# 1AC

### Blockchain---1AC

#### Advantage 1---BLOCKCHAIN

#### Blockchain development is inevitable, but beyond the scope of antitrust---the law’s narrow focus on the ‘firm’ is fundamentally inapplicable, creating 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, artificially centralizing digital ecosystems---applying antitrust solves

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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.

#### \*\*\*\*Decentralizing the 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.

#### \*\*\*\*Scaling blockchain unlocks its use for energy, waste, and supply chain sustainability---extinction

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Two years ago nobody talked about blockchain. Now the distributed ledger technology behind cryptocurrencies like bitcoin is suddenly everywhere.

Enthusiastic experts predict that in the coming 10 years, blockchain will change the way we do everything, from financial markets to health records to supply chain management, and so much more. It's near impossible to name all the applications for the new technologies, but here are a few that will contribute to making our world a better place (or even save the planet).

Energy

Most visible for average users will be the impact of blockchain on the energy sector. The power grids of today are usually centralized oligopolies dependent on a very small selection of power sources (i.e. a few nuclear plants, augmented by oil and gas).

That means long distribution lines, bad management of demand, and susceptibility to power outages during earthquakes and other natural disasters.

A peer-to-peer blockchain-based energy system would reduce the need to transmit electricity over long distances. It will certainly reduce the need to store energy in inefficient ways, which means fewer batteries, for example, which are expensive and need a lot of raw materials whose extraction often causes massive pollution. Imagine if every house had a solar panel and a wind turbine, or produced electricity from new smart materials on the outer walls.

Add road surfaces that produce kinetic or solar energy, and add in all the existing infrastructure like nuclear plants, oil or coal. Now imagine every one of these sources could trade with every other source, all managed automatically by a computer system, with unfalsifiable records based on blockchain. And everyone gets paid for it into their digital wallet. This is the future of energy.

Waste Recycling

Current systems for recycling are often cumbersome and don't give enough incentives to participate. Even the best intentions fall foul to human greed and laziness.

Here then is the future of recycling: you identify yourself with your smartphone at any recycling station and deposit your empty bottles (or batteries etc.). The system scans what you deposit and credits your electronic wallet.

If done right, this system could enable users in countries without local recycling industries to get paid the same way as users in locations with large recycling operations.

Companies could set up recycling plants and literally collect garbage from anywhere in the world. It would make it easy to transparently track data like volume, cost, shipping data, and profit, and to evaluate the impact of each location, company, or individual participating in the program.

Think one step further and the recycling containers could be fitted with solar drone technology and fly themselves to the recycling center when full.

Supply Chain Management

The way we transport goods around the world is wasteful and damages the environment. Industry 4.0 is bringing us a revolution of already connected devices; 3D printing means more decentralized manufacturing in much smaller batches.

Blockchains can be used to track products from the manufacturer to the shelf and help prevent waste, inefficiency, fraud, and unethical practices by making supply chains more transparent.

They improve shipping ways, volumes, avoid empty shipments and will thus allow for fewer ships and trucks. Combined with drones and solar-powered airships we could even see pollutant-free solar shipments of individual consignments over long distances, secured, tracked and paid for through blockchain technology.

Or think about this: a blockchain enabled 3D-printer as a public service, secured, tracked, and monetized through blockchain.

The food industry is forging ahead hear with the tracking of origin and transportation paths of food.

Environmental Protection

From waste and transportation, it is an easy jump to the overall enforcement of environmental protection. Blockchain is ideally suited to manage records and incentives.

In can be difficult to track the real impact of environmental protection plans, agreements, or even international treaties. Very often incentives are misaligned, or corporate interests and even criminal elements prevent successful implementation.

Blockchain could discourage stakeholders from reneging on their commitments, misreporting progress, or giving in to pressure from nefarious players, because the technology would allow the reliable tracking of important environmental data.

After all, data in the public ledger of the blockchain is transparent and traceable forever. Environmental protection is at its core a contractual problem. Just like blockchain will revolutionize the storage and manipulation of legal records, it will reduce or eliminate fraud and manipulation of environmental schemes.

Development programs

Like environmental protection, development programs are contracts between remote parties that need to be enforced.

When you donate to a charity, non-profit, development program or similar entity, you hardly ever know what really happens with your money. Bureaucracy, corruption, and inefficiency are still common in the charity space. Blockchain technology can ensure that money intended to be a reward for conservation, or a payment to a specific cause, does not disappear into unintended pockets through bureaucratic labyrinths.

Blockchain-based money could even be released automatically to the correct parties in response to meeting specific environmental targets. This is particularly relevant in countries without modern banking structures. In particular, there are several schemes under consideration for the tracking of water usage in very dry areas of the planet.

Carbon Tax

In the current system, the environmental impact of each product is difficult to determine, and its carbon footprint is not factored into the price.

This means that there is little incentive for consumers to buy products with a low carbon footprint, and little incentive for companies to sell such products.

Tracking the carbon footprint of each product using the blockchain would protect this data from tampering, and it can be used to determine the amount of carbon tax to be charged on at the point of sale. If a product with a big carbon footprint is more expensive to buy, this would encourage buyers to buy products that are more environmentally friendly, and would therefore encourage companies to restructure their supply chains to meet the demand for such products.

Such a blockchain-based reputation system would compute a score for each company and product. This would make manufacturing more transparent, and discourage wasteful and environmentally unfriendly practices.

You could automatically see (e.g. by scanning a barcode on a product), if it was made by an environmentally sound low-carbon facility, or a wasteful polluter.

Access to credit

Just as it tracks financial payments and all the data mentioned above, blockchains could be configured to manage access to credit.

This would enable millions of people to escape poverty, by giving them easy access to small amounts of money and start their own business. Unlike the micro-finance banking model, such a credit blockchain would be entirely transparent and thus safe from abuse.

Summary

In short, blockchain technology allows the management of incentives.

Consumers, companies, and governments would immediately see the direct effects of their actions on the planet. The blockchain can be used to transparently track a variety of data like the carbon footprint of each product, the greenhouse gas or waste emissions of a factory, or a company's overall history of compliance to environmental standards.

Companies and individuals can be incentivized to act in an environmentally sustainable way through the availability of information, tokenized credits being issued for taking certain actions, or blockchain-based reputation systems.

There are many hurdles to overcome. We still do not know if the blockchain is really as safe and unhackable as promised. As a cybersecurity consultant I spoke to for this article said: "sooner or later, everything will be hacked."

There are still doubts about the usability of blockchain for micro-transaction, due to the time proof-of-work takes, and the energy cost associated with computing.

The final hurdle is the willingness of governments to change, and the willingness of participants to live in such a transparent world.

But I believe that managing incentives on the micro-level with blockchain could completely change the drivers of our economy, and benefit not only us but the future generations living on our planet.

#### \*\*\*\*Cryptocurrency will reach a wide rollout---that builds resiliency to survive inevitable existential filters

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TL;DR - An existential risk is the possibility of an event or series of events that could drastically curtail humanity’s potential. A hypothetical global catastrophe could be anthropogenic or non-anthropogenic and internal or external in nature. The adoption of Bitcoin will better position us to address these risks as a society.

EXTERNAL NON-ANTHROPOGENIC

A catastrophic collision with an astronomical object, such as an asteroid impact would be an external non-anthropogenic risk. This has already occurred here several times. During the Permian Triassic period (ending 250 million years ago) an astronomical impact killed 90 percent of the species on Earth. It took tens of millions of years for life on Earth to repopulate and Earth’s intelligence potential to recover.

One interesting external non-anthropogenic risk is Earth’s reflected light, which could be measured by an external intelligence who then come to extinguish us. (The topic of our own signal bringing about this death by misadventure is discussed further below.)

What does this have to do with Bitcoin?

Generally, hard money facilitates greater innovation and technological process. At this point one might argue that if we do not migrate to some degree from Earth as a species, and are subsequently wiped out by an astronomical object impact or a super-volcanic event, the risk becomes anthropogenic in nature. We are a centralized species on a grand scale, and at this point one could say we have through consensus chosen to remain vulnerable to a single vector of attack by staying here.

Bitcoin is not only the hardest money known to man, it is the most responsible from this standpoint. Bitcoin as it currently operates is currency that can provide a monetary framework on which humans can achieve greater capital growth, collaboration, resource allocation, and therefore technological progress. Because the terminal supply of Bitcoin is capped, we can store value in it indefinitely as a society.

66 Million years ago the Cretaceous-Paleogene Extinction Event extinguished the life and intelligence potential of the non-avian dinosaurs. This series of events was external, and broadly non-anthropogenic in the sense that no form of life on Earth at the time contributed to its own demise, but more specifically, at the time of those astronomical impacts the first humans hadn’t split from chimpanzee lineages. This split is thought to have occurred between between 4 and 8 million years ago.

An important distinction between astronomical impacts or super-volcanic events of the past and such events if they were to happen today is that one could argue that our intelligence potential is now mature enough to tackle certain of the external existential risks. Today, the risk posed by an asteroid impact or something similar would still be external in its origin, but at what point does the burden of responsibility to migrate off of the planet fall upon our population? We can surely solve for some external existential risks, and in any case, no one is going to do it for us. You could say that failing to collectively pursue a solution when technically we could have would recategorize a civilization-extinguishing asteroid impact as an external but anthropogenic risk.

At what point do innovation dampening authoritarian states and their mandated broken money cause society to stall at a local optimum? Surely the government has already caused this. It’s only a matter of time before another object strikes the Earth with devastating consequence. I would argue it is irresponsible to continue life here with government money. Government money is an existential risk. Bitcoin is not only a solution, it is a societal responsibility.

INTERNAL ANTHROPOGENIC

Nuclear war is one example of an internal anthropogenic risk. That is, should nuclear war arise, it would be both self destructive, and relatively self contained on a cosmic scale. It follows that biological warfare is an internal anthropogenic risk, the reality of which we as a species can surely understand now. If I were to hazard a guess I would say virtual emergencies and cyber pandemics are next. These self constructed catastrophes are the government’s misguided attempts at proof of work. This is a topic for another time. Do not surrender your ability to think and speak freely.

The second law of thermodynamics can summed thus, processes that involve the transfer or conversion of heat energy are irreversible. The law indicates we have not observed a spontaneous transfer of energy from cold to hot. Another way to think of this is that there is no such thing as cold, only lesser degrees of hot. Nothing cannot transfer. So broadly, within a closed system, the second law of thermodynamics would indicate that all differences tend to level out.

So what has this got to do with Bitcoin?

Well firstly, all hardware is subject to entropy. The distributed nature of the blockchain increases the probability that it will survive centralized entropy. At Bitcoin’s inception, imagine a failure because Satoshi’s computer randomly crashed. Distributed networks are inherently hedged against this particular centralized form of existential risk.

The second law of thermodynamics also suggests that on a grander scale, relatively isolated (centralized) systems will degenerate more and more into disordered states. Proof of work, and network growth are two ways Bitcoin fights against falling into disrepair.

Bitcoin uses proof of work to stave off entropy. The system cannot stay dormant. It must continue to use proof of work to advance the state of the chain, and to fight entropy to secure the monetary value all of the users have stored in the network. The U.S. dollar, as many have pointed out, relies on proof of war, or distributed political energies to maintain dominance. Its methodology can be described as haphazard at best.

INTERNAL NON-ANTHROPOGENIC

One internal non-anthropogenic risk is that of a super-volcanic eruption, provided it wasn’t humans who brought about the eruption. Just like with external non-anthropogenic risks, Bitcoin alone cannot prevent them, but it can help humans prepare for them such that we may survive these relatively small intelligence filters the universe throws our way.

Bitcoin allows for fundamental capital accumulation and human innovation, and promotes collaboration to such a degree that we will find an increased collective problem solving power as humans the further Bitcoin adoption spreads. It is worth mentioning that Bitcoin also maintains and appreciates wealth to such a degree that often those of us to chose to live our lives on a Bitcoin standard will experience relatively greater freedoms, and vastly greater amounts of free time than our peers who chose to continue their lives on a fiat standard, and are perpetually working to outpace their chronic debt. Many Bitcoiners will likely forego that newfound free time to work and continue to provide value to others in whatever area interests them, because Bitcoin incentivizes the collaborative accumulation of capital but also the responsible reallocation of it.

EXTERNAL ANTHROPOGENIC

An external anthropogenic risk has the least probability of occurring. This is a problem of reach. Imagine human intelligence being sent into the cosmos and signaling or generally causing an external intelligence or astronomical object to come back to extinguish us. This is a most improbable extinction by misadventure.

The probability that we send messages of consequence into the cosmos that in turn cause some other far-flung intelligence, with knowledge enough to reach us, to come and bring about our own destruction is next to zero, but it isn’t zero.

I would posit that the probability increases every day that Bitcoin survives, with each person that chooses to hold Bitcoin over fiat, because on a fiat standard we are again, stuck at a local optimum at best, and each day the global monetary system devolves further into chaos. The fiat world may continue to be habitable chaos, but our technological progress and our greatest capacity for innovation cannot be achieved on a fiat standard.

A Bitcoin standard is not only our current best bet, it is the only monetary vehicle that will take us from here, or enable us to build technology that can effectively communicate with places in the universe where other intelligence has emerged. The other reason this fatal miscommunication is unlikely to occur is that once through a Bitcoin standard we have manage to build a society that can effectively reach and communicate at greater depths of the cosmos we will at that time have already become a multi-planetary, if not transitory, if not multi-solar system species. The topic of Bitcoin in space and planetary interoperability will be discussed in a later essay.

The most distant human made object from the earth is the Voyager 1, which is over 13 billion miles away. (For perspective, Apha Centuri, the nearest star system to Earth, is 25 trillion miles away.) Human radio signals have announced our presence and our intelligence to the cosmos since around 1900. The first human radio signals have all ready traveled 114 light years, that is 681,920,540,000,000 miles. Although the reach of our radio signals is very great, the probability of us being heard and subsequently extinguished is negligible. External anthropogenic risks are the least of our concerns at the moment.

As Bitcoin adoption grows, it serves to promote advances in artificial intelligence and nanotechnology. External anthropogenic risks will become more relevant to human intelligence at a much later time. External non-anthropogenic risks are similarly out of our hands for the time being. That is, at the moment there is nothing we can do to prevent the Sun from becoming a red giant star and subsuming the Earth.

But we do already have the monetary technology upon which to engineer solutions to some of these problems. We have the potential as humans to prevent internal global catastrophes, both those set on by us and not. Survival and longevity is arguably our greatest task as a species. Adopting Bitcoin, and protecting this network is proceeding with diligence and a long eye toward the future in all of our political and scientific affairs. The existential risks of living are great, though it is human nature for our ambitions to out pace our current abilities. The only evidence of life is change. To change is to exit fiat currency, it is to use Bitcoin instead.

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

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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 build 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.

#### 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

### Antitrust---1AC

#### Advantage 2---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

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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 a key priority

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.

#### This will create 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 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.

#### Robust competition enforcement’s key to naval and air power that prevents great power war AND spurs diverse city innovation

Ganesh Sitaraman 20, Professor of Law at Vanderbilt University, JD from Harvard Law School, MPhil from the University of Cambridge, AB from Harvard College, “The National Security Case for Breaking Up Big Tech”, The Knight First Amendment Institute at Columbia University, 1/30/2020, https://knightcolumbia.org/content/the-national-security-case-for-breaking-up-big-tech

An alternative approach to innovation is one that relies less on protectionism for national champions and more on market competition and on public investment in research and innovation. Competition, as noted already, can be a powerful motivator for innovation. When big tech incumbents face little competition, society forgoes the innovation benefits that come from competition. Who knows if Instagram or WhatsApp could have dethroned Facebook’s primacy and developed even more new and innovative products? Facebook’s moves to acquire those firms prevented us from ever finding out. What small businesses might emerge if they didn’t have to compete with Amazon Basics on Amazon’s Marketplace? Unwinding mergers and separating platforms from companies that do business on the platform would help spur competition and lead to innovation.

Some might argue that robotics, AI, and quantum computing are so resource-intensive that an ecosystem of smaller companies engaged in fierce competition would mean that no company would have the resources available to invest in those next-generation technologies. There are a few responses to this argument. First, it is not clear that breaking up and regulating big tech would prevent those firms from having the considerable resources to develop the technologies of the future. Facebook would still have billions of users, even without Instagram and WhatsApp, for example. Amazon’s platform would still have enormous market power.

Second, and more importantly, part of the answer is that the decision to break up and regulate tech companies should be accompanied by public investment in R&D. One of the primary arguments for the national champions view is that monopolists have the resources to be able to invest in innovation because they do not face competitive pressures. 65. Baker, supra note 58, at 578 (describing the Schumpeterian view and linking it to R&D capacity). But any system of innovation operates against a backdrop of laws and public policy. 66. Some scholars have suggested that resolution to the Schumpeter-Arrow debate depends on an industry-by-industry assessment. See, e.g., Mark A. Lemley, Industry-Specific Antitrust Policy for Innovation, 3 Colum. Bus. L. Rev. 637, 651–52 (2011). But it is not clear that industry-by-industry assessments on antitrust enforcement alone can resolve this debate. Industries operate under different policy background conditions — including, for example, intellectual property rules, industrial policy, and R&D funding—and it may be that the optimal path is for policymakers to revisit policy choices in multiple areas. The ability to capture the gains of innovation depends on intellectual property law. The possibility of winning government contracts for frontier projects that require innovation is determined by procurement policies. And, of course, an alternative to monopolist investment in R&D is public investment in R&D. These policy choices all shape the innovation ecosystem, and it is not at all obvious why society has to accept national champions instead of thinking about revising these laws and policies more broadly. Given the emphasis that proponents of national champions place on research and development, it is worth noting that historically, as Mariana Mazzucato has argued, government has been a significant driver of innovation through its research and development efforts. 67. Mariana Mazzucato, The Entrepreneurial State: Debunking Public vs. Private Sector Myths (2013). Today, one could easily imagine the government spending considerable sums of money on R&D in artificial intelligence, robotics, quantum computing, augmented and virtual reality, and other technological research.

Public investment in research has a variety of benefits. First, because it is not tied to the profit motive and business model of a single company, it covers a wider range of subjects, leading potentially to innovations that would otherwise go undiscovered. Public investment extends to basic research that does not have immediate or foreseeable commercial applications. It could also include research into areas that might challenge the incumbency and business models of existing companies.

Second, and relatedly, public investment into research is less likely to be geared toward improving surveillance capacity. As long as the biggest companies have surveillance, personalized targeting, and behavioral response at the heart of their business models, research and innovation within those companies will likely be geared, in no trivial part, toward improving those activities. A digital authoritarian country might see that as a valuable public goal, but it is not at all clear why a free and democratic society should. Public-sponsored research might instead be directed toward a variety of socially beneficial uses other than continual improvement of individual monitoring and behavioral reactions. Notably, as there are more opportunities in research outside of the big tech companies, many talented people might choose to work on a wider range of problems.

Third, public investment in R&D has the potential to spread the benefits of technology, innovation, and industry throughout the country. At present, much of the country’s technological and intellectual prowess is concentrated in a few regions, the most prominent being northern California, Seattle, and Boston. Geographic inequality has a variety of negative consequences—economic, social, and political. 68. Ganesh Sitaraman, Morgan Ricks & Christopher Serkin, Regulation and the Geography of Inequality (draft on file with the authors).But, as economists Jonathan Gruber and Simon Johnson show in their book Jump-Starting America, there is no reason that public investment couldn’t spur successful economies in dozens of mid-sized cities all over the country, with spillover benefits for their regions. 69. Jonathan Gruber & Simon Johnson, Jump-Starting America: How Breakthrough Science Can Revive Economic Growth and the American Dream (2019). Unlike government action, technology companies have no reason to develop the capacities of all regions of the country. Amazon’s so-called competition for its second headquarters is a good example. After much public attention, the company settled on New York City and a suburb of Washington, D.C., two superstar cities.

Artificial intelligence, of course, requires considerable data in order to improve precision and accuracy. One of the arguments for big tech is that such companies alone are able to collect this data and use it. But there is no reason why this has to be the case either. Consider two alternate possibilities. First, the United States could create a public data commons that would be highly regulated to protect privacy. The public data commons would include publicly available data from a variety of government sources, and qualifying businesses, local governments, or nonprofits could train their machines using this data. Any new data they collect from users could then be fed back into the data commons (de-identified), so that the data commons improves in quality and quantity of data over time. 70. Ben Gansky, Michael Martin & Ganesh Sitaraman, Artificial Intelligence is Too Important to Leave to Google and Facebook Alone, N.Y. Times (Nov. 10, 2019), https://www.nytimes.com/2019/11/10/opinion/artificial-intelligence-facebook-google.html [https://perma.cc/7LUR-H3RT].Second, we could imagine requiring big tech companies to make their data available in interoperable formats. If these companies effectively have a monopoly power over data, then they could be regulated as monopolies—and one condition of their continued protection as monopolies could be enabling access to the datasets. Again, there is no legal or regulatory reason why these kinds of policy options are impossible. And in either case, they would enable a larger number of players to innovate than does the status-quo, stand-pat approach to protecting big tech from competition.

Big Tech and the Defense Industrial Base

Concentration in the tech sector also threatens the defense industrial base due to higher costs, lower quality, less innovation, and even corruption and fraud. 71. On some of these concerns, see, e.g., Jacques S. Gansler, William Lucyshyn & Michael Arendt, Competition in Defense Acquisitions, Univ. Md. Ctr. for Pub. Pol’y & Priv. Enterprise (Feb. 2009) (noting that competition is essential in the defense sector for economic efficiency, innovation, quality, and performance). Each of these dynamics has already been a problem for America’s over-consolidated defense industrial base. As technology becomes more and more central to defense and national security, it is likely that these same dynamics will replicate themselves with big tech companies. This will become a national security threat, both directly, in terms of the quality and speed of procurement, and indirectly, by reducing innovation and functionally redirecting defense budgets from research spending to higher monopoly profits.72. Id. at 2 (“Competition within the defense market is not only necessary to efficiently meet day-to-day military needs, but is also the lynchpin for successful military modernization—as a means for spurring innovation of transformational technologies and for bringing the best weapons to the battlefield quickly and affordably.”).

Conventional economic theory suggests that monopolists have the ability to increase prices and reduce quality because consumers are captive. When it comes to defense spending, the Government Accountability Office commented in 2019 that “competition is the cornerstone of a sound acquisition process and a critical tool for achieving the best return on investment for taxpayers.”.At the same time, the GAO observed that “portfolio-wide cost growth has occurred in an environment where awards are often made without full and open competition.” 75. Id. at unnumbered page preceding table of contents.Indeed, it found that 67 percent of 183 major weapons systems contracts had no competition and almost half of contracts went to a handful of firms. Of course, consolidation also means that the Defense Department is in a symbiotic relationship with these big contractors. Some startup executives wanting to sell to the government thus see the Pentagon as “a bad customer, one that is heavily skewed in favor of larger, traditional players,” and they don’t feel like they can break into the sector.76.

Standard stories about political economy and capture also suggest that these firms will have outsized power over government..As Frank Kendall, the former head of acquisitions at the Pentagon, has said, “With size comes power, and the department’s experience with large defense contractors is that they are not hesitant to use this power for corporate advantage.”. In the defense context, that means monopolists retain power (and profits), even if they overcharge taxpayers and risk the safety of military personnel in the field.

In an important article in The American Conservative on concentration in the defense sector, researchers Matt Stoller and Lucas Kunce argue that contractors with de facto monopoly at the heart of their business models threaten national security. They write that one such contractor, TransDigm, buys up companies that supply the government with rare but essential airline parts and then hike up the prices, effectively holding the government “hostage.” They also point to L3, a defense contractor that had ambitions to be a “Home Depot” for the Pentagon, as its former CEO put it. L3’s de facto monopoly over certain products, according to Stoller and Kunce, means that it continues to receive lucrative government contracts, even after admitting in 2015 that it knowingly supplied defective weapons sights to U.S. forces.

Consolidation also threatens U.S. defense capacity. The decline of competition, according to a 2019 Pentagon report, leaves the military vulnerable to “sole source suppliers, capacity shortfalls, a lack of competition, a lack of workforce skills, and unstable demand.” 81. U.S. Dep’t of Def., FY2018 Industrial Capabilities Annual Report to Congress 52-54 (May 13, 2019).With a limited number of producers, there is less talent and knowhow available in the country if there is a need to build capacity rapidly. 82. Id. at 53 (describing that, for a sole source manufacturing in the naval context, “it is difficult to recruit and retain qualified personnel to operate the equipment because technical schools have stopped training on the equipment, given its age.”).In 2018, the Defense Department released a report on vulnerable items in the military supply chain, including numerous items in which only one or two domestic companies (and, in some cases, zero domestic companies) produced the essential goods.83. U.S. Dep’t of Def., Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States (Sept. 2018).

How did the United States lose so much of its industrial base? The combination of consolidation and global integration is part of the story. As Stoller and Kunce argue, companies consolidated in the 1980s and 1990s while shifting emphasis from production and R&D to Wall Street-demanded profits. Globalization then allowed them to shift production overseas at a lower cost. The result was to gut America’s domestic industrial base—and, in many cases, to shift it to China, which engaged in a decades-long strategic plan to develop its own industrial base. The result, in the words of the 2018 Defense Department report, is that “China is the single or sole supplier for a number of specialty chemicals used in munitions and missiles.” In other areas too, the risks of losing access to critical resources are real. Describing the problem of limited carbon fiber sources, the same Pentagon report notes, “[a] sudden and catastrophic loss of supply would disrupt DoD missile, satellite, space launch, and other defense manufacturing programs. In many cases, there are no substitutes readily available.”84. Id. at 49.

As technology becomes more integral to the future of national security, it is hard to see how big tech will not simply go the way of the big defense contractors. Corporate mottos not to “be evil” are long gone, 85. Tanya Basu, New Google Parent Company Drops ‘Don’t Be Evil’ Motto, Time (Oct. 4, 2015) https://time.com/4060575/alphabet-google-dont-be-evil [https://perma.cc/T5SN-GEXP].and big tech companies spend millions on conventional Washington, D.C., lobbying efforts. 86. Amazon, Apple, Facebook, and Google spent a combined $55 million on U.S. lobbying in 2018. Cecilia Kang & Kenneth P. Vogel, Tech Giants Amass a Lobbying Army for an Epic Washington Battle, N.Y. Times (June 5, 2019), https://www.nytimes.com/2019/06/05/us/politics/amazon-apple-facebook-google-lobbying.html [https://perma.cc/AV7V-67BY].Over time, as contracts move to tech behemoths, there will no longer be competitive alternatives, and the Pentagon will likely be locked into relationships with big tech companies—just as they currently are with big defense contractors. 87. See, e.g., William E. Kovacic & Dennis E. Smallwood, Competition Policy, Rivalries, and Defense Industry Consolidation, J. Econ. Perspectives, Fall 1994, at 91, 92 (“As the industry shrinks, many horizontal mergers will feature acute tension between claimed efficiencies (such as cost reduction) and the weakening of competition as a procurement discipline.”).Some commentators suggest that robust antitrust policies are a problem because only a small number of tech companies can contract for defense projects. 88. Jon Bateman, The Antitrust Threat to National Security, Wall St. J. (Oct. 22, 2019), https://www.wsj.com/articles/the-antitrust-threat-to-national-security-11571784197 [https://perma.cc/7BJK-GRK9].But there is another way to look at it: The goal should be to encourage competition in the tech sector so that there are multiple contractors available. As former secretary of homeland security Michael Chertoff has said, defending the antitrust case against Qualcomm, “a single-source national champion creates an unacceptable risk to American security—artificially concentrating vulnerability in a single point. … We need competition and multiple providers, not a potentially vulnerable technological monoculture.”89.

The consequence of consolidation in tech is that taxpayers will likely see higher bills even as innovation slows due to reduced competition. Worse still, every taxpayer dollar that goes to monopoly profits—whether in the form of higher prices or fraud and corruption—is a dollar that is not going toward innovation for the future. A concentrated defense sector means not only less innovation due to the lack of competition in the sector; it means that funding that could have been available for innovation instead gets redirected via monopoly profits to the pockets of big tech executives and shareholders.

Conclusion

It is perfectly understandable why big tech companies don’t want to be broken up or regulated. They are profitable, growing, and powerful. It is also perfectly understandable why they deploy national security arguments to defend against the prospect. National security arguments have long been a trump card in law, policy, and politics, forming an exception to the normal rules that govern the economy.

But if we take seriously national security imperatives in a time of great power competition, the case for shielding big tech from competition is surprisingly weak. Tech companies are not competing with China so much as integrating with China, and their integration comes with threats to the United States. The best route to broad and transformative innovation is competition coupled with public spending on R&D–not concentration into monopolies. Rather than threatening national security, breaking up big tech will help bolster it.

#### Decline of naval power causes nuclear war

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More Ships Allow for More System Management

Institutions write strategy documents, in no small part, to plead for more resources, selling their centrality to U.S. security. But much of the maritime services’ case, however self-serving, happens to be true, backed up by data on 270 interstate maritime conflicts. The data show that U.S. naval power correlates to a strong downward effect on the frequency and escalation of maritime conflicts (Figure 1) and that maritime conflicts are increasing relative to territorial disputes. The future of conflict is likely to be maritime. This is especially the case if one holds the liberal belief that great-power competition is as much a matter of international system maintenance, conflict management, and public goods provision as it is direct military confrontation between superpowers.

The most likely friction points between China and the United States will be at sea, in the air, and in space: the global commons. China is involved in 10 ongoing maritime disputes (Russia in nine). But that leaves 77 disputes around the world — 80 percent — that do not involve a great-power opponent of the United States. Actively managing, if not resolving, these potential crises is an important part of maintaining a liberal order, making the world safer for commerce, and making other states more amenable to U.S. leadership. A hallmark of U.S. liberal grand strategy is dispute resolution and conflict management, and in the modern era, these clashes occur more often at sea than on land. Territorial disputes (e.g., Kashmir and Nagorno-Karabakh) have declined over the past two centuries, but contentious maritime claims (e.g., the Spratly Islands and the Aegean Sea) have increased significantly.

One major reason why maritime disputes will continue to increase is climate change. Unlike the most recent National Security Strategy, National Defense Strategy, and National Military Strategy, the sea services explicitly acknowledge its existence. The maritime strategy observes that climate change threatens “coastal nations with rising sea levels, depleted fish stocks, and more severe weather” and also claims that “[c]ompetition over offshore resources, including protein, energy, and minerals, is leading to tension and conflict.” Both statements are on firm empirical ground. Data show that climate volatility, especially variability in rainfall, exacerbates the risks for militarized clashes at sea. Warmer oceans increase scarcities in many fisheries stocks by changing migration patterns, increasing fish mortality rates, and changing water acidity levels, and thus, we may see greater escalation over contested fishing grounds in the future. The use of maritime militias by countries like China, Vietnam, and the Philippines to defend fishing grounds is not surprising as states expand security measures to protect their citizens’ access to fish stocks.

There are, of course, many causes for the relative increase in disputes at sea, but it is undeniable that the rise in maritime disputes correlates to a decline in U.S. naval tonnage as a percentage of the world’s navies (Figure 1). Rising sea powers as diverse as Russia, Egypt, Indonesia, India, Iran, and North Korea have sought to expand sovereignty over maritime spaces, increasing risks for future conflicts. These regional conflagrations are risky, too, because major power wars often arise through alliance ties and the failure of extended deterrence.

The data show that, while maritime crises rarely escalate to open military conflict, naval power is the only maritime capability that deters escalation. No matter how capable or large a state is in terms of broader measures of power, naval forces are essential for this task.

Erik Gartzke and Jon Lindsay argue in a forthcoming article in this series that states that build more surface ships and submarines and challenge their neighbors’ maritime sovereignty claims fight in more militarized conflicts. By this logic, naval investments by China, Japan, and Taiwan would increase the risks for clashes at sea, and these have occurred. But, rather than the growth of individual fleets, it is the regional naval *balance*, and the role played by the United States in it, that matters most. Senkaku/Diaoyu conflicts have not resulted in war largely due to naval parity between these actors and the capability balance that the United States offers. The data show, more generally, that maritime disputes between evenly matched naval powers are more likely to be settled through peaceful negotiations. This supports the strategy’s claim that “[a]ctivities short of war can achieve strategic-level effects. The maritime domain is particularly vulnerable to malign behavior below the threshold of war and incremental gains from malign activities can accumulate into long-term advantages.” Plenty of evidence exists to support a larger fleet regardless of who is in the White House.

#### City-based innovation prevents extinction

Greg Clark 21, Group Advisor for Future Cities at the HSBC Group, Former Research Scholar at the London School of Economics and Political Science, Degree from the University of Cambridge, Former Harkness Fellow at Columbia University, “Global Cities Desperately Need New Leadership Models”, 12/8/2021 https://hbr.org/sponsored/2021/12/global-cities-desperately-need-new-leadership-models

The world’s population centers are the critical places for the future of our planet. Where people settle and how they coexist with the planet will define the endgame in the story of human life. Will we spoil our habitat or remake it?

Whether we think of such cities as consumption markets, infrastructure hubs, innovation ecosystems, decision-making centers, sharing platforms, or visitor destinations does not really matter. They are all these things—and much more. We have come to call them “cities” because they serve and seek to empower citizens, but this word is now so overused and sometimes so contentious that it may just be better to think of them as population centers—places where people are concentrated. In the quest to avoid human extinction, such places are ontologically important.

On this planet, there are some 10,000 cities where we humans make our home, according to Cities in the World, the European Commission, and the Organisation for Economic Co-operation and Development.

Meanwhile, the United Nations World Population Prospects says we are on the road to 9 billion city dwellers by 2080. Currently, about 600 cities drive our global economy and fuel our national treasuries, 200 cities are the centers of national policy and lawmaking, and 100 cities are the hubs of corporate enterprise.

Anyone who wants to argue against the idea of an urban world needs to articulate the alternative. How would you distribute and serve 9 billion souls without using cities as the primary platforms? What are the environmental and social consequences of alternative models?

We know, from all the amassed science of success, that leadership is critical to how countries and companies survive and thrive. We read books about national heroes and about great corporate leaders. But we focus less frequently on how population centers are led and guided by wise people and what the leadership imperative is for a place that is not a nation and not a business venture. The leadership of cities is a niche discussion.

In our post-pandemic, climate-alarmed world, being a city leader is just about to become the most important job on the planet. The next 50 years will be a great reckoning, and it has already started. Can we equip our cities to avoid the extinction of our species?

Three ideas should drive our quest:

Cities are seriously underpowered. Most of our cities are subjected to an inadequate version of democratic government that leaves them with the wrong municipal geographies, insufficient financial resources, weak policy frameworks, short-term mandates, and overly dominant national governments that do not understand the interactions of different forces locally in a given place. National governments recognize the opportunity of a century of urbanization but are largely unwilling to couple it with the decentralization of power it requires. So cities are orphaned by nation-states.

Place leadership is a collective task. Public bodies, civic groups, asset owners, investors, and businesses must work together with citizens to shape choices and frame change. Cities are both a means to optimize the interplay of different changes, such as in energy, transport, environment, and public health, and also a platform for collective behavior change among citizens and businesses. Cities can motivate and inspire the changes we need, because they enable and require sharing of the same place for multiple purposes by large numbers of people. Place-based leadership can induce innovation.

Soft power is therefore essential for cities to succeed. Cities need to be convening platforms for innovation and joint endeavor. They cannot achieve the changes required without building and driving coalitions. The more collaboration, the more easily the big reforms that build greater formal competence are acquired. Well-orchestrated soft power leads to reforms that generate hard power.

We can already see a new generation of city leadership platform types beginning to emerge in multiple locations.

Over the past 20 years, Manchester, U.K., has steadily built a grand coalition of nine neighboring municipalities working together with universities, investors, and businesses committed to a place-leadership agenda that has enabled the delegation of new authority, the acquisition of new financial powers, and the creation of new leadership structures in a “combined authority” for the city region.

The Greater Sydney Commission is a new kind of city regional leadership platform where civic leaders are selected for their expertise to shape a long-term agenda beyond the short-term mandates and political cycles, but are accountable to and influential upon them.

Barcelona Global has been established as a coalition of corporations, institutions, entrepreneurs, academics, skilled migrants, and investors who want to help shape the Barcelona of 2050. The coalition is working at the spaces within and between the formal levels of governance: municipal, state, national, and European Union.

In China, the emergence of the great city clusters in the megaregions of the Greater Bay Area, the Yangtze River Delta, and the Jing-Jin-Ji region shows a new scale for subnational leaders to oversee and coordinate networks of interdependent cities.

In Colombia, we observe proactive citizen leadership in Medellín and civic-minded business leadership in Bogotá, fostering new tools and platforms for place leadership to emerge.

As we emerge from a global pandemic, the quest for effective city leadership is more important than ever. New models of shared leadership are finally arriving, but is it too late? We need these models, as well as other innovative ideas and approaches, to become the fabric of our global urban infrastructure in order to have successful cities. Our collective future depends on it.

#### The plan solves:

#### 1. Updating---prohibiting violations in 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

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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.

### Plan---1AC

#### PLAN

#### The United States federal government should prohibit anticompetitive practices by nucleus participants at the root layer of blockchains.

### Solvency---1AC

#### SOLVENCY

#### \*\*\*Prohibiting anticompetitive practices by the blockchain nucleus of 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.

#### It also improves overall resource efficiency and investigation accuracy

Almudena Arcelus 21, Principal at Analysis Group, Mihran Yenikomshian, Vice President at Analysis Group, and Noemi Nocera, Associate at Analysis Group, “Mitigating Antitrust Concerns When Competitors Share Data Using Blockchain Technology”, Harvard Journal of Law and Digital Technology, Harv. J.L. & Tech. Dig. (2021), Spring 2021, Lexis

C. Transparency for regulators

Implementing transparency in the network design can improve regulators' ability to investigate claims of antitrust violations. First, blockchain networks could be designed to provide antitrust investigators with a clear audit trail of the life cycle of an asset as it moves through a firm's supply chain, providing critical information to investigators as they assess when and how a firm's products transformed from raw materials to a finished good. Second, networks can be designed to provide investigators with more accurate, reliable, and comprehensive transaction data across an entire firm, rather than the piecemeal and inconsistent data that regulators often receive. Last, we could imagine the development of a blockchain, potentially accessible only by select parties or regulators, that contains industry-wide transaction data, which could provide an unmatched tool for investigators. Furthermore, the standardized data format in a blockchain may lead to faster resolution of potential antitrust investigations.

Whether or not these particular strategies would be effective in a real-world setting will depend on the industry or business context, the design of the blockchain network at issue, and the effectiveness of governance and regulatory oversight.

V. CONCLUSION

Because of its potential to change the way many governments' and firms' services currently operate, blockchain technology has attracted extensive press coverage. Although antitrust concerns exist in relation to blockchain adoption and data sharing between competitors (including access to information, collusion, abuse of dominance, and enforcement), blockchain serves mainly as a data management tool. How it affects competition will depend on network design and regulatory oversight, among other things. When examining antitrust concerns, industry observers as well as regulators should assess blockchain technology according to its specific implementation and its role in the wider framework within which it is used.

# 2AC

### T---Per Se---2AC

#### ‘Prohibition’ is injunction. That can happen after review.

Sarah E. Light 19, Assistant Professor of Legal Studies and Business Ethics at the The Wharton School at the University of Pennsylvania, “The Law of the Corporation as Environmental Law”, Stanford Law Review, 71 Stan. L. Rev. 137, Lexis

Section 1 of the Sherman Act prohibits "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce." 159 There are certain kinds of actions that are per se illegal under the antitrust laws, rendering antitrust law an absolute bar. 160 Such actions include price fixing, horizontal boycotts, and output limitations. 161 Courts apply the per se rule when firms aim to "disadvantage competitors by "either directly denying or persuading or coercing suppliers or customers to deny relationships the competitors need in the competitive struggle.'" 162 In the per se unreasonableness context, the plaintiff need not show anticompetitive effect, as harm to competition is presumed. 163

Before the enactment of the Clean Air Act, the federal government invoked antitrust law to end a collusive agreement among major automakers and their industry association to keep pollution control technology from reaching the California market. By 1952, authorities addressing air pollution in Los Angeles County had accepted scientific findings that motor vehicle emissions were the major source of the smog that blanketed the Los Angeles basin. 164 Local officials began to reach out to the major automobile [\*173] manufacturers about research on emissions-control technology. 165 In 1953, the Automobile Manufacturers' Association (AMA), an industry trade group, began a campaign to study the issue and committed to funding research. 166 In 1955, several automobile manufacturers, including the four major manufacturers - General Motors, Ford, Chrysler, and American Motors - entered into a formal cross-licensing agreement to share technological information and data on the development of emission-control technology, 167 an action that later became the subject of antitrust litigation. 168 They announced their decision publicly, garnering some praise for addressing the smog problem. 169

In 1960, California passed the California Motor Vehicle Pollution Control Act. 170 The Act mandated that manufacturers of new cars install emissions-control devices; however, the mandate was only triggered once such devices had been certified by the newly created Motor Vehicle Pollution Control Board. 171 By 1964, the Board had certified four emissions-control devices as meeting the state's standards, triggering the mandate under the Act. 172 Independent firms, rather than the major automakers, had developed these devices. 173 Shortly after the state certified these devices, the major automakers announced that they, too, had developed their own emissions-control technology, 174 arguably so that they would not be required to license technology from other firms. This sequence of events led some officials in California to conclude that the major automakers had conspired to delay making their own technologies publicly available. 175 After Los Angeles County officials asked the U.S. Attorney General to investigate possible collusion, a grand jury was convened. 176

Although the Department of Justice did not file criminal charges, in January 1969 it filed a civil antitrust suit against the AMA and the four major [\*174] automakers, alleging that the defendants had conspired among themselves and with smaller motor vehicle manufacturers "to eliminate competition in the research, development, manufacture and installation of motor vehicle air pollution control equipment, and in the purchase from others of patents and patent rights, covering such equipment," in violation of section 1 of the Sherman Act. 177 In response to the complaint, the defendants argued that their cooperation had actually accelerated the development of emissions-control devices and noted that collaboration was required to ensure that all manufacturers would be able to comply with the increasingly stringent standards. 178 After the lawsuit was filed, a partner in the law firm representing the AMA penned an article 179 explaining that individual consumers had been "unwilling to spend the additional small amount" necessary to purchase vehicles equipped with emissions-reducing devices. 180 Thus:

So far as the installation of devices was concerned, therefore, the manufacturers had a substantial and legitimate interest in cooperating. No company wanted to incur a cost disadvantage, either in terms of an increase in sales price or an adverse effect on vehicle driveability, without some assurance that all manufacturers were incurring similar disadvantages in the marketplace. 181

Arguably, this was as much a problem of the interaction between corporate law and antitrust law in competitive markets as it was one of antitrust law alone. If firms had a broader mandate beyond profit maximization, including to contribute to the public interest, perhaps they would have been more willing to incur a short-term cost disadvantage, even in a competitive market, rather than enter into an agreement to limit competition.

The parties resolved the suit by entering into a consent decree, which required the defendants not to conspire to delay the development of emissions-control devices and to make available without royalties both patent licenses and data on the emissions-control devices they had developed. 182 However, the decree did not require the defendants to admit liability or pay monetary penalties or damages for environmental harm; nor did it require the [\*175] retrofitting of vehicles. 183 Despite the lack of damages or penalties, in this case antitrust law served as a mandate to promote environmental goals, preventing collusion in the market when firms feared that developing an environmental product would put them at a competitive disadvantage.

A second, more recent example of antitrust law serving as an environmental mandate comes from the European Union, not the United States, but the example offers a similar lesson about the potential confluence, rather than conflict, between antitrust principles and environmental goals. In 2011, the European Commission fined two consumer products firms, Unilever and Procter & Gamble, more than 300 million euros combined for entering into an agreement to maintain prices for laundry detergent while the firms switched to selling a more concentrated, environmentally preferable formulation. 184 The firms switched to the more environmentally friendly formulation as a result of their participation in a voluntary industry initiative called the "Code of Good Environmental Practice for Household Laundry Detergents," 185 a classic example of private environmental governance. The voluntary initiative included reducing the amount of detergent needed for each load of laundry, as well as overall product weight and packaging. 186 The industry initiative appropriately did not include any commitments regarding price fixing. 187

However, the firms privately "agreed to keep the price unchanged" when the "products were "compacted'" in a way that might appear to a consumer that he would be able to wash fewer loads of laundry than the compacted product was capable of cleaning. 188 In addition, they engaged in other forms of price collusion, including "restricting their promotional activity" and "deciding not to pass the benefit of cost savings (reduced raw materials, packaging and transport costs) on to consumers." 189 The firms further agreed on direct price [\*176] increases and "exchanged sensitive information on prices and trading conditions, thereby facilitating the various forms of price collusion." 190

In this case, just as in the case of the automakers, antitrust law enforcement served as an environmentally positive mandate. Relying on antitrust law, the European Commission fined these firms for seeking to avoid passing cost savings from an environmentally beneficial product onto consumers. The motivations of the consumer products firms mirrored those of the automakers: In both cases, the firms feared that being the first to market an environmentally preferable product would reduce profits or create a competitive disadvantage vis-a-vis other firms in the marketplace. This example likewise suggests the importance of viewing antitrust law in connection with other fields, such as corporate law. Firms driven by a profit motive experience that motive in the context of a competitive environment. 191

B. Prohibitions and Disincentives: The Antitrust Per Se Rule and the Rule of Reason

While antitrust law can serve as an environmental mandate by prohibiting collusive behavior that keeps environmentally preferable goods from the market, there is also conflict between antitrust law's goals of promoting competition and environmental law's goals of promoting [\*177] conservation. 192 Because antitrust law's per se rule and rule of reason operate on a somewhat fluid continuum, 193 this Subpart discusses the two doctrines together. The per se rule operates as a prohibition, whereas the rule of reason operates as both a prohibition and a disincentive.

As noted above, antitrust law generally prohibits certain types of market activity - price fixing, horizontal boycotts, and output limitations - as illegal per se, and harm to competition is presumed. 194 For example, if an industry association declines to award a seal of approval necessary for a product's sale without any good faith attempt to test the product's performance, but rather simply because that product is manufactured by a competitor, such an action would be illegal per se. 195 Under this Article's framework, a per se violation is thus a prohibition.

The more fact-intensive inquiry under the rule of reason tests "whether the restraint imposed is such as merely regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition." 196 While this extremely broad statement might suggest that any fact is relevant to the inquiry, the salient facts under the rule of reason are "those that tend to establish whether a restraint increases or decreases output, or decreases or increases prices." 197 If an anticompetitive effect is found, then the action is illegal and the rule of reason operates, like the per se rule, as a prohibition. 198 The rule of reason can also operate as a disincentive, even if no [\*178] court finds an anticompetitive effect, as uncertainty and litigation risk may discourage firms from undertaking legally permissible, environmentally positive industry collaborations. 199

#### ‘Practices’ can be singular

Justice Clinton 82, Supreme Court of Nebraska, Justice. Opinion in MID-SOUTH, ETC. v. Platte Valley Livestock, 315 NW 2d 229 - Neb: Supreme Court 1982

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

#### Coherence---it’s impossible to apply to ‘anticompetitive’ conduct

Donald L. Beschle 87, Associate Professor of Law at The John Marshall School of Law, B.A. from Fordham University, J.D. from the New York University School of Law, LL.M. from Temple University School of Law, “"What, Never? Well, Hardly Ever": Strict Antitrust Scrutiny as an Alternative to Per Se Antitrust Illegality”, Hastings Law Journal, March 1987, 38 Hastings L.J. 471, Lexis

This Article argues that the defenders of per se analysis have assigned themselves an impossible task. Arguing that types of activity can [\*476] be identified as invariably anticompetitive is futile; counterexamples can almost always be put forward. Consequently, defenders of per se categorization are reduced to one of two unattractive alternatives. First, they can concede that per se categories may in some instances prohibit procompetitive activity, but argue that the overall benefits of per se categorization justify the result. Such an argument is unsatisfying because it explicitly sacrifices particular blameless defendants in order to search for an increase in general welfare. Second, per se defenders can narrow their categories to eliminate procompetitive counterexamples. This strategy, however, threatens to destroy those categories entirely. And if most of the once-condemned activity is returned to the realm of the rule of reason, the insight that certain types of behavior are particularly dangerous is lost.

### Capitalism K---2AC---A

#### It’s strategic duplicity that implodes capitalism from within. Direct rejection fails.

Dr. Brian Massumi 18, Professor in the Department of Communication Sciences at the University of Montréal, Ph.D. in French Literature from Yale University, and Dr. Erin Manning, Professor of Philosophy and Cinema at Concordia University, Ph.D. in Political Philosophy from University of Hawaii, “A Cryptoeconomy of Affect”, The New Inquiry, 5/14/2018, https://thenewinquiry.com/a-cryptoeconomy-of-affect/

It would be very naive of us to think you could just walk out of capitalism. We’re not that naive. Neoliberalism is our natural environment. We therefore operate with what we call strategic duplicity. This involves recognizing what works in the systems we work against. Which means: We don’t just oppose them head on. We work with them, strategically, while nurturing an alien logic that moves in very different directions. One of the things we know that the university does well is that it attracts really interesting people. The university can facilitate meetings that can change lives. But systemically, it fails. And the systemic failure is getting more and more acute. And so what we imagine is that the Institute, assisted by the 3E Process Seed Bank, will create a new space that might overlap with some of the things the university does well, without being a part of it (or being subsumed by its logic).

MASSUMI.— Going back to the question of value, we want to create an economy around the platform that does not follow any of the usual economic principles. There will be no individual ownership or shares. There will be no units of account, no currency or tokens used internally. The model of activity will not be transactional. Individual interest will not be used as an incentivizer. What there will be is a complex space of relation for people to create intensities of experience together, in emergent excess over what they could have created working separately, or in traditional teams. It’s meant to be self-organizing, with no separate administrative structure or hierarchy, and even no formal decision-making rules. It’s anarchistic in that sense, but through mobilizing a surplus of organizing potential, rather than lacking organization. You could also call it communistic, in the sense that there is no individual value holding. Everything is common.

MANNING.— Undercommon.

MASSUMI.— Yes, undercommonly. The undercommons is Fred Moten and Stefano Harney’s word for emergent collectivity, which is one of our inspirations. We want to foster emergence and process, but at the same time find ways of making it sustainable. That means that the strategic duplicity has to extend to the economy as we currently know it. We have to be parasitical to the capitalist economy, while operating according to a logic that is totally alien to it.

What we’re thinking of is making the collaborative process moving through the platform function according to the radically anti-capitalist principles we were just talking about, centering on the collective production of surplus values of life, and separating that from the dominant economy by a membrane. A membrane creates a separation, but at the same time allows for movements across. It has a certain porosity. The idea is that we would find ways, associated with the affect-o-meter we were describing earlier, to register qualitative shifts in the creative process as it moves over its formative thresholds, and moves back and forth between online operations and offline events. What would be registered is the affective intensity of the production of surplus value of life, its ebbs and flows. The membrane would consist in a translation of those qualitative flows into a numerical expression, which would feed into a cryptocurrency. Basically, we’d be mining crypto with collaborative creative energies—monetizing emergent collectivity. The currency would be “backed” by the confidence we could build in our ability to keep the creative process going and spin it off into other projects, as evidenced by the activities of the Three Ecologies Institute as an experiment in alter-education.

On the side of the membrane facing the monetary economy, we would be producing a recognizable, quantifiable movement of value. But the membrane would shelter the creative process going on inside the platform from being colonized by that logic. We’d try to have the best of both worlds. It would be essential that the currency not be just a speculative vehicle that joins the crowd of coins. Our economic space would have to inhabit an ecology of other economic spaces experimenting with adapting blockchain and post-blockchain autonomous organization to cooperative endeavors. The key, once again, is finding workable solutions to the problem of how to use qualitative analysis to register movements of creative intensity—how to coax numbers into an alliance with qualities of experience. There is a new concept being developed by Nora Bateson that she calls “warm data” that has a similar goal, in relation to basic science, that we’d like to hook into.

MARC.— You want to use blockchain to create a parasitic economy that reappropriates speculative finance to generate profit from collaborative events. You are working within the immaterial level that the movement to occupy public spaces only gestured at, and uses the collaborative spirit common to any movement. Do you consider yourself to be “occupying” the abstract?

MANNING.— If we’re “occupying an abstraction,” we’re doing it in a way that is extraterritorial. All of this is a thought experiment that we want to help sow, but needs to be continued by others, and with others. It will be interesting if it manages to produce process seeds that get away from us and end up going beyond anything that we could have imagined. I’m not sure what Brian would say, but my feeling is that if we’re occupying anything, it’s the imagination. The postcapitalist imagination.

MASSUMI.— Another way of saying it is that we are talking about creating what’s often been called a temporary autonomous zone, but recognizing that we’re all complicit with capital, and not pretending we can just step outside that and go our merry way. If you do that, you only end up carrying unexamined presuppositions with you, and everything breaks down. We want to work from and with that complicity, using strategic duplicity. That doesn’t mean being deceptive. It means working in two registers at once.

We want to create a temporary autonomous zone (TAZ), following anarcho-communist logic, while at the same time being able to articulate it to the existing neoliberal economy, because like it or not, those are the conditions under which we live, and its grip is so tentacular, reaching not only all around us but inside of us, that you have to work hard and with great technique to start loosening the grip. You have to find ways of inhabiting the present, while setting off sparks of futurity that prefigure a postcapitalist world to come. So it’s an occupation in the sense that it’s a cohabitation. The TAZ isn’t a world apart. It’s a pore in the world as it is, in which something else can grow. It’s a relational space that you can enter without the conceit that you’re leaving the existing world. It starts by supplementing, rather than purporting to replace right away. Hopefully that supplementation grows and takes more and more of our cohabitation in, to the point that it can rival the dominant economy.

#### The alt fails without the Aff

Paul Mason 16, Visiting Professor at the University of Wolverhampton, BA in Politics from the University of Sheffield, Postgraduate Degree from the Second Viennese School at the University of Sheffield, PostCapitalism: A Guide to Our Future, Kindle Edition, p. 6-17

What started in 2008 as an economic crisis morphed into a social crisis, leading to mass unrest; and now, as revolutions turn into civil wars, creating military tension between nuclear superpowers, it has become a crisis of the global order.

There are, on the face of it, only two ways it can end. In the first scenario, the global elite clings on, imposing the cost of crisis on to workers, pensioners and the poor over the next ten or twenty years. The global order – as enforced by the IMF, World Bank and World Trade Organisation – survives, but in a weakened form. The cost of saving globalization is borne by the ordinary people of the developed world. But growth stagnates.

In the second scenario, the consensus breaks. Parties of the hard right and left come to power as ordinary people refuse to pay the price of austerity. Instead, states then try to impose the costs of the crisis on each other. Globalization falls apart, the global institutions become powerless and in the process the conflicts that have burned these past twenty years – drug wars, post-Soviet nationalism, jihadism, uncontrolled migration and resistance to it – light a fire at the centre of the system. In this scenario, lip-service to international law evaporates; torture, censorship, arbitrary detention and mass surveillance become the regular tools of statecraft. This is a variant of what happened in the 1930s and there is no guarantee it cannot happen again.

In both scenarios, the serious impacts of climate change, demographic ageing and population growth kick in around the year 2050. If we can’t create a sustainable global order and restore economic dynamism, the decades after 2050 will be chaos.

So I want to propose an alternative: first, we save globalization by ditching neoliberalism; then we save the planet – and rescue ourselves from turmoil and inequality – by moving beyond capitalism itself.

Ditching neoliberalism is the easy part. There’s a growing consensus among protest movements, radical economists and radical political parties in Europe as protest movements, radical economists and radical political parties in Europe as to how you do it: suppress high finance, reverse austerity, invest in green energy and promote high-waged work.

But then what?

As the Greek experience demonstrates, any government that defies austerity will instantly clash with the global institutions that protect the 1 per cent. After the radical left party Syriza won the election in January 2015, the European Central Bank, whose job was to promote the stability of Greek banks, pulled the plug on those banks, triggering a €20 billion run on deposits. That forced the left-wing government to choose between bankruptcy and submission. You will find no minutes, no voting records, no explanation for what the ECB did. It was left to the right-wing German newspaper Stern to explain: they had ‘smashed’ Greece.3 It was done, symbolically, to reinforce the central message of neoliberalism that there is no alternative; that all routes away from capitalism end in the kind of disaster that befell the Soviet Union; and that a revolt against capitalism is a revolt against a natural and timeless order.

The current crisis not only spells the end of the neoliberal model, it is a symptom of the longer-term mismatch between market systems and an economy based on information. The aim of this book is to explain why replacing capitalism is no longer a utopian dream, how the basic forms of a postcapitalist economy can be found within the current system, and how they could be expanded rapidly.

Neoliberalism is the doctrine of uncontrolled markets: it says that the best route to prosperity is individuals pursuing their own self-interest, and the market is the only way to express that self-interest. It says the state should be small (except for its riot squad and secret police); that financial speculation is good; that inequality is good; that the natural state of humankind is to be a bunch of ruthless individuals, competing with each other.

Its prestige rests on tangible achievements: in the past twenty-five years, neoliberalism has triggered the biggest surge in development the world has ever seen, and it unleashed an exponential improvement in core information technologies. But in the process, it has revived inequality to a state close to that of 100 years ago and has now triggered a survival-level event.

The civil war in Ukraine, which brought Russian special forces to the banks of the Dniestr; the triumph of ISIS in Syria and Iraq; the rise of fascist parties in the Dniestr; the triumph of ISIS in Syria and Iraq; the rise of fascist parties in Europe; the paralysis of NATO as its populations withhold consent for military intervention – these are not problems separate from the economic crisis. They are signs that the neoliberal order has failed.

Over the past two decades, millions of people have resisted neoliberalism but in general the resistance failed. Beyond all the tactical mistakes, and the repression, the reason is simple: free-market capitalism is a clear and powerful idea, while the forces opposing it looked like they were defending something old, worse and incoherent.

Among the 1 per cent, neoliberalism has the power of a religion: the more you practise it, the better you feel – and the richer you become. Even among the poor, once the system was in full swing, to act in any other way but according to neoliberal strictures became irrational: you borrow, you duck and dive around the edges of the tax system, you stick to the pointless rules imposed at work.

And for decades the opponents of capitalism have revelled in their own incoherence. From the anti-globalization movement of the 1990s through to Occupy and beyond, the movement for social justice has rejected the idea of a coherent programme in favour of ‘One No, Many Yes-es’. The incoherence is logical, if you think the only alternative is what the twentieth century left called ‘socialism’. Why fight for a big change if it’s only a regression – towards state control and economic nationalism, to economies that work only if everyone behaves the same way or submits to a brutal hierarchy? In turn, the absence of a clear alternative explains why most protest movements never win: in their hearts they don’t want to. There’s even a term for it in the protest movement: ‘refusal to win’.4

To replace neoliberalism we need something just as powerful and effective; not just a bright idea about how the world could work but a new, holistic model that can run itself and tangibly deliver a better outcome. It has to be based on micro-mechanisms, not diktats or policies; it has to work spontaneously. In this book, I make the case that there is a clear alternative, that it can be global, and that it can deliver a future substantially better than the one capitalism will be offering by the mid-twenty-first century.

It’s called postcapitalism.

Capitalism is more than just an economic structure or a set of laws and institutions. It is the whole system – social, economic, demographic, cultural, ideological – needed to make a developed society function through markets and private ownership. That includes companies, markets and states. But it also includes criminal gangs, secret power networks, miracle preachers in a Lagos slum, rogue analysts on Wall Street. Capitalism is the Primark factory that collapsed in Bangladesh and it is the rioting teenage girls at the opening of the Primark store in London, overexcited at the prospect of bargain clothes.

By studying capitalism as a whole system, we can identify a number of its fundamental features. Capitalism is an organism: it has a lifecycle – a beginning, a middle and an end. It is a complex system, operating beyond the control of individuals, governments and even superpowers. It creates outcomes that are often contrary to people’s intentions, even when they are acting rationally. Capitalism is also a learning organism: it adapts constantly, and not just in small increments. At major turning points, it morphs and mutates in response to danger, creating patterns and structures barely recognizable to the generation that came before. And its most basic survival instinct is to drive technological change. If we consider not just info-tech but food production, birth control or global health, the past twenty-five years have probably seen the greatest upsurge in human capability ever. But the technologies we’ve created are not compatible with capitalism – not in its present form and maybe not in any form. Once capitalism can no longer adapt to technological change, postcapitalism becomes necessary. When behaviours and organizations adapted to exploiting technological change appear spontaneously, postcapitalism becomes possible.

That, in short, is the argument of this book: that capitalism is a complex, adaptive system which has reached the limits of its capacity to adapt.

This, of course, stands miles apart from mainstream economics. In the boom years, economists started to believe the system that had emerged after 1989 was permanent – the perfect expression of human rationality, with all its problems solvable by politicians and central bankers tweaking control dials marked ‘fiscal and monetary policy’.

When they considered the possibility that the new technology and the old forms of society were mismatched, economists assumed society would simply remould itself around technology. Their optimism was justified because such adaptations have happened in the past. But today the adaptation process is adaptations have happened in the past. But today the adaptation process is stalled.

Information is different from every previous technology. As I will show, its spontaneous tendency is to dissolve markets, destroy ownership and break down the relationship between work and wages. And that is the deep background to the crisis we are living through.

If I am right we have to admit that for most of the past century the left has misunderstood what the end of capitalism would look like. The old left’s aim was the forced destruction of market mechanisms. The force would be applied by the working class, either at the ballot box or on the barricades. The lever would be the state. The opportunity would come through frequent episodes of economic collapse. Instead, over the past twenty-five years, it is the left’s project that has collapsed. The market destroyed the plan; individualism replaced collectivism and solidarity; the massively expanded workforce of the world looks like a ‘proletariat’, but no longer thinks or behaves purely as one.

If you lived through all this, and hated capitalism, it was traumatic. But in the process, technology has created a new route out, which the remnants of the old left – and all other forces influenced by it – have either to embrace or die.

Capitalism, it turns out, will not be abolished by forced-march techniques. It will be abolished by creating something more dynamic that exists, at first, almost unseen within the old system, but which breaks through, reshaping the economy around new values, behaviours and norms. As with feudalism 500 years ago, capitalism’s demise will be accelerated by external shocks and shaped by the emergence of a new kind of human being. And it has started.

Postcapitalism is possible because of three impacts of the new technology in the past twenty-five years.

First, information technology has reduced the need for work, blurred the edges between work and free time and loosened the relationship between work and wages.

Second, information goods are corroding the market’s ability to form prices correctly. That is because markets are based on scarcity while information is abundant. The system’s defence mechanism is to form monopolies on a scale not seen in the past 200 years – yet these cannot last.

Third, we’re seeing the spontaneous rise of collaborative production: goods, services and organizations are appearing that no longer respond to the dictates of services and organizations are appearing that no longer respond to the dictates of the market and the managerial hierarchy. The biggest information product in the world – Wikipedia – is made by 27,000 volunteers, for free, abolishing the encyclopaedia business and depriving the advertising industry of an estimated $3 billion a year in revenue.

Almost unnoticed, in the niches and hollows of the market system, whole swathes of economic life are beginning to move to a different rhythm. Parallel currencies, time banks, cooperatives and self-managed spaces have proliferated, barely noticed by the economics profession, and often as a direct result of the shattering of old structures after the 2008 crisis.

New forms of ownership, new forms of lending, new legal contracts: a whole business subculture has emerged over the past ten years, which the media has dubbed the ‘sharing economy’. Buzzterms such as the ‘commons’ and ‘peer- production’ are thrown around, but few have bothered to ask what this means for capitalism itself.

I believe it offers an escape route – but only if these micro-level projects are nurtured, promoted and protected by a massive change in what governments do. This must in turn be driven by a change in our thinking about technology, ownership and work itself. When we create the elements of the new system we should be able to say to ourselves and others: this is no longer my survival mechanism, my bolt-hole from the neoliberal world, this is a new way of living in the process of formation.

In the old socialist project, the state takes over the market, runs it in favour of the poor instead of the rich, then moves key areas of production out of the market and into a planned economy. The one time it was tried, in Russia after 1917, it didn’t work. Whether it could have worked is a good question, but a dead one.

Today the terrain of capitalism has changed: it is global, fragmentary, geared to small-scale choices, temporary work and multiple skill-sets. Consumption has become a form of self-expression – and millions of people have a stake in the finance system that they did not have before.

With the new terrain, the old path is lost. But a different path has opened up. Collaborative production, using network technology to produce goods and services that work only when they are free, or shared, defines the route beyond the market system. It will need the state to create the framework, and the postcapitalist sector might coexist with the market sector for decades. But it is postcapitalist sector might coexist with the market sector for decades. But it is happening.

Networks restore ‘granularity’ to the postcapitalist project; that is, they can be the basis of a non-market system that replicates itself, which does not need to be created afresh every morning on the computer screen of a commissar.

#### Organizing failure and bureaucracy make the alt unsustainable---but, blockchain unlocks it

Tom Cassauwers 20, Writer for Ozy, Freelance Journalist from Belgium, Currently Writes About Startups, Technology, Social Movements and Latin America, “Who Really Loves Blockchain? Socialists”, Ozy, 12/6/2020, https://www.ozy.com/the-new-and-the-next/who-really-loves-blockchain-socialists/397843/

WHY YOU SHOULD CARE

Cryptocurrencies have traditionally been driven by libertarians. Now socialists are embracing blockchain as a weapon against capitalist states.

Cryptocurrencies and blockchain have traditionally been the preserve of the libertarian right.

A growing number of socialists see blockchain as the weapon their political movement needs, from helping fund protest movements to avoiding sanctions and increasing government accountability.

To many millennials, Adrian’s sharp turn to the left is recognizable.

After graduating from college, he had student debt and a job he describes as shitty, in addition to working as an Uber driver. “I went deeper into left-wing theory during this period,” says Adrian (because Adrian doesn’t want his radical politics to interfere with his life, he asked that we not use his real name). “But I was also searching for ways to make rent. Which made me have a closer look at stocks and eventually cryptocurrencies.”

As Adrian got hooked on blockchain, a whole new world opened up. “It was a wormhole from there,” he says. “I realized we could automate away the capitalists.”

It’s an idea that a small but growing set of left-wingers are exploring. Cryptocurrencies like Bitcoin, blockchain and the underlying technology have traditionally been the preserve of the libertarian right. Many of the field’s leading figures are libertarians, and some of their economic beliefs are foundational for the community.

Socialists, though, are increasingly embracing the potential of blockchain to assist their political plans. This year Cryptocommunism, a book by French philosopher Mark Alizart, was translated into English. Yanis Varoufakis, the former finance minister of Greece and a left-wing icon, has repeatedly mused about the uses of Bitcoin for the left. The socialist government of Venezuelan President Nicolás Maduro started a botched cryptocurrency experiment in 2018 to evade U.S. sanctions. Adrian himself hosts a podcast about cryptocurrencies and has founded a Reddit community called r/CryptoLeftists.

“Leftists often see blockchain as a libertarian toy that’s only good for buying drugs, which I think is wrong,” says Matthew McKeever, executive associate editor of the academic journal Inquiry and a research assistant at the University of Hong Kong. McKeever doesn’t consider himself a socialist, but he has written about the relation between socialism and blockchain. “The technology has elements that deserve attention from the left,” he says.

WITH BLOCKCHAIN, YOU DON’T NEED TO DEPEND ON A CENTRALIZED AUTHORITY.

Broadly speaking, blockchain could serve socialists in two ways. The narrow option is to use blockchain technologies to better organize. A cryptocurrency might be used to allow money transfers to persecuted activists, similar to how Wikileaks received donations in bitcoin after its accounts were blocked for leaking classified information. Nigerian activists have used cryptocurrencies to raise funds for their recent protests against police brutality, after traditional banking channels were shut off. “For socialists, it could be good to organize without taking a detour through large capitalist companies, whose interests are anti-aligned with yours,” says McKeever.

But beyond that, blockchain might also be useful to build a socialist economy. Adrian mentions a hypothetical case in which the government might be able to distribute housing through blockchain and cryptocurrencies.

Capitalism, says Adrian, allows individuals to accumulate infinite amounts of capital, and in turn buy up houses as investments. To transition this to a system based on need, a token, or coin, which gives every citizen the right to a house, could be used. The community would then decide which categories of people are eligible for which houses. A single person, for example, might get a different token, and in turn access to a different selection of houses, than a couple with three children. In this way, blockchain would allow socialists to distribute goods and services without a market. “We need to distribute housing based on need, instead of through the market,” Adrian says.

The Venezuelan experiment with the petro, a cryptocurrency backed up by oil, is the odd one out. The attempt had more to do with evading U.S. sanctions than moving to socialism.

But even beyond Venezuela, traditional libertarians don’t agree with the cryptosocialists’ views. “Cryptocurrency technology is fundamentally libertarian,” says Diego Zuluaga, associate director of financial regulation studies at the libertarian think tank Cato Institute.

For him, libertarianism doesn’t just mean free markets. He argues that cryptocurrencies preserve the ability of individuals to do with their money as they please, instead of centralizing that power. And for Zuluaga, the plans of leftists like Adrian run counter to that fundamental libertarian belief about cryprocurrencies. “Most socialists like hierarchies,” he says. “They just want to replace private sector hierarchies with public sector ones.”

“They don’t know what they’re talking about,” responds Adrian, noting how capitalist economies are still highly centralized. Cryptosocialists argue that turning to blockchain could eliminate bureaucrats from the equation. “With blockchain, you don’t need to depend on a centralized authority,” Adrian says, returning to his housing example. “The alternative is for a socialist government to organize the housing supply, which creates technocratic dependencies.”

Blockchain would also be open source, allowing citizens to review the software underlying government decisions. In a sense, it would help avoid an age-old problem for socialism: that its utopian sentiments tend to get bogged down in stale bureaucracies. To back this up, Adrian references socialist philosopher Friedrich Engels: “He said that we need to transition the state from a government of people, to the administration of things.” Perhaps blockchain is the revolution that socialism needs.

### States CP---2AC

#### State control of blockchain will be preempted

Patricia Fry 18, Former Chair of the Uniform Electronic Transactions Act Drafting Committee, Former Professor of Law at the University of Missouri-Columbia School of Law, JD from the Southwestern University School of Law, MA from California State University, Northridge, et al., “Joint Statement in Response to State "Smart Contracts" Legislation”, 4/4/2018, https://esignrecords.org/wp-content/uploads/2018/04/Joint-Ltr-State-Smart-Contracts-Legislation.pdf

Cryptographic signatures fall squarely within the definition of "electronic signature" set forth in UETA and ESIGN. Thus, if blockchain technology or smart contract code is used to create or effect an electronic signature, electronic record, or electronic contract, UETA and ESIGN ensure it is valid. Therefore, legislation seeking to define blockchain technology or smart contracts or to ensure smart contracts are legally enforceable, while well-intentioned, is harmful for the following reasons:

1. Redundancy. Redundancy is confusing, unnecessary, and potentially harmful if courts determine the legislature intended a different effect.

2. Inconsistency. Bills introduced in California, New York, Illinois, Nebraska, and Tennessee this year contain definitions of blockchain and smart contract inconsistent with each other (in some cases) and the definition published by the Chamber of Digital Commerce. The potential for a network of conflicting state laws is obvious.

3. Federal Preemption. ESIGN provides that any state law giving special effect to a specific technology is preempted. Moreover, conflicting state laws provide additional incentive for Congress to preempt those laws to remove barriers to interstate commerce.

#### 3. PATCHWORK---state variation’s inevitable AND lacks legitimacy necessary for market certainty

Alan McQuinn 19, Senior Policy Analyst at the Information Technology and Innovation Foundation, B.S. in Public Relations and Political Communications from the University of Texas, Austin, and Daniel Castro, Vice President at the Information Technology and Innovation Foundation (ITIF) and Director of ITIF's Center for Data Innovation, M.S. in Information Security Technology and Management from Carnegie Mellon University, B.S. in Foreign Service from Georgetown University, “A Policymaker’s Guide to Blockchain”, Information Technology & Innovation Foundation, 4/30/2019, https://itif.org/publications/2019/04/30/policymakers-guide-blockchain

Antitrust

Competition is alive and well among various types of blockchain platforms. In the public blockchain space, platforms compete for nodes, users, and apps, while individual applications compete with one another for users, investors, and participants. Bitcoin has roughly 50 percent of market share for all cryptocurrencies, with Ethereum following at 10 percent and XRP at 9 percent.204 Private blockchains also compete to offer services to prospective clients. Moreover, blockchain-based business models are competing with traditional business models, especially as they reduce costs and eliminate intermediaries.205

However, blockchain-based applications are not immune to antitrust concerns, such as exclusive dealing, predatory pricing, and other exclusionary abuses.206 This is especially the case when a consortium of entities can choose to include or exclude other members from a blockchain. Standards setting can also elicit antitrust concerns. For example, established standards setting a consensus protocol that favors certain network members over others could be subject to review. Moreover, if nodes on a network gain over 50 percent of computer power in the network, they can steal from other users on the network and set anticompetitive transaction costs. This increase in concentration may one day lead to oversight, either by mining operations themselves or by government to protect against anticompetitive conduct.

General antitrust enforcement is primarily the domain of the U.S. Department of Justice (DOJ) and FTC. However, certain federal regulators and agencies have oversight regarding consolidation in particular sectors (e.g., the Federal Communication Commission oversees certain media consolidations). Sometimes these regulators work in partnership. For example, DOJ reviews mergers of banks with the assistance of the Federal Reserve.

PRINCIPLES TO ADVANCE BLOCKCHAIN

Given the potential of blockchain technology to improve the efficiency and effectiveness of certain processes, policy should tilt toward enabling organizations to experiment with it. The following are 10 principles policymakers should follow as they assess how and when to support and regulate blockchain applications.

1. Ensure Tech Neutrality

Policymakers should adopt technology-neutral rules that neither favor nor disadvantage any particular application or business model in order to create a level playing field for innovation.

Policymakers should strongly support efforts to increase digitization, but be neutral as to what technology is best suited for any particular application.

Policymakers adopting technologies should ensure they take a tech-neutral approach to different applications. Digitizing processes, for example, offers benefits irrespective of the technology being used. Instead, policymakers should look to the unique benefits of a technology and the particular challenges of a project when deciding what technology to adopt. Some projects will require traditional centralized approaches for efficiency, while others may be better suited for distributed, tamper-resistance blockchains. For example, a digitization project that requires many different entities to provide inputs, without any particular entity controlling those inputs, may call for a blockchain.

In addition, regulators should apply the same rules to different technologies used to offer similar products and services. Regulators do not necessarily need regulations simply because blockchain applications are different. When confronting a new technology or business model, regulators should first look to existing rules to see whether they apply to emerging applications, which would create a level playing field between the traditional and emerging technology or business model. Clearly, all technology applications are not the same. The concerns associated with money-laundering abuse from unregulated digital currencies may not be the same as from centralized-database-driven traditional banking. Wherever there are differences in technologies, policymakers should establish rules that recognize the risks that are distinct—or irrelevant—to particular applications.

Unfortunately, some regulators have failed to act in a tech-neutral way when it comes to blockchain-based applications. For example, virtual-currency businesses often function similarly to mobile-payment businesses and international-transfer services. However, when New York drafted its Virtual Currency License, called BitLicense, it subjected virtual-currency businesses to different requirements than similarly situated money senders, such as by requiring more arduous anti-money laundering reporting requirements.207 Policymakers should avoid arbitrary distinctions such as this.

2. Actively Support Blockchain Adoption and Deployment

Policymakers should actively support government adoption and deployment of blockchain, primarily in two ways.

One way is by adopting blockchain applications for their own services. By becoming early adopters, national, subnational, and local governments can promote broader adoption of blockchain. This would also help reduce risks associated with blockchain applications and encourage others to adopt and invest in the technology. These efforts should also include adopting solutions from blockchain companies to improve government operational-reporting, transactions, asset-tracking, supply-chain, management, procurement, and budgetary decisions. For example, the U.S. Department of Health and Human Services recently deployed a blockchain tool to help it buy services and modernize its cloud capabilities, saving money in the process.208

To accomplish this, governments may need to reform their procurement processes. Indeed, the U.S. federal government has outdated and burdensome rules and practices governing how federal agencies may purchase technologies. For example, there are a few methods by which the government can make procurements, including contracts—such as the General Services Administration (GSA) Multiple Award Schedule contracts—and open-market acquisitions.209 Using these contracts, federal agencies establish Blanket Purchase Agreements (BPAs) with contractors to fill ongoing needs for supplies and services. Unless federal IT vendors are able to establish a blockchain solution on an existing BPA, federal procurers are restricted from buying it—except through open-market acquisition.210 Open-market acquisition allows agencies to purchase commercial products and services not already under any federal contract. However, open-market acquisition is a slower process that is subject to additional determinations—such as whether a purchase is “fair and reasonable”—before agencies can purchase new goods or services.211 Furthermore, because it can take six months to a year to update BPAs, by the time the procurement process has resulted in the purchase of a particular product, the next generation of that product has typically already hit the market. This is especially true with rapidly developing technologies, such as blockchain. To reform this process, GSA should establish a blockchain service acquisition unit tasked with facilitating agency procurement of blockchain technology. By developing a core team of government procurement experts for blockchain at GSA, who can advise and facilitate blockchain-related procurement at other agencies, the federal government can ensure it effectively uses blockchain and avoids wasting money on projects that are not viable candidates for the technology.

Second, agencies should reform their internal processes to be able to gather information, better educate themselves, and work directly with companies offering nascent products or services. Many companies are starting to use technologies such as blockchain for regulatory compliance, often referred to as regtech.212 These solutions not only allow businesses to better comply with regulations, they also improve the quality and efficiency of supervision by giving regulators access to modern reporting and analytics infrastructure they can use to find and correct misuse. For example, CFTC has recommended adopting blockchain technology for swaps markets, hoping it will allow for near-real-time oversight.213

In many cases, policymakers will need to authorize agencies to participate in these projects, enabling them to coordinate with companies to better understand them. For example, under its statute, the CFTC is prevented from participating in innovative fintech projects without first having to pay for them.214 As a result, CFTC needs a legal method of either quickly sharing information between the agency, the businesses introducing new technology, and business models or participating in proof-of-concept blockchain applications. To address this issue, Rep. Scott Austin (R-GA) introduced the CFTC Research and Development Modernization Act in 2018 to give CFTC additional flexibility and authority.215 When coordinating with firms, regulators should ensure these processes do not favor individual firms or types of technology, cause substantial harm to consumers, or operate in a way that increases systemic risk.

3. Support Blockchain Research and Development

Government investment in research and development (R&D) has played a key role in developing various other technologies, such as smartphones and the Internet.216 Because early-phase technology research often proves concepts rather than creates commercially viable products, and can exhibit significant spillovers, firms are likely to underinvest. Therefore, national governments should fund R&D for blockchain applications, focusing on underlying technological challenges, such as creating better and more efficient consensus mechanisms, identifying security threats, improving cryptography, scalability, editability, and more. R&D can also help advance related technologies that could improve blockchain applications, such as quantum computing. Moreover, certain problems, such as intellectual property control management over public blockchains, will require additional research and cooperation from the public and private sectors to ensure enforcement.

4. Promote Legal Certainty for Blockchain Applications

For everyday users to place trust in blockchains, they must be confident the information can be used in legal disputes. As this report has shown, blockchains offer the potential to record, secure, and share a ledger of transactions in perpetuity. As a result, entities in both the public and private sectors have embraced the technology. However, whether blockchain transactions and user signatures on blockchain-based accounts are legally binding is not settled law.

In the late-1990s and early 2000s, users were rapidly starting to use the Internet for commerce. But while U.S. laws gave legal legitimacy to “wet” signatures, they did not do the same for digital ones. To remedy this, U.S. states adopted the Uniform Electronic Transactions Act (UETA) in 1999, which set requirements for electronic signatures to be valid.217 UETA allowed electronic records or signatures to satisfy states’ signature requirements as long as all parties to the transaction agreed to proceed electronically. However, only 47 states adopted UETA. To create a universal framework in the United States, in 2000, Congress passed the Electronic Signatures in Global and National Commerce (ESIGN) Act, which enforced provisions of the UETA in all states.218 The ESIGN Act effectively preempts states from creating additional e-signature laws unless they follow the original version of UETA, or specify “alternative procedures or requirements that are consistent with ESIGN, do not give greater legal status to a specific technology within the parameters of ESIGN, and reference ESIGN if enacted after its adoption.”219

However, the legal status of electronic signatures on the blockchain was not laid out in ESIGN or UETA. To give this new technology legal certainty, a few states have passed laws legitimizing blockchain-secured records and signatures under their version of UETA.220 For example, Delaware and Arizona have passed these laws.221 However, ESIGN may preempt states from giving blockchain technology legal legitimacy.222

Just as when signatures went from wet to digital, there is currently a need for standardized law that gives all forms of signatures legal legitimacy. In the short term, Congress should pass a resolution affirming its intention with ESIGN was not to preempt states from giving legal certainty to new technologies. However, Congress should go further and create an amendment to ESIGN that establishes all blockchain-secured records and smart contracts as legal e-signatures.

5. Rules for Blockchain Applications Should Ultimately Be National, Not Subnational

One of the largest challenges of regulating Internet-based business models is they are often subject to the jurisdiction of subnational governments, such as states, that create their own rules and regulations. When compounded, a company offering blockchain-based solutions across the United States could face rules from each state and territory where it operates, not including federal requirements. This system creates unnecessary and unreasonable compliance costs on businesses and threatens the viability of a national market. This issue is especially problematic for blockchain-based payment companies, which must comply with robust state-based compliance regimes.223

#### EXPERTISE---only the FTC can navigate the digital economy

David A. Hyman 19, Professor at Georgetown University Law Center and Former Special Counsel to the Federal Trade Commission, and William E. Kovacic, Global Competition Professor of Law and Policy at the George Washington University Law School, Former General Counsel at the FTC, “Implementing Privacy Policy: Who Should Do What?”, Fordham Intellectual Property, Media, and Entertainment Law Journal, 29 Fordham Intell. Prop. Media & Ent. L.J. 1117, Lexis

The case for making an enhanced FTC the national privacy regulator is straightforward. Of all U.S. privacy implementation institutions, the FTC has unequaled capacity in the form of expert case handling and policy teams and physical resources (including the development, over the past decade, of an internet laboratory to do high-quality forensic work, and the hiring of technology experts to assist in that effort). The agency's capacity also is the product of extensive experience in applying its UDAP authority and enforcing statutes such as the FCRA and COPPA. The FTC has a broad portfolio of policy instruments (litigation, rulemaking, consumer and business education, data collection, the preparation of reports, the convening of conferences), and it has demonstrated its ability to use all of them to good effect in the privacy domain. The FTC's stature as an independent agency gives it additional credibility in the eyes of foreign officials, who generally distrust the vesting of privacy powers in an executive department.

Within an enhanced FTC, privacy policy implementation also would be informed by the Commission's larger experience with consumer protection. The FTC's privacy unit is one part of its Bureau of Consumer Protection, rather than being a self-contained [\*1143] bureau. This reflected the institution's reasonable view that the effort to safeguard consumer interests in "privacy" was one dimension of "consumer protection," rather than a wholly distinct policy realm. Our impression is that many matters that involve privacy issues also raise problems that fit within other areas of the FTC's consumer protection program. The analysis of the "privacy" issue often benefits from perspectives developed in the course of applying the agency's deception and unfairness authority in other cases. The intertwining of privacy issues with other consumer protection concerns in many scenarios has important implications for how the mandate of a privacy agency should be defined. In whatever setting one ultimately might place a "privacy" mandate, we would expect that the host agency would have a mandate that incorporates powers that traditionally have been associated with the FTC's broader consumer protection program. 83

The FTC's expertise in antitrust should also help it develop and enforce privacy policy. Enforcing antitrust law has given the FTC ongoing involvement in multiple high-tech markets--as well as an understanding of how competition can motivate companies to offer better privacy protections. The FTC's work in both consumer protection and antitrust draws upon a Bureau of Economics with over 80 PhDs in economics. 84 The Bureau of Economics has developed considerable skill in sub-disciplines (including behavioral economics) with special application to privacy issues.

### Regulation CP---2AC

#### Ex ante regulations are too rigid and confrontational---antitrust is the sweet spot

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. 240-241

3.2 Law + Code

3.2.1 Why together?

We are facing a conundrum. On the one hand, blockchain architecture requires us to find ways to prohibit illegal behaviors (and only those). On the other hand, confrontational law may hamper the technology and therefore reduce the common good or stay ineffective. It is crucial that we find a way around this conundrum. Blockchain code reveals, probably more than ever, the need for collaboration between law and technology: between policymakers, regulators and blockchain communities. This may spark a pivotal moment in legal history, forcing the creation of a new paradigm that leads to the emergence of hitherto unexplored synergies.29

If they work together, these two communities can put in place mechanisms to stop and punish anticompetitive practices once committed by creating a way for legal enforcement instead of trying to prevent all illegal practices from happening in the first place.30 That requires us to find a way for blockchain communities, alongside the regulator, to take practical actions when necessary and give them incentives to do so.

The code that underlies blockchain ecosystems is an ideal candidate to achieve this aim. Code is the language of technology and the principal determinant of behavior within a digital ecosystem. The maxim “code is law” describes that reality.31 As I have explained, blockchain’s architecture creates trust between participants. It is the same architecture that can build “too much trust,” leading to illegal practices because it creates (a sentiment of) impunity from the law. The occurrence of these practices therefore implies that one must adapt the architecture. If policymakers and regulators want the help of blockchain communities, they must translate the law into code so they can implement it and monitor its application.

This is the “law is code” ex-post approach I am arguing for,32 which I distinguish from other “law is code” ex-ante solutions that lead to the prohibition of practices before they even occur or automatic enforcement by code.33 In practice, ex-ante solutions suffer from the rigidity of code language and, above all, from our cognitive and imaginative limits.34 [FOOTNOTE] 34 If only because unexpected elements cannot be computed in advance, see Nassim Nicholas Taleb, The Black Swan: The Impact of the Highly Improbable (Penguin Books, 2010): 1-10 (explaining that inductive reasoning does not allow us to tackle never-before-seen events - the “Black Swans”). [END FOOTNOTE] Instead, the “law is code” ex-post approach I am offering relies on, and allows, other constraints (law, market, norms) to play a part in deterring most illegal practices; and, when implemented, creates a gateway for legal enforcement.

#### Perm---do the CP. It’s an example of the plan

Christopher L Sagers 15, James A. Thomas Distinguished Professor of Law and Faculty Director of the Cleveland-Marshall Solo Practice Incubator, Handbook on the Scope of Antitrust, “Introduction”, Chapter 1, p. 9

B. Sources of the Scope of Antitrust Law

The scope of federal antitrust law is governed by three separate authorities: (1) the U.S. Constitution, (2) the language of the antitrust statutes themselves, and (3) the language of other federal statutes and regulations.

#### Regs destroys clarity and gets circumvented

Steven Semeraro 2, Associate Dean & Associate Professor of Law at the Thomas Jefferson School of Law, “Regulating Information Platforms: The Convergence to Antitrust”, Telecommunications & High Technology Law, Volume 1, p. 178-180

IV. INDUSTRY-SPECIFIC REGULATION

Industry-specific regulation is believed to be needed where cooperation among competitors is necessary in order to maximize consumer welfare and where the public interest demands consideration of goals other than short-run consumer welfare. Antitrust is generally thought to be incapable of achieving these results because it rarely imposes duties to cooperate.121 As explained in Section I, however, antitrust has proven quite adept at requiring cooperation when it is really essential.122 And Sections II and III explained how antitrust may incorporate long-run consumer welfare and free speech values. There is thus no inherent need for specifically tailored legislative pronouncements when the general body of antitrust law is seen as flexible enough to reach all threats to consumer welfare.

Nevertheless, industry-specific consumer-welfare regulation arguably could provide substantial benefits by clearly identifying ex ante the rights and obligations of the competitors in a way that the general antitrust laws cannot. But that theoretical benefit is unlikely to be realized. Congress has demonstrated a singular inability, or at least an unwillingness, to draft regulatory legislation that is clear enough to obtain this benefit. As Justice Scalia wrote in his opinion for the Court in Iowa Utilities:

It would be a gross understatement to say that the 1996 [Telecommunications] Act is not a model of clarity. It is in many important respects a model of ambiguity or indeed even self contradiction. That is most unfortunate for a piece of legislation that profoundly affects a crucial segment of the economy worth tens of billions of dollars.123

In the absence of industry-specific regulation, litigation would often be necessary to resolve particular disputes. Given the inherent uncertainties in the antitrust laws, the notion that private parties could often settle differences in the shadow of those laws is unlikely.124 But industry specific regulation may be no better. The 1996 Telecommunications Act produced an explosion of litigation that remains unresolved five years later.125

Even when industry-specific regulation is interpreted in a way that provides clear rules to govern competitive behavior in information platform markets, the antitrust laws may remain a substantively better regulatory device. By their nature, industry- specific rules intended to enhance consumer welfare would necessarily require both (a) costly conduct to conform to the rules that in some situations would have no measurable consumer welfare benefit, and (b) permit some conduct that reduced consumer welfare but did not violate an ex ante rule.126 The problem would likely worsen over time as firms learned to walk the line along the rule, figuring out ways to comply with the letter of the law without providing the intended consumer welfare benefits. 127 For example, firms may learn the maximum permissible delays in the implementation of a rule-required behavior. All this is not to say that clear rules are never useful. But the resistance to using clear rules in antitrust doctrine generally should lead us to think twice before assuming that industry-specific legislation is a superior alternative to antitrust as a regulator of competition among information platforms.

### 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.

### FTC Trade-Off DA---2AC

#### It also improves overall resource efficiency and investigation accuracy

Almudena Arcelus 21, Principal at Analysis Group, Mihran Yenikomshian, Vice President at Analysis Group, and Noemi Nocera, Associate at Analysis Group, “Mitigating Antitrust Concerns When Competitors Share Data Using Blockchain Technology”, Harvard Journal of Law and Digital Technology, Harv. J.L. & Tech. Dig. (2021), Spring 2021, Lexis

C. Transparency for regulators

Implementing transparency in the network design can improve regulators' ability to investigate claims of antitrust violations. First, blockchain networks could be designed to provide antitrust investigators with a clear audit trail of the life cycle of an asset as it moves through a firm's supply chain, providing critical information to investigators as they assess when and how a firm's products transformed from raw materials to a finished good. Second, networks can be designed to provide investigators with more accurate, reliable, and comprehensive transaction data across an entire firm, rather than the piecemeal and inconsistent data that regulators often receive. Last, we could imagine the development of a blockchain, potentially accessible only by select parties or regulators, that contains industry-wide transaction data, which could provide an unmatched tool for investigators. Furthermore, the standardized data format in a blockchain may lead to faster resolution of potential antitrust investigations.

Whether or not these particular strategies would be effective in a real-world setting will depend on the industry or business context, the design of the blockchain network at issue, and the effectiveness of governance and regulatory oversight.

V. CONCLUSION

Because of its potential to change the way many governments' and firms' services currently operate, blockchain technology has attracted extensive press coverage. Although antitrust concerns exist in relation to blockchain adoption and data sharing between competitors (including access to information, collusion, abuse of dominance, and enforcement), blockchain serves mainly as a data management tool. How it affects competition will depend on network design and regulatory oversight, among other things. When examining antitrust concerns, industry observers as well as regulators should assess blockchain technology according to its specific implementation and its role in the wider framework within which it is used.

#### It makes all antitrust enforcement far more taxing AND forces an agency ramp up

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. 179-180

The second element concerns the technical difficulties created by blockchain, as it will complexify the work of antitrust agencies. First, blockchain protects users’ identities. That is all the more so with public blockchains, where there is no need for the creator of a blockchain to approve users. Second, the transactions recorded on the blockchain are encoded and cannot be decrypted by anyone other than the parties to a transaction. This encryption also protects colluders by preventing agencies from tracing the history of their collusion. Third, even if users’ identity and purpose of their transactions were known, the deletion of the data contained therein by agencies would remain quite challenging (to say the least).73 In this respect, perhaps the exit of companies with the automatic destruction of information by smart contracts would be preferable to a leniency application with no subsequent possibility of eliminating the collusive agreement, or at least, the information illegally published.

The third element is linked to the fact that, besides its technical characteristics, blockchain enables colluders to manage the risk of detection. In turn, this should reduce the number of leniency applications. Most of these procedures are indeed started by colluders who fear being discovered. Technology helps in that regard. This is all the more true with private blockchains, as they can be set up so that only specific users can access the entire blockchain. This will limit their ability to hand over incriminating information to antitrust agencies. As a result, when choosing between leniency and an exit through smart con- tract,74 there is every reason to believe that blockchain would, at least partially, overshadow leniency applications.

How worrying is all this? At first sight, the expected decrease in the number of leniency applications may seem problematic, as antitrust agencies rely heavily on them to detect collusive agreements.75 According to the Organisation for Economic Co-operation and Development (OECD), the per- centage of cartel cases detected through leniency applications is reported in the survey to range between 45 and 55 percent for countries such as Canada, Chile, Germany, Korea and New Zealand, and over 85 percent for the European Union.76 In the United States, more than 90 percent of the penalties imposed by the DOJ in recent years are linked to investigations assisted by leniency applicants.77 This report shows a reactive policy by antitrust agencies. It also signals to companies that a well-designed collusive agreement that frames and rectifies disagreements has a good chance of (extended) survival.78 By undermining leniency programs’ effectiveness, blockchain will force competition agencies to become proactive again, failing which companies will have a growing sense of impunity from antitrust and competition law. Only a strengthening of proactive detection will increase the risk of punishment and force companies to seek leniency again.79

#### That saves resources through deterrence

Rebecca Slaughter 20, JD from Yale Law School, BA in Anthropology from Yale University, “Antitrust at a Precipice,” GRC, 11/17/2020, https://tinyurl.com/yckdf62n

On top of that. I think the FTC’s win rate in court is a result of jurisprudence that is so permissive that it incentivizes companies to take a chance by proposing anticompetitive mergers or engaging in anticompetitive conduct. We are forced to file too many cases against mergers and conduct that should never have gotten out of the boardroom because firms are willing to take a chance at engaging in anticompetitive or monopolistic conduct or proposing mergers that are so clearly anticompetitive.

We spend far too many of our enforcement dollars on mergers that are clearly illegal. For example, this past summer, our staff litigated and won a merger challenge in a clear merger-to-monopoly of coal producers in the Southern Powder River Basin.15 Earlier this year, the FTC challenged the acquisition by Illumina. a monopolist, of PacBio. one of the only other firms capable of competing to make next-generation DNA sequencing systems.16 We also had to litigate all the way through trial and appeal a clear merger to monopoly of two healthcare providers in North Dakota.17 These mergers are only a few of the many data points that suggest a breakdown in the deterrent effect of antitrust enforcement.

Firms may also calculate that they have little to lose by engaging in anticompetitive conduct. These cases are critical, but they tend to be fewer and farther between, more time-consuming, and very fact-specific: sporadic enforcement may limit the deterrent effect. The one exception to this may be the Commission's decades of effort devoted to stopping anticompetitive pay-for-delay settlement agreements.18 But, even in that area, it took a very long time get from the early challenges to a resolution. Knowing that, some firms may still determine it is worth the risk.

Let me be clear: I am extraordinarily proud of the work the FTC has done to bring a record-breaking number of cases this past year. Our staff has been working non-stop, night and day, throughout the pandemic, conducting investigations and litigating both merger and conduct cases. I cannot give them enough credit for the way they have adapted to the circumstances and continued to focus on the work in front of them, even as many of them are juggling family and other challenges at the same time.

It is up the leadership of the agency to push forward and challenge underlying assumptions. I also think that where we are today, with this breakdown in deterrence, is the result of 40 years of courts' narrowing case law and periods of time where there the antitrust agencies intentionally took a hands-off approach to market concentration and market power.

# 1AR

### Capitalism K---AT: Blockchain Bad---Environment

#### It’s comparatively better than fiat currency AND will drive global sustainability

Brian Armstrong 21, Master’s Degree in Computer Science from Rice University, et al., “7 Biggest Bitcoin Myths”, Coinbase, https://www.coinbase.com/learn/crypto-basics/7-biggest-bitcoin-myths

Myth #7: Bitcoin is bad for the environment

Bitcoin mining is an energy-intensive process. But determining the environmental impact is hard. For one thing, all aspects of the digital economy require energy. Consider the entire global banking system, and all of the energy required to process bank transactions and power office buildings, ATMs, local branches, and much more.

The real story:

* Recent research by New York-based fund Ark Investment Management concludes that “Bitcoin is much more efficient than traditional banking and gold mining on a global scale.”
* A significant portion of Bitcoin mining is powered by renewable-energy sources (including wind, hydro, and solar). The actual number ranges from 20 percent to more than 70 percent, according to Cambridge Bitcoin Electricity Consumption Index.
* The Cambridge researchers concluded: “Bitcoin’s environmental footprint currently remains marginal at best.”
* An argument can even be made that the economic incentives inherent to Bitcoin mining are helping drive sustainable energy innovation, as miners constantly seek to increase profits by lowering their electricity costs — in a world where renewable energy is fast becoming the cheapest option.

### Capitalism K---Sustainability---1AR

#### Blockchain creates sustainability AND solves their impact

Michael Macaulay 21, Full-Stack Ethereum Developer, Software Engineer at LiveArt.io, BA in Digital Communication from Carson Newman University, “The Socialist Case for Cryptocurrency”, Medium, 9/2/2021, https://medium.com/geekculture/the-socialist-case-for-cryptocurrency-f162b8c1508

Socialists propose different paths forward to fix the many problems we face. However, they tend to ignore Cryptocurrency as an option.

Cryptocurrency hardly fixes every problem in the modern world. Far from it. But it can address many grievances that socialists have in the modern west.

Socialism is a loaded term. So let’s define it before we get into it. Just so we’re on the same page.

Socialism is the political idea of social ownership of the means of production. The means of production being businesses and property.

Basically, the people who work the businesses should also be the owners.

Socialism often gets confused with communism. Communism advocates for state ownership of the means of production.

When people criticize socialism for “not working,” they are really criticizing communism. Many socialist policies in Scandinavia, Europe, and even the US to an extent have produced good outcomes.

For example, Universal public education and the 40 hour work week are socialist policies.

Hopefully we’re on the same page now. And we can explore how cryptocurrency can promote socialist ideals without state intervention.

Universal Access to Finance

Access to basic financial services is a must. If you don’t have a bank account, you can’t start a business or safely save your own money.

There are billions of people across the world who don’t have any chance in the free market because they don’t have access to financial services.

As socialists would point out, because it’s not profitable to provide those services.

Cryptocurrency is easy to access as long as you have an Internet connection.

In theory, you could be homeless living in Sub-Saharan Africa. And if you have a laptop, you can create an Ethereum wallet and start earning cryptocurrency.

And if you luck out, you could end up becoming very wealthy in the process.

The important distinction is that cryptocurrency provides you the opportunity in the first place. The bank won’t even let you try.

Metamask is never going to do a background check on you. They don’t care if you are living in extreme poverty.

Anti-Inflation

Inflation is the big problem with a government backed currency. They can’t stop printing it. this is how most people get their start in cryptocurrency to begin with.

Inflation disproportionately hurts the lower classes. Their survival is dependent on their wages. And inflation slowly makes those wages worth less and less.

You can’t artificially create more Bitcoin or Ethereum.

Your crypto might be vulnerable to price fluctuations, but that can play in your favor. A smart trader can buy low and sell high. But inflation will always hurt you.

Inflation hurts rich people too. Don’t get me wrong. Which is why most of the new printed money goes directly into their businesses.

Rigged free market

It’s no secret that most of the printed money goes directly into businesses. Drives up stock prices. Makes the business owners wealthier.

They claim it’s to “stimulate the economy.” But most people have figured out that it only stimulates their economy. Not ours.

This allows big business to maintain monopolistic control of the free market. Which makes competing with them all the more difficult.

A lobbyist has a better ROI than innovation.

Cryptocurrency is unique because it isn’t vulnerable to that kind of regulation. The code that powers bitcoin can’t be turned off. Or edited by the government.

Anti-monopoly

Look, at the end of the day, cryptocurrency is open source software. That means it’s very hard to monopolize it.

Microsoft has a monopoly with Windows because the code that makes it run is closed source. You’re not allowed to look at it.

If a cryptocurrency project had some kind of flaw, but was otherwise a great project, it can easily be fixed.

Developers can create their own version of the code, fix the problem, and release it as a new, separate project.

So, let’s say there’s a cryptocurrency project that lets you trade rare crypto coins. But, the creator forces you to pay a 50% fee.

That would suck. Other developers would be able to fork the code. Remove the fee. And let everyone use it.

Cryptocurrency Connect Workers to the Business

The traditional economy looks something like this. A wealthy person starts a brick and mortar business. Hires locals to come in and work it. He pays the employees a set wage and the business owner collects any of the upside.

The Internet disrupted this to an extent. Sites like YouTube, Fiverr, Uber, etc.

Now, the workers simply use these websites as a platform to find work. Whether they’re content creators or freelancers.

But there are a few big problems. The most important being the platform itself. It has complete control over these workers.

They can arbitrarily delete your account without warning, and take a large percentage of any money you make.

For example, YouTube takes a whopping 45% of all your revenue.

That’s where cryptocurrency and blockchains come in.

As Vitalik Buterin put it, “Whereas most technologies tend to automate workers on the periphery doing menial tasks,” Buterin says, “blockchains automate away the center. Instead of putting the taxi driver out of a job, blockchain puts Uber out of a job and lets the taxi drivers work with the customer directly.”

The platform itself will be autonomous code. Code that cannot be edited or manipulated.

The best example right now is Uniswap. It’s a decentralized cryptocurrency exchange.

There is no central authority controlling everything. There are only traders and liquidity providers. That’s it. No middlemen. No rule makers. No bullshit.

As tech continues to get better, this will be the norm for large platforms.

Every single giant tech company that controls a massive platform of workers and creators will be replaced by a Decentralized cryptocurrency competitor.

This is going to be a revolution for workers. They’ll be able to build up their skills. Sell those skills on the decentralized web. Get paid in crypto. And that’s it.

And what’s even more exciting is that every platform will use a native token. Uniswap issues Uniswap tokens that act as governance tokens.

Who gets those tokens? The users! The people who make the platform run to begin with.

This is going to do more to democratize the workplace than any other socialist policy in history.

Final Thoughts

Cryptocurrency is popular with the political right. You can’t ignore the anti-government freedom crowd.

But cryptocurrency addresses loads of socialist ideals. And what’s better — it will be decentralized socialism. No governments or unions required.

Cryptocurrency is building a utopian future. Constructed with code and powered by computers. Where workers will own their own product without a profiteering middleman reaching into their pockets.

The future crypto-powered world is going to be a utopia for everyone. Workers included.

#### The problem is centralized governance and control of the monetary system, not capitalism. The plan reforms the economy to make it sustainable---the alt ends in catastrophic failure and massive violence.

Sebastian Bunney 21, MBA from Curtis University, Master of Commercial and Resources Law from the University of Western Australia, Contributor at Bitcoin Magazine, “Bitcoin and The Myth that is Capitalism”, Bitcoin Magazine, 9/17/2021, <https://bitcoinmagazine.com/culture/bitcoin-and-the-myth-that-is-capitalism> [language modified]

From the outset, one could easily conclude that capitalism is incredibly flawed in relation to communism, socialism and democracy as it appears to be focused on private enterprise and profit. On the contrary, communism, socialism and democracy seemingly value the people, liberation and equality. However, if we remove democracy from the equation and take what we have learned from history, we realize that the communist and socialist facade of liberation, equality and a focus on the people could not be farther from the truth. Here are a few historical examples:6

- Mao Zedong, China, 1943–1976 (Socialism): 70,000,000 died by mass murder and government policies (largest death count in history).

- Joseph Stalin, Soviet Union, 1922–1952 (Communism): 28,000,000 died by war genocide and famine (second largest death count in history).

- Adolf Hitler, Germany, 1933–1945 (Socialism): 12,000,000 died by war and genocide (third largest death count in history).

- Kim Jong-il, North Korea, 1993–2011 (Socialism): 2,500,000–3,500,000 (10–19% of the population) died during 1990s famine in part caused by government policies.7

- Pol Pot, Cambodia, 1975–1979 (Communism): 1,700,000–1,900,000 (21–24% of the population) died by government policies and famine.8

- Provisional Military Administrative Council (Communism), Ethiopia, 1974–1987: 1,200,000 died from famine in part caused by government policies.9

It quickly becomes apparent that many of the major genocides, famines and deaths caused by war were all under communist and socialist regimes. Are these regimes really creating a happier and high quality of life economy?

Let’s look at the chart below (sorted by the happiness index, with the happiest nations at the top). There is clearly a correlation between democracies, happiness, freedom, quality of life and currency purchasing power.

What is it about communism and socialism that leads to such atrocities, and why do they tend to fail?

Supply and demand: One of the major pitfalls of communism and socialism is that creating a centrally planned economy with the goal of equality, influences the labor force and destroys the natural forces of competition. Inadvertently, this distorts supply and demand. What is forgotten is that through supply and demand, we gain valuable economic insight that allows our economy to error correct, grow and innovate.

Inadequate knowledge and a concentration of power: Within communist and socialist regimes, society tends to rely on the knowledge and experience of an individual or select group of individuals. The central planners believe they understand what is needed to move a country forward. The fallacy in this belief is that humans have many natural biases, such as the need to maintain and secure power, wealth and safety for themselves, their offspring and those closest to them. The result of these biases is that both communism and socialism are prone to authoritarian and totalitarian rule. Once the central planners start to accrue power, they don't tend to let it go easily. Ultimately, this has led to some of the worst inequality, human rights abuses and social unrest in history. Instead of centralizing power, we should be taking advantage of the population's collective knowledge.

Suppression of innovation: Communism is built on the belief that we should have a classless society. Although this may appear to be a step forward, diversity among our population prohibits this from playing out as intended. Our society is composed of family-oriented, entrepreneurial, sport-focused and business-minded individuals and we must allow them to explore interests that resonate with them. People are motivated by the belief that they will benefit from the fruits of their labor and this is what creates the perfect breeding ground for creativity and innovation to flourish. When we centrally plan, remove private property rights, and dictate individuals' careers based on their skills and knowledge, we disincentivize individuals to think outside the box in an entrepreneurial and innovative manner.

Furthermore, innovation doesn't tend to come from large centralized powers but rather it emerges on the fringe. It is through the free flow of information that creativity and innovation thrive. When we restrict competition and silence people, we end up severely inhibiting innovation and creativity, as this prevents factual, non-mainstream data from percolating to those who can use this information meaningfully. Humanity should promote creativity and innovation as this is how we will solve poverty, climate change, pollution and more.

For these reasons, in the long run, communist and socialist regimes have tended to break down and have led to some of humanity’s worst atrocities. However, no economic system is entirely flawed; otherwise, we wouldn’t see communism and socialism initially implemented. On paper, communism and socialism have many benefits, as both aim to promote security and equality. Socialism, in particular, has given the world universal healthcare, education and welfare. While communism, when effectively implemented, assures that you will have employment when you finish school and eliminates food insecurity. Every economic system has its pros and cons. Thus, we must implement what works, while admitting to ourselves what doesn’t and adapting accordingly.

WHERE DO DEMOCRACY AND CAPITALISM FALL IN ALL OF THIS?

It can be easy to pin capitalism as the cause for the issues we face due to the fact that all of these issues revolve around the monetary system, and is it not money that drives wealth inequality and capitalist monopolies? However, if we objectively dig a little deeper, capitalism has unfairly been the scapegoat for everything the government doesn’t want to be held accountable for. The reality is that the victims of so-called capitalism are, in fact, the people who have lost capitalism due to increasing governance, regulation and control. In other words, the more control government is given, the more these issues are exacerbated.

The Misdirection Narrative

The notion that our societal and economic issues stem from the government may initially be difficult to believe. The mainstream narrative consistently frames capitalism for the corruption, greed among private corporations, and detrimental monopolies within our economy. However, this is all just a narrative pushed as a form of misdirection. This narrative gives the general population something to blame for the issues we are facing.

Why is this anti-capitalist narrative pushed? The government doesn’t like to relinquish control. You don’t have to spend much time looking through history books to conclude that governments have a lust for control and rarely, if ever, give it up. Therefore, it is not in the government’s best interest to attribute the issues within our economy to its own decision-making. It would only further destroy its population’s faith in government. To better understand this, let’s delve into the various issues we are facing.

Rising House Prices And Cost Of Living

Many tend to attribute increased cost of living to the big corporations raising prices and the escalating house prices to the benefactors of capitalism buying up property. However, the reality is that these are issues with our monetary system. The problem is that the government controls the monetary system via the Federal Reserve and the U.S. Treasury. This gives them some significant benefits, such as regulating who can and can't use the currency, hidden taxation via inflation and financial repression, and the ability to self-fund without having to offer value (such as it would in a free market capitalist economy). We see this abuse of the monetary system in plain sight. In the last 18 months, 37%14 of all dollars in existence have been created, and the Federal Reserve has purchased 76.4%15 of federal debt. They no longer need to rely on income generated through taxation but rather to just purchase their own government debt.

Ultimately, this allows the government to act in its own self-interest, directing capital to where it feels necessary, which seems to be toward growth at the expense of the economy. It does this via inflation, which is the suppression of interest rates and the injection of capital into our economy to stimulate growth, spending and consumption. The by-product of this tactic is an increase in the money supply, which leads to a rise in consumer prices, cost of living, house and asset prices, and inequality.

Monopolies

Monopolies, in a general sense, are not detrimental to society. They become harmful when they stifle growth and innovation by suppressing competitors in an attempt to maintain their monopolistic position. In a free market, a monopoly is in its position because it adds value to society. Individuals have chosen to purchase their products and services, which allows them to grow and expand. When they stop offering value and/or a superior product or service comes to market, these monopolies are naturally replaced with the newest technology and services.

Unfortunately, this is not the case in our current system. Due to the lobbying environment among most democratic nations, monopolies have the ability to donate large sums of money to politicians and those in power to sway regulation to their benefit. This regulation aids these monopolies by increasing entry barriers and thus reducing competition. Harmful monopolies are not an issue of capitalism, but rather an issue of giving the government too much control and allowing private corporations to influence regulation.

Malinvestment

As people become overly comfortable that the Federal Reserve will intervene during times of stress, we see a rise in excess borrowing and speculative leverage in an attempt to maximize returns. This excess borrowing has two main negative side effects:

1. Excess borrowing creates a surplus of capital in the system. In an attempt to find a home, this capital finds its way into higher risk malinvestments, which leads to amplified fragility in our economy. What would generally be considered a benign market event instead triggers much greater volatility and systemic problems.

2. A zombie company is one that is unable to support itself financially.16 This signifies that the product or service the business offers either does not have enough demand or that the business has been fiscally irresponsible and unable to service its debt. This business should, therefore, restructure or dissolve. With the Federal Reserve backstopping the economy and making it cheaper and easier to access capital, you increase the number of zombie companies in the economy. We should allow the natural life cycle to play out rather than propping up unsustainable companies. When a new business has to compete with an ever-increasing number of zombie companies, it becomes ever more challenging for that business to succeed and prosper. Instead of focusing on innovation, the business must use a portion of its resources to compete. As of July 2020, 19% of listed companies in the U.S. are zombie companies, and this number is rising.17

It should now be evident that the issues we face within our economy today are not to do with capitalism but rather the opposite. They are a by-product of government intervention and control.

WHAT NEEDS TO CHANGE?

No economic system is perfect. Therefore, it is important to avoid getting bogged down analyzing which system is best. Instead, we should focus on what’s within our control to create an economy that prioritizes its people, promotes innovation and encourages creativity. To do so, we must first look at what must change in our current part-democratic, part-capitalistic system:

Monetary system: As should now be apparent, to reduce the centralization of power, the negative by-products of inflation and systemic malinvestment, we must separate the monetary system and the government. Doing so removes the government’s controlling capabilities, ensuring they act as a service provider with the population’s interests at heart. If the government is not acting in the best interest of the population, it will not receive capital in the form of taxes and will be unable to fund itself. Additionally, removing the monetary system from the clutches of government would allow a monetary system chosen by the people to emerge, one that is not corrupted by those in power and allows the true deflationary state of the world to surface.18 As Aaron Segal concisely states, “deflation is a measure of success in creating economic value as innovation creates more for less.”19

Transparency: Nations fail when there is a lack of trust in government, resulting in coups and revolutions. The fastest way to break trust within a nation is to remove transparency. One of the major flaws we face today is a lack of transparency. If we promote transparency within our economic system, we can rebuild trust amongst the population and the government. This will help drive the economy forward by reducing our wasted productive energy spent fighting amongst ourselves.

A POTENTIAL SOLUTION

It can be difficult to separate democracy and capitalism, as they have generally been intertwined throughout history. One could go as far as to say that we have never seen a true capitalism-based economy. This makes it challenging to pinpoint the benefits democracy has brought to the table and likewise for capitalism. However, if we want to promote innovation, productivity, sustainable growth and freedom moving forward, it is in our best interest to adapt as an economy and take on benefits from the various regimes:

Socialist welfare/healthcare/education: We live in a world of inequality. Individuals enter this world disadvantaged, and we have unforeseeable events that take a toll on our lives. Whether this is on a monetary, health or educational level, it is a fact of life. Thus, we must have access to resources that allow us to feel a part of society and obtain the necessary assistance to grow and thrive. With this in mind, the best option would be to adopt the socialist welfare, healthcare and education system, ensuring everyone has access to these core amenities.

Decentralized democratic decision-making: Democracy is essential to ensuring that the general population has a say in political decision-making. However, we must ensure that this doesn’t result in a concentration of power, lack of transparency or the potential for bad actors. To promote transparency and take advantage of the collective knowledge, we should focus on the decentralization and dispersion of centralized government power down to the lower state, municipal and individual levels. This would ensure that more people would have a say in how our country is run and that regulation is upheld.

Capitalist free market: The capitalistic free market is an incredible source of creativity and innovation. It rewards individuals for putting themselves on the line and bringing their ideas to life. Additionally, free market capitalism promotes natural supply and demand, allowing us to extract crucial economic information, error correct more effectively and thrive as a nation.

BITCOIN

How can Bitcoin play a role in all this? Bitcoin offers a way to bridge democracy and free market capitalism by providing a true decentralized currency that is:

- Permissionless: No one is excluded from using bitcoin. There is no gatekeeper deciding who can and can’t use it.

- Open-Source: Bitcoin’s source code is open-source, allowing anyone the ability to read, propose a modification, copy or share.

- Pseudonymous: Since no ID is required to own and use bitcoin, this ensures privacy for individuals.

- Fungible: All coins are treated as equal and should be equally spendable.

- Immutable: Confirmed blocks/transactions are set in stone and, therefore, cannot be changed at a future date.

- Fixed Supply: With a fixed supply of 21 million coins, bitcoin is proving to be one of the best stores of value due to its inability to be devalued through supply expansion. This is key to providing accurate supply and demand data.

Bitcoin has the potential to remove the monetary system from the clutches of the government, allowing us to operate a true capitalistic free market. This would enable us to obtain accurate supply and demand information, allowing our economy to grow, innovate efficiently and error correct. Bitcoin would also give the general population security, knowing that their hard-earned savings will not fall victim to inflation.

Additionally, Bitcoin gives us a great example of the power of decentralization. If we can take what we know from Bitcoin’s decentralized blockchain, we can greatly increase transparency within our economy. Two areas which may benefit the most are:

Government: By implementing a decentralized blockchain within the government, we can increase transparency and remove the potential for self-interested bad actors. Furthermore, promoting decentralized transparency would allow everybody access to accurate, immutable consensus data, decision-making and economic information. That way, individuals and the government could better use this information to innovate and progress.

Decentralized Autonomous Organizations (DAOs): Just like other economic systems, free market capitalism still has the potential for bad actors. By using blockchain technology, we can build the next generation of organizations using the DAO framework based on open-source code. Furthermore, without a typical management structure or board of directors, we are able to operate decentralized organizations. This gives investors a real say in the direction of the organization and gives the public transparency regarding the organization’s goals and motives.

CONCLUSION

It should now be clear that many of the reasons individuals are pushing for communism and socialism are not due to flaws in capitalism but rather increasing governance, regulation and control. Looking back throughout history, if we give way to these propositions, the consequences may be detrimental — the fallacy to consolidate and centralize power has led to some of [hu]mankind’s darkest days.

Instead, we should step back and look at capitalism and the other economic systems from a more holistic viewpoint. Let’s take the welfare/healthcare/educational support system from socialism, implement democratic decision-making, and give more power back to the people to let free market capitalism run its course. By doing so, we may be able to resolve many of the issues we currently face.

Lastly, instead of pointing fingers at capitalism, we should be educating people about the benefits that it has brought to our economy in the form of increased innovation, private property, privacy and human rights.20 Furthermore, we should be trying to better integrate new technology such as Bitcoin into our ever-evolving economy.

Humanity is in the middle of a turning point where it is shedding much of the old inefficient technology and practices and making room for the new era. With this in mind, we should be focusing on what matters. Let's come together and build the economy we want to see tomorrow instead of directing our energy toward each other in the form of aggression and criticism. As Thomas Jefferson once said, "I predict future happiness for Americans, if they can prevent the government from wasting the labors of the people under the pretense of taking care of them."