# 1AC

### Plan---1AC

#### PLAN

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

### 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.

#### Decentralized and competitive blockchain’s vital to IoT effectiveness

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1.2 Blockchain and Other Technologies (Collaboration)

1.2.1 Blockchain and the Internet of Things

Technologies tend to accelerate each other,30 and for that reason, it is useful to analyze how they interact. Blockchain has direct implications for quantum computing, 3D printing, biotech and nanotechnologies, among others.31 In the subsequent developments, I will limit myself to discussing the IoT and AI, as blockchains may serve as an infrastructure for these two technologies, therefore shaping their use and developments.

To put it simply, the IoT is all about connecting the analog world to the digital one. Physical products are equipped with sensors or connectors that can send information or be controlled by online applications. There are over 20 billion IoT devices in circulation today and this number will likely triple by 2025.32 Each of these devices generates information that is then turned into data, thus accelerating the already exponential production of data. In fact, the world is expected to produce six times as much data in 2025 as in 2019.33

Blockchains could boost IoT. First, blockchains could be used as the infrastructure layer on top of which IoT ecosystems are built. Second, blockchains, combined with algorithms, could help monitoring devices and spot anomalies. Should, for example, a product malfunction, blockchain ledgers could help identifying why-without permitting the constructor to tamper it. Third, smart contracts could allow IoT devices to interact with each other on specified terms and ensure that they stick to them.34 Most of all, blockchain technology provides IoT systems with security. By eliminating a single point of failure, blockchains ensure continuity even when a server is down. Not so surprisingly, 86 percent of blockchain adopters are combining the technology with IoT solutions and this number will likely grow in the future.35

If blockchain technology does indeed become the infrastructure upon which most IoT systems are built, it will be necessary to ensure that the technology’s internal layers are free from economic coercion. If not, artificial forms of centralization will impact IoT markets - for example, notably through anticompetitive practices that affect the validation of transactions or that raise prices. We can find a direct relationship between these external applications and blockchain’s fourth and fifth layers.

#### IoT prevents pollinator collapse---extinction

Tash Bandeira 20, Reporter at Ubibots, an Engineering Services Firm, “Saving the Bees with IoT”, Ubidots, 7/15/2020, https://ubidots.com/blog/saving-the-bees-with-iot/

Sometime in late 2006, beekeepers across North America started seeing drastically high losses among their western honey bee colonies. Less dramatic disappearances were also observed in Europe and around the world, causing significant losses in agricultural crops that depend on bee pollination to survive.

Now known as Colony Collapse Disorder (CCD), these sudden losses occur when most of a colony’s worker bees leave their queen and plenty of honey and pollen reserves behind. With few dead bees found nearby, the phenomena didn’t correspond to any previously known causes of bee death.

Without worker bees, hives die out and the repercussions go far beyond honey shortages. We see significant agricultural losses and accompanying economic effects worldwide. Approximately 75% of our food supply depends directly on honey bee pollination, which corresponds to a global worth of hundreds of billions of dollars. And with no end in sight for CCD, there’s a lot at stake in the bee crisis.

Scientists have yet to settle on a single cause for the decline - attributing it to a combination of pesticides, disease, nutritional deficiencies, and commercial beekeeping itself - so it’s unlikely there’ll be a simple resolution. The EU voted to ban the use of neonicotinoid pesticides in 2018 but in lieu of global policy change, innovative IoT solutions have already shown serious promise for helping bees survive.

The Internet of Stings

Being able to know when a colony is in trouble and act quickly is imperative to beekeeping. Traditionally, this has meant regular check-ins with the hive, a practice that comes with some disruption to bee life. But with IoT solutions that incorporate wireless in-hive sensors, beekeepers can better keep tabs on their colonies in real time and from a distance.

At the Polytech Sorbonne University in Paris, a student developed a precision beekeeping box that can take temperature, humidity and weight readings, as well as detect the presence of a queen bee. With the data displayed on their Ubidots dashboard, beekeepers can then take steps to decrease resource consumption and increase productivity.

In Costa Rica, college students developed the Ubidots-powered Internet De Las Abejas, a project aimed at controlling varroa mites. Varroas stick to bees, suck their hemolinph, and spread the diseases they carry - posing a major threat to honey bee health. In better controlling them, beekeepers can improve the quality of life of their hives, while also increasing honey production and pollen mobility.

Another approach, developed by researchers in Manchester, is the tagging of bees with RFID chips to track their movements. With location data, beekeepers can follow their comings and goings to better understand and predict their behavior. Grad students in Canada have also been studying the use of sensor data to listen in on beehives and detect communication patterns in the buzz.

But easily the biggest buzz in IoT-enabled solutions is the development of robot bees, or pollination drones. Straight out of a “Black Mirror” episode, RoboBees were introduced by Harvard University researchers in 2013. While their first iterations were limited to flying and hovering, they can now swim underwater and stick to various surfaces. Robotic bees of the future could potentially work farms like their natural counterparts, pollinating crops and helping offset population losses.

No matter what form our ‘IoBees’ solutions take, the collecting and sharing of data will give us profound insights into their lives. Researchers and IoT Entrepreneurs all over the world are realizing the potential of aggregating this data into IoT dashboards, creating IoT solutions that can be commercially offered to either the farmers or research institutions.

Such array of projects aimed at tackling the bee crisis shows the powerful potential for IoT to help save the bees that feed our world.

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

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

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

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

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

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

Noted.

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

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

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

This is the risk we face today.

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

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

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

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

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

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

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

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

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

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

Let’s hope they choose the latter.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

#### Globally collaborative blockchains prevent nuclear war from miscalc, accidents, and arms racing AND 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

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V. CONCLUSION

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

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

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

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

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

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

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

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

Introduction

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

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

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

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

I. Brands and Public Institutions

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

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

#### Robust competition enforcement’s key to naval and air power that prevents great power war

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

Dr. Jonathan D. Caverley 21, PhD in Political Science from the University of Chicago, Professor in Strategic and Operational Research at the United States Naval War College, Research Scientist in Political Science and Security Studies at the Massachusetts Institute of Technology, and Dr. Sara McLaughlin Mitchell, F. Wendell Miller Professor of political science at the University of Iowa, Co-Director of the Issue Correlates of War Project, Ph.D. in Political Science from Michigan State University, “A Liberal Case for Seapower?”, War on the Rocks, 2/25/2021, https://warontherocks.com/2021/02/a-liberal-case-for-seapower/

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.

#### FTC leadership on blockchain establishes a model for other countries to apply to AI and machine learning

Bojana Bellamy 19, President of Hunton Andrews Kurth LLP’s Center for Information Policy Leadership; Terry Calvani with the Freshfields Law Firm, Former Commissioner and acting Chairman at the Federal Trade Commission; Eduardo Perez Motta, Senior Partner at the SIA Law and Economics Firm and Former President of the Mexican Competition Authority, COFECE, and, also, a Former Chair of the International Competition Network, Rod Sims, Chairman of the Australian Competition and Consumer Commission; Andy Wyckoff, Director of the OECD’s Directorate for Science, Technology, and Innovation, “The FTC’s Role in a Changing World,” FTC, 3/26/2019, https://www.ftc.gov/news-events/events-calendar/ftc-hearing-11-competition-consumer-protection-21st-century

And I think it is important that we, in Europe, do not believe that our way is the only way and I think we must be also humble to take on some of the US best examples. But then the US also, we've got expectations, the US federal privacy debate is going to sort of stir up and come up with perhaps some new ways of dealing with some of these issues. So I think building on that respect for differences, but also what brings us together is really a good way forward. I talked about some of the joint policy initiatives. I really think this would be a great way to bring us together. Think about facial recognition or blockchain or machine learning or Internet of Things, drones, all of that would be amazing.

For example, a case study to bring us to work on something which is proactive, which isn't kind of reactive, confrontational, adversarial, but actually we're creating something better for the world ahead. Of course, cooperation and enforcement is important and I think, as some in Europe, do not believe any of the complaints end up in the right hands. I think that's where the FTC can also help and ensure that the EU-led complaints that are sent to the US actually get heard properly and get enforced potentially or there is a feedback loop back. I think that would be helpful as well.

And then the final point I would like to add, which is something around -- more around, as Eduardo has said, about the leadership role of FTC. I really think actually FTC has got something to teach other regulators just because of its breadth and sort of experience in being a tough enforcer. Those of you who were in privacy for many years used to remember -- people used to say -- Europeans used to say, if only we had the FTC enforcement in the European law that would be the best combination.

So we always looked up to FTC as to how they enforce the law, how they manage, and I think that's something that FTC can really take on a great role, particularly with European regulators, who now have got similar enforcement powers. But, frankly, and I apologize, I know it's going to be online, they don't have the know-how, how to actually use these powers in the best way.

We've seen some Draconian enforcement in the EU without proper due diligence, without proper process, without proper transparency and proper lessons learned why that fine has been applied in this way and why it hasn't been applied that way. And I think this is something, Rod, I think you slightly talked about that. That is where I think FTC can help also, frankly, technically bring the other regulators a little bit up to higher level simply because of its standing and experience in enforcement.

MR. TRITELL: Thank you. I think we have a wonderful example how your questions can really stimulate the panel. (Laughter.)

MR. TRITELL: So feel free, please, to find those cards and send them up here and enhance the show.

So we're talking about conversions and joint projects of an exciting nature. One. way to potentially move those forward is through the vehicles of international organizations. Our hearings have touched many times on the OECD, ICN, ICPEN, we have UNCTAD, regional organizations like APAC, various privacy groups. There's a big menu of these venues, but resources are finite.

Let me ask where in surveying that spectrum do you think the. FTC should allocate, its resources and what should they seek to accomplish in some of these important international fora? Rod?

MR. SIMS: Well, I wouldn't mind just -- I'll answer that question, but it's just backing up to what --

MR. TRITELL: Or come back to any other point, please.

MR. SIMS: Well, what Bojana just said, the -- we notice this quite a lot in our consumer work because we are a consumer and a competition regulator, and because most of our staff do both competition and consumer work, we don't separate them out. I think we're fairly unique in that. But it just strengthens that process, that know-how in competition, which you've got to have to be in the game.

When you translate that into consumer work, it's just so immensely powerful. I think, on average, we would take larger companies to court for breaches of consumer law than we do for competition law. We've recently taken Ford, Hines, Apple to court for breaches of our consumer law. We've got large fines.

Perhaps the biggest development in Australia is we've just convinced the government, under the heading of advocacy, to align the penalties for breaches of competition law and consumer law. So now the penalties will be the same. Previously, the. penalties were much lower for consumer law, which is a terrible thing.

The harm you can do through misleading consumers is visibly as bad as it can be from cartels. There is just no doubt about that. I can give you numerous examples. So I just want to back up that point, that the strength of being the regulator that does a number of things is important. I guess it leads into my point that I think ICPEN is the organization that perhaps needs that extra bit of work, whether it's capacity building with new jurisdictions, whether it's more coordinated action amongst the members, whether it's common approaches and practices, but really just raising up the profile of consumer work.

I have to say I continually get irritated when I'm at international meetings, you get the sense that competition work is held to be in some way superior to consumer work. That is complete, rubbish. They are. equally important. If you want your market economy to work for the benefit of consumers, you need effective competition law and you need effective consumer law. They can both equally do great harm.

And so I just think we've got to raise it up.

MR. TRITELL: I think you have a sub silentio round of applause in the room there, Rod. (Laughter.)

MR. TRITELL: Not to mention from Bojana who mentioned privacy --

MS. BELLAMY: And privacy as well. So we --

MR. TRITELL: -- which we think of as part of our consumer protection.

MR. SIMS: I can't talk about privacy, but --

MS. BELLAMY: The three-headed Medusa. It's the three heads, right?

MR. SIMS: But I would happily push it to privacy, absolutely. Well, the same point applies and it was Bojana's point that got me in there. The same point applies.

MR. TRITELL: Would anybody else like to come in on where, we should focus our efforts in the international organizations.

Eduardo, you talked about maybe we. ought to be going to the next step. So if you'd like to elaborate on that.

MR. MOTTA: Well, yes. I could, in a very general way, elaborate a little bit more on that. Let me first -- let me start with the main features of the ICN. The main features of the ICN, in my view, is that it's a soft law organization, it's a consensus organization. It's a consensus organization. That goes very much in line with what happens in the WTO. It could be risky, but that's the reality.

It's a beautiful system, organization, it's a beautiful network. It uses, very efficiently, the communication technologies and so on. And the main products that are created by the ICN are this best international practices standards, practical guides and toolkits, and they organize workshops for members. I mean, that's in a very general and a schematic way.

Well, the first question is that has been, in my view, the ICN has been one of the most efficient networks I have ever seen, international networks that I have ever seen. When I compare how the ICN was created and what was the situation in the context of the WTO discussion on trade and competition, which was one of the elements that provoked the creation of the ICN, and if you see that, that was 2001 more or less -- I think it was 2001 with 15 members in the ICN.

Today, they have more than 114 members. In 2001, the WTO was working generally well. We were in the middle -- in the start of a new round, the Doha Round. At that time, the ICN was created and the ICN has been much more effective, frankly, than organizations like the WTO.

But my point here is that the international context in which we are living is highly complicated. I mean, there are a lot of nationalistic pressures, national champions, pressure from different countries, developed and developing countries at the same time. That has become, I would say, a more systemic, risky problem for markets. And that doesn't mean -- I mean, the most important elements is how to show that markets in a competition scenery is one of the most important instruments you have in order to create not only efficiency in your economy, but also equality of opportunities for economic players, for economic agents, but also at the same time a quality of opportunities for consumers.

So in that situation is where I think it is needed to give an additional impulse to an international organization like -- or an international network like the. ICN. And maybe -- I mean, I'm basically suggesting to reflect on the possibility to create a new organization, a new international organization of -- this could be consumer and competition agencies. And that should be a more -- in my view, should be a more formal organization in order to generate an international pressure for the evaluation and valuation of the importance of markets in that context, in the context of competition.

So to think about the possibility of having a formal and permanent secretariat, that makes a difference because today what you have is the members are the secretariat itself. So it's difficult to differentiate what a jurisdiction is saying or what the organization is saying because the word is the same. So in my view, you need someone that is more independent than the agencies in order to advocate for competition in different jurisdictions.

It has to be a product, in my view, from an international agreement with some cooperation mechanism, but also some monetary mechanism. That's the most -- I mean, this is a difficult task. I'm not saying that it is not. It's a real challenge. But, frankly, what we. are living internationally is a challenge, itself today.

Sorry for taking --

MR. TRITELL: No, no, a lot of food for our continued thought. Andy, from the OECD perspective, what role can you see from the OECD and how can the FTC effectively engage within the OECD, for example, in the consumer committee or in the privacy activities of the organization?

MR. WYCKOFf: I'll touch on that in just one second. Eduardo provokes me because my part of the OECD has done a lot on telecom dereg, particularly in Mexico. Here's maybe an example we can begin to think about because we. did something in 2012. It helped inform the decisions in the regulatory reform that went on in creating an independent regulator even then. We followed up in 2017 and looked at implementation. What really went on? And that's now become a lessons learned that the rest of the region now is beginning to look at. So I think there's a model for what he's saying.

The FTC -- I speak under the Chair here of my Consumer Policy Committee, Hugh Stevenson, already plays a huge leadership role at the OECD. There's two areas if I had to put on my Christmas list from FTC, where I would like to see them push. One is on this evidence base that many people have talked about. We love statistics at the OECD and comparative --

MS. BELLAMY: Data.

MR. WYCKOFF: Data. Comparative indicators, and can we begin to look at things as we get, for example, like data breach laws from around the world. Can we begin to compare these and get some -- it may not be apples to apples, but at least fruit to fruit to look at.

The other is really leadership work that happened in 2010 again led by the FTC on our consumer policy toolkit. I think they began to open the thinking on both behavioral economics and the informational economics, which I think is important. And following up on that -- and we've begun to do some work on consumer attitudes towards trust. It goes to what people are saying. It may not be such big differences as people think, but also doing some more experimental work, such as on personalized pricing, which we're beginning to see proliferate in many different areas. These are areas where I think there's a lot of international interest and where the FTC could play a leading role.

MR. TRITELL: Well, leading right into our next topic, which is the FTC’s leadership role, I think that there was a point in time when the FTC had so much longer and deeper experience in some of these areas that it was a default and natural leader. Now, we live in a very multipolar world in all of these disciplines, and it prompts me to wonder what does it mean to be a leader in this environment. Is it important for the FTC to be perceived as and to be a thought and policy leader? If so, how can the FTC exercise effective leadership internationally, including on emerging issues and with agencies that operate in very different environments?

So let me just run down the table for anybody who would like to offer thoughts on this study with Bojana.

MS. BELLAMY: Yeah, sure. So I’ve got a very long wish list, which I will submit in writing probably to my friends at FTC. But, Andy, to continue where you kind of stopped, I would really love the FTC -- I think there is some leadership vacuum first, let me say, in the privacy regulatory community at the moment, and I think FTC would be very well placed to fill that vacuum, together with some other across the world are kind of wanting to seek that new leadership role.

So one area where I would like to see some work would be in the area of fairness, fair processing, fairness and unfairness, you know. In the majority of data privacy laws we have requirements with fair processing, yet nobody knows what it means. Yet here, FTC statute and work is based on unfair trade practices. There is unfairness methodology that FTC can teach us a lot in this world of AI and machine learning as to what creates harms to consumers, what and how do we measure that and how we, as organizations, think what is fair and what is not fair.

I think this will be a great opportunity not just for bilateral, multilateral regulatory corporation, but together with the organizations who are implementing this in the practice as well. FTC anonymization test, again for those of you in the privacy geek community is still standing the test of time where frankly everybody else says there’s no such things as anonymous data because everything about me doesn’t matter. If you know who I am, but you know everything about me, that’s good enough to identify me. Well, I think FTC has done some really great thinking in the past and we need to revive that leadership and kind of, again, convergence with some others.

Risk-based approach to regulation and enforcement and investigation is something that I think FTC again is best placed to teach the rest of the world. We live in a world where data is everywhere. Every company, to your point, is today a data company, Rod. I mean, I keep hearing this from manufacturing companies to financial companies who say we are data and tech companies today. So in that world, we really need different ways of approaching that.

And then a final point, I would like to say that this whole topic of incentivizing what good looks like and rewarding good behaviors, I think there is something about that that we need to exploit more. I’ve been head of privacy for a huge multinational company for 12 years, and trust me, when we got good praises from a regulator, that gave me a bigger budget, that gave me more standing internally, that got me to speak to the CEO and the board much quicker than any penalty and any fine did.

I think realizing what motivates companies and motivates people to behave well and be good corporate citizens in this new interconnected world, I think there is work to be done there. And I do remember FTC consent decrees that I have read as I was a practitioner, every single consent decree said to me, here is how they reward companies who actually do something while in privacy. That’s what DOJ said. Data -- I think somebody mentioned before, that’s what the SEC does, that’s what US sentencing guidelines do.

#### There’s a narrow window to establish international norms for safe development---the FTC’s key

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The European Union and the United States have not always agreed on the regulation of digital technologies, but closer cooperation is needed to prevent the proliferation of harmful artificial intelligence and to help shape global AI norms that support democratic values, equity, and human rights. The recent launch of the EU-US Trade and Technology Council, together with the new EU AI regulatory proposal, provide a critical window of opportunity for deeper engagement.

Many assume that the European Union is the world’s technology watchdog, while in contrast the United States is an unruly digital Wild West. Media, policymakers, and the general public have been quick to fit the long-awaited EU regulatory proposal on artificial intelligence (the Artificial Intelligence Act, or AIA) into this bifurcated framing. Journalists have suggested that the AIA may “widen the regulatory gulf” between the EU and the US when it comes to reining in the riskiest AI applications. Researchers have called it “a direct challenge to Silicon Valley’s common view that law should leave emerging technology alone.”

However, this framing of a “gulf” between the EU and US on AI regulations is both overstated and counterproductive. The under-regulated AI industry is hurting Americans and Europeans alike, and AI’s risks, like algorithmic amplification of polarization and extremism, cut across borders. Not only do the allies’ perspectives align on various issues, but they are actively courting further cooperation on common challenges.

In mid-June, US President Joe Biden and European Commission President Ursula von der Leyen launched an EU-US Trade and Technology Council (TTC) at the US-EU Summit in Brussels. The TTC comprises ten working groups, with issues including standards cooperation for emerging technologies, data governance and technology platforms, and the threat posed to human rights by technology’s misuse. It remains to be seen, however, how much either ally will invest in this Council or how effective the TTC will be at advancing cooperation on critical AI issues going forward.

The release of the AIA, and the more recent launch of the TTC, present critical and time-sensitive opportunities for engagement. Failing to take advantage of this opportunity for transatlantic cooperation on AI would be a mistake with wide-ranging consequences for both AI and the state of democracy.

Divergent Approaches?

The EU’s proposed AI regulation differs from previous US federal government attempts by establishing oversight mechanisms to mitigate the risks of AI systems. The AIA views some applications of AI, such as AI-based social scoring, as presenting unacceptable risks that must be banned outright because they pose a clear threat to people’s safety and rights. It considers other applications, like using AI to evaluate eligibility for public services or a job, high risk because of their impact on people’s livelihoods and the potential for bias. High risk AI systems are subject to significant obligations before they can be placed on the market.

In contrast, a 2020 memo from the White House Office of Management and Budget on Guidance for Regulation of AI highlights a distrust of regulation that defined the Trump Administration’s approach to AI policy. The memo states, “Federal agencies must avoid regulatory or non-regulatory actions that needlessly hamper AI innovation and growth.” The memo also suggests that AI’s risks should be considered alongside potential benefits.

However, there has been a shift in the US AI policy environment under the Biden Administration, with louder calls for accountability and regulation. Although Biden has yet to make AI a priority, there is greater recognition of the risks the technology can pose and signals that the administration will take AI policy seriously. Vice President Harris has previously endorsed a bill to establish federal AI policy and has criticized the ways that AI can perpetuate bias. An Executive Order signed on Biden’s first day in office established an Equitable Data Working Group and the appointment of Dr. Alondra Nelson to lead the Office of Science and Technology Policy promises a commitment to pursue equitable AI.

The US does already have some protections in place against high-risk AI systems. Real-time biometric surveillance by law enforcement, prohibited in the AIA with some exceptions, has already been banned by numerous cities in the US. A statement of intent issued by the Federal Trade Commission the same week as the AIA release explains that AI products are not outside the scope of its consumer protection laws. Companies will need to adhere to FTC guidelines to ensure AI systems are transparent, explainable, fair, and empirically sound.

In fact, some have asserted that the FTC’s notice has more teeth than the AIA in the near-term. For example, the FTC has committed to holding companies accountable for preventing the proliferation of racially-biased or unreliable algorithms. Meanwhile, it may take years for individual EU member states to adopt the AIA, lessening the immediate impact on Big Tech compared to what some had expected. Under the AIA, most AI technology will not be subject to any regulation and while producers of high-risk AI systems face regulatory requirements it appears that assessments will not be made available to the public. In short, the EU approach may be less of a “burden” than some feared, while the US policy landscape may be less permissive than it may first appear.

More important than the US’s and EU’s willingness to establish regulatory frameworks is the significant overlap in what their frameworks intend to accomplish. The US and EU aim for not only the development of AI, but the development of trustworthy AI. Both have adopted the OECD AI Principles, which provide common benchmarks on issues including sustainable development, human rights, democratic values and diversity, and accountability, among others. The US’s and EU’s support of the Principles has helped to establish a shared language for global AI norms and governance.

Cooperation as a Strategic Goal

Greater transatlantic cooperation on AI is a stated goal of both the US and the EU. A European Commission program for a transatlantic agenda from December 2020 first proposed the EU-US Trade and Technology Council. The Council was an opportunity for allies to work together on critical technologies and to encourage the establishment of digital governance that promotes shared values of human dignity, individual rights, and democratic principles. The agenda described this as “a once-in-a-generation opportunity.”

The US has also highlighted the importance of international cooperation on AI, most recently by accepting the EU’s invitation to launch the TTC. The US has launched the National AI Initiative which intends to support further opportunities for cooperation with strategic allies on research and development, assessment, and resources for trustworthy AI systems. “International Cooperation” is also one of the six strategic pillars outlined on the newly re-launched AI.gov website detailing US AI priorities.

Transatlantic cooperation is widely supported by US industry stakeholders, in part to promote regulatory compatibility. For example, the TTC was endorsed in a blog post by Karan Bhatia, Google’s Vice President of Government Affairs & Public Policy, and in a statement of support from the Information Technology Industry Council. The final report from the National Security Commission on Artificial Intelligence (NSCAI), a multistakeholder group including numerous AI industry leaders, also has a chapter on creating a favorable international technology order. The NSCAI advises the US to establish an International Science and Technology Strategy and argues that “like-minded countries must work together to advance an international rules-based order, protect free and open societies, and unleash economic innovation.”

Given the allies’ many common goals, the AIA should not be seen as a challenge to the US. Instead, the proposal is an important first step and an opportunity to prevent AI uses that violate human safety and fundamental rights. The US and EU can now work together to further clarify and prevent high-risk AI uses, and establish shared AI standards. While the recently-launched TTC provides a valuable platform for this work and will support regulatory policy cooperation and convergence, a handful of working groups only partially focused on AI may struggle to meet these objectives. Additional pathways that deserve consideration include increasing capacity for information sharing and pooling resources for larger scale research on critical topics.

Why Now?

As governments scrambled to control the spread of COVID-19, many turned to AI technologies for help – to better understand the virus, track outbreaks, and help provide care. In some cases, this has justified the implementation of pervasive surveillance systems, which are now being used for troubling ends. As just one example, a facial recognition camera network in Moscow, originally implemented to help enforce quarantine restrictions, was later used to detain dozens of protestors voicing opposition to President Vladimir Putin. AI-enabled surveillance systems have proliferated across the globe, and the scale and scope of “digital authoritarianism” has increased for years, amplified by the use of AI to automate censorship and surveillance systems.

While the United States has worked to develop standards and principles for the use of AI around the world and sought to protect human rights and fundamental freedoms, these actions have failed to stop the misuse of AI. Concrete cooperation with the European Union, which has been lacking, could create a stronger alliance to counter the rising wave of digital authoritarianism. The launch of the TTC shows that President Joe Biden understands this dynamic. He recently said the “transatlantic alliance is back,” and explicitly highlighted the need to shape the rules that will govern the advance of AI, among other consequential technologies.

Importantly, greater transatlantic cooperation on AI is not just in the self-interest of the US and the EU; it can benefit democracies and human rights around the world. The alliance will be even stronger if it looks outward and facilitates international, inclusive dialogues, including with countries from the Global South. Fostering an equitable and responsible digital future requires incorporating critical, yet underrepresented, voices into AI governance discussions and decision-making.

Forgoing greater cooperation on AI between the US and EU would be a shortsighted mistake. There is a narrow window of opportunity to prevent the proliferation of harmful AI and to help shape global AI norms. The time for transatlantic cooperation on AI is now.

### 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.

# 2AC

## FTC ADV

**It’s real---Extinction**

Karina **Vold 21**, Philosopher of Cognitive Science and Artificial Intelligence & Assistant Professor at the University of Toronto's Institute for the History and Philosophy of Science and Technology, & Daniel R. Harris, Retired Lawyer and Foreign Service Officer at the US Department of State, “How Does Artificial Intelligence Pose an Existential Risk?,” Oxford Handbook of Digital Ethics, Ed. C. Veliz., pp 1-34

4.1 AI Race Dynamics: Corner-cutting Safety

An AI **race** between powerful actors could have an **adverse effect** on AI **safety**, a subfield aimed at finding technical solutions to building “advanced AI systems that are **safe** and **beneficial**” (Dafoe, 2018, 25; Cave & Ó hÉigeartaigh, 2018; Bostrom, 2017; Armstrong et al., 2016; Bostrom, 2014). Dafoe (2018, 43), for example, argues that it is plausible that such a race would provide strong incentives for researchers to **trade-off safety** in order to increase the chances of gaining a **relative advantage** over a competitor.21 In Bostrom’s (2017) view, competitive races would disincentivize two options for a frontrunner: (a) slowing down or pausing the development of an AI system and (b) implementing safety-related performance handicapping. Both, he argues, have worrying consequences for AI safety.

(a) Bostrom (2017, 5) considers a case in which a solution to the control problem (C1) is dependent upon the components of an AI system to which it will be applied, such that it is only possible to invent or install a necessary control mechanism after the system has been developed to a significantly high degree. He contends that, in situations like these, it is vital that a team is able to pause further development until the required safety work can be performed (ibid). Yet, if implementing these controls requires a substantial amount of additional time and resources, then in a tight competitive race dynamic, any team that decides to initiate this safety work would likely surrender its lead to a competitor who forgoes doing so (ibid). If competitors don’t reach an agreement on safety standards, then it is possible that a “risk-race to the bottom” could arise, driving each team to take increasing risks by investing minimally in safety (Bostrom, 2014, 247).

(b) Bostrom (2017, 5-6) also considers possible scenarios in which the “mechanisms needed to make an AI safe reduces the AI’s effectiveness”. These include cases in which a safe AI would run at a considerably slower speed than an unsafe one, or those in which implementing a safety mechanism necessitates the curtailing of an AI’s capabilities (ibid). If the AI race were to confer large strategic and economic benefits to frontrunners, then teams would be disincentivized from implementing these sorts of safety mechanisms. The same, however, does not necessarily hold true of less competitive race dynamics; that is, ones in which a competitor has a significant lead over others (ibid). Under these conditions, it is conceivable that there could be enough of a time advantage that frontrunners could unilaterally apply performance handicapping safety measures without relinquishing their lead (ibid).

It is relatively uncontroversial to suggest that reducing investment in AI safety could lead to a host of associated dangers. Improper safety precautions could produce **all kinds** of unintended harms from **misstated objectives** or from **specification gaming**, for example. They could also lead to a higher prevalence of AI **system vulnerabilities** which are **intentionally exploited** by **malicious actors** for destructive ends, as in the case of adversarial examples (see Brundage et al., 2018). But does AI safety corner-cutting reach the threshold of an Xrisk? Certainly not directly, but there are at least some circumstances under which it would do so indirectly. Recall that Chalmers (2010) argues there could be **defeaters** that **obstruct** the **self-amplifying** capabilities of an advanced AI, which could in turn forestall the occurrence of an intelligence explosion. Scenario (a) above made the case that a competitive AI **race** would **disincentivize** researchers from investing in developing safety precautions aimed at preventing an intelligence explosion (e.g., motivational defeaters). Thus, in cases in which an AI race is centred on the development of artificial general intelligence, a **seed AI** with the capacity to self-improve, or even an advanced narrow AI (as per §3.1), a competitive race dynamic could pose an **indirect Xrisk** insofar as it contributes to a set of conditions that **elevate the risk of a control problem** occurring (Bostrom, 2014, 246; 2017, 5).

4.2 AI Race Dynamics: Conflict Between AI Competitors

The **mere** narrative of an AI **race** could also, under certain conditions, increase the risk of **military** conflict between competing groups. Cave & Ó hÉigeartaigh (2018) argue that AI race narratives which frame the future trajectory of AI development in terms of technological advantage could “increase the risk of competition in AI causing real conflict (overt or covert)”. The militarized language typical of race dynamics may encourage competitors to view each other “as threats or even enemies” (ibid, 3).22 If a government believes that an adversary is pursuing a strategic advantage in AI that could result in their technological dominance, then this alone could provide a motivating reason to use aggression against the adversary (ibid; Bostrom, 2014). An AI race narrative could thus lead to **crisis escalation** between states. However, the resulting conflict, should it arise, need not directly involve AI systems. And it's an open question whether said conflict would meet the Xrisk threshold. Under conditions where it does (perhaps **nuclear war**), the contributions of AI as a technology would at best be indirect.

4.3 Global Disruption: Destabilization of Nuclear Deterrents

Another type of crisis escalation associated with AI is the potential destabilizing impact the technology could have on global strategic stability;23 in particular, its capacity to destabilize **nuclear deterrence** strategies (Giest & Lohn, 2018; Rickli, 2019; Sauer, 2019; Groll, 2018; Zwetsloot & Dafoe, 2019). In general, deterrence relies both on states possessing secure second-strike capabilities (Zwetsloot & Dafoe, 2019) and, at the same time, on a state's inability to locate, with certainty, an adversary’s nuclear second-strike forces (Rickli, 2019). This could change, however, with advances in AI (ibid). For example, AI-enabled surveillance and reconnaissance systems, unmanned underwater vehicles, and data analysis could allow a state to both closely track and destroy an adversary’s previously hidden nuclear-powered ballistic missile submarines (Zwetsloot & Dafoe, 2019). If their second-strike nuclear capabilities were to become **vulnerable** to a first strike, then a pre- emptive nuclear strike would, in theory, become a viable strategy under certain scenarios (Giest & Lohn, 2018).

In Zwetsloot & Dafoe’s (2019) view, “the fear that nuclear systems could be insecure would, in turn, create pressures for states— including defensively motivated ones—to **pre-empt**ively escalate during a crisis”. What is perhaps most alarming is that the aforementioned AI systems need not actually exist to have a destabilizing impact on nuclear deterrence (Rickli, 2019; Groll, 2018; Giest & Lohn, 2018). As Rickli (2019, 95) points out, “[b]y its very nature, nuclear deterrence is highly psychological and relies on the perception of the adversary’s capabilities and intentions”. Thus, the “simple **misperception** of the adversary’s AI capabilities is destabilizing in itself” (ibid). This potential for AI to destabilize nuclear deterrence represents yet **an**other kind of indirect global catastrophic, and perhaps even **existential**, **risk** insofar as the destabilization could contribute to nuclear conflict escalation.

5. Weaponization of AI

Much like the more recent set of growing concerns around an AI arms race, there have also been growing concerns around the weaponization of AI. We use “weaponization” to encompass many possible scenarios, from malicious actors or a malicious AI itself, to the use of fully autonomous lethal weapons. And we will discuss each of these possibilities in turn. In §5.1 we discuss malicious actors and in §5.2 we discuss lethal autonomous weapons. We have combined this diverse range of scenarios for two reasons. First, while the previous Xrisk scenarios discussed (CPAX and an AI race) could emerge without malicious intentions from anyone involved (e.g., engineers or governments), the scenarios we discuss here do for the most part assume some kind of malicious intent on the part of some actor. They are what Zwetsloot & Dafoe (2019,) call a misuse risk. Second, the threats we discuss here are not particularly unique to AI, unlike those in previous sections. The control problem, for example, is distinctive of AI as a technology, in the sense that the problem did not exist before we began building intelligent systems. On the other hand, many technologies can be weaponized. In this respect, AI is no different. It is because AI is potentially so powerful that its misuse in a complex and high impact environment, such as warfare, could pose an Xrisk.

5.1 Malicious Actors

In discussing CPAX, we focused on accidental risk scenarios—where no one involved wants to bring about harm, but the mere act of building an advanced AI system creates an Xrisk. But AI could also be deliberately misused. These can include things like exploiting software vulnerabilities, for example, through automated hacking or adversarial examples; generating political discord or misinformation with synthetic media; or initiating physical attacks using drones or automated weapons (see Brundage et al., 2018). For these scenarios to reach the threshold of Xrisk (in terms of ‘scope’), however, a **beyond catastrophic amount of damage** would have to be done. Perhaps one instructs an AI system to suck up **all the oxygen in the air**, to launch **all** the **nuc**lear weapon**s** in a nation’s arsenal, or to invent a **deadly airborne biological virus**. Or perhaps a **lone actor** is able to use AI to hack **critical infrastructures**, including some that manage large-scale projects, such as the satellites that orbit Earth. It does not take much creativity to drum up a scenario in which an AI system, if put in the **wrong hands**, could pose an **Xrisk**. But the Xrisk posed by AI in these cases is likely to be indirect—where AI is just one link in the causal chain, perhaps even a distal one. This involvement of malicious actors is one of the more common concerns around the weaponization of AI. Automated systems that have war- fighting capacities or that are in anyway linked to nuclear missile systems could become likely targets of malicious actors aiming to cause widespread harm. This threat is serious, but the theoretical nature of the threat is straightforward relative to those posed in CPAX, for example.

One further novel outcome of AI would be if the system itself malfunctions. Any technology can malfunction, and in the case of an AI system that had control over real-world weapons systems the consequences of a malfunction could be severe (see Robillard, this volume). We’ll discuss this potential scenario a bit more in the next section. A final related possibility here would be for the AI to itself turn malicious. This would be unlike any other technology in the past. But since AI is a kind of intelligent agent, there is this possibility. Cotton- Barratt et al. (2020), for example, describe a hypothetical scenario in which an intelligence explosion produces a powerful AI that wipes out human beings in order to pre-empt any interference with its own objectives. They describe this as a direct Xrisk (by contrast, we described CPAX scenarios as indirect), presumably because they describe the AI as deliberately wiping out humanity. However, if the system has agency in a meaningful sense, such that it is making these kinds of deliberate malicious decisions, then this seems to assume it has something akin to consciousness or strong intentionality. In general we are far from developing anything like artificial consciousness and this is not to say that these scenarios should be dismissed altogether, but many experts agree that there are serious challenges confronting the possibility of AI possessing these cognitive capacities (e.g., Searle, 1980; Koch and Tonini, 2017; Koch, 2019; Dehaene et al., 2017).

5.2 Lethal Autonomous Weapons

One other form of weaponization of AI that is sometimes discussed as a potential source of Xrisk are lethal autonomous weapons systems (LAWS). LAWS include systems that can locate, select, and engage targets without any human intervention (Roff, 2014; Russell, 2015; Robillard, this volume). Much of the debate around the ethics of LAWS has focused on whether their use would violate human dignity (Lim, 2019; Rosert & Sauer, 2019; Sharkey, 2019), whether they could leave critical responsibility gaps in warfare (Sparrow, 2007; Robillard, this volume), or whether they could undermine the principles of just war theory, such as noncombatant immunity (Roff, 2014), for example. These concerns, among others, have led many to call for a ban on their use (FLI ,2017). These concerns are certainly very serious and more near term (as some LAWS already exist) than the speculative scenarios discussed in CPAX. But do LAWS really present an Xrisk? It seems that if they do, they do so indirectly. Consider two possible scenarios.

(a) One concern around **LAWS** is that they will ease the **cost** of engaging in **war**, making it more likely that **tensions** between rival states rise to **military engagement**. In this case, LAWS would be used as an instrument to carry out the ends of some malicious actor. This is because, for now, humans continue to play a significant role in directing the behaviour of LAWS, though it is likely that we will see a steady increase in the autonomy of future systems (Brundage et al., 2018). Now, it could be that this kind of warfare leads to Xrisks, but this would require a causal chain that includes political disruption, perhaps failing states, and widespread mass murder. None of these scenarios are impossible, of course, and they present serious risks. But we have tried to focus this chapter on Xrisks that are novel to AI as a technology and, even though we view the risks of LAWS as extremely important, they ultimately present similar kinds of risks as nuclear weapons do. To the extent that LAWS have a destabilizing impact on norms and practices in warfare, for example, we think that scenarios similar to those discussed in §4.3 are possible—LAWS might escalate an ongoing crisis, or moreover, the mere perception that an adversary has LAWS might escalate a crisis.

(b) A second scenario, described by Geoffrey Hinton, is that **killer drones**, equipped with explosives and deep learning neural net technology, could (somehow) learn to function **independently** of their **human controllers** (Robinson, 2016), and the system could then **go on a rampage** and **destroy humanity**. The bracketed “somehow” here is a critical piece of the story. Perhaps the control system has been **hack**ed, in which case we are back to the malicious actor scenario described in §5.1. Or perhaps there is a **malfunction**, of the sort also described in §5.1. In this latter case, the malfunction could manifest in the form of a “hard takeoff” in which the system undergoes rapid recursive self-improvement (unintended by the designers) and then develops goals that are inimical to human interests. In such a case, we would be at the start of an intelligence explosion and would confront the kind of Xrisk already characterized by CPAX (§3). Our only point here is that upon closer examination, it's hard to see how this scenario looks distinct from ones previously discussed. Hence, the weaponization of AI can pose an indirect Xrisk in several different ways. In general, the more control an automated system has over weaponized systems that can cause real-world destruction, the greater risk there is of that system becoming a target for attack by malicious actors or of there being greater harm due to any accidental system malfunction.

6. Conclusion

Humanity is facing an **increasing** number of **existential threats**, many of which are of our **own creation**. Thankfully, there are also an increasing number of **scholars**, from a wide range of fields, **studying the nature of these risks** and **strategizing how to mitigate them**. But the field of Xrisk studies is still relatively young. There are significant debates being had over how to define the concept of Xrisk, how to understand its sources, and what methodologies should be used to assess these risks. When it comes to Xrisks from AI, these debates continue. Early concerns around **AI Xrisks** focused on the possibility of an **intelligence explosion** and the subsequent pathway to a scenario in which a powerful superintelligent AI has misaligned objectives from humanity. These concerns have **not gone away**, but they have **evolved** over time. This chapter has provided an up- to-date critical survey of these arguments, both old and new, looking at different foreseeable pathways towards AI Xrisk, possible global disruptions resulting from the emergence of an AI race dynamic between nations, and the weaponization of AI. In particular, we have tried to make the structures of each of these concerns more explicit, such that readers can begin to critically engage with them.

## T Per Se

**‘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 **promote**s 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 **word**s 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 **assign**ed 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 **return**ed to the realm of the **rule of reason**, the insight that certain types of behavior are particularly dangerous is lost.

## T Subsets

**‘Antitrust’ is prohibition of conduct that reduces economic welfare**

Fiona Scott **Morton 19**, Theodore Nierenberg Professor of Economics at the Yale School of Management, et al., “Committee for the Study of Digital Platforms Market Structure and Antitrust Subcommittee Report”, George J. Stigler Center for the Study of the Economy and the State The University of Chicago Booth School of Business, 7/1/2019, https://www.chicagobooth.edu/-/media/research/stigler/pdfs/market-structure-report.pdf

i. Basic Principles

**Antitrust law** is intended to **prohibit private conduct** by firms that **reduces economic welfare**. Although application of antitrust principles can be complex and the specific doctrinal embodiments of those principles can seem arcane and arbitrary, at its core US antitrust law is **simple**.128 It can be summarized in a single sentence: *Private conduct that* ***creates or increases market power****, other than by* ***efficiency-based competition*** *on the* ***merits****, is illegal*.

**It can be sector-specific**

Dr. Fiona Scott **Morton 19**, Theodore Nierenberg Professor of Economics at the Yale School of Management, BA from Yale and PhD from MIT, et al., “Committee for the Study of Digital Platforms Market Structure and Antitrust Subcommittee Report”, George J. Stigler Center for the Study of the Economy and the State The University of Chicago Booth School of Business, 7/1/2019, https://www.chicagobooth.edu/-/media/research/stigler/pdfs/market-structure-report.pdf

The risk, of course, is that new legislation will not be enacted by **experts** committed to **sound**, **economically-focused** antitrust. It will be designed by **Congress** in a **politically charged environment** subject to **pressure** from the very companies who stand to lose their market power if subject to increased antitrust oversight, or who benefit if their trading partners are subjected to excessive oversight.

There is more at stake than the risk of flawed legislation. Antitrust law has **maintained legitimacy** and widespread support for nearly 130 years in part because it applies to **all forms of commercial activity** and is **not perceived as special interest** legislation. In our view it is **very important** that antitrust law not have **different rules aimed at different sectors**—such as **technology**151 or **agriculture**152—that would **differentiate industries** and **undermine political support** for antitrust law in **general**. For this reason, the report outlines a number of useful digital platform interventions that can be undertaken by a sectoral regulator rather than falling to the task of antitrust enforcement.

## Capitalism K

**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 **cap**italism. We’re not that naive. **Neolib**eralism 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 **econ**omy **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 **inhabit**ing 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 requires either opting out, which collapses OR linking back in to the economy, causing capture---only reconfiguring the levers of the economy using blockchain is sustainable bridge beyond capitalism**

Dr. Brian **Massumi 18**, Professor in the Department of Communication Sciences at the University of Montréal, Ph.D. in French Literature from Yale University, “99 Theses on the Revaluation of Value: A Postcapitalist Manifesto”, https://manifold.umn.edu/read/99-theses-on-the-revaluation-of-value/section/04cddab4-08cc-40e5-b505-02c26eabd368

T75

To be at all **sustainable**, even temporarily, the autonomous zones must be able to **interface** with the **existing** economy. To do so, they must practice **creative duplicity** in relation to quantification and economization.

Scholium. **Otherwise** they will be **crushed**.

T76

This means that they must play their own differential with capitalist economization. They must be **relationally autonomous** with regards to it: carving out their own eddy of processual singularity, while **at the same time** **coupling** processually with capitalism for the **time being** (until a tipping point is reached).

Scholium a. Otherwise they will **starve**.

Scholium b. In any case, they have **no choice** in this matter, given that **complicity** is **a**n **ontological condition** under neoliberal **cap**italism (T34 Schol. c, T60). They cannot stake out a **position** outside the capitalist field, because it **only** has an **immanent** outside. This in no way means that they will be “all in” it. There is **no position** of **purity** from which to **oppose** capitalism. But by the same token, there is no being all in it (T60 Schol. a). There is **power** in the **duplicitous positioning** that is potentially **creative**. There is no reason in principle **creative duplicity** **can**not immanently **leverage** postcapitalist difference.

Scholium c. It is not as if not exploring an alter-economy interested in, and in creative tension with, the model of financial capital will avoid complicity. **All** existing alter-economies **interface** with the dominant economy in **one way or another**, of **necessity**, as does every individual involved in them who has ever **earned a wage**, **bought a product**, **opened a bank account**, or **benefited from a pension**. The ways in which **funding** is conventionally **obtained** for collective projects (government grants, foundation grants, crowdfunding) are all **deeply complicit** with neoliberalism in their own ways, and come with the added disadvantage that the nonprofit status often involved in those efforts requires a legal organizational structure that repeats the basic characteristics of the corporate model (officers, board of directors, membership conceived as shareholding or stakeholding, annual meetings, etc.) and a day-to-day management structure reproducing the conventional hierarchy (at least on paper). Everyone is **already** practicing creative duplicity, and short of a global revolution will continue to do so. Historically, **even the most radical of revolutions** have been **recuperated** by capital. It **cannot be assumed** that it will be **different** the **next time** around—unless the postcapitalist future is already availably prefigured in the interim. So the issue is **not whether** to practice creative duplicity, but **which** complicit duplicities and in **what way**. There is no a priori reason not to **explore** all avenues, **even the ones that the left traditionally holds under the highest suspicion**. **Striking a posture of purity will get nowhere**. It too easily **absolves** one of **engaging**, day to day, hour by hour, with the **real conditions** of life, as part of an ongoing struggle reaching down to the microlevels of existence. **Sustained engagement** of that kind is **necessary** if those conditions are to be sustainably **changed**. “Certainly now is the time to **create money** designed to stoke demand for **new financial tools** for activists, collectives, social movements, artists, refugees, and all who struggle for a life worth living so that they might catch and keep their own value for themselves” (Beller 2017, 10).

T77

A promising lead toward constructing an escape hatch that avoids the emotional-personal capture of neoliberal capitalism, while creatively playing the affect/intensity differential in ways that processually couple with economization, but still prefiguring a postcaptalist future, carrying rewilding potential, and leveraging postcapitalist difference, might be found it the notion of intensive magnitude.

Lemma a. Exploring intensive magnitude in a postcapitalist perspective requires introducing aesthetic categories into political economy.

Lemma b. This involves rethinking causality.

Scholium a. Intensity has two imbricated aspects or dimensions, qualitative and quantitative, whose differential has been a continuing concern of these theses because it lies at the heart of economization. We place ourselves in different dimensions of the same event depending on whether we approach it from the causal point of view, or whether we consider it as “self-sufficing” (Bergson 2001, 90, 137). To underline that “causal” is not necessarily a linear concept, the word “conditioning” is a better choice. “Conditioning” extends to emergent effects of a qualitative order that are not reducible to the sum of their parts, and whose emergence is integrally relational rather than owing to a linear transmission of force. There is always a quantitative dimension to the conditioning of events, imbricated with qualitative dimensions. The nature of that imbrication must be taken into account. For example, pain, as we experience it, is self-sufficing: it directly expresses itself for what it is, just as it is, needing nothing other than itself to explain what it is and to make a definite difference in our life. It is a pure quality (Bergson 2001, 90): an immediate experiential life-quality. It is “pure” in the sense that it is irreducible to any quantification of its conditioning factors. “Reducing all qualities to quantities is absurd” (Nietzsche 2003, 91–92). The quality, self-sufficing, is supernumerary. But this does not mean that it can be understood without reference to quantity. The affect of pain is greater when its conditioning factors include a greater number of physical disturbances, meaning that the tissue damage is more extensive (Bergson 2001, 34). The number of the disturbances does not express itself directly in the felt intensity of the pain. The disturbances express themselves not quantitatively, but as a greater degree of the same quality. By degree of quality is meant its insistency: a greater degree of pain insists more on its own quality. It claims more emphasis for that quality, and backgrounds other concurrent qualities of experience behind the cry of its own expression. Insistency is a question of qualitative emphasis. A lesser pain is not less qualitative: it is more insistently purely qualitative. Its qualitative intensity, it is true, rises and falls in lockstep with the number of factors involved. But “as soon as we try to measure it, we unwittingly replace it by space” (Bergson 2001, 106). The intensity of a pain, for example, might be associated with a more extensive array of organic disturbances, or a stronger localization of its cause. Measure translates the intensity of the quality into spatial extension—which, of course, it cannot in actuality come without, even if, in the event, it cannot be reduced to it. When we measure, we are toggling between two necessary dimensions, intensity and extension, that are mutually enveloped in the event. Measure is a technique for treating those dimensions as separable. Separating the dimensions takes the intensity out of the event. Its extensive aspect is measured, and the numbers thus extracted from the event are moved into another event-domain, where they function as indexes of the event and its inherent intensity.

Scholium b. Another example makes the processual imbrication of quality and quantity more intuitive. Take two flocks of starlings on two consecutive days. On the first day, there are ten. The second day, after a major migratory influx, there are ten thousand. Now imagine a startle that flushes the starlings into flight. Think of the quality of the movement in each case. The ten thousand bank and turn, folding into and through each other with wondrous grace and beauty, thickening into swirling creases and thinning out into scatter zones, the swirling and scattering themselves folding into and out of each other with awe-inspiring topological complexity. All of this is measurable. But it would be a defiance to even try to speak of the event without employing aesthetic terms. These starlings have zest. The measure of their movements would miss the eventness of the event: its singular quality that makes it stand out as an event, backgrounding for an instant everything else. The eventness of the event is a pure quality. Now think of the ten taking flight. This is still impressive, for a landlubber species such as ours. But it is impressive in a comparatively measly way. It is not awe inspiring and does not bring words like “wondrous grace and beauty” to the tips of our tongues. This congregation of birds has less zest. The movement is qualitatively different, carrying less topological potential owing to the smaller number of contributory starling factors. The movement has its own quality, just of lesser intensity. Both takings-flight involve a number of birds. The number of birds in each case corresponds to a greater or lesser occupation of sky space. But this extensive element does not come without being enveloped in a qualitative difference that insists on itself, in an irreducibly aesthetic manner. The quality of the events are conditioned by the quantities involved, without being reducible to them.

Scolium c. In this example, the greater number corresponded to the greater intensity. This is generally but not necessarily the case. Intensity fundamentally has to do with the qualitative range of the potential enveloped, and its ability to insist on itself: to make itself presently palpable. A small number of elements may mutually cohere in movement in a way that envelops a greater intensity of potential than a larger number of the same kind of elements, depending on the nature of the elements and the manner of their concertation. This is due to the fact that the contributory subtendencies insist on themselves, as well as their integral expression insisting on itself, and the quality of the global expression is modulated as a function of that. To return to the pain example, it is well known that anxious tensing increases the intensity of pain, and that the cultivation of certain “mindful” countertendencies of attention decreases it. These techniques reach down to the subtendency level. The relation between extension and intensity is not linear. Tendencies go all the way down qualitatively, and their differentials make a difference at every level.

Lemma c. The term intensive magnitude highlights the way each event comprises a quantitative aspect (expressing itself in the extensive dimension of space) and a qualitative dimension (expressing itself in the aesthetic dimension of a purely qualitative difference of degree).

Lemma d. Placed in contrast to intensive magnitude, affective intensity tips toward the qualitative difference of degree comprising the aesthetic dimension (bearing in mind the intentional range of ambiguity encompassed in this and allied terms, as discussed in T43 Schol. c).

Scholium d. It is important not to forget the complexities of the vocabulary around affect and intensity, and to keep sight of the role of qualitative differentials (in the starling example, the differentials of flying style between the individual birds in the flock, as indexed by variations in speed, acceleration, and spacing between bodies, composing the flock’s overall manner of flying). In the light of the contrast between intensive magnitude and affective intensity, intensity can be used as a shorthand for affective intensity, since the term “intensive magnitude” takes on the role it can otherwise have of referring to the way the quantitative and the qualitative have of coming together.

Lemma e. The conditions of the event are struck by the same two-sidedness as the event itself.

Scholium e. When we refer to conditioning elements or contributory factors, there is always the dual aspect of the qualitative differentials in their aesthetic dimension (style, manner) and the quantifiable differentials (bearing on the extensive factors of speed, spacing, size). This can be prized apart if need be.

Lemma f. This is because the event is composed of subevents. Eventness goes “all the way down.”

Lemma g. An aesthetic way of referring to intensive magnitude is to use the term zest (Whitehead 1967, 258).

Lemma h. Zest is another word for vitality affect. Zest registers adventure (Whitehead 1967, 299, 304).

Lemma i. The corresponding aesthetic term for the pure quality of the event, considered in abstraction from its zestiness, is beauty (Whitehead 1967, 252–72). Beauty is affective intensity, as it verges on emotion.

Lemma j. Wonder is the affective outdoing of beauty.

Scholium f. Wonder peaks with the event’s culmination, whereas zest and adventure are integrally bound up with its unfolding. Beauty, for its part, abstracts from the event as if it were in suspense (without going so far as to separate it from its intensity). Zest, beauty, wonder, and adventure provide aesthetic categories that might pave the way for the revaluation of values to go beyond normative criteria and judgment. These are felt qualities, not rationalities or ratiocinations. They provide purely qualitative indexes for the intensive power of becoming expressing itself in the self-forming of events. No account of value can do without criteria of evaluation. These terms provide elements of a vocabulary for the evaluation of the quality of the process coming to expression. They cannot be understood as “merely” subjective (as individual and personal). They must be recognized as transindividual: as indexing the more-than-humanness of the process’s self-driving. Not being categories of judgment, they cannot be mistaken for taste, or personal preference. That they are felt qualities means that if they could be construed as judgments, they would have to be lived judgments (abductions). They come in the thick of things: unmediated. Lived judgments can only be evaluated participatorily and experimentally. Like all qualities, they are such as they are. They cannot be second-guessed. They happen as they happen, or they don’t. If they do, they make a pragmatic difference in the subsequent quality of the process as it turns over on itself for another run. Instead of being rationally judged, they must be improvised flush with events. They are a project, not a grid of analysis. Without a concerted tendential direction—also immanent to the unfolding—they are liable to run out of steam, or run afoul of themselves. The contrast discussed earlier between the bullying becoming-reactive of formative forces and their affirmative becoming-active provides a qualitative criterion for the immanent evaluation of tendential direction. Together, these go some way toward a nonnormative ethico-aesthetics for the revaluation of values (Massumi 2017b).

T78

Politically and economically, the reason to go through these intensive maneuvers is to hold fast to the fact that affective intensity is inextricably linked to potential, and that this connection is key to the revaluation of values.

Scholium a. “The affective state must correspond not merely to the physical disturbances, movements or phenomena which have taken place, but also, and especially, to those which are in preparation, those which would like to be” (Bergson 2001, 34; translation modified, emphasis added). In other words, enveloped in the quality of the event is an excess of unactualized potentials, movements that were preparing themselves to occur, were pressing to be carried out, that would have “liked to be” (little wills to ontopower), but didn’t end up making it into the event’s actual composition. Their pressing and preparing is part of the insistence of the event, even if many of the pressing potentials do not actually take part in its completion. It is the expressed quality of the intensive envelopment of these pressing potentials that distinguishes this co-motion of tendencies from the quantitative and extensive side of the event. In the starling example, each bird at every moment had to be poised for a nearly instantaneous tack or swerve. When there are ten birds, the quality of the movement is more regular and less particular, so the potential moves that must be in preparation (in preacceleration) at each instant are fewer. This is reflected in each individual’s flying style, and simultaneously in the mannerism of the flock. In the flock of ten thousand, each bird has to be braced for quicker and more variable movements. They cannot not feel this, flush with their movements. The feeling shades off into the field of emergence, to a level where the qualitative differentials between the movements an individual bird is poised for shade off into infinitesimal contrasts between potential movements. At this level of bare activity (T46 Schol. a), each bird is braced into a heightened state of affective intensity, immanent to the event. Each embodies a quantum of the event’s dipping down to the infinitesimal level of its field of emergence. Each individual expresses the global intensity of the event to a degree corresponding to the comprehensiveness of its dipping to the infinitesimal level of potential (depending on its skill, the alacrity of its reflexes, its individual physiological traits, and its health). It is not only that the overall movement of the flock is less intense: the qualitative difference in degree of intensity also goes all the way down, to the level of in-braced potential (the immanent outside). It is the manner in which it goes all the way down that correlates with the event’s intensive magnitude, regardless of the number of elements in play.

Scholium b. This in-bracing makes all the difference. But the difference it makes cannot be measured, even if the individuals composing the event can be counted. At the infinitesimal level of in-braced potential, incoming into the event, the contrasts between potential movements enter a zone of indistinction where no sooner does one begin to sketch itself than it turns over into another, then that one into yet another, in the churning of potential that is bare activity. The bare activity of the zone of indistinction describes the immanent limit of the field of emergence. At the limit, it zones into the virtual. This immanent co-motion roils into the continuing of the collective movement, as the pressing of the potentials tumbles over each individual move, and rolls over from one move to the next to globally compose the collective movement. This is the by-now familiar movement of surplus-value production. The in-bracing drives the surplus-value of life of the event (which in this case is also an instance of surplus-value of motion). The rolling over of the surplus-value of the event dynamically fuses the multiplicity of contributing factors into the singular continuing of the event: it produces the event as a continuum. Surplus-value is the power of the continuum. Derivatives, in their tendential convergence between quality and quantity (T46), effect the capitalist approach to the power of the continuum, toward the appropriation of that power for capitalist surplus-value production. An unappropriable postcapitalist version of the same convergence must be invented for alter-economic purposes.

Lemma a. Politically and economically, the notion of the fusional imbrication of multiplicity in the continuum of the event is important because the continuum is the event’s transindividuality (its continuing integrally across its individual factors) and because that transindividuality isn’t a thing but a power. It is the power of becoming of a subjectivity-without-a subject.

Scholium c. “When the continuum is the trace of a motion, the associated infinitesimal/intensive magnitudes have been identified as potential magnitudes—entities that, while not possessing true magnitude themselves, possess a tendency to generate magnitude through motion, so manifesting ‘becoming’ as opposed to ‘being’” (Bell 2013; emphasis added).

Lemma b. Power cannot fully be understood without making qualitative reference to tendency as a play of potential.

T79

Power cannot be reduced to the actual exercise of force, if force is understood as necessarily having magnitude. Tendencies are qualitative forces of event-formation. They are qualitative formative forces.

Scholium a. The qualitative goes all the way down, until it melds with event-potential. Event-potential is supernumerary: it is of the nature of surplus-value. It is also superqualitative: packing together an ultimately indistinct multiplicity of qualitative differentials in a way that does erase. Because they are not erased, each roil and tumble integrally reshuffles the field, shaking out a certain differential spread of potentials that rise back up to toward the surface of the event, where they are more distinctly felt, press harder, and thus become more accessible for actualization. There is no bedrock quantitative level from which quality emerges. The “bedrock” is the churning sea of immanent potential that is the field of life as bare activity, from which the two streams of the quantitative and qualitative spill: a potential cannot actualize without taking on extension and magnitude, but each move, each actualization, also spins off pure quality, affectively enveloping intensity. In the actualization of the event, quantity and quality are two sides of the event at every level, all the while remaining distinct event-dimensions. The qualitative on one level coils up into and is boosted onto the next. The qualitative snakes up the levels climbing the steps of its own event-dimension, culminating in the global affect expressing the quality of the event as a whole (the feeling of a degree of temperature, or the beauty of the overall topological figure of the flock of starlings). Likewise for quantity, culminating in a numerical extraction. Quality coils with quality, and quantity with quantity. Neither “causes” the other. Neither is epiphenomenal. One is not more real than the other. They are really different, aboriginal dimensions of the same event-conditioning. They co-condition the event. They do not mix, and yet their emergent effects fuse into the singularity of the event’s taking off. A suggestive image for this is the caduceus (the staff used as a symbol of the medical profession): two intercoiled snakes that do not touch, yet nevertheless rise up to take wing together.

Scolium b. “The fact is that there is no point of contact between the unextended and the extended, between quality and quantity. We can interpret the one by the other, set up the one as the equivalent of the other; but sooner or later, at the beginning or at the end, we shall have to recognize the conventional character of this assimilation” (Bergson 2001, 70).

Lemma. The potential in-braced into the event qualitatively underwrites intensity, in the currency of experience. The systematic extraction of number from the quantitative dimensions overwrites it, in the conventional coinages of science.

T80

Even though neither quantity nor quality are epiphenomenal, neither is more real than the other, and they come together in the event—still, quality is processually primary in relation to quantity.

Scholium a. Quality recoils into the immanence of potential underwriting the process. At this level, event-factors no longer count themselves out. They brace themselves in. They brace into the event, and into each other’s proximity. They move together to the limit where they enter a zone of indistinction composing a continuum whose power is beyond number. It is precisely because quality is primary in relation to quantity that potential must be captured and channeled by systems of quantification—prime among them capitalist economization.

Scholium b. The intensive excess of the qualitative over the quantitative never balances out. There is an essential asymmetry. Otherwise, process could fall into equilibrium. It would suffer from the entropy native to extensive, spatialized systems. There is a creative advance of process precisely because there is a countervailing tendency to entropy: a negentropy. This countervailing is the tendency of tendency to continuously “generate [intensive] magnitude through motion.” Think again of the heightened relational sensitivity of the individual starlings’ movements in the flock of ten thousand, and the way it packs potential into the flocking-event’s global motion, intensely animating the number of starlings. Qualitative differential is the animating force; quantification piggybacks the entropic force.

T81

The inextricability of affective intensity and potential in-forms the event with a variety of tendencies, only some of which actually play out.

Scholium a. “Variety” is a word for the qualitative dimension of a multiplicity. It denotes a differential field of qualitatively different tendencies (secondarily, it connotes a number spread, a plurality of kinds distributed in space, into which that field extensively folds out).

Scholium b. As the variety of the tendencies churn through the continuity of the event, their differentials play out into a singular affective expression: that of the global quality marking the culmination of the event. The global quality is the qualitative summing-up of the qualitative recoils leveling up into it, and at the same time descending to the immanent outside where they dip into potential, in event-powering rhythmic turnover. That rhythm is the immanent dynamic form (the self-in-forming) of the event. It is the dynamic form of a subjectivity-without-a-subject. A system’s processual turnover (T16) follows the rhythm.

T82

The rhythmic playing out of the in-forming tendencies constitutes a power of becoming, as opposed to being, that is not reducible to actual exercises of force. It is a life-driving force-beyond-force.

T83

Number, extracted, indexes quality. Quality, in-formed, indexes potential.

T84

This cross-indexing of quantity, quality, and potential, implicit in the concept of intensive magnitude, enables the force-beyond-force of the power of becoming to be mobilized.

Lemma a. This mobilization of the power of becoming is synonymous with ontopower.

Lemma b. Since the power of becoming is the power of the continuum, the mobilization must ultimately be of variety, of qualitative differentials. It must mobilize them in transindividual fashion, bearing directly on the dynamic fusion of the event. It must be transversal, concerned with the way in which the excess of potential carries across the individual contributing factors, to recoil up and down the levels composing the intensive magnitude, in a rhythm of dynamic fusion.

T85

It is conceivable that the force-beyond-force of the power of becoming (ontopower) can be mobilized in a way that makes possible an alter-economization that does not subsume surplus-value of life / surplus-value of flow under capitalist surplus-value.

Scholium a. Were this to be achieved, economization would be in the service of life-driving powers of becoming, rather than life-driving powers of becoming being in the service of accumulation.

Lemma. This would qualify the alter-economization as a counter-ontopower.

Scholium b. The fact that that power is not reducible to the exercise of force—that there is a force-beyond-force that can be alter-economized as a counter-ontopower––is critical to the revaluation of values: it points to the potential power of nonviolence (T99).

T86

In a counter-powerful alter-economy, surplus-value of life would retain its value for itself. Value would be revalued by the counter-subsumption of traditional (separative/applicative) systems of quantification under life-qualities, the latter affirmed for their pure experiential quality and for the in-formative role they play in the self-driving of life’s creative advance.

Scholium. This would capitalize on the primacy of the qualitative over the quantitative (T80), taking it back from its systematic captures: unchanneling it from them. This is the very meaning of the revaluation of values.

T87

Such a contrivance would constitute a creative process engine theoretically capable of sustaining itself economically.

T88

In order to fully avail itself of the potentials afield in today’s digital world, this invention of a creative process engine would involve a new kind of digital platform.

Scholium. The potential afield in today’s digital world pivots on the internet’s powers of nonlocal contagion and amplification, which can intensify powers of becoming stirring in the pores of the capitalist field. This can be for better or for worse (the alt-right). The inclusion in the toolbox of alter-economic counter-ontopower of digital platforms must be carried out with utmost care, and for nontechnical (qualitative, ethico-aesthetic) reasons, rather than out of any technological messianism, fascination with gadgetry, or reflex fallback to a default position. Exploring a technological avenue is a fraught proposition, but it would be simply foolish (an archaism without a contemporary function) to ignore the potential in the name of “real” sociality. Real sociality is as well-founded a concept as the “real” economy.

Lemma. New systems evolving out of the **blockchain**, beyond Bitcoin and Ethereum, could provide a **propitious digital environment** for **alter-economic experimentation**.

T89

The reason that the adoption of this vector of digital design of the platform would have to be carried out with utmost care is that certain regressive tendencies, of an anarcho-libertarian cast, were designed into the original blockchain concept. These tendencies have to be counteracted.

Scholium. Ideologically, the development of the blockchain was closely associated with **libertarian** market fundamentalism (Golumbia 2016). Not only is the **conventional** threefold definition of money **uncritically assumed**, **underplaying** the **speculative side** of cryptocurrencies (T23), it is further assumed that economic activity comes in discrete units of action. Each such unit is a transaction between two individuals. The transaction is entered into according to each individual’s calculus of its own self-interest. The freeing of the market from the control of the banks and national governments is thus little more than a transactionalist (Iocanesi 2017) liberation of self-interest. The blockchain is a technical distillation of the ideology of individual self-interest that is one of the major tendencies in-forming capitalism. It takes capitalism’s basic market ideology and tries to purify it, and objectify that purification in a technical system. It radically reinforces the concept of the market that is at the heart of capitalism, along with the transactional exchange model that is central to the concept of the market.

Lemma. Anarcho-libertarianism is anarcho-capitalism.

T90

**Next-gen**eration blockchain-inspired platforms use smart contracts to **expand the notion** of what a transaction can be

in ways that may be able to begin to **counteract the libertarianism** built into blockchain.

Scholium a. An example is the conjoint “Gravity” and “Space” **crypto**currency platforms under development by the Economic Space Agency (www.esca.io). The idea is that instead of blockchaining simple exchange transactions, transactions can be made programmable and thus infinitely customizable, **extend**ing to **anything** that could be conceived of as a contract. “Contract” is taken in its broadest and most basic definition, as a conditional engagement where one action (or set of actions) calls for a return action, either immediately or within a designated time interval. This need not involve an **exchange** per se, i.e., the use of a currency as medium of exchange and general equivalent. Any proposition for an if–then call and response between actions could be programmed. The actions also need not be **individual**. For example, a smart contract could specify a set of actions needed to prepare a collective project for taking a step forward in its process, and what will happen when those conditions come together. A simple example would be a collaborative film production, where smart contracts could be used to bring equipment, skills, and resources together for a shoot or a promotional campaign, and once the conditions are in place, trigger these logistical operations into action. They could also be used to organize collaborative input into the creative process of the film’s conception. Even more, smart contracts could be used to decentralize decision making by enabling propositions to be made and voted upon according to pre-agreed-upon protocols. Logistics, creative collaboration, governance, and the production of value would then be intertwined through a single platform whose running would be **autonomous** and **distributed**, dispensing with the need for an executive hierarchy overhanging the process and lording over its participants. In this way, a certain commons of productive activity would be created, with an ethos of collective collaboration and a certain instantiation of direct democracy. The overall system is designed to be customizable down to the lowest level, so that unlike Bitcoin or Ethereum, projects can program a dedicated domain of operations embodying their particular orientations and priorities while at the same time remaining interoperable with the general cryptocurrency environment. With this, the DAO (distributed autonomous organization) evolves into the DPO (distributed programmable organization). With that evolution, the blockchain will have to give way to a more rhizomatic architecture, such as the “holochain” (https://blog.p2pfoundation.net/difference-blockchain-holochain/2017/11/02).

Scholium b. The film production example shows significant progress in overcoming the individualism of first-generation blockchain. At the same time, the limits of it are easy to see. As soon as there is a product, self-interest comes back into the picture. The film will be marketed and make money in the dominant economy. Each individual collaborating on the project will expect a share of the profit generated. This is still a capitalist project. The production is market oriented and is aiming for the generation of profit that, in the name of fairness, would have to accrue to the members of the collective according to a pre-agreed protocol (also formalized in a smart contract). The lure of profit is a powerful attractor. It is a way of incentivizing that activates a plethora of ingrained capitalist—and tendentially individualist—attitudes and habits that could not fail to inflect what creative directions are taken, what propositions are made, and what decisions pass the vote. The creative film process would not be fulfilling itself only for the surplus-value of life it brought to the collaborators and the eventual viewers of the field. It will not be lived and enjoyed purely qualitatively, as a value in itself. In addition to producing surplus-value of life, it will also be lived for quantitative gain, and these two contrasting tendential movements might enter into potentially uncreative tension. The interference between the profit motive and the creative impetus, between collaborative energies and individual gain, would likely de-intensify the creative process by making its self-driving be driven by an outside goal.

T91

It may be possible for tokens to be used to expand cryptocurrencies beyond the conventional, individual, market-fundamentalist, transaction-based functions of money.

Scholium a. For example, instead of predesignating a certain share of the profit for each individual, individuals’ activity of creating and fulfilling smart contracts could be tracked by an accounting smart contract that allocates tokens based on how much someone contributes. The tokens could be in a cryptocurrency that interfaces with Bitcoin or national currencies, so that it could be cashed out. This could conceivably function even in the absence of a saleable end product. That would be possible if the cryptocurrency had a recognized value on the speculative cryptocurrency market, underwritten, as all currencies are ultimately in any case, by investor confidence. In other words, it would be backed by affect more than by a product-linked tie-in to the “real” economy. This would gain the collective practice a certain autonomy from the capitalist teleology of the marketable product, but would wed it to the speculative logic of the financial market, in its cryptocurrency incarnation, with all of the volatility that comes along with surplus-value of flow and its tendential levitation from the productive economy. The interference between incentivization by individual gain and the collaborative production of surplus-values of life would continue to be a factor. Tokens could also be used internally to the collaborative platform. They could be amassed and then “invested” in decisions. Propositions garnering the greatest number of tokens would get the go-ahead. This has two drawbacks. First, it sneaks back in the equation between labor-time and monetary value that lies at the basis of the capitalist exploitation of live activity: the reward of tokens would correlate to quantity of input actions, which would in turn correlate to the amount of time invested in them. Secondly, it would reintroduce structural inequality by channeling this capture of life-time into a re-hierarchization of the decision-making playing field. By putting your tokens on the table, you would essentially be buying unequal decision-making power with the capture of your contributed vitality.

Lemma. If it is possible for tokens to be used to expand cryptocurrencies beyond the conventional, individual, market-fundamentalist, transaction-based functions of money, this is something that is yet to be invented and will require a great deal of craftiness.

Scholium b. Alternative token strategies also tend to operationalize a form of value that has not been mentioned up to now, but is fundamental to capitalism: use-value. The praise of use-value is often sung in alter-economy communities as a way out of capitalism. This is dangerously naïve. Use-value, it is true, is qualitative: “it is conditioned by the physical properties of the commodity, and has no existence apart from it” (Marx 1976, 126). However, use-value only functions economically to the extent that it “metabolizes” as (is processually converted into) exchange-value (Marx 1976, 196–97). The threefold definition of money, and the correlation between quantity of labor-time and quantity of value, are complicit with use-value to the extent that it metabolizes as an economic factor. Measures may be taken to prevent use-value from fully metabolizing with exchange-value (as in skill-sharing networks and other sharing economies; T25). But nothing can prevent it from being haunted by money, the market, and the essentially extortionist correlation between labor-time and value. These slip back in in informal assessments of how “equal” or “fair” a sharing exchange had been, even if such assessment is discouraged. In addition, use-value is essentially normative. It is bound up with already-formed functions having conventional values in one or another systemic context (related to technical systems, productive industries, service industries, or cultural industries, with the definition of “use” varying by domain). By virtue of this systems-participation, a formed function carries a certain regulatory force, even outside its dedicated functional context, and in spite of the best efforts to break that link to power. How could the judgment of usefulness not carry such a force? All of this is part and parcel of the work paradigm so integral to capitalism (even where it is not in force in a full-fledged way as a work ethic). Tokens could theoretically be used in entirely different ways, potentially skirting around use-value, by adopting gaming models. However, gaming typically privileges a stimulus–response structure (as opposed to a creative call-and-response process) that re-performs the dominant economy’s individual transaction-exchange paradigm, even as it repurposes it for the production of a certain surplus-value of life: fun. Fun is a kind of surplus-value of life that is well-known to neoliberal capitalism and well-articulated with it, even to the point of playing a regulatory function in the life of human capital (spawning whole industries: the entertainment sector).

T92

The postblockchain cryptocurrency digital-platform route offers many avenues of response to the capitalist market, but the models now existing or under development so far are stuck in a game of whack-a-mole with it. With every blow against it in one place, the familiar myopic face of one of its constitutive principles pops up somewhere else.

T93

Although all manner of commons-centered, collective, collaborative models should be exploratorily pursued and concertedly experimented with, there is a need for projects attempting to go **beyond the pale**, to **cross over** today’s anarcho-libertarian **horizon** to **new anarcho-communist vistas** more intensely prefiguring the postcapitalist future.

Scholium. Only a project that operates, in its own processual arena, according to radically anarcho-communist, as opposed to anarcho-capitalist, principles has a chance of beginning to move beyond capitalist economization—and its attendant power formations—in a way that is **maximally resistant** to **recapture**. Intentional **communities** and autonomous **enclaves** are a **traditional route** for experimentation of this kind. Their **limit**ation is that they are **obliged** for their survival either to **opt out** of the economy in a way that is **rarely sustainable** long term, or find ways to **link back** in through participation in the local economy or the creation of microbusinesses. They also tend to devalue processual excess, which expresses itself most intensely in surplus-value of flow, in favor of a regained rootedness in a regulatory ideal of “real life.” Their affective intensities often pool around figures of **purist return**: to “nature,” to “authenticity,” to true “community,” and to true activity (craft)—normative notions, all. Experimentation with **alter-economic models** employing digital currencies can potentially pioneer **more sustainable** and **flexible** ecological models, proudly **impure** and **without return**. Intentional communities and autonomous enclaves are a welcome element in an alter-economic ecology, as long as they are able to reconcile their dedication to local structure with open system. But they do not provide a general model for alter-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, **lead**ing to **mass unrest**; and now, as **rev**olution**s** turn in**to civil wars**, creating **military tension** between **nuclear** super**powers**, 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 **burn**ed 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 **i**nternational **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 **can**not **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 neolib**eralism; then we save the **planet** – and rescue ourselves from turmoil and inequality – by moving **beyond capitalism** itself.

**Ditching neolib**eralism **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 **E**uropean **C**entral **B**ank, 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 **gov**ernment 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 **neolib**eral order has **failed**.

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

Among the 1 per cent, **neolib**eralism 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 alt**ernative explains why most **protest** movement**s 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 neolib**eralism 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 **cap**italism would look like. The old left’s aim **was** the **forced destruction** of **market** mechanism**s**. 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**.

**Cap**italism, it turns out, will **not be abolished by force**d-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 government**s 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 tech**nology 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.

**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 **a**ny 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.

**Crypto**currency 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.

**Crypto**currency 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.

**Crypto**currency **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** **tech**nologies tend to automate workers on the periphery doing menial tasks,” Buterin says, “block**chains** 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**.

## Section 5 CP

**Courts strike it down. No deference.**

John O. **McGinnis 21**, George C. Dix Professor in Constitutional Law at Northwestern University and Contributing Editor at Law & Liberty, “Abandoning the Consumer Welfare Standard”, Law & Liberty, 8/26/2021, https://lawliberty.org/abandoning-the-consumer-welfare-standard/

The **Prospects**

The Executive Order, however ill-conceived the specifics are, will do the most damage if it changes antitrust law fundamentally. And here the Biden administration happily faces problems. We have had forty years of bipartisan competition policy focused generally on consumer welfare. The President does not have a political eraser to wipe that away.

One possibility is for the Biden administration to persuade Congress to enact major changes in antitrust law. The House Judiciary Committee has passed a few bills that would make is harder for tech companies to merge with other companies. But these measures are not yet going anywhere on the House floor, and it will be difficult, if not impossible, to get any substantial changes in antitrust law through the evenly divided Senate.

Thus, the administration has pinned its strategy on transformation through **administrative fiat**. To that end, it appointed Lina Khan, a 32-year-old associate law professor to become Chairman of the FTC. Khan may be the single most radical appointment in the Biden administration. She opposed Amazon’s acquisition of Whole Foods, although Amazon and Whole Foods together constitute a very small part of the grocery market, and no other company in the history of the United States has been more innovative than Amazon.

Khan has begun by voting along with her Democratic colleagues on the commission to revoke a policy of the FTC supported by both Democratic and Republican administrations that essentially defined “unfair method of competition” by reference to methods that undermined consumer welfare. The idea no doubt is to write a regulation that would provide a more open-ended approach, perhaps taking into account other values like democracy and decentralization, even if these are at the expense of consumer welfare.

But it is **not at all clear** Khan can **succeed**. On such a **central question** as the definition of **competition**, **courts may not give her agency much deference** now that the **Roberts Court** appears to have **stopped applying Chevron**—the quintessential modern case for agency deference—to **major questions** raised by a statute. The meaning of competition is **obviously the major question** for competition law, and **courts are likely to determine that for themselves**, influenced by **decades** of their **own** consumer welfare jurisprudence

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Beyond that technical obstacle, Khan may be a poor choice for overhauling antitrust law because of her lack of practical experience in litigation or administration. She has already alienated her agency staff by refusing to let them speak at professional panels, as they have for years. That is a rookie mistake. Moreover, she has been so strident in her attacks as an activist against companies like Google and Amazon that the courts are likely to look at her enforcement actions with suspicion, even if the companies do not get her recused for her past opinions.

Even if the Biden **admin**istration is **unlikely to succeed** in the near term in transforming antitrust, it has put on the table a new vision, however amorphous, that may well influence the approach of Democratic administrations and legislators for years to come. We are moving from an era of bipartisan consensus around a constrained and economically focused antitrust law to an era of fundamental partisan disagreement. In that sense, antitrust law will become—like many other areas of our law—a reflection of polarization and a source of instability. But here the folly and instability will make us poorer.

**Congress blows up the FTC in response**

Sandeep **Vaheesan 17**, Regulations Counsel at the Consumer Financial Protections Bureau, “Resurrecting "A Comprehensive Charter of Economic Liberty": The Latent Power of the Federal Trade Commission”, University of Pennsylvania Journal of Business Law, 19 U. Pa. J. Bus. L. 645, Spring 2017, Lexis

C. Recognizing the Threat of Adverse Congressional Action Does Not Compel Continued Adherence to the Antitrust Status Quo

Among those sympathetic to an expansive Section 5, some are likely to express reservations about its **political feasibility**. **History** certainly lends **support** to this concern. Congress has been **hostile** to an activist FTC in the past and could be **expected** to **move** to **rein in any activism**. In the 19**70s**, the FTC zealously pursued its antitrust and consumer protection missions. 251 This period of aggressive enforcement and rulemaking triggered a **powerful backlash** from corporate America. 252 The Washington Post condemned the Commission as the "National Nanny" in a stinging editorial. 253 This period of zeal **ended poorly for the FTC**. Congress [\*694] asserted **new power** over the agency and imposed additional **procedural conditions** on the use of its consumer protection authority. 254

This fear of a political backlash from business and Congress may be the strongest line of criticism of an expansive Section 5. Corporations pour money into Congressional campaigns to ensure that their interests are represented and advanced. Although the FTC has been averse to policy activism or innovation for decades, the House has tried to limit the FTC's authority to challenge mergers under Section 5, in the name of creating harmony between the FTC and the DOJ. 255

The recent experience of **another** federal agency is **instructive**. Congressional Republicans, **with the support of some Democrats**, have been **try**ing to **hobble** the Consumer Financial Protection Bureau **("CFPB")**. 256 The CFPB is seen as aggressively pursuing its statutory mission, bringing a wide range of enforcement actions and writing a number of rules to regulate consumer finance markets. 257 In light of its vigor, the opposition from Congress does not come as a surprise. **Even under more favorable political circumstances**, an FTC that seeks to **breathe life** into Section 5 is **certain to invite comparable Congressional opposition**.

The **probable reaction** from many **ideologically** or **financially captured** members of Congress should **not be underestimated**, let alone ignored. Corporate interests and their Congressional allies would **seek to curtail any Section 5 expansions**. The FTC is a creation of Congress and so **must answer** to Congress. Congress can undertake a **range of actions** to **limit** the FTC's day-to-day ability to function and its statutory power. At an extreme, Congress could **repeal the FTC Act** and **shut down the FTC entirely**

. The risks to the FTC's future would include various **existential threats** and should not be brushed aside. Undertaking a reinterpretation of Section 5 without an **awareness** of **political dynamics** on Capitol Hill would [\*695] be a **grave mistake**.

**Links to litigation**

David L. **Franklin 10**, Professor of Law at DePaul University, JD from the University of Chicago, BA from Yale College, November 2010, “Article: Legislative Rules, Nonlegislative Rules, and the Perils of the Short Cut”, The Yale Law Journal, 120 Yale L.J. 276, p. lexis

There is perhaps no more vexing conundrum in the field of administrative law than the problem of defining a workable distinction between legislative and nonlegislative rules. The problem is relatively easy to state. Under standard doctrine, these two types of rules differ from one another in both a substantive and a procedural sense. Substantively, legislative rules are designed to have binding legal effect on both the issuing agency and the regulated public; procedurally, the Administrative Procedure Act (APA) requires such rules to undergo the expensive and time-consuming process known as notice-and-comment rulemaking before being promulgated. n1 Nonlegislative rules, by contrast, are not meant to have **bind**ing legal effect, and are exempted from notice and comment by the APA as either "interpretative rules" or "general statements of policy." n2

So far, so good. **The problem arises** when we leave the airy realm of theory and enter the untidy arena of **litigation**. Here is the usual sequence of events: a federal agency issues some sort of pronouncement - a **guidance**, a circular, an advisory - without using notice and comment; parties that believe that they are adversely affected by the new pronouncement **go to court**, perhaps **before it has even been enforced** against anyone; the challengers argue that **the pronouncement is in fact a legislative rule** and is therefore **procedurally invalid for failure to undergo notice and comment**.

Even by the standards of administrative law - a field in which uniform, predictable rules of black-letter law are hard to come by - the resulting litigation is considered **notoriously difficult**. The problem is not just that the Supreme Court has not supplied a test for distinguishing between the two types of rules, or that the APA does not define the exempt categories of interpretative rules and general statements of policy. The problem runs deeper: it turns out to be maddeningly hard to devise a test that reliably determines which rules are legislative in nature and which are not. Currently, courts do their best by examining the text, structure, and history of the rule, its relationship to existing statutes and rules, and the manner in which it has been enforced (if at all) in an effort to ascertain whether the rule was intended to have binding legal effect or instead was merely designed to clarify existing law or to inform the public and lower-level agency employees about the agency's intentions. Given the amount of indeterminacy built into this inquiry, it is no wonder that courts have labeled the distinction between legislative and [\*279] nonlegislative rules "tenuous," "baffling," and "enshrouded in considerable smog." n3

**The plan could be FTC, ‘scope’ is defined by enforcement**

Frank G. **Clement 16** Jr, Judge on the Tennessee Court of Appeals, “Hamer v. Southeast Res. Group, Inc.”, Court of Appeals of Tennessee, At Nashville, 2016 Tenn. App. LEXIS 176, 3/3/2016, Lexis

Under Southeast's interpretation, Plaintiff agreed to disclose and make available every business opportunity "to be marketed to credit union members." Such a broad definition appears to encompass every product or service imaginable, whether they have anything to do with Action or not. Under this interpretation, Plaintiff would be required to disclose an opportunity to sell cars to credit union members even though Action's business is not related to cars at all. The inconvenience, hardship, or absurdity that would result are weighty evidence that the parties did not intend for "scope and purpose" to have this meaning, especially when interpreting the agreement based on the ordinary meaning of "scope" avoids these difficulties. See Branscombe, 76 So. 3d at 948 HN9 ("The inconvenience, hardship, or absurdity of one interpretation of a contract or its contradiction of the general purpose is weighty evidence that such meaning was not intended when the language is open to an interpretation which is neither absurd nor frivolous and is in agreement with the general purpose of the parties.").

HN10 The ordinary meaning of words is found in the dictionary and is the most commonly understood meaning in relation to the subject matter of the parties' agreement. See Siegle, 788 So.2d at 360; Beans, 740 So. 2d at 67; J.N. Laliotis, 558 So. 2d at 68. According to one dictionary, "scope" means "1. The range of one's perceptions, thoughts, or **actions**. 2. Breath or opportunity to **function**. 3. The area **covered** by a given **activity** or subject." The American Heritage College Dictionary 1222 (3d ed. 1997). The operating agreement is concerned with the relationship of Action's members to each other and to Action, and the subject matter of section 6.6 is the duty to make certain business opportunities available to Action in order to avoid competition between Action and its members. [\*18] Based on the dictionary and the subject matter of the parties' agreement, "scope" most naturally refers to the range or breadth of the **business** that Action is **engaged in** at the relevant time.

**It causes uncertainty AND delay**

Alexander Paul **Okuliar 21**, Morrison & Foerster LLP, "FTC Lays Groundwork For Rulemakings: Are New Substantive Competition Rules Coming?", Mondaq, 3/25/2021, https://www.mondaq.com/unitedstates/antitrust-eu-competition-/1067906/ftc-lays-groundwork-for-rulemakings-are-new-substantive-competition-rules-coming

The FTC's foray into rulemaking could lead to a period of **uncertainty and legal challenges** in those areas touched by a new agency rule. There is likely to be significant debate **over the scope of the FTC's authority, the particulars of the rulemaking process, the substance** of any proposed rules, and, when tested in court, the **extent of Chevron**

**deference** to which the agency is entitled. Substantive FTC competition rules could also create potential **divergence** in enforcement policy or activity between the DOJ and FTC brought about by the new rules.

**No enforcement OR deterrence**

John B. **Kirkwood 21**, Professor of Law at the Seattle University School of Law. American Law Institute. Executive Committee, AALS Antitrust and Economic Regulation Section. Advisory Board, American Antitrust Institute. Advisory Board, Institute for Consumer Antitrust Studies, "Tech Giant Exclusion," Florida Law Review, Forthcoming, pg. 43-46, 01/15/2021, SSRN.

A. Section 5 of the FTC Act

Passed in 1914, the FTC Act not only created a second federal agency to enforce the Sherman Act, it gave the agency a broader mandate. Section 5 prohibits “unfair methods of competition,”228 whether or not they emerge from collusion or result in monopoly power. In **principle**, therefore, Section 5 **plugs the hole** in the Sherman Act just described. In **practice**, however, it **rarely** does so. As explained below, the ability of Section 5 to **deter** anticompetitive conduct is **modest**. It cannot be **enforced by private parties** and violations of Section 5 do not result in **treble damages** and **attorneys’ fees**. In addition, the **D**epartment **o**f **J**ustice **cannot** enforce it, reducing its deterrent effect still further. Perhaps most important, courts have been quite **reluctant** to apply Section 5 outside the bounds of the Sherman Act. In consequence, the FTC has rarely brought such suits; in the **last forty years**, the FTC has not pursued a **single** pure Section 5 challenge to unilateral exclusion.

1. No Private Treble Damage Actions

The FTC Act contains **no p**rivate **r**ight **o**f **a**ction. As a result, respondents do not face the **possibility** of treble damages and attorneys’ fees. Nor can the FTC seek **civil penalties** for an initial violation.229 [FOOTNOTE] In response to an initial violation, the FTC can only issue a **cease-and-desist**

**order**. If the respondent violates that order, the Commission can impose civil penalties, but that requires the respondent to repeat the violation. [FOOTNOTE ENDS] To be sure, the Commission may be able to obtain restitution from a district court, but that authority is in doubt,230 and the FTC has never tried to exercise it in an exclusion case **without alleging a section 2 violation**. 231 In a pure Section 5 case, in short, tech giant exclusion is **highly unlikely** to result in treble damages, civil penalties, restitution, or other monetary sanctions. If a tech giant concludes that it would be **profitable** to exclude a third party from its platform, the prospect of a Section 5 action would **not materially change the calculus**.

Khan implicitly relies on this point when she asserts that “[u]nlike structural remedies, behavioral remedies seek to change the firms’ conduct, while leaving the underlying incentives untouched.”232 But behavioral remedies leave a firm’s incentives **unchanged** only when they are **entirely equitable**, as they typically are **under Section 5**. When illegal conduct reliably results in serious financial sanctions, a firm’s incentives change.

2. No Department of Justice Enforcement

The U.S. **D**epartment **o**f **J**ustice cannot enforce Section 5. This reduces by **half** the number of federal agencies that can prosecute pure **Section 5 violations**. If the FTC lacks the **relevant industry expertise** or is **distracted** by other matters, there will be **no federal enforcement** whatsoever.

**Guidance gets rolled back AND wrecks certainty**

Dr. Simon F. **Haeder 20**, Assistant Professor of Public Policy at Penn State University, PhD in Political Science from the University of Wisconsin-Madison, and Dr. Susan Webb Yackee, Director of the La Follette School of Public Affairs and a Collins-Bascom Professor of Public Affairs and Political Science at the University of Wisconsin-Madison, PhD in Political Science from the University of North Carolina at Chapel Hill, “Policies that Bind? The Use of Guidance Documents by Federal Agencies”, Journal of Health and Human Services Administration, Volume 43, Issue 2, Fall 2020, p. 90-91

Given these distinctions, there are significant advantages and disadvantages to using guidance documents as policy tools. For instance, as suggested above, guidance document development is often seen as a faster, more flexible, and less proceduralized approach to policymaking than notice and comment rulemaking (Gluck et al., 2015; Mantel, 2009; Shapiro, 2014). Some observers may interpret these factors as advantages because they allow agencies to respond more nimbly to changing political circumstances or technical and scientific innovations. Less benevolent explanations may see the speed, as well as the reduced participation requirements attached to guidance documents, as a means to shield public policy development from necessary political oversight and public participation. Similarly, the ease of issuing guidance may be seen as an **advantage** on the one hand by allowing presidents to unilaterally move policy in the face of gridlock. However, on the other hand, as the bathroom guidance example above suggests, future presidents can relatively **easily rescind** previous guidances. As a result, one of the “costs” attached to policymaking via guidance documents is that they can result in a **more volatile** regulatory environment and with **less certainty** and **predictability** for regulated entities. **In contra**st, it is **much more difficult** to rescind a notice and comment rule is because it requires an agency to go through the full regulatory process (Kerwin & Furlong, 2018). Another way to consider the advantages and disadvantages of policymaking via guidance documents is to look at the human capital expenditures attached to these tools. As Shapiro (2014, 582) writes, policymaking via notice and comment rulemaking is much more “costly.” Agencies have to develop a robust written record to establish a political and, oftentimes, scientific basis for new regulations (West, 1995). Thus, the notice and comment process—which is closely policed by the courts—is intense in terms of agency resources. In contrast, the guidance document development process often requires less in terms of a written record and justification (Romano, 2019). This may be seen as a benefit to some, but to others, who believe that agency policymaking ought to only take place when a fully developed evidentiary record undergirds that decision-making, it may be seen as problematic.

**Developers fear guidance will shift, so they won’t invest AND the unclear nature prevents user adoption---established law is key**

Tyler C. **Lee 20**, J.D. Candidate at the New York University School of Law, B.A. from Baldwin Wallace University, “Decrypting Crypto: Issues Plaguing Today's Hottest Regulatory Nightmare”, New York University Journal of Law and Business, 16 N.Y.U. J.L. & Bus. 551, Lexis

Conclusions & Policy Recommendations

In short, a massive **regulatory overhaul** is needed in the **U**nited **S**tates if there is any aim to adequately regulate cryptocurrencies. The current **patchwork** system has produced a number of high-profile **cases** that have garnered the ire of the blockchain industry and front-page wins for regulators, but it **does little** to provide **guidance** to **entrepreneurs** looking to **enter** the field. **Individuals** looking to deal in crypto run the **constant risk** of **tip-toeing** over the **ever-shifting regulatory line** in**to** illicit work that could earn them **fines** into the **millions** or even **jail time**. Additionally, the system is currently at the mercy of the relationships between **regulators** themselves; should any of them decide to **broaden** their interpretation of their own authority to overlap with another's, a **court battle** that could easily span **years** would likely ensue - leaving crypto in a **legal purgatory**.

The ideal means of overhauling this system would be through a congressional act that could officially define blockchain, cryptocurrency, and the jurisdiction of a single agency charged with its regulation. Though perhaps politically unlikely, establishing a new federal agency specializing in these technologies would provide an enormous amount of clarity to the space and allow for thorough, deliberate regulation that balances the interests of consumers and businesses alike. Federal regulators are currently working under an imaginary congressional mandate through the use of clever statutory interpretation and legal gymnastics. This sort of **ad hoc** governance is **not conducive** to effective policy-making and has, instead, just led to developers **skirting the law** by **exploiting** the **massive holes** existing between the patchwork jurisdiction. By introducing a new, specialized agency, these gaps can be filled, clarity increases, and the government can begin developing adequate enforcing efforts.

While perhaps opposed in the short term by developers and the industry as a whole, an overhaul in the regulation and enforcement of cryptocurrency in the United States would benefit all parties. Market **volatility** due to **uncertainty** around these products is one of crypto's **greatest weaknesses** and has **prevent**ed it from **broad adoption**. 145 **Comprehensive** government [\*578] intervention in the marketplace would likely **shore up** a significant amount of this volatility, thus granting more **legitimacy** to cryptocurrencies. Consumers could rest assured knowing that, at least to some extent, there are consumer protection mechanisms in place. **Businesses** and **developers** would be able to rely upon **established federal policies** and regulations, **eliminating the uncertainty** that currently surrounds working in crypto.

**It'll be struck down**

Nicholas **Bagley 19**, Professor of Law at the University of Michigan Law School, JD from the New York University School of Law, BA from Yale University, “The Procedure Fetish”, Michigan Law Review, 118 Mich. L. Rev. 345, December 2019, Lexis

Compounding the problem, OIRA and the courts both police the adoption of guidance documents, but not their withdrawal. Because guidance documents elaborate on agency rules and policies, they tend to restrict the freedom that entities have in complying with those rules and policies. (Guidance can also have the opposite effect: it can clarify that regulated entities enjoy discretion that they were uncertain they had. The overall tendency, however, is toward specification and control. ) Early in the Obama Administration, OIRA clarified that "significant policy and guidance documents . . . [\*368] remain subject to OIRA's review." But oversight of guidance is "more limited and unsystematic" than oversight of rules, and an agency's elimination of a guidance document is subject to no review at all. Similarly, the courts will **invalidate** policy statements for **failing to pass through notice and comment** when they **impose a "binding norm"** from which the agency is **not free to depart**, and courts will likewise invalidate interpretive rules when they **deviate too far** from the **statute** or regulation that they're interpreting. Only under rare circumstances, however, will the withdrawal of a guidance document yield litigation. Again, the asymmetry is plain.

# 1AR

## T

**‘The’ means ‘private sector’ is definite**

Merriam-**Webster’s 21** Online Dictionary, ‘the’, https://www.merriam-webster.com/dictionary/the

—used as a function word to indicate that a following noun or noun equivalent is **definite** or has been previously specified by context or by circumstance

put the cat out

**‘Private sector’ is business and includes subsets**

**TD 21 –** The Definition, ‘private sector’, https://the-definition.com/term/private-sector

Private sector refers to an umbrella term that may be applied to **any** or **all** of the nonpublic or commercial individuals and businesses, specified nonprofit organizations, most of academia and other scholastic institutions, and selected nongovernmental organizations.

**It’s not a mass noun**

Katharina **Walker 16**, Advisor for Vocational Skills Development and Helvetas’ Youth Focal Person. Sonja Hofstetter joined Swisscontact in Cambodia in July 2016. She is the Quality Assurance Manager and Deputy Team Leader of the Skills Development Programme. “ Study on Agricultural Technical and Vocational Education and Training (ATVET) in Developing Countries” Federal Department of Foreign Affairs FDFA, Swiss Agency for Development and Cooperation SDC, Global Programme Food Security, 25.1.2016, <https://www.shareweb.ch/site/Agriculture-and-Food-Security/focusareas/Documents/ras_capex_ATVET_Study_2016.pdf>

In many developing countries, the private sector1 [BEGIN FOOTNOTE 1] 1 The private sector is **not** perceived as a **homogenous mass** even though the terminology might suggest this to be the case. In this study, the term “private sector” is used to circumscribe the **various actors** such as small and medium sized companies, large companies, sectorial associations, business associations, chambers of commerce, etc**.** [END FOOTNOTE 1]faces challenges in finding adequately skilled employees. This also holds true for sectors linked to agriculture, e.g. processing, distribution, marketing, etc. The development of ATVET from a purely productivity-oriented approach to provide broader and more specialised skills sets along agricultural value chains is likely to raise the interest of private sector actors. This incentive can result in a stronger and more sustainable financial and conceptual engagement of employers in ATVET.

## K

**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 **cap**italism 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 **a**n 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, **result**ing 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 **info**rmation, allowing our **econ**omy 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 **push**ing 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 **dark**est **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**/**education**al 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 **cap**italism, 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."

**It eliminates worker exploitation AND promotes ecological sustainability**

Hannes **Gerhardt 20**, Associate Professor of Human Geography at the University of West Georgia, “Blockchains: Building Blocks of a Post-Capitalist Future?”, The Transnational Institute Long Reads, 11/6/2020, https://longreads.tni.org/blockchains-post-capitalist-future

The above cases may seem disparate, but they share a common interest in using “cryptographic ledger technology,” often referred to as “blockchain,” as a way of rethinking the valuation inherent in market-based pricing. By offering new, non-**cap**italist ways of measuring and pursuing **value**(s), blockchain promises the ability to pursue an **alternative economic path** to capitalism as we know it. Assuming the social and political power to do so, what would such an endeavor look like?

Valuation within capitalism

Before turning to the technology, it is important to be clear about the dysfunctional value system dominating the current economic order. In Ancient Rome, the thinker Publilius Syrus captured what would later become capitalist dogma when he said, “everything is worth what its purchaser will pay for it.”

Today, the obfuscated workings of the market — Adam Smith’s “invisible hand” — is seen as an omnipotent super-computer cranking out the current value of everything in the form of price. Following Marx, this simple reduction of value to what price it will fetch on the market happened when the basic rationale animating economic interactions shifted from one of pursuing commodity exchanges, facilitated by money (C-M-C), to using commodities as a means to gain more money (M-C-M). Money here becomes the marker of all the value in the world.

Such a valuation system, which is the very foundation of capitalism, leaves no room for any considerations of derived or inherent value, let alone ethical values. The consequences are clear: the reduction of labor to price leads to exploitation; viewing commodities as disconnected from labor results in the alienation of workers and consumers; and the never-ending externalization of environmental costs precipitates the collapse of global ecosystems.

Logically, therefore, any counter-**cap**italist movement **must** explore ways in which **values** — not one sole overarching value — can be **re-incorporated** into valuation by internalizing aspects of the economy that are generally excluded or hidden from view — both the good and the bad. Today, **tech**nology-inspired efforts, as illustrated in the examples above, are being pursued to do precisely this.

Blockchain and beyond

Blockchain is a digital, decentralized database of value-exchange transactions — essentially a ledger. It is open for anyone to see, like a shared Google document. Those who take part in viewing and building the ledger are called nodes. The ledger is established in a linear sequence of encrypted, time-stamped datasets, or “blocks.”

It is almost impossible to tamper with the ledger owing to a number of ingenious security measures, of which the most important is that the blockchain is based on the consent of the majority of nodes, i.e. it is a decentralized, peer-to-peer security system with no central site that could be compromised. The far-reaching contribution blockchain offers is the ability to create and maintain incorruptible records of monetary, product, or labor exchanges, among many other things, with no centralized intermediary such as a bank, a boss, or a government.

We are now also beginning to see the unfolding of second- and **third-gen**eration blockchain technologies, which have moved beyond capturing value transfers to **establishing entire systems of value exchanges** using **smart contracts**. A smart contract is a blockchain-enabled “if-then” program in which a particular event is triggered if a certain condition is met, which can be assessed by peer-to-peer or automated systems.

For instance, Sensorica’s value accounting system would be based on self-reporting and group verification. The information supplied by fishermen claiming Fishcoin could be assessed via a combination of autonomous sensing equipment, audits and reliance on users’ honor. Smart contracts can also be bound together into larger systems using artificial intelligence (AI) applications to create distributed autonomous organizations. Think here of Sensorica’s entire open value network being coded — from articles of association to bylaws — meaning that its complete production environment would have been created to function autonomously according to specific norms and values.

Despite its potential to make short shrift of centralized rent extractors and bosses, it is important to acknowledge that blockchain is not inherently progressive. In fact, it embodies the libertarian sentiments that are entrenched in capitalism’s market-centered value system. This means that technology-inspired, counter-capitalists have to fundamentally re-design, repurpose and re-govern blockchain’s underlying code.

FairCoin, for instance, successfully circumvented the ridiculous amounts of energy required by the verification system of traditional blockchains by re-coding the procedure through which blocks are added. FairCoin has also embraced open, democratic governance arrangements for managing its code in order to avoid the often opaque and guarded decision-making structures employed in systems like Bitcoin.

Some commons-oriented code writers are even developing cryptographic ledger systems beyond blockchain whereby anonymous, “trustless” networks are replaced by interlinked trusting groups, thereby enabling greater speed and scalability of data processing. One such effort is the biomimicry-inspired “Holochain,” a blockchain-like code described as a “method and reward structure for storing and accessing data and applications among users themselves.”

The ultimate aim of the Holochain project is to overcome the internet’s server-dependent centralization by using the participants’ excess computer processing power and hardware storage to create a true peer-to-peer internet, or “Holo network.”

Such a network will eventually require the widespread adoption of HoloPorts, the hardware that enables computer power sharing, as well as decentralized Holo applications that will run in the Holo network. The Holo apps, or Happs, will generally be aimed at making use of and expanding the peer-to-peer nature of the network, ranging from alternative social media platforms, such as Junto, to energy monitors and distribution systems such as Redgrid.

Re-valuing and de-fetishizing

How could this fancy new code challenge the human and environmental degradations caused by **cap**italism’s valuation system? We know that the current value system reduces labor to an **exploitable** commodity. In Sensorica’s open value network, however, the exploitation of labor is directly challenged by creating a **value accounting system** that is inherently **meritocratic** and **fair**, where work done within one project can also be credited if it is picked up by another. It is a commons-based peer-to-peer production arrangement rooted in fundamentally non-capitalist values — collaboration, openness, decentralization — yet one that its proponents believe can compete with and ultimately replace capitalist actors in the marketplace.

Developing such a system has been one of Sensorica’s main goals and it is now seeking blockchain-based solutions to increase its functionality, scalability and security. Holochain is one of the leading contenders to build this infrastructure.

The idea of coding commons-centered environments such as these is also the impetus for the creation of the Economic Space Agency (ECSA), a global collective of counter-capitalist economists and computer scientists seeking to expand and scale up the values-infused production pursued by the likes of Sensorica. According to Tere Vadén at ECSA, the aim is to create environments for economic interaction that “… encode incentive mechanisms and choose specific valuation metrics of non-monetary assemblages (from relationality, trust, and quality to land, labour and material goods) in smart contracts.”

Importantly, the values being coded into these environments, which can expand far past a single enterprise to encompass trans-local economies, are not limited to labor but can also address environmental issues. According to David Dao, a pioneer in employing distributed autonomous organizations to further sustainability, “we now have accessible tools to efficiently engineer economic incentives in a cheap and scalable manner…by distilling (crypto) incentives into code, we are now able to treat economics simply as software .” Driven by this conviction, Dao founded GainForest, which uses a combination of smart contracts to link donors, forest communities and sophisticated verification systems to fund and support sustainable forest stewardship, specifically in the Kayapo Indigenous territories in Brazil.

Beyond exploitation, **cap**italism creates a sense that goods and services are **stand-alone things** whose value is directly captured in their price, thereby obscuring how this value is actually derived. This is what Marx called “commodity fetishism.” This view of commodities significantly contributes to workers’ alienation because it breaks down the inter-personal relationship between producer and consumer. It also leads to a disconnect between consumer and nature.

Turning again to Sensorica, the voluntary, **empowered** and **justly remunerated** labor that could be made **feasible** on a **large scale** through blockchain-enabled, open value networks could be a way to **return a sense of ownership** of the **labor provided**. FairCoop is another instance in which workers’ alienation is challenged by facilitating self-employment with the help of the alternative FairCoin cryptocurrency. Similarly, Fishcoin challenges the disconnect between producers and consumers inherent in commodity fetishism through more transparent supply chains.

By meticulously documenting the various stages in production, producers and consumers can develop and respond to the various human and natural dimensions in a given economic activity. The blockchain-based system that reveals the various sources of the seafood we eat, for instance, is a **first step** in overcoming the **obfuscation** within existing forms of consumption, while simultaneously serving to track and hence manage the tapped resources. The potential here is significant.

**It fixes the most direct flaws of capitalism**

Hope **Mutie 21**, Professional Writer and Editor Whose Interests Include Fintech, Cryptocurrency, and Blockchain, Go Full Crypto Podcast, “Bitcoin Fixes The Things You Hate About Capitalism”, CryptoVantage, 3/25/2021, https://www.cryptovantage.com/news/bitcoin-fixes-the-things-you-hate-about-capitalism/

How Bitcoin Fixes Capitalism’s Ills

Bitcoin and Bitcoin’s ideals attempt to **fix capitalism’s ills**. It can do this because Bitcoin’s guiding principle is **decentralization**. Decentralization means no one is calling the shots whatever their standing in society. Bitcoin is an **equalizer**. It’s also radically **transparent** in that every single transaction in its history can be viewed on its public network.

Let’s look more specifically at the ways **Bitcoin solves some of capitalism’s problems**.

#1. **Opportunity** for all – **Inequalities** constitute social and economic disparities. How does Bitcoin address **inequality**? One can **grow wealth** through Bitcoin and the products it has spawned. The newly emerging **DeFi** (decentralized finance) ecosystem rides on the back of Bitcoin’s success and ideals. DeFi is powered by smart contracts meaning you don’t need to hire an expensive lawyer or pass through tedious bank vetting processes to access products. All you need is a mobile phone with internet connectivity to access these and more products to start earning:

* Yield farming
* Lending
* Betting on prediction markets
* Staking
* Participating in no-loss lotteries
* Monetizing your content on platforms like Steemit

Thanks to Bitcoin, wealth growing tools are **no longer concentrated** only in the hands of the bourgeoisie and wealth inheritors. Everyone can get in and start the journey to a decent life.

#2. Decentralization – Bitcoin employs a distributed system of governance. No matter how high-placed one’s connections, it’s impossible to buy your way into special status in the Bitcoin ecosystem. All decisions are arrived at through community consensus. In the end, you have a fair system where everyone’s voice, no matter their social status, origin, or gender, is heard.

#3. Transparency – There’s **no corruption** in Bitcoin. The generation of new Bitcoin is controlled by its code, and no one is unfairly getting proceeds through shadowy means. The amount of BTC in circulation and the amount not yet generated is there for all to see. It’s impossible to create fake money and game the system to one’s unfair advantage. Similarly, no one can manipulate its price and supply. Everything comes down to the pure forces of demand and supply.

Final Thoughts

Capitalism is one of the better economic ideologies. But many a dream has died upon its altar. It appears that throughout history, we have yet to identify an economic framework without its own collection of faults. Bitcoin stands as a means to unbiasedly serve as the underpinning to not just capitalism, but all future economic frameworks. Thanks to Bitcoin, we now have the ability to **make several of the factors that tarnish capitalism obsolete**. **Bitcoin fixes things people hate about capitalism**.

**Antitrust builds socialist counterpower---no co-option**

Dr. Gerald **Berk 19**, Professor for Political Science in the University of Oregon, PhD in Political Science from the Massachusetts Institute of Technology, “Antimonopoly and the Democrats”, Dissent Magazine, 11/25/2019, https://www.dissentmagazine.org/online\_articles/antimonopoly-and-the-democrats

Democratic Socialists

The antimonopoly tradition has already seeped into contemporary democratic socialist politics. From Bernie Sanders’s presidential campaign to the Movement for Black Lives and the Green New Deal, socialists have combined the antimonopoly tradition with class analysis in a mixture fertile for reform.

On its **face**, the antimonopoly tradition **seems** at **odds** with socialism. Why **improve** markets when they are the **site of** labor **exploitation?** Why promote **competition** when it drives down **labor and environmental standards worldwide?** Isn’t the resurgence of antitrust yet **a**nother effort to **save capitalism and coopt the socialist left?** All of this **might** be true, if contemporary socialists conceived of socialism as a **uniform system of public ownership** of the means of production. But although they seek to decommodify critical **areas** of economic life (healthcare, education, and housing), many socialists advocate a **mixture** of economic forms: strong unions, co-determination, labor councils, employee stock ownership plans, cooperatives, credit unions, family farms, and community land trusts. Where public ownership is not a **clear** substitute for private economic power, many socialists have **turned to the antimonopoly tradition to destabilize and prevent that power from accumulating**.

Consider socialist proposals for **banking**. Many prominent democratic socialists support a return to **Glass–Steagall**, a classically antimonopoly solution to corporate power, rather than **public ownership** of banking. As Supreme Court Justice Louis Brandeis wrote in Other People’s Money and How Bankers Use It in 1914, allowing bankers to speculate on the savings of depositors was a conflict of interest. It fostered excessive risk-tasking, turned banking into a casino, enriched a small elite, and divided the interests of Wall Street from Main Street. The framers of Glass–Steagall hoped to check these tendencies. In the aftermath of the financial crisis, Sanders called **not** to **nationalize** banks that were too-big-to-fail but to **break them up**. The opposite, he argues, has occurred. The bailouts and the Dodd–Frank Act made banks bigger, fewer, and more powerful.

Socialists **combine** antimonopoly analysis of banking with **class-based, anti-racist, and communitarian action**. **Black** communities, for example, cannot be revitalized without a **national credit fund** and policies to support locally owned and run black banks. Worker-owned enterprise, cooperatives, and geographically rooted enterprise cannot thrive without renewed attention to **community development** and **rural banks**, local credit unions, and revolving credit funds. Socialists acknowledge that **none of these alternatives are possible or sustainable without checking the power of the largest financial institutions in the first instance**.

Socialists have a similar approach to agricultural policy. Sanders’s plan to revitalize rural America combines class and antimonopoly analysis. The monopolization of agriculture, reads his plan, has devastated family farms and rural communities. In pork production alone, consolidation resulted in an 82 percent decline in the number of hog farms in Iowa between 1982 and 2007. Worse still, corporate agriculture has turned formerly independent farmers into a dependent class through an exploitative system of vertical integration. Dominant meatpackers and chicken processors have taken ownership of livestock. They let out contracts to ranchers and farmers to raise it for cut-rate prices, under rules that foist cost and risk onto the producer. Machinery monopolies make it illegal to for farmers to repair their own equipment. Chemical giants routinely sue farmers for breach of patents.

The first line of defense in Sanders’s plan is not public or collective ownership but to “Enact and enforce [Teddy] Roosevelt-style trust-busting laws to stop monopolization of markets and break-up existing massive agribusiness; Place a moratorium on future mergers of large agribusiness corporations and break-up existing massive agribusinesses;” and enforce rules against exploitive vertical contracts.

The goal of these antitrust policies is not to unleash the free market, but to ensure that farmers receive fair prices and share risks with packers, processors, wholesalers, retailers, and consumers. This mixture of checks on the power of corporations and fair pricing among smaller producers is what Brandeis called “regulated competition.” The goal is to channel rivalry away from the sorts of predatory tactics enacted by big meatpackers into improvements in production processes and products. Like the Green New Deal, which promises to ensure “a commercial environment where every businessperson is free from unfair competition and domination by domestic or international monopolies,” Sanders’s plan promises to improve production by working with farmers and ranchers to remove greenhouse gas emissions from agriculture.

Liberals

Liberals have also begun to draw on the antimonopoly tradition. Among the current Democratic presidential candidates, Amy Klobuchar is the best example of this tendency. A proud student of Robert Bork, Klobuchar is the ranking member of the Subcommittee on Antitrust, Competition Policy and Consumer Rights of the Senate Judiciary Committee.

For all Klobuchar’s commitment to “make antitrust cool again,” she worked hard to keep it walled off from the antimonopoly tradition until very recently. In 2016, Klobuchar introduced two bills to improve antitrust administration. The first made it easier to block mergers that increased consumer prices, lowered product quality, excluded competitors, undermined innovation, or unfairly lowered prices, and shifted the burden of proof from the state to corporations proposing mergers. The second bill, co-sponsored by nine Democrats, was designed to improve Federal Trade Commission (FTC) and Department of Justice (DOJ) capacities to serve consumers.

At the Open Markets Institute, where Barry Lynn and his colleagues have sounded the siren on monopoly power for more than a decade, Klobuchar’s proposals were met with appreciative skepticism: they raised consciousness but perpetuated the failed 1980s idea that the purpose of antimonopoly law is to protect consumers. Antitrust law, they insisted, was written to serve a variety of “political economic goals, primary among these being the defense of democratic institutions from consolidations of power and the defense of the market structures that promote the distribution of opportunity and wealth.”

More recently, Klobuchar has rekindled the antimonopoly tradition. Monopoly power, she now admits, can oppress workers and subcontractors even if consumers are served by low prices. Liberals call this sort of economic domination “monopsony” (or buying power). Klobuchar has promised to scrutinize it as much as consumer domination and to press for antitrust action in two industries where a small number of powerful corporations have suppressed wages and labor unions: airlines and rails.

Klobuchar is not the only Democratic liberal cautiously revisiting the antimonopoly tradition. Neoliberals like Hillary Clinton and Virginia Senator Mark Warner have begun to see monopoly power as an obstacle to their cherished motors of economic growth: entrepreneurship and technological innovation. Where they once blamed democracy and regulation for economic stagnation, they have begun to ask how monopolists use their deep pockets and political power to suppress entrepreneurship, competition, and technological responses to pressing problems like poverty and climate change. During the 2016 campaign, Clinton complained not only that monopolists exacted excessively high prices on pharmaceuticals, air travel, and internet access; she highlighted how they suppressed wages, blocked start-ups, and killed innovative small competitors. She promised to stop corporate concentration anywhere it unfairly limits competition, to close loopholes in the law that protect incumbent businesses, to direct the DOJ and the FTC to study the relationship between market consolidation and stagnating incomes, and to beef up antitrust enforcement. Even Joe Biden, no critic of economic power in the Senate, has expressed his support for more aggressive antitrust enforcement. Like Sanders, his “Plan for Rural America” promises to protect small- and medium-sized farmers and ranchers from the power of chemical, packing, and seed monopolies. Though Biden has yet to fulfill his promise to roll out an antitrust plan, it is hard to imagine he will produce one weaker than Clinton’s in the current political climate.

Antimonopolists

For some Democrats, like Elizabeth Warren and her allies in the Open Markets Institute, the antimonopoly tradition is so central to their politics that they may be thought of as antimonopolists. They have led the drive to bring antimonopoly tradition back into Democratic Party politics. At the time of the bank bailout and the passage of the Dodd–Frank Act, it was Warren who first said that if the nine largest banks were too big to fail, they should be broken up. And, among party leaders, it was Warren who argued most forcefully that the repeal of Glass–Steagall under Clinton had contributed to the financial crisis.

Warren is an antimonopolist who loves markets. She is a is a lawyer who, unlike the Clintons and Klobuchar, resisted indoctrination by Bork’s law-and-economics movement. Although she flirted with these ideas early in her career, studying bankruptcy convinced her that “reality is a lot messier than these theories.” The majority of people who declared bankruptcy, she learned, were thrown into turmoil by health issues, unemployment, or personal crisis, not because they were reckless borrowers. Studying bankruptcy, moreover, revealed the larger problem of the vast expansion of consumer credit to compensate for stagnant wages. Just as progressive legal realists developed a critique of labor contracts a century before, Warren came to view credit contracts as corrupted by structural inequalities. Lenders exploited their power to deceive and manipulate borrowers, collude among themselves, and threaten delinquents.

Warren’s conclusions placed her in opposition to the powerful alliance of conservative legal scholars, foundations, and the financial services industry. She debated bankruptcy law with the dean of the Chicago Law School and fought the credit card industry’s efforts to tighten bankruptcy restrictions. Appointed by Congress to monitor the bank bailout in 2008, Warren saw political corruption, predatory business behavior, and monopoly power everywhere she looked.

Like Progressive Era antimonopolists before her, Warren insists that markets are not self-regulating entities autonomous from law and politics. Markets either have good rules or bad rules, either enforced or unenforced. The design and enforcement of these rules make markets more or less egalitarian. In more egalitarian markets, people are likely to make bargains that made them better off; power is more likely to be temporary and less likely to corrupt politics. In autocratic markets, theft becomes legitimate and might makes right.

If structural inequalities undermine the good markets can do and corrupts politics, then it is not enough, say, to improve the FTC’s capacity to monitor Amazon, as liberal technocrats suggest. Amazon amassed and locks in its power by serving as a platform for its vendors and as a competitor to them. It monitors their successes, copies them, and then favors its own subsidiaries until it drives competitors into the ground. When Warren says break up Amazon, she means it should not be allowed to be a platform for other businesses and a competitor against them simultaneously.

The antimonopoly tradition acknowledges the inventiveness of the powerful. That means it is necessary to build countervailing power in the state and civil society. If Congress outlaws mortgages or credit cards whose interest rates can be raised without notice, lenders will invent new predatory instruments—hence the need for a Consumer Finance Agency to monitor fraudulent behavior.

Cory Booker, a child of the black petit bourgeoisie, has also expressed antimonopolist convictions. He watched his parents’ funeral home get driven out of business by predatory competition from corporate chains. The same story, he notes, can be told for black banks, insurance companies, and retailers. Unlike Warren, who came to antimonpolism through professional conviction, Booker came to it the way many Americans have historically: through concrete experiences of predatory competition, which threatened livelihoods, communities, independence, and, in his case, racial self-determination.

Common Ground?

While history has convinced me that antimonopolists better understand the development of U.S. political economy than either Marxists or liberals, it has also convinced me that every political project has its blind spots. Antimonopoly and liberal politics do not address class sufficiently. Socialist proposals are mostly unconcerned about innovation. Liberals are far too complacent about power. Each also has its strengths. Socialists show us how monopoly power oppresses labor, liberals how it impedes innovation and public problem solving, and antimonopolists how we can use existing legal and cultural resources to counter concentrated power and build a more democratic economy.

The antimonopoly tradition has energized a wide spectrum of people in the orbit of the Democratic Party. **Combined** with other political projects, it can **help mobilize young people, small business, minority voters, non-college whites** in the Midwest, **and rural voters**. It is a **mistake** to **gag any version** of it, because doing so has the potential to **suppress mobilization** across the diverse **coalition** that is the **only weapon Democrats have** against the Republican Party.

**Any remaining link is offense---the cover of capitalist mechanics creates the space for transformational experiments AND purity is impossible and precludes tangible material gains in the short term**

Dr. Brian **Massumi 18**, Professor in the Department of Communication Sciences at the University of Montréal, Ph.D. in French Literature from Yale University, “99 Theses on the Revaluation of Value: A Postcapitalist Manifesto”, https://manifold.umn.edu/read/99-theses-on-the-revaluation-of-value/section/04cddab4-08cc-40e5-b505-02c26eabd368

T75

To be at all **sustainable**, even temporarily, the autonomous zones must be able to **interface** with the **existing** economy. To do so, they must practice **creative duplicity** in relation to quantification and economization.

Scholium. **Otherwise** they will be **crushed**.

T76

This means that they must play their own differential with capitalist economization. They must be **relationally autonomous** with regards to it: carving out their own eddy of processual singularity, while **at the same time** **coupling** processually with capitalism for the **time being** (until a tipping point is reached).

Scholium a. Otherwise they will **starve**.

Scholium b. In any case, they have **no choice** in this matter, given that **complicity** is **a**n **ontological condition** under neoliberal **cap**italism (T34 Schol. c, T60). They cannot stake out a **position** outside the capitalist field, because it **only** has an **immanent** outside. This in no way means that they will be “all in” it. There is **no position** of **purity** from which to **oppose** capitalism. But by the same token, there is no being all in it (T60 Schol. a). There is **power** in the **duplicitous positioning** that is potentially **creative**. There is no reason in principle **creative duplicity** **can**not immanently **leverage** postcapitalist difference.

Scholium c. It is not as if not exploring an alter-economy interested in, and in creative tension with, the model of financial capital will avoid complicity. **All** existing alter-economies **interface** with the dominant economy in **one way or another**, of **necessity**, as does every individual involved in them who has ever **earned a wage**, **bought a product**, **opened a bank account**, or **benefited from a pension**. The ways in which **funding** is conventionally **obtained** for collective projects (government grants, foundation grants, crowdfunding) are all **deeply complicit** with neoliberalism in their own ways, and come with the added disadvantage that the nonprofit status often involved in those efforts requires a legal organizational structure that repeats the basic characteristics of the corporate model (officers, board of directors, membership conceived as shareholding or stakeholding, annual meetings, etc.) and a day-to-day management structure reproducing the conventional hierarchy (at least on paper). Everyone is **already** practicing creative duplicity, and short of a global revolution will continue to do so. Historically, **even the most radical of revolutions** have been **recuperated** by capital. It **cannot be assumed** that it will be **different** the **next time** around—unless the postcapitalist future is already availably prefigured in the interim. So the issue is **not whether** to practice creative duplicity, but **which** complicit duplicities and in **what way**. There is no a priori reason not to **explore** all avenues, **even the ones that the left traditionally holds under the highest suspicion**. **Striking a posture of purity will get nowhere**. It too easily **absolves** one of **engaging**, day to day, hour by hour, with the **real conditions** of life, as part of an ongoing struggle reaching down to the microlevels of existence. **Sustained engagement** of that kind is **necessary** if those conditions are to be sustainably **changed**. “Certainly now is the time to **create money** designed to stoke demand for new **financial tools** for activists, collectives, social movements, artists, refugees, and all who struggle for a life worth living so that they might catch and keep their own value for themselves” (Beller 2017, 10).

**The alt forces either a hard opt-out OR linking back in AND relies on purist affect---all of that is unsustainable. Reconfiguring practical tools like blockchain is far better.**

Dr. Brian **Massumi 18**, Professor in the Department of Communication Sciences at the University of Montréal, Ph.D. in French Literature from Yale University, “99 Theses on the Revaluation of Value: A Postcapitalist Manifesto”, https://manifold.umn.edu/read/99-theses-on-the-revaluation-of-value/section/04cddab4-08cc-40e5-b505-02c26eabd368

Lemma. New systems evolving out of the **blockchain**, beyond Bitcoin and Ethereum, could provide a **propitious digital environment** for **alter-economic experimentation**.

T89

The reason that the adoption of this vector of digital design of the platform would have to be carried out with utmost care is that certain regressive tendencies, of an anarcho-libertarian cast, were designed into the original blockchain concept. These tendencies have to be counteracted.

Scholium. Ideologically, the development of the blockchain was closely associated with **libertarian** market fundamentalism (Golumbia 2016). Not only is the **conventional** threefold definition of money **uncritically assumed**, **underplaying** the **speculative side** of cryptocurrencies (T23), it is further assumed that economic activity comes in discrete units of action. Each such unit is a transaction between two individuals. The transaction is entered into according to each individual’s calculus of its own self-interest. The freeing of the market from the control of the banks and national governments is thus little more than a transactionalist (Iocanesi 2017) liberation of self-interest. The blockchain is a technical distillation of the ideology of individual self-interest that is one of the major tendencies in-forming capitalism. It takes capitalism’s basic market ideology and tries to purify it, and objectify that purification in a technical system. It radically reinforces the concept of the market that is at the heart of capitalism, along with the transactional exchange model that is central to the concept of the market.

Lemma. Anarcho-libertarianism is anarcho-capitalism.

T90

**Next-gen**eration blockchain-inspired platforms use smart contracts to **expand the notion** of what a transaction can be in ways that may be able to begin to **counteract the libertarianism** built into blockchain.

Scholium a. An example is the conjoint “Gravity” and “Space” **crypto**currency platforms under development by the Economic Space Agency (www.esca.io). The idea is that instead of blockchaining simple exchange transactions, transactions can be made programmable and thus infinitely customizable, **extend**ing to **anything** that could be conceived of as a contract. “Contract” is taken in its broadest and most basic definition, as a conditional engagement where one action (or set of actions) calls for a return action, either immediately or within a designated time interval. This need not involve an **exchange** per se, i.e., the use of a currency as medium of exchange and general equivalent. Any proposition for an if–then call and response between actions could be programmed. The actions also need not be **individual**. For example, a smart contract could specify a set of actions needed to prepare a collective project for taking a step forward in its process, and what will happen when those conditions come together. A simple example would be a collaborative film production, where smart contracts could be used to bring equipment, skills, and resources together for a shoot or a promotional campaign, and once the conditions are in place, trigger these logistical operations into action. They could also be used to organize collaborative input into the creative process of the film’s conception. Even more, smart contracts could be used to decentralize decision making by enabling propositions to be made and voted upon according to pre-agreed-upon protocols. Logistics, creative collaboration, governance, and the production of value would then be intertwined through a single platform whose running would be **autonomous** and **distributed**, dispensing with the need for an executive hierarchy overhanging the process and lording over its participants. In this way, a certain commons of productive activity would be created, with an ethos of collective collaboration and a certain instantiation of direct democracy. The overall system is designed to be customizable down to the lowest level, so that unlike Bitcoin or Ethereum, projects can program a dedicated domain of operations embodying their particular orientations and priorities while at the same time remaining interoperable with the general cryptocurrency environment. With this, the DAO (distributed autonomous organization) evolves into the DPO (distributed programmable organization). With that evolution, the blockchain will have to give way to a more rhizomatic architecture, such as the “holochain” (https://blog.p2pfoundation.net/difference-blockchain-holochain/2017/11/02).

Scholium b. The film production example shows significant progress in overcoming the individualism of first-generation blockchain. At the same time, the limits of it are easy to see. As soon as there is a product, self-interest comes back into the picture. The film will be marketed and make money in the dominant economy. Each individual collaborating on the project will expect a share of the profit generated. This is still a capitalist project. The production is market oriented and is aiming for the generation of profit that, in the name of fairness, would have to accrue to the members of the collective according to a pre-agreed protocol (also formalized in a smart contract). The lure of profit is a powerful attractor. It is a way of incentivizing that activates a plethora of ingrained capitalist—and tendentially individualist—attitudes and habits that could not fail to inflect what creative directions are taken, what propositions are made, and what decisions pass the vote. The creative film process would not be fulfilling itself only for the surplus-value of life it brought to the collaborators and the eventual viewers of the field. It will not be lived and enjoyed purely qualitatively, as a value in itself. In addition to producing surplus-value of life, it will also be lived for quantitative gain, and these two contrasting tendential movements might enter into potentially uncreative tension. The interference between the profit motive and the creative impetus, between collaborative energies and individual gain, would likely de-intensify the creative process by making its self-driving be driven by an outside goal.

T91

It may be possible for tokens to be used to expand cryptocurrencies beyond the conventional, individual, market-fundamentalist, transaction-based functions of money.

Scholium a. For example, instead of predesignating a certain share of the profit for each individual, individuals’ activity of creating and fulfilling smart contracts could be tracked by an accounting smart contract that allocates tokens based on how much someone contributes. The tokens could be in a cryptocurrency that interfaces with Bitcoin or national currencies, so that it could be cashed out. This could conceivably function even in the absence of a saleable end product. That would be possible if the cryptocurrency had a recognized value on the speculative cryptocurrency market, underwritten, as all currencies are ultimately in any case, by investor confidence. In other words, it would be backed by affect more than by a product-linked tie-in to the “real” economy. This would gain the collective practice a certain autonomy from the capitalist teleology of the marketable product, but would wed it to the speculative logic of the financial market, in its cryptocurrency incarnation, with all of the volatility that comes along with surplus-value of flow and its tendential levitation from the productive economy. The interference between incentivization by individual gain and the collaborative production of surplus-values of life would continue to be a factor. Tokens could also be used internally to the collaborative platform. They could be amassed and then “invested” in decisions. Propositions garnering the greatest number of tokens would get the go-ahead. This has two drawbacks. First, it sneaks back in the equation between labor-time and monetary value that lies at the basis of the capitalist exploitation of live activity: the reward of tokens would correlate to quantity of input actions, which would in turn correlate to the amount of time invested in them. Secondly, it would reintroduce structural inequality by channeling this capture of life-time into a re-hierarchization of the decision-making playing field. By putting your tokens on the table, you would essentially be buying unequal decision-making power with the capture of your contributed vitality.

Lemma. If it is possible for tokens to be used to expand cryptocurrencies beyond the conventional, individual, market-fundamentalist, transaction-based functions of money, this is something that is yet to be invented and will require a great deal of craftiness.

Scholium b. Alternative token strategies also tend to operationalize a form of value that has not been mentioned up to now, but is fundamental to capitalism: use-value. The praise of use-value is often sung in alter-economy communities as a way out of capitalism. This is dangerously naïve. Use-value, it is true, is qualitative: “it is conditioned by the physical properties of the commodity, and has no existence apart from it” (Marx 1976, 126). However, use-value only functions economically to the extent that it “metabolizes” as (is processually converted into) exchange-value (Marx 1976, 196–97). The threefold definition of money, and the correlation between quantity of labor-time and quantity of value, are complicit with use-value to the extent that it metabolizes as an economic factor. Measures may be taken to prevent use-value from fully metabolizing with exchange-value (as in skill-sharing networks and other sharing economies; T25). But nothing can prevent it from being haunted by money, the market, and the essentially extortionist correlation between labor-time and value. These slip back in in informal assessments of how “equal” or “fair” a sharing exchange had been, even if such assessment is discouraged. In addition, use-value is essentially normative. It is bound up with already-formed functions having conventional values in one or another systemic context (related to technical systems, productive industries, service industries, or cultural industries, with the definition of “use” varying by domain). By virtue of this systems-participation, a formed function carries a certain regulatory force, even outside its dedicated functional context, and in spite of the best efforts to break that link to power. How could the judgment of usefulness not carry such a force? All of this is part and parcel of the work paradigm so integral to capitalism (even where it is not in force in a full-fledged way as a work ethic). Tokens could theoretically be used in entirely different ways, potentially skirting around use-value, by adopting gaming models. However, gaming typically privileges a stimulus–response structure (as opposed to a creative call-and-response process) that re-performs the dominant economy’s individual transaction-exchange paradigm, even as it repurposes it for the production of a certain surplus-value of life: fun. Fun is a kind of surplus-value of life that is well-known to neoliberal capitalism and well-articulated with it, even to the point of playing a regulatory function in the life of human capital (spawning whole industries: the entertainment sector).

T92

The postblockchain cryptocurrency digital-platform route offers many avenues of response to the capitalist market, but the models now existing or under development so far are stuck in a game of whack-a-mole with it. With every blow against it in one place, the familiar myopic face of one of its constitutive principles pops up somewhere else.

T93

Although all manner of commons-centered, collective, collaborative models should be exploratorily pursued and concertedly experimented with, there is a need for projects attempting to go **beyond the pale**, to **cross over** today’s anarcho-libertarian **horizon** to **new anarcho-communist vistas** more intensely prefiguring the postcapitalist future.

Scholium. Only a project that operates, in its own processual arena, according to radically anarcho-communist, as opposed to anarcho-capitalist, principles has a chance of beginning to move beyond capitalist economization—and its attendant power formations—in a way that is **maximally resistant** to **recapture**. Intentional **communities** and autonomous **enclaves** are a **traditional route** for experimentation of this kind. Their **limit**ation is that they are **obliged** for their survival either to **opt out** of the economy in a way that is **rarely sustainable** long term, or find ways to **link back** in through participation in the local economy or the creation of microbusinesses. They also tend to devalue processual excess, which expresses itself most intensely in surplus-value of flow, in favor of a regained rootedness in a regulatory ideal of “real life.” Their affective intensities often pool around figures of **purist return**: to “nature,” to “authenticity,” to true “community,” and to true activity (craft)—normative notions, all. Experimentation with **alter-economic models** employing digital currencies can potentially pioneer **more sustainable** and **flexible** ecological models, proudly **impure** and **without return**. Intentional communities and autonomous enclaves are a welcome element in an alter-economic ecology, as long as they are able to reconcile their dedication to local structure with open system. But they do not provide a general model for alter-economy.