the United States as “rather negligible.” 2 The vast majority of what is commonly tallied as terrorism has occurred in war zones, and this is especially true for fatalities.3 But even this has been exaggerated by conflating terrorism with war: civil war violence that would previously have been seen to be acts of insurgency are now often labeled terrorism.4

In order to put the numbers in some context, it has often been pointed out that far more Americans are killed each year not only by such highly destructive hazards as drug overdoses or automobile accidents, but even by such comparatively minor ones as lightning, accident-causing deer, peanut allergies, or drowning in bathtubs. Some comparisons are arrayed in Table 1.

In recent years, however, critics have attacked what they call “the bathtub fallacy.” 5

First, they stress that it is important to keep in mind that bathtubs are not out to kill you while terrorism is a willful act carried out by diabolical, dedicated, and clever human beings. Thus, although the number of people Islamist terrorists have been able to kill in the West since 9/11 has thus far been quite limited, those terrorists, as they plot and plan and learn from experience, may very well become far more destructive in the future.

Second, the critics charge that the comparison of terrorism with bathtub drownings is incomplete in that it doesn’t consider the possibility that the incidence of terrorist destruction is low precisely because counterterrorism measures are so effective.

Third, it is argued that, unlike bathtub drownings, terrorism exacts costs far beyond those entailed in the event itself. It damagingly sows terror, fear, and anxiety; disturbs our

Table

Description automatically generated

psychological well-being; undermines trust and openness within the society; and reduces our sense of intrinsic moral worth even as it increases a sense of helplessness. They maintain, fourth, that the comparison is invalid because, unlike terrorism, bathtubs provide benefit.

And finally, they contend that terrorism costs are peculiarly high, particularly in a democratic society, because the fears it generates will necessarily need to be serviced by policy makers, and this pressure forces, or inspires, them to adopt countermeasures, both foreign and domestic, that are costly and sometimes even excessive.

In this article, we examine these five propositions and find all of them to be wanting. In the process, we conclude that terrorism is rare outside war zones because, to a substantial degree, terrorists don’t exist there. In general, as with rare diseases that kill few, it makes more policy sense to expend limited funds on hazards that inflict far more damage.

Terrorism is willed and may well become more destructive

Journalist Jeffrey Goldberg has suggested that “the fear of terrorism isn’t motivated solely by what terrorists have done, but what terrorists hope to do.” Bathtubs are simply not “engaged in a conspiracy with other bathtubs to murder ever-larger numbers of Americans.” However, terrorists “in the Islamist orbit,” he insists, “seek unconventional weapons that would allow them to kill a far-larger number of Americans than died on Sept. 11.” 6 Or as Janan Ganesh of the Financial Times puts it, “Bathroom deaths could multiply by 50 without a threat to civil order. The incidence of terror could not.” 7

Thus far, 9/11 stands out as an extreme outlier: scarcely any terrorist act, before or after, in war zones or outside them, has inflicted even one-tenth as much total destruction. That is, contrary to common expectations, the attack has thus far been an aberration, not a harbinger.8 And al-Qaeda central, the group responsible for the attack, has, in some respects at least, proved to resemble President John Kennedy’s assassin, Lee Harvey Oswald—an entity of almost trivial proportions that got horribly lucky once. The tiny group of perhaps 100 or so does appear to have served as something of an inspiration to some Muslim extremists. They may have done some training, may have contributed a bit to the Taliban’s far larger insurgency in Afghanistan, and may have participated in a few terrorist acts in Pakistan. In his examination of the major terrorist plots against the West since 9/11, Mitchell Silber finds only two—the shoe bomber attempt of 2001 and the effort to blow up transatlantic airliners with liquid bombs in 2006—that could be said to be under the “command and control” of al-Qaeda central (as opposed to ones suggested, endorsed, or inspired by the organization), and there are questions about how full its control was even in these two instances, both of which, as it happens, failed miserably.9 And, although some al-Qaeda affiliates have committed substantial damage in the Middle East, usually in the context of civil wars, their efforts to carry out terrorism in the West have been rare and completely ineffective.10 Even under siege, it is difficult to see why al-Qaeda could not have carried out attacks at least as costly and shocking as the shooting rampages (organized by other groups) that took place in Mumbai in 2008 or at a shopping center in Kenya in 2013. Neither took huge resources, presented major logistical challenges, required the organization of a large number of perpetrators, or needed extensive planning.

However, there is of course no guarantee that things will remain that way, and the 9/11 attacks inspired the remarkable extrapolation that, because the terrorists were successful with box cutters, they might soon be able to turn out weapons of mass destruction— particularly nuclear ones—and then detonate them in an American city. For example, in his influential 2004 book, Nuclear Terrorism, Harvard’s Graham Allison relayed his “considered judgment” that “on the current path, a nuclear terrorist attack on America in the decade ahead is more likely than not.” 11 Allison has had a great deal of company in his alarming pronouncements. In 2007, the distinguished physicist Richard Garwin put the likelihood of a nuclear explosion on an American or European city by terrorist or other means at 20 percent per year, which would work out to 91 percent over the elevenyear period to 2018.12

Allison’s time is up, and so is Garwin’s. These oft-repeated warnings have proven to be empty. And it is important to point out that not only have terrorists failed to go nuclear, but as William Langewiesche, who has assessed the process in detail, put it in 2007, “The best information is that no one has gotten anywhere near this. I mean, if you look carefully and practically at this process, you see that it is an enormous undertaking full of risks for the would-be terrorists.” 13 That process requires trusting corrupted foreign collaborators and other criminals, obtaining and transporting highly guarded material, setting up a machine shop staffed with top scientists and technicians, and rolling the heavy, cumbersome, and untested finished product into position to be detonated by a skilled crew, all the while attracting no attention from outsiders.

Nor have terrorist groups been able to steal existing nuclear weapons—characteristically burdened with multiple safety devices and often stored in pieces at separate secure locales—from existing arsenals as was once much feared. And they certainly have not been able to cajole leaders in nuclear states to palm one off to them—though a war inflicting more death than Hiroshima and Nagasaki combined was launched against Iraq in 2003 in major part under the spell of fantasies about such a handover.14

More generally, the actual terrorist “adversaries” in the West scarcely deserve accolades for either dedication or prowess. It is true, of course, that sometimes even incompetents can get lucky, but such instances, however tragic, are rare. For the most part, terrorists in the United States are a confused, inadequate, incompetent, blundering, and gullible bunch, only occasionally able to get their act together. Most seem to be far better at frenetic and often self-deluded scheming than at actual execution. A summary assessment by RAND’s Brian Jenkins is apt: “their numbers remain small, their determination limp, and their competence poor.” 15 And much the same holds for Europe and the rest of the developed world.16 Also working against terrorist success in the West is the fact that almost all are amateurs: they have never before tried to do something like this. Unlike criminals they have not been able to develop street smarts.

Except perhaps for the use of vehicles to deliver mayhem (though this idea is by no means new in the history of terrorism), there has been remarkably little innovation in terrorist weaponry or methodology since 9/11.17 Like their predecessors, they have continued to rely on bombs (many of which fail to detonate or do much damage) and bullets.18

There is another aspect to this argument. It is held that, whereas the number of bathtub deaths does not fluctuate much from year to year, terrorism deaths are not very evenly distributed over time and this quality somehow makes the phenomenon unpredictable and unstable. It is a “fat-tailed distribution” in which there are many small events and a few “outliers that are really important.” 19 Thus, we should give up, suggests Bloomberg’s Justin Fox: “Five or 10 or even 50 years of data isn’t necessarily enough to allow one to predict with confidence what is going to happen next year.” 20

The frequency and destructiveness of terrorism and terrorism cases is indeed anything but uniform. In 2016 there were some two dozen cases of Islamist terrorism in the United States and 49 deaths. In 2008 there was only one case and no deaths.21 However, many natural hazards show the same pattern as terrorism. For example, the frequency and destructiveness of tornados range widely: the death count can vary by up to twenty-fold from year to year. Moreover, they are also far more likely than terrorism to kill. However, the lumpiness doesn’t preclude sensible analysis.

Concern about this unevenness, as bathtub critics Justin Fox and Kenneth Anderson both note, stems from a book by Nassim Nicholas Taleb that stesses the importance of extreme events which he calls “Black Swans.” Taleb argues that “almost everything in social life is produced by rare but consequential shocks and jumps” and “our world is dominated by the extreme, the unknown, and the extremely improbable.” 22 However, Taleb’s account focuses on those unexpected and emotion-engaging events and phenomena (like 9/11) that became consequential (and therefore Black Swans), while ignoring ones that failed to do so. It accordingly suffers from what is called “selection bias.” Moreover, insofar as Black Swan events carry an “extreme impact,” this quality derives not so much from their unexpectedness or from the emotions they initially trigger as from the reaction or overreaction they generate. These reactions are sometimes as unexpected as the event itself, and often they do not correlate well with the event’s size or with its objective historical importance. Moreover, although some unexpected and emotion-engaging events do have considerable consequences, much consequential development in human history—probably most of it—stems not from such events, but from changes in thinking and behavior that are decidedly gradual and often little noticed as they occur.23

#### Terrorists adapt---cutting funding makes them stronger

Major David N Santos 11, Active Duty Army Intelligence Officer Currently Attending the U.S. Army Command & General Staff College, “What Constitutes Terrorist Network Resiliency?”, Small Wars Journal, 5/31/2011, http://smallwarsjournal.com/jrnl/art/what-constitutes-terrorist-network-resiliency

As important as ideology and social networking are, their benefits will only carry a terrorist organization to a certain extent. As with virtually any other organization or activity around the world, money, is the lifeblood of any organization or movement. Without a reliable source of funding a terrorist organization loses its ability to be proactive in conducting operations as well as procure needed support services and material items. Since acquiring and maintaining sources of financing is vital to the existence of a terrorist organization, security for those sources of funding along with the methods of transferring and storing funds is equally vital. As a result, terrorist organizations have proved to be exceptionally agile in identifying and implementing numerous methods of funding and transferring money in order to prevent effective countermeasures by state governments (Williams, 2005).

The process of globalization has created unprecedented levels of interconnectivity among not only state governments but also among domestic and international financial institutions. As such, vast sums of money can be transferred from one part of the world to another nearly instantaneously. The sheer pace and vastness of the globalization process with developments in information and telecommunications technology has created a nearly impossible task to monitor effectively daily financial transactions to ensure there is no link to terrorist activity. Previous attempts to counter terrorist financing, such as in the wake of the 9/11 attacks, has been to freeze known or suspected terrorist financial assets. Yet this countermeasure has only yielded limited success. As Williams (2005) notes, current attempts to identify and attack terrorist financing has only served to increase the “capacity of terrorist organizations to adapt quickly to new regulations by adopting novel methods of circumventing rules and regulations” (pp. 6).

If Williams (2005) is correct in his analysis that current efforts to target terrorist funding are only resulting in making smarter and more efficient fiscally minded terrorist organizations than what is enabling this trend? One of the key issues is current international law is lacking in specificity and applicability to the nature of the threat posed by transnational terrorist organizations like al Qaeda. One of the main deficiencies with international law is with the Financial Action Task Force (FATF) which had been created in 1989 by the G-7 states to counter money laundering activities conducted by international criminal and drug trafficking organizations (Williams, 2005). The FATF identified 40 recommendations to be implemented to counter money laundering activities. However, no formal binding convention or treaty was created therefore consistent implementation of the FATF recommendations did not occur thus leaving loop holes in international law for use by terrorist organizations to circumvent the FATF. Efforts like the FATF can only be successful if they receive the full support of the international community. Limited or no support provides opportunities for terrorist organizations to continue their financing operations relatively unmolested. The FATF was a lackluster effort to combat terrorist financing due to inefficiency in the manner in which it operated resulting in money laundering not being truly deterred but rather shifted to other areas around the globe where these activities could be conducted more freely (Williams, 2005). The FATF is only one example of inconsistencies in international economic law (as well as with state domestic law) which have inhibited effective terrorist financing countermeasures. The ineffectiveness of the FATF and other counter drug and organized crime measures which have been used to target terrorist financing has only served to actually create more experienced and smarter terrorist financing practices. Instead of preventing terrorist financing, efforts such as the FATF have only facilitated it to expand.

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Assume the best: Bitcoin is the real deal. Its limited supply and blockchain authentication make it better than fiat money like the dollar, which is constantly being diluted by a politically driven printing press. Gresham’s law states that bad money drives out good. That means the depreciating dollar will be used for transactions, and Bitcoin will be hoarded.

While cryptocurrencies are traded, they are not being truly used as a means of exchange. The daily volume is minor compared with their market cap. Studies have found that a high percentage of Bitcoins have not changed IP addresses for a couple of years. The more they are hoarded, the less they can achieve the networking effect that bestows money-ness, making it more of an asset than a currency, which is how the Internal Revenue Service regards crypto.

The dramatic rise in the price of Bitcoin and crypto more generally is a Rorschach test. One’s own hopes and fears are projected. It is providing new words for the old song about the decline of America and the role of the dollar. The linkages are not articulated, and the actual data are frequently not explored.

The International Monetary Fund’s latest report on the allocation of reserves showed that dollar holdings by central banks stood at a record high of a little more than $7 trillion at the end of last year. The dollar’s decline after surging at the pandemic’s onset bolstered other reserves when measured in dollars. Nevertheless, just the increase in dollar holdings in the past two years is greater than the total reserve holdings of the Chinese yuan.

The Federal Reserve offers custodial services to foreign central banks for their Treasury and agency holdings. In March, these holdings reached a record high of nearly $3.58 trillion. Contrary to the cries of doom and gloom, the lesson drawn from the 1997 Asian financial crisis, the 2008-09 financial crisis, and last year’s pandemic experience is that, when looking into the proverbial abyss, everyone wants dollars. A Bank of International Settlements study of dollar-funding of non-U.S. banks concluded that the dominance of the dollar in international finance and the attendant policy issues are likely to endure.

For all of its flaws, the greenback remains the most important invoicing and vehicle currency. Supply chains are often dollar-funded. The U.S. dollar is still on one side of more than 85% of the transactions in the $6.2 trillion-a-day foreign-exchange market. The dollar knows no rival. There is simply no compelling alternative. The Chinese yuan is not convertible and its markets not sufficiently transparent to take on a significant role. Europe’s monetary union is far from complete; progress toward a fiscal union is stuttering at best. Its bond market remains fragmented, appearing more like the U.S. municipal bond market than the Treasury market.

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Even many Americans who may disdain centralized authority in general concede some prerogatives to the state, like the provision of justice and the legitimate use of force. The power of coinage also resides with the state. History shows that centralized finance emerged to address the shortcomings of decentralized finance. The dollar’s role in the world economy is secured by several considerations outside of inertia: the security, transparency, and size of the U.S. Treasury market and the lack of a compelling alternative. The primary reason that crypto is even thought of as money is because it says it is, not because of its use. Its rival, as Fed Chair Jerome Powell noted, is with other non-interest-bearing assets like gold, not the dollar. That said, the public should reap the benefits of the new technology, and digital central-bank money is a likely expression. Public fiat will be preferred to private fiat.

#### Resilience is locked in AND the plan’s swamped by macro economic trends

Dr. Nouriel Roubini 20, Professor Emeritus of Economics at New York University’s Stern School of Business, Chief Economist at Atlas Capital Team, CEO of Roubini Macro Associates, Former Senior Economist for International Affairs in the White House’s Council of Economic Advisers During the Clinton Administration, “Is the Almighty Dollar Slipping?”, Project Syndicate, 8/21/2020, https://www.project-syndicate.org/commentary/us-dollar-position-as-global-reserve-currency-over-short-and-long-term-by-nouriel-roubini-2020-08

But, to paraphrase Mark Twain, reports of the dollar’s early demise are greatly exaggerated. The greenback’s recent weakness is driven by shorter-term cyclical factors. In the long run, the situation is more complicated: the dollar has both strengths and weaknesses that may or may not undermine its global position over time.

Chief among the short-term negative factors is the Fed’s ultra-loose monetary policy. With the United States monetizing ever-larger budget deficits, the Fed’s approach looks more accommodative than that of most other major central banks.

The dollar tends to weaken during risk-on episodes, and vice versa. That is why its value peaked during the February-March panic over COVID-19, and then weakened from April onward as market sentiment recovered. Moreover, the Fed’s activation of currency swap lines with other central banks eased the dollar illiquidity that had been pushing the exchange rate higher earlier in the crisis. Now, a flood of global dollars is putting downward pressure on the greenback.

Moreover, some developed countries (in Europe and elsewhere) and some emerging markets (such as China and others in Asia) are doing a much better job of containing COVID-19 than the United States is, implying that their economic recoveries may prove to be more resilient. The public-health failures and related economic vulnerabilities in the US are thus further contributing to the dollar’s weakness.

It also bears repeating that before the pandemic, the dollar had appreciated by over 30% in nominal and real (inflation-adjusted) terms since 2011. Given the yawning US external deficit, and because interest rates are not high enough to finance it with capital inflows, a dollar depreciation was necessary to restore US trade competitiveness. And the US turn to protectionism signals that it prefers a weaker dollar to restore external competitiveness.

Even in the short run the dollar could strengthen again if – as the latest global growth data suggest – a V-shaped recovery stalls into an anemic U-shaped recovery, let alone a double dip, if the first pandemic wave is not controlled and a second wave kills the recovery before effective vaccines are found.

In the medium to long term, multiple factors could preserve the greenback’s global dominance. The dollar will continue to benefit from a broad-based system of flexible exchange rates, limited capital controls, and deep, liquid bond markets. More to the point, there simply is no clear alternative currency that could serve as a broad unit of account, means of payment, and stable store of value.

Furthermore, despite its pandemic travails, the potential annual US growth rate, at around 2%, is higher than in most other advanced economies, where it is closer to 1%. The US economy also remains dynamic and competitive in many leading industries, such as technology, biotech, pharmaceuticals, health care, and advanced financial services, all of which will continue to attract capital inflows from abroad.

### Dollar DA---No Crypto Threat---1AR

#### Cypto will definitely not displace the dollar

Eswar Prasad 21, Tolani Senior Professor of Trade Policy and Professor of Economics at Cornell University, Senior Fellow at the Brookings Institution, New Century Chair in International Trade and Economics, and Research Associate at the National Bureau of Economic Research, “Five Myths About Cryptocurrency”, Brookings Institution, 5/24/2021, https://www.brookings.edu/opinions/five-myths-about-cryptocurrency/

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Cryptocurrencies are not backed by anything other than the faith of the people who own them. The dollar, by contrast, is backed by the U.S. government. Investors still trust the dollar, even in hard times. As one illustration, domestic and foreign investors continue to eagerly snap up trillions of dollars in U.S. Treasury securities even at low interest rates.

New cryptocurrencies called stablecoins aim to have stable values and therefore make it easier to conduct digital payments. Facebook plans to issue its own cryptocurrency, called Diem, that will be backed one for one with U.S. dollars, giving it a stable value. But the value of stablecoins comes precisely from their backing by government-issued currencies. So while dollars might become less important in making payments, the primacy of the U.S. dollar as a store of value will not be challenged.

#### It can be widely used but won’t displace the central safe haven role of the dollar

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St. Louis Federal Reserve President James Bullard told CNBC on Tuesday he believes increasing interest in bitcoin does not pose a serious threat to the U.S. dollar as the world’s reserve currency.

“I just think for Fed policy, it’s going to be a dollar economy as far as the eye can see — a dollar global economy really as far as the eye can see — and whether the gold price goes up or down, or the bitcoin price goes up or down, doesn’t really affect that,” Bullard said on “Squawk Box.”

Bitcoin, in particular, has been championed by crypto bulls as a store of value that can be used to hedge against inflation or the debasement of fiat currencies like the dollar. Some have touted it as “digital gold.” In addition, bitcoin and other cryptocurrencies also present themselves as a way to buy goods and services like actual money.

Bullard, who has led the St. Louis Fed since 2008, expressed concerns about widespread transactions using a range of cryptocurrencies that are not issued by governments. “Dollars can be traded electronically already, so I’m not sure that’s really the issue here. The issue is privately issued currency,” he said.

Before the Civil War, it was common for banks to issue their own notes, Bullard said. He likened it to Bank of America, JPMorgan and Wells Fargo all having distinct brands of dollars. “They were all trading around and they traded at different discounts to each other, and people did not like it at all,” he said.

“I think the same thing would occur with bitcoin here,” Bullard said. “You don’t want to go to a nonuniform currency where you’re walking into Starbucks and maybe you’ll pay with ethereum, maybe you’ll pay with ripple, maybe you’ll pay with bitcoin, maybe you’ll pay with a dollar. That isn’t how we do this. We have a uniform currency that came in at the Civil War time.”

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When considering whether cryptocurrencies present a threat to the dollar, Bullard stressed there’s nothing new about competition. It’s something that has gone on for centuries, he said. “It is a currency competition, and investors want a safe haven. They want a stable store of value, and then they want to conduct their investments in that currency,” the St. Louis Fed president said.

For example, he contended both the euro and the yen are strong currencies. However, “neither of those is going to replace the dollar,” he said. “It’d be very hard to get a private currency that’s really more like gold to play that role so I don’t think we’re going to see any changes in the future.”

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For example, he contended both the euro and the yen are strong currencies. However, “neither of those is going to replace the dollar,” he said. “It’d be very hard to get a private currency that’s really more like gold to play that role so I don’t think we’re going to see any changes in the future.”

#### There’s no CIL of antitrust, especially not over specific policies

Hannah L. Buxbaum 6, Professor of Law at the Indiana University-Bloomington, “Transnational Regulatory Litigation”, Virginia Journal of International Law, 46 Va. J. Int'l L. 251, Winter 2006, Lexis

In the antitrust context too, national laws reflect a wide variety of regulatory approaches and there are many issues on which there is no discernible consensus. However, a shared view emerges on the question of hard-core price-fixing. It is reflected in the Organisation for Economic Co-operation and Development's platform against hard-core cartels, 207 for instance, and in the nearly universal prohibition against [\*301] such conduct across national systems. 208 Thus, while it is unlikely that every jurisdiction will share a regulatory approach to the letter, it is fair to conclude that some basics have the agreement of all regulating jurisdictions. 209 It is worth noting that some courts have already addressed arguments that antitrust rules rise to the level of customary international law, in the form of attempts to bring competition law-based tort claims under the ATCA. 210 In relatively cursory statements, these courts have rejected such claims, concluding that customary international law requires a level of consistent state practice that does not exist in the antitrust field today. 211 However, the courts approached the question not with respect to individual norms but with respect to antitrust systems more broadly, where, as noted above, there is no general consensus. 212 Their conclusions therefore do not undermine the possibility that national systems share particular individual norms, including a prohibition of hard-core price-fixing.

#### International law of antitrust does not exist

Edward T. Swaine 1, Assistant Professor in the Legal Studies Department at The Wharton School at the University of Pennsylvania. A.B. from Harvard University, J.D. from Yale Law School, “The Local Law of Global Antitrust”, William and Mary Law Review, 43 Wm. & Mary L. Rev. 627, December 2001, Lexis

Customary international law 14 (or its kissing cousin, comity 15) has been left to fill the breach, without much effect. For one, international law objections to U.S. extraterritoriality have faded as more and more nations assert like authority themselves, and cooperate with the United States either informally or through bilateral agreements. 16 Meanwhile, attempts by U.S. courts to practice jurisdictional self-restraint-in the form of a multifactored reasonableness test based substantially on custom 17-fell off the wagon in Hartford Fire Insurance Co. v. California, 18 in which the Supreme Court held that effects jurisdiction under the Sherman Act should be truncated only where foreign law compelled a defendant's [\*633] antitrust violation. 19 Hartford Fire relied on a patent misreading of the Restatement (Third) of Foreign Relations, but many contend that the Court's mistakes were venial: customary international law has not yet dictated, and perhaps may never properly dictate, any judicially enforceable restrictions on the exercise of antitrust jurisdiction. 20

[FOOTNOTE] 20 E.g., Joseph P. Griffin, Foreign Governmental Reactions to U.S. Assertions of Extraterritorial Jurisdiction, 6 Geo. Mason L. Rev. 505, 506 (1998) ("Apart from laws enacted by governing members of the European Union, there is no international law of antitrust. No internationally agreed-upon rules of prescriptive jurisdiction have emerged in antitrust cases."). [END FOOTNOTE]

#### Antitrust CIL is impossible because there’s no global consensus

Kevin O'Malley 6, JD from Temple University School of Law, “Does U.S. Antitrust Jurisdiction Extend To Claims Of Independent/Dependent Foreign Injury?”, Temple International & Comparative Law Journal, 20 Temp. Int'l & Comp. L.J. 219, Spring 2006, Lexis

Because subject matter jurisdiction over the foreign plaintiffs' claims was not proper, the district court did not address defendants' argument that plaintiffs lacked standing.89 Similarly, the duplicity of claims argument was irrelevant once Proctor and Gamble ceased involvement in the case. 90 The district court declined to exercise supplemental jurisdiction over the foreign plaintiffs' claims despite having original jurisdiction over Proctor and Gamble's claims because "it would be more efficient and in the best interests of comity to allow the foreign courts to adjudicate claims arising out of violations of their [antitrust] laws." 91

Finally, defendants' motion to dismiss plaintiffs' international law claim was granted because no antitrust claims based on customary international law had ever been recognized by a U.S. court.92 There is no general agreement among nations on standards of international antitrust law and, therefore, there can be no customary international antitrust law. 93 As a result, plaintiffs' claim under this argument lacked merit. 94

### CIL CP---Uncertainty---1AR

#### CIL is imprecise &

#### Businesses won’t trust the CP because it’s so novel, confusing, and appears reversible

John B. Bellinger 12, III Partner at Arnold & Porter LLP, “Law of the Sea Treaty; Committee: Senate Foreign Relations”, CQ Congressional Testimony, 6/14/2012, Lexis

Reliance on customary international law to protect U.S. interests is insufficient for many reasons:

First, asserting customary international law does not give the United States important rights that are available only to parties to the Convention. For example, the U.S. may not take our permanent seat on the Council of the International Seabed Authority, or have a U.S. national elected to the Continental Shelf Commission, unless we are party to the Convention. These bodies are currently making important decisions that affect our interests without our participation. For example, the Continental Shelf Commission is reviewing the claims of Russia and other Arctic coastal states to their continental shelves in the Arctic, and we have no say in its decisions. Similarly, the Council of the ISA is adopting rules relating to deep seabed mining without U.S. input. And the U.S. may not sponsor U.S. companies, such as Lockheed, to engage in mining on the deep seabed.

Second, it is not at all clear that all of the substantive provisions of the Convention are in fact recognized as customary international law. It could be extremely difficult for the U.S. to establish that there was general agreement by countries around the world that a country has a legal right to exploit the resources on its extended continental shelf or on the deep seabed, without joining the Convention. Similarly, contrary to the claims of some, the U.S. does not have a clear right to its extended continental shelf under the 1958 Convention on the Continental Shelf; the lack of clarity in the 1958 Convention is a principal reason why President Nixon endorsed the concept of a new Law of the Sea Convention.

Third, U.S. companies have been unwilling to begin costly exploration and extraction activities in reliance on theoretical and untested legal arguments that have not been accepted by other countries and that are flatly contrary to the terms of Law of the Sea Convention. Companies instead want the clear legal certainty provided by the Convention before making investments that could run into the billions of dollars. Critics of the Convention who are concerned about the possibility of international litigation should be much more concerned about the possibility of lawsuits against the United States or U.S. companies if the United States were to engage in resource extraction on the U.S. extended continental shelf or on the deep seabed contrary to the terms of the Convention, than about possible environmental claims against the United States if the U.S. were to join the Convention. Moreover, a U.S. company that initiates deep seabed mining outside the Convention risks having a foreign company sponsored by a country that is party to the Convention jump on its claim after it has proven to be profitable. No U.S. company would want to take that legal risk.

Fourth, relying on customary international law does not guarantee that even the benefits we do currently enjoy are secure over the long term. Customary international law is not the most solid basis upon which to protect and assert U.S. navigational and economic rights. It is not universally accepted and may change over time based on State practice. We therefore cannot assume that customary law will always continue to mirror the Convention, and we need to lock in the Convention's rights as a matter of treaty law. Indeed, it is surprising that opponents of the Convention who are usually critical of the haziness and unpredictability of "customary international law" should urge the U.S. military and U.S. businesses to rely on it to protect their essential interests.

#### No one will understand the CP

Monika Zalnieriute 15, Fellow at the Centre for Internet & Human Rights at the European University Viadrina, International Journal of Law of Information Technology, Int J Law Info Tech (2015) 23 (2): 99, 6/1/2015, Lexis

Interplay: traditional and modern

While some scholars regard the ′traditional′ and ′non-traditional′ approaches to CIL as ′a set of paired opposites′, 101 others have attempted to reconcile them in order to assemble a common conception, or overall theory of CIL. 102 However, the continuous doctrinal disagreements and the inherent complexity associated with CIL have led several legal scholars to proclaim it a ′troubled concept′, 103 an ′essentially contested′ one suffering at this time from an ′identity crisis′. 104 The lack of a common conception of CIL, moreover, is conducive to the criticism of CIL as an uncertain source of law. Some international lawyers even claim that ′traditional′ or ′modern′ CIL is a highly complex and problematic source of international law that should be disposed of entirely. 105

#### Executive interpretation is inherently variable AND businesses will regard it as structurally uncertain

Tom Ginsburg 8, Professor of Law and Political Science, University of Illinois, Urbana-Champaign, Svitlana Chernykh, Graduate Student, Department of Political Science, University of Illinois, Urbana-Champaign, and Zachary Elkins, Professor of Political Science, University of Illinois, Urbana-Champaign, “Commitment and Diffusion: How and Why National Constitutions Incorporate International Law”, University of Illinois Law Review, 2008 U. Ill. L. Rev. 201, Lexis

The value of entrenchment may also be reduced because CIL relies nearly exclusively on the executive branch for its definition and implementation. 119 Much of the evidence for state practice and consent to rules of custom comes from statements by the executive. The executive, typically a ministry of foreign affairs, usually has internal bureaucratic competence for representing the state abroad and will be the actor best situated to monitor and respond to proposed new rules of customary international law. 120 While legislation certainly can provide evidence for state practice and opinio juris, generally speaking the executive is in the best position to monitor and respond to changing rules of CIL. In addition, the requirement of state practice is heavily weighted toward the executive branch, for it is national bureaucracies that must ultimately undertake actions enforcing or failing to enforce any particular rule. 121 All of this means that the commitment is within the control of a single branch, so that as control of that branch changes, policy may change too easily.

In terms of the modalities through which international law solves domestic commitment problems, these negative qualities of custom outweigh its temporal advantage of long-term commitment (or at least commitment of uncertain duration). Because CIL is vague, and its details are worked out in a diffuse, unpredictable fashion, it has relatively little ability to generate information for domestic interest groups. Because the enforcement of customary international law is highly decentralized, states face a collective action problem in enforcing norms. States rarely have an incentive to incur the costs of enforcing a rule of CIL against a violating state, or generating information for domestic interest groups. 122 CIL's only advantage as a precommitment device is that it essentially delegates the law-making function to the collectivity of states. Even here, though, CIL's vagueness renders it ineffective. The broad [\*226] range of topics that CIL covers means that no domestic interest group can be confident that CIL will evolve to cover its specific area of concern. CIL's weakness bodes poorly for its usage to resolve domestic commitment problems. 123

### CIL CP---NB---No Spillover---1AR

#### Antitrust is distinguished from other areas

Justin Desautels-Stein 8, Associate Professor of Law, University of Colorado; LL.M., Harvard Law School (2006); J.D., UNC-Chapel Hill School of Law (2005); M.A.L.D., The Fletcher School, Tufts University, “Extraterritoriality, Antitrust, and The Pragmatist Style”, Michigan State Law Review, 2007 Mich. St. L. Rev. 565, Lexis

III. Extraterritorial Antitrust and the Pragmatist Style

Over the course of the twentieth century, the field of antitrust law dominated extraterritoriality discourse. 138 This is not to say that courts have ever characterized antitrust issues as inherently more hostile to border controls than other doctrinal areas, such as the environment, human rights, or labor regimes. 139 Rather, there exists a sense that something inevitably pushes antitrust governance against territorial restraints in ways that the others do not. 140 Comity - one of the traditional grounds that polices the assertion of

### Turn---1AR

#### Middle East war is more unlikely than ever

Mara Karlin 19, International Studies Professor at John Hopkins University, Nonresident Senior Fellow at the Brookings Institution, and U.S. Deputy Assistant Secretary of Defense for Strategy and Force Development 2015-2016, & Tamara Cofman Wittes, a Senior Fellow in Foreign Policy at the Brookings Institution and U.S. Deputy Assistant Secretary of State for Near Eastern Affairs from 2009-2012. [America’s Middle East Purgatory: The Case for Doing Less, Foreign Affairs, January/February 2019, 98(1)]//BPS

LESS RELEVANT REGION In response to the Iraq war, the United States has aimed to reduce its role in the Middle East. Three factors have made that course both more alluring and more possible. First, interstate conflicts that directly threatened U.S. interests in the past have largely been replaced by substate security threats. Second, other rising regions, especially Asia, have taken on more importance to U.S. global strategy. And third, the diversification of global energy markets has weakened oil as a driver of U.S. policy. During the Cold War, traditional state-based threats pushed the United States to play a major role in the Middle East. That role involved not only ensuring the stable supply of energy to Western markets but also working to prevent the spread of communist influence and tamping down the Arab-Israeli conflict so as to help stabilize friendly states. These efforts were largely successful. Beginning in the 1970s, the United States nudged Egypt out of the pro-Soviet camp, oversaw the first Arab-Israeli peace treaty, and solidified its hegemony in the region. Despite challenges from Iran after its 1979 revolution and from Saddam Hussein’s Iraq throughout the 1990s, U.S. dominance was never seriously in question. The United States contained the Arab-Israeli conflict, countered Saddam’s bid to gain territory through force in the 1990–91 Gulf War, and built a seemingly permanent military presence in the Gulf that deterred Iran and muffled disputes among the Gulf Arab states. Thanks to all these efforts, the chances of deliberate interstate war in the Middle East are perhaps lower now than at any time in the past 50 years.

Concede the part of the Beres evidence that says Israel would first strike AND that it’s with Iran:

#### Iran inevitably develops nukes, but a preemptive strike stops them---success solves prolif, miscalc and terror

Matthew Kroenig 12, professor at Georgetown Universitfy, author, foreign policy adviser, and former government official, 02-15-2012, "Time to Attack Iran Subtitle: Why a Strike Is the Least Bad Option," No Publication, <https://www.foreignaffairs.com/articles/middle-east/2012-01-01/time-attack-iran>//HM

In early October, U.S. officials accused Iranian operatives of planning to assassinate Saudi Arabia's ambassador to the United States on American soil. Iran denied the charges, but the episode has already managed to increase tensions between Washington and Tehran. Although the Obama administration has not publicly threatened to retaliate with military force, the allegations have underscored the real and growing risk that the two sides could go to war sometime soon -- particularly over Iran's advancing nuclear program. For several years now, starting long before this episode, American pundits and policymakers have been debating whether the United States should attack Iran and attempt to eliminate its nuclear facilities. Proponents of a strike have argued that the only thing worse than military action against Iran would be an Iran armed with nuclear weapons. Critics, meanwhile, have warned that such a raid would likely fail and, even if it succeeded, would spark a full-fledged war and a global economic crisis. They have urged the United States to rely on nonmilitary options, such as diplomacy, sanctions, and covert operations, to prevent Iran from acquiring a bomb. Fearing the costs of a bombing campaign, most critics maintain that if these other tactics fail to impede Tehran's progress, the United States should simply learn to live with a nuclear Iran. But skeptics of military action fail to appreciate the true danger that a nuclear-armed Iran would pose to U.S. interests in the Middle East and beyond. And their grim forecasts assume that the cure would be worse than the disease -- that is, that the consequences of a U.S. assault on Iran would be as bad as or worse than those of Iran achieving its nuclear ambitions. But that is a faulty assumption. The truth is that a military strike intended to destroy Iran's nuclear program, if managed carefully, could spare the region and the world a very real threat and dramatically improve the long-term national security of the United States. DANGERS OF DETERRENCE Years of international pressure have failed to halt Iran's attempt to build a nuclear program. The Stuxnet computer worm, which attacked control systems in Iranian nuclear facilities, temporarily disrupted Tehran's enrichment effort, but a report by the International Atomic Energy Agency this past May revealed that the targeted plants have fully recovered from the assault. And the latest IAEA findings on Iran, released in November, provided the most compelling evidence yet that the Islamic Republic has weathered sanctions and sabotage, allegedly testing nuclear triggering devices and redesigning its missiles to carry nuclear payloads. The Institute for Science and International Security, a nonprofit research institution, estimates that Iran could now produce its first nuclear weapon within six months of deciding to do so. Tehran's plans to move sensitive nuclear operations into more secure facilities over the course of the coming year could reduce the window for effective military action even further. If Iran expels IAEA inspectors, begins enriching its stockpiles of uranium to weapons-grade levels of 90 percent, or installs advanced centrifuges at its uranium-enrichment facility in Qom, the United States must strike immediately or forfeit its last opportunity to prevent Iran from joining the nuclear club. Some states in the region are doubting U.S. resolve to stop the program and are shifting their allegiances to Tehran. Others have begun to discuss launching their own nuclear initiatives to counter a possible Iranian bomb. For those nations and the United States itself, the threat will only continue to grow as Tehran moves closer to its goal. A nuclear-armed Iran would immediately limit U.S. freedom of action in the Middle East. With atomic power behind it, Iran could threaten any U.S. political or military initiative in the Middle East with nuclear war, forcing Washington to think twice before acting in the region. Iran's regional rivals, such as Saudi Arabia, would likely decide to acquire their own nuclear arsenals, sparking an arms race. To constrain its geopolitical rivals, Iran could choose to spur proliferation by transferring nuclear technology to its allies -- other countries and terrorist groups alike. Having the bomb would give Iran greater cover for conventional aggression and coercive diplomacy, and the battles between its terrorist proxies and Israel, for example, could escalate. And Iran and Israel lack nearly all the safeguards that helped the United States and the Soviet Union avoid a nuclear exchange during the Cold War -- secure second-strike capabilities, clear lines of communication, long flight times for ballistic missiles from one country to the other, and experience managing nuclear arsenals. To be sure, a nuclear-armed Iran would not intentionally launch a suicidal nuclear war. But the volatile nuclear balance between Iran and Israel could easily spiral out of control as a crisis unfolds, resulting in a nuclear exchange between the two countries that could draw the United States in, as well. These security threats would require Washington to contain Tehran. Yet deterrence would come at a heavy price. To keep the Iranian threat at bay, the United States would need to deploy naval and ground units and potentially nuclear weapons across the Middle East, keeping a large force in the area for decades to come. Alongside those troops, the United States would have to permanently deploy significant intelligence assets to monitor any attempts by Iran to transfer its nuclear technology. And it would also need to devote perhaps billions of dollars to improving its allies' capability to defend themselves. This might include helping Israel construct submarine-launched ballistic missiles and hardened ballistic missile silos to ensure that it can maintain a secure second-strike capability. Most of all, to make containment credible, the United States would need to extend its nuclear umbrella to its partners in the region, pledging to defend them with military force should Iran launch an attack. In other words, to contain a nuclear Iran, the United States would need to make a substantial investment of political and military capital to the Middle East in the midst of an economic crisis and at a time when it is attempting to shift its forces out of the region. Deterrence would come with enormous economic and geopolitical costs and would have to remain in place as long as Iran remained hostile to U.S. interests, which could mean decades or longer. Given the instability of the region, this effort might still fail, resulting in a war far more costly and destructive than the one that critics of a preemptive strike on Iran now hope to avoid.

#### Otherwise, they’ll surround Israel with missiles

Efraim Inbar 18, fellow at the Middle East Forum. "Israel’s war with Iran is inevitable", The Jerusalem Post | JPost, https://www.jpost.com/Opinion/Israels-war-with-Iran-is-inevitable-568698

As Iran challenges the status quo in the Middle East, a clash between Tehran and Jerusalem is inevitable. International history teaches us that when a rising power challenged the balance of power, in most cases war ensued. Sparta challenged an Athenian-led Greek city system, ending in the Peloponnesian wars. Prussia’s quest for the unification of the German principalities under its helm ended in several European Wars. Similarly, Israel cannot tolerate a Middle East dominated by Iran and its radical ideology. Unfortunately, much of the Arab world is in the throes of a deep socio-political crisis, particularly since the mistermed “Arab Spring,” creating dissension and a political vacuum, which the sophisticated revolutionary elite in Iran has capitalized upon. These dynamics explain the rise of Hezbollah in Lebanon and the power grab of the Houthi Shi’ite sect in Yemen. The revolutionary enterprise was also facilitated by the Middle East policies of the Bush, Obama and Trump administrations. American military intervention destroyed Iraq, a strong rival of Iran, further undermining the regional balance of power. Subsequently, the display of weakness by Obama was replaced by a questionable Trump commitment to the security of the region. The Sunni Arab states have been terrified by the advances in the Iranian nuclear program and by the successes of it proxies. Yet, they are weak. Saudi Arabia failed to contain Iranian influence in Syria and Iraq. Closer to home, it was not successful to change the pro-Iranian orientation of small Qatar. Egypt, an important Sunni power, survived the domestic turmoil, but it focuses on literally supplying food to its population, fighting an Islamic insurgency at home, leaving little energy to parry the Iranian challenge. Turkey, a strong Sunni state, albeit non-Arab, has preferred to act upon its Islamic impulses and its common interest with Iran on the Kurdish issue, forfeiting its potential to balance Iran. The result was an entente between Sunni Saudi Arabia and Gulf states with Israel. In absence of a credible American security umbrella, the Sunnis understand that only Israel can oppose the hegemonic drive of Iran. Iran reached a similar conclusion – Israel is the main barrier for achieving hegemony. Israel is a religious and strategic anathema. Initially, Iran has waged war against Israel primarily by proxies. It envisions military actions causing exhaustion to the civilian population. In the 1980s, Iran trained and armed the Hezbollah, a Shi’ite militia in Lebanon, directing its military efforts to oust Israel from South Lebanon. Moreover, Iran has supplied more than 120,000 missiles of various ranges to Hezbollah, which cover most of Israel. The declared goal still is “to liberate Jerusalem from Zionist rule.” In the meantime, Hezbollah has assumed control of Lebanon, turning the country into an Iranian satrapy. Similarly, after Hamas took over Gaza in 2005, it became the recipient of large military aid from Iran, intended to enhance its capability to bleed Israel. As Sunni Hamas did not support the Iranian line in Syria, Tehran channeled its financial and military aid to the Palestinian Islamic Jihad in Gaza, which is subservient to Iranian wishes. By having a foothold in Gaza, Iran established an additional front against Israel in the south. THE CURRENT Iranian effort in Syria aims at establishing a third front in the northeast, along Israel’s border on the Golan Heights. Moreover, it wants to acquire a land corridor to the Levant (Lebanon and Syria) via Iraq, where Iran has been successful to establish a military presence and influence, to facilitate the transfer of more advanced weapons to Hezbollah and gain access to the Mediterranean. We can also detect Iranian efforts to destabilize the Jordanian kingdom, situated along Israel’s eastern border. This is also part of Iran’s attempt to encircle Israel with Iranian proxies. Shi’ite militias and/or the Islamic Revolutionary Guards in Iraq and Syria obviously threaten the Hashemite dynasty. The fall of Jordan would also endanger Saudi Arabia, Iran’s arch-rival in the Gulf. Neutralizing Israel’s military power, by encircling it with proxies which have at their disposal thousands of missiles directed at Israel’s strategic installations and centers of population, is an Iranian goal in its quest for hegemony in the Middle East.

#### Triggers the Samson Option

CJ Werleman 18, Middle East Eye correspondent, "It's time to talk about Israel's nuclear weapons", alaraby, https://www.alaraby.co.uk/english/comment/2018/5/10/its-time-to-talk-about-israels-nuclear-weapons

It matters because any number of scenarios could lead to Israel deploying one of its nuclear bombs, and as a result the international community - now more so than ever - must be informed of not only Israel's nuclear capability, but also its policy for launching a nuclear-armed warhead. Israel's unofficial nuclear doctrine pivots on the notion it will use a nuclear warhead against an enemy that inflicts "excessive damage" on its civilian population. The "Samson Option," named after the biblical Israelite judge, mandates that Israel shall use nuclear weapons against a nation-state whose military has "destroyed much of Israel." In other words, Israel is willing to launch a nuclear attack against a country during a conventional war, given conventional military capabilities have the potential to cause both "excessive damage" to its population and/or destroy much of Israel. Consider that Hizballah is said to have more than 100,000 missiles pointed at Israel. Israel's nuclear capability and policy matters more now than ever Were a mere fraction of these missiles to hit Israel's northern cities and towns, it could justify, at least in the minds of Israel's military planners, a nuclear armed response under the next steps prescribed in the "Samson Option,". Such a reality inches ever closer now, given Iran reportedly targeted Israeli positions across the Syrian frontier last night, and given Israel responded by bombing Iranian positions in Syria.

#### Extinction from Russia war

Dennis Ray Morgan 9, professor at Hankuk University of Foreign Studies, “World on fire: two scenarios of the destruction of human civilization and possible extinction of the human race” https://www.academia.edu/9700578/World\_on\_Fire\_two\_scenarios\_of\_the\_destruction\_of\_human\_civilization\_and\_possible\_extinction\_of\_the\_human\_race

Israeli leaders and Zionist supporters have, likewise, stated for years that if Israel were to suffer a nuclear attack, whether from terrorists or a nation state, it would retaliate with the suicidal ‘‘Samson option’’ against all major Muslim cities in the Middle East. Furthermore, the Israeli Samson option would also include attacks on Russia and even ‘‘anti-Semitic’’ European cities [10]. In that case, of course, Russia would retaliate, and the U.S. would then retaliate against Russia. China would probably be involved as well, as thousands, if not tens of thousands, of nuclear warheads, many of them much more powerful than those used at Hiroshima and Nagasaki, would rain upon most of the major cities in the Northern Hemisphere. Afterwards, for years to come, massive radioactive clouds would drift throughout the Earth in the nuclear fallout, bringing death or else radiation disease that would be genetically transmitted to future generations in a nuclear winter that could last as long as a 100 years, taking a savage toll upon the environment and fragile ecosphere as well.

### CIL CP---NB---Perm Solves---1AR

#### Even a contradictory signal generates CIL.

Monica Hakimi 20, James V. Campbell Professor of Law at the University of Michigan Law School, JD from Yale Law School, BA from Duke University, Former Attorney-Adviser in the Office of the Legal Adviser at the U.S. Department of State, “Making Sense of Customary International Law”, 118 Mich. L. Rev. 1487, June 2020, Lexis

First, the process does not have formal controls that inhibit the participants from pushing hard for their preferred positions. Tendentious or controversial CIL claims are common and often presented as if they simply describe the positive law. What demarcates them as dubious are the contrary claims of other participants. However, even when a claim is contested, it becomes part of the CIL mix and has the potential to affect the law's content. The fact that a claim is opportunistic does not necessarily diminish its legal relevance.

### General---1AR

#### The CP has zero effect---CIL cannot override conflicting statute, even when applied by the courts

Lyle D. Kossis 16, JD at the University of Virginia School of Law, Associate at McGuireWoods LLP, “The Define and Punish Clause and the Political Question Doctrine”, Hastings Law Journal, 68 Hastings L.J. 45, Lexis

Finally, federal courts should not use customary international law to invalidate federal statutes because customary international law is not binding federal law under the Supremacy Clause. Up to this point, the discussion has assumed that even if federal courts may disregard federal statutes that they think have wrongfully defined international law, there are compelling prudential reasons for the judiciary to avoid treating it as binding U.S. law. But what if customary international law is not binding? What if it is "not a true legal constraint," but "chiefly a policy consideration of international relations?" 241 Professor Michael Paulsen makes this argument, and it rests on a series of remarkably simple propositions. 242 The Supremacy Clause describes the supreme sources of law that bind American governmental actors: "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States … ." 243 The Supremacy Clause does not mention customary international law. Standing alone, it can never supersede the Constitution, duly enacted federal statutes, or properly ratified and executed treaties. 244 Viewed in this light, federal courts have no power to invalidate federal statutes based on their interpretation of an international common law. 245

Professor Paulsen specifically discusses the legal import of customary international law in the United States. As explained earlier, customary international law can become binding federal law only if it is incorporated into a treaty or a federal statute. 246 But international law, apart from a statute or a treaty, does not "supply a binding federal legal rule of decision in U.S. courts that ever prevails over other [federal] law." 247 That does not mean, however, that international law is irrelevant; the flagrant disregard of the law of nations could have serious consequences for American foreign policy. But those are policy considerations that the political branches consider when making [\*79] discretionary decisions. 248 International law cannot be "binding on the United States as a matter of U.S. constitutional law, because it is not part of the binding "law' identified" in the Supremacy Clause. 249 The logical conclusion of this argument is blunt: international law is "international relations or international politics dressed up as law." 250

This reasoning has substantial implications for statutes enacted under the Define and Punish Clause. Because customary international law is not binding on its own, judges may not use it to impose substantive limits on Congress's power to define and punish offenses against the law of nations. In other words, "the regime of international law may not dictate to Congress what those offenses may or must be." 251 This follows naturally from the inclusion of the Define and Punish Clause in the Constitution. If the Framers believed that customary international law legally bound American actors before it was incorporated into federal law, there would have been no need "to have granted Congress the power "to define and punish … Offences against the Law of Nations.'" 252 Although this interpretation of the Clause vests Congress with seemingly sweeping power, that is the import of the Supremacy Clause.

At bottom, there are powerful reasons to believe that customary international law is not binding federal law of its own force. It may become binding federal law if it is codified in a treaty or a statute, "but not all international law obligations automatically constitute binding federal law enforceable in United States courts." 253 The corollary point is that federal courts have no authority to disregard federal statutes based on their interpretation of international custom, practice, and usage. 254 Of course, as catalogued above, there are practical reasons for courts to avoid defining international law under the Define and Punish Clause apart from whether they have the authority to do so. But the antecedent question of authority looms large after considering how our constitutional structure makes international law legally irrelevant. A straightforward reading of the Supremacy Clause leaves little room for federal courts to use their definition of customary international law to police the boundaries of the Define and Punish Clause. 255

### Uncertainty---1AR

#### Businesses won’t trust the CP because it’s so novel, confusing, and appears reversible

John B. Bellinger 12, III Partner at Arnold & Porter LLP, “Law of the Sea Treaty; Committee: Senate Foreign Relations”, CQ Congressional Testimony, 6/14/2012, Lexis

Reliance on customary international law to protect U.S. interests is insufficient for many reasons:

First, asserting customary international law does not give the United States important rights that are available only to parties to the Convention. For example, the U.S. may not take our permanent seat on the Council of the International Seabed Authority, or have a U.S. national elected to the Continental Shelf Commission, unless we are party to the Convention. These bodies are currently making important decisions that affect our interests without our participation. For example, the Continental Shelf Commission is reviewing the claims of Russia and other Arctic coastal states to their continental shelves in the Arctic, and we have no say in its decisions. Similarly, the Council of the ISA is adopting rules relating to deep seabed mining without U.S. input. And the U.S. may not sponsor U.S. companies, such as Lockheed, to engage in mining on the deep seabed.

Second, it is not at all clear that all of the substantive provisions of the Convention are in fact recognized as customary international law. It could be extremely difficult for the U.S. to establish that there was general agreement by countries around the world that a country has a legal right to exploit the resources on its extended continental shelf or on the deep seabed, without joining the Convention. Similarly, contrary to the claims of some, the U.S. does not have a clear right to its extended continental shelf under the 1958 Convention on the Continental Shelf; the lack of clarity in the 1958 Convention is a principal reason why President Nixon endorsed the concept of a new Law of the Sea Convention.

Third, U.S. companies have been unwilling to begin costly exploration and extraction activities in reliance on theoretical and untested legal arguments that have not been accepted by other countries and that are flatly contrary to the terms of Law of the Sea Convention. Companies instead want the clear legal certainty provided by the Convention before making investments that could run into the billions of dollars. Critics of the Convention who are concerned about the possibility of international litigation should be much more concerned about the possibility of lawsuits against the United States or U.S. companies if the United States were to engage in resource extraction on the U.S. extended continental shelf or on the deep seabed contrary to the terms of the Convention, than about possible environmental claims against the United States if the U.S. were to join the Convention. Moreover, a U.S. company that initiates deep seabed mining outside the Convention risks having a foreign company sponsored by a country that is party to the Convention jump on its claim after it has proven to be profitable. No U.S. company would want to take that legal risk.

Fourth, relying on customary international law does not guarantee that even the benefits we do currently enjoy are secure over the long term. Customary international law is not the most solid basis upon which to protect and assert U.S. navigational and economic rights. It is not universally accepted and may change over time based on State practice. We therefore cannot assume that customary law will always continue to mirror the Convention, and we need to lock in the Convention's rights as a matter of treaty law. Indeed, it is surprising that opponents of the Convention who are usually critical of the haziness and unpredictability of "customary international law" should urge the U.S. military and U.S. businesses to rely on it to protect their essential interests.

#### No one will understand the CP

Monika Zalnieriute 15, Fellow at the Centre for Internet & Human Rights at the European University Viadrina, International Journal of Law of Information Technology, Int J Law Info Tech (2015) 23 (2): 99, 6/1/2015, Lexis

Interplay: traditional and modern

While some scholars regard the ′traditional′ and ′non-traditional′ approaches to CIL as ′a set of paired opposites′, 101 others have attempted to reconcile them in order to assemble a common conception, or overall theory of CIL. 102 However, the continuous doctrinal disagreements and the inherent complexity associated with CIL have led several legal scholars to proclaim it a ′troubled concept′, 103 an ′essentially contested′ one suffering at this time from an ′identity crisis′. 104 The lack of a common conception of CIL, moreover, is conducive to the criticism of CIL as an uncertain source of law. Some international lawyers even claim that ′traditional′ or ′modern′ CIL is a highly complex and problematic source of international law that should be disposed of entirely. 105

### CIL CP---NB---No Spillover---1AR

#### Antitrust is distinguished from other areas

Justin Desautels-Stein 8, Associate Professor of Law, University of Colorado; LL.M., Harvard Law School (2006); J.D., UNC-Chapel Hill School of Law (2005); M.A.L.D., The Fletcher School, Tufts University, “Extraterritoriality, Antitrust, and The Pragmatist Style”, Michigan State Law Review, 2007 Mich. St. L. Rev. 565, Lexis

III. Extraterritorial Antitrust and the Pragmatist Style

Over the course of the twentieth century, the field of antitrust law dominated extraterritoriality discourse. 138 This is not to say that courts have ever characterized antitrust issues as inherently more hostile to border controls than other doctrinal areas, such as the environment, human rights, or labor regimes. 139 Rather, there exists a sense that something inevitably pushes antitrust governance against territorial restraints in ways that the others do not. 140 Comity - one of the traditional grounds that polices the assertion of [\*526] external rules in jurisdictional discourse - has even been declared dead when it comes to the inevitably progressive march of the antitrust regime. 141 In the Empagran decision, the Supreme Court reinforced this idea even as it held against extraterritorial assertion in that case:

No one denies that America's antitrust laws, when applied to foreign conduct, can interfere with a foreign nation's ability independently to regulate its own commercial affairs. But our courts have long held that application of our antitrust laws to foreign anticompetitive conduct is nonetheless reasonable, and hence consistent with principles of prescriptive comity, insofar as they reflect a legislative effort to redress domestic antitrust injury that foreign anticompetitive conduct has caused. 142

#### CIL is segmented case-by-case

Laurence R. Helfer 16, Professor of Law at Duke Law School, JD from New York University, and Ingrid B. Wuerth, Associate Dean for Research and Helen Strong Curry Chair in International Law and Vanderbilt University Law School, “Customary International Law: An Instrument Choice Perspective”, Michigan Journal of International Law, 37 Mich. J. Int'l L. 563, Summer 2016, Lexis

Custom also generally arises on a rule by rule basis. State practice and opinio juris focus on a single, discrete legal issue, often expressed at a high level of generality, rather than a fully fleshed-out group of norms with carefully delineated contours and exceptions. This partly reflects the largely unwritten nature of custom, which increases the cost and reduces the efficacy of establishing multiple, related customs at the same time. But it also makes custom a useful tool for general international rules that eschew country-specific or case-specific tailoring. As Bradley and Gulati assert with reference to the custom of diplomatic immunity, "if nations can assume that the same rules of diplomatic immunity apply, no matter where, then there will be no need to negotiate specific rules every time a diplomatic mission is established in a new country."

#### One action doesn’t establish consistent practice AND it’ll be narrowed by the courts

Hannah L. Buxbaum 6, Professor of Law at the Indiana University-Bloomington, “Transnational Regulatory Litigation”, Virginia Journal of International Law, 46 Va. J. Int'l L. 251, Winter 2006, Lexis

In the antitrust context too, national laws reflect a wide variety of regulatory approaches and there are many issues on which there is no discernible consensus. However, a shared view emerges on the question of hard-core price-fixing. It is reflected in the Organisation for Economic Co-operation and Development's platform against hard-core cartels, 207 for instance, and in the nearly universal prohibition against [\*301] such conduct across national systems. 208 Thus, while it is unlikely that every jurisdiction will share a regulatory approach to the letter, it is fair to conclude that some basics have the agreement of all regulating jurisdictions. 209 It is worth noting that some courts have already addressed arguments that antitrust rules rise to the level of customary international law, in the form of attempts to bring competition law-based tort claims under the ATCA. 210 In relatively cursory statements, these courts have rejected such claims, concluding that customary international law requires a level of consistent state practice that does not exist in the antitrust field today. 211 However, the courts approached the question not with respect to individual norms but with respect to antitrust systems more broadly, where, as noted above, there is no general consensus. 212 Their conclusions therefore do not undermine the possibility that national systems share particular individual norms, including a prohibition of hard-core price-fixing.