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HOUSE OF REPRESENTATIVES

COMMONWEALTH of PENNSYLVANIA

House Democratic Policy Committee Virtual Hearing

Blockchain + Cryptocurrency: Preparing Pennsylvania for a Digital Future

Monday, July 19, 2021 | 10 a.m.

Hosted by State Rep. Napoleon Nelson

10 a.m. PANEL ONE

Tonya Evans, Founder
Advantage Evans Academy
Professor of Law, Penn State Dickinson Law

Brian Knight, Director of Innovation and Governance/ Senior Research Fellow
Mercatus Center at George Mason University

Kevin Werbach, Professor
University of Pennsylvania

Q & A WITH LEGISLATORS

10:50 a.m. PANEL TWO

Gerard Dache, Executive Director
Founder, Government Blockchain Association – Global

Scott Nissenbaum, President & CEO
Ben Franklin Technology Partners of Southeastern PA

Q & A WITH LEGISLATORS

11:25 a.m. PANEL THREE

Andrew Bull, Esquire
Founder, Bull Blockchain Law

Miller Whitehouse-Levine, Director of Policy
Blockchain Association

Q & A WITH LEGISLATORS

Testimony submitted for the record by Blockchain Innovation Group of PA's Michelle Bohnke



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Testimony before the Pennsylvania House Democratic Policy Committee On Preparing Pennsylvania for a Digital Future

Submitted by Tonya M. Evans on July 19, 2021

Professor, Penn State Dickinson Law School
Founder & CEO, Advantage Evans Academy
Host, Tech Intersect Podcast
Chair, Maker Foundation

To Chairman Bizzarro and Representative Nelson:

Thank you for the invitation to participate in this important conversation as Pennsylvania prepares to position itself as a leader in digital innovation to be on the leading edge of the future of work and wealth.

I am an intellectual property and technology lawyer and professor at Penn State Dickinson Law School. My research, scholarship, and teaching focus primarily on the intersection of law and social justice in innovation and new technologies and includes a range of doctrinal and experiential courses; most notably, blockchain, cryptocurrency and the law, information privacy law, and administrative law. I am also founder of the Advantage Evans™ Academy, creator of the From Cash to Crypto™ online digital onboarding course and host of the Tech Intersect Podcast, a weekly show that highlights new and notable experts at the intersections of law, business and technology. Prior to joining Dickinson Law, I served as Associate Dean of Academic Affairs at the University of New Hampshire Franklin Pierce School of Law, where I created and directed the school's Blockchain, Cryptocurrency & Law online professional certificate program and developed and managed its world-class instructor pool and curriculum.

I commend Representative Nelson and the Committee for convening this hearing to explore the potential benefits, challenges, and drawbacks of integrating blockchain technology and crypto assets into the public, private and charitable sectors of the Commonwealth. It is essential for government officials to identify and to consider the myriad local, national, and international policy issues associated with achieving the optimal balance between cultivating a robust, competitive and transparent regulatory environment that also supports and encourages innovation in this fast-paced digital world. Such a goal also serves to protect Pennsylvania's consumers, investors and businesses by enhancing the benefits and mitigating the risks of this emerging and potentially revolutionary technology. This is particularly important at this moment in history as we emerge from the economic ravages of the pandemic, especially for those citizens historically and systemically marginalized and disenfranchised in the current financial and technology sectors.

The Value Proposition

According to Statista,¹ 33% of global organizations say that their companies are working on creating a digital currency using the technology. Additionally, the New York Digital Investment Group (NYDIG) reported recently that approximately 46 million Americans now hold Bitcoin.² The NYDIG also found that approximately 75% of survey respondents said they wanted to learn more about Bitcoin annuities and Bitcoin life insurance, with almost 90% being interested in such products having at least some link to Bitcoin (either directly or indirectly).

Mastercard surveyed over 15,000 people from 18 different countries and compiled the results in its “Consumer Appetite for Digital Payments Takes Off” report. The study showed that millennials are the most active in cryptocurrency. But three-fourths of them wanted to understand how cryptos work before purchasing or using them as an alternative means of transacting value. Americans are clearly open and curious but exceedingly cautious, especially given the high volatility, cautionary tales of loss, theft and nefarious uses of crypto, and sensationalized hype-driven headlines that intentionally or unintentionally spread ‘fear, uncertainty and doubt’ (aka FUD). The major barrier to mass and mainstream adoption of cryptocurrencies is education.

We are at an inflection point in the development of Web 3.0’s blockchain infrastructure. In the eleven years since the first blockchain (the Bitcoin blockchain) was created, dramatic, substantial and undeniable inroads have been made to move blockchain technology, cryptocurrencies and decentralized finance into mainstream view. Other United States jurisdictions have taken notice and have proactively seized the opportunity to welcome blockchain innovators to their states to test leading edge product and service development and deployment within the confines of a safe regulatory framework.³ Arizona (2018),⁴ Nevada (2019),⁵ Utah (2019),⁶ Wyoming (2019),⁷ Florida (2020),⁸ and West Virginia (2020).⁹ Other states have introduced similar legislation: Illinois (2019), South Carolina (2019), Texas (2019), Connecticut (2021), Louisiana (2021), New York (2021), North Carolina (2021), North Dakota (2021), Oklahoma (2021).¹⁰

¹ <https://www.statista.com/statistics/878732/worldwide-use-cases-blockchain-technology/>.

² <https://www.nasdaq.com/articles/about-46-million-americans-now-own-bitcoin-2021-05-14> (May 14, 2021).

³ On June 23, 2021, the Mississippi Center for Public Policy (MCP) released a comprehensive list of states that have created fintech regulatory sandboxes. See <https://mcpolicy.org/regulatory-sandbox-reforms-advance-across-the-nation/> for more information. On its website, the MCP explains the value and importance of regulatory sandboxes: “Regulatory sandboxes are a unique solution to prevent government regulations from smothering new technologies and innovations. The programs allow innovative companies to be temporarily exempt from prohibitive regulations until the state can establish an objectively informed regulatory framework for the innovation.”

⁴ <https://www.azag.gov/fintech>.

⁵ https://business.nv.gov/Programs/Nevada_Sandbox_Program/.

⁶ <https://legiscan.com/UT/bill/HB0378/2019>.

⁷ <http://wyomingbankingdivision.wyo.gov/home/areas-of-regulation/laws-and-regulation/financial-technology-sandbox>.

⁸ <https://flofr.gov/sitePages/OFRNews.htm?p=ofr-announces-new-fintech-sandbox-license>.

⁹ <https://dfi.wv.gov/fintech/Pages/default.aspx>.

¹⁰ <https://mcpolicy.org/regulatory-sandbox-reforms-advance-across-the-nation/>.

Legacy financial institutions have also seized the early-mover opportunity among their peers to innovate in delivering products and services for the digital future by leveraging blockchain technology or offering direct or indirect exposure to crypto to their customers. Visa, Mastercard, Paypal, Venmo, CashApp, Deutsche Bank, Morgan Stanley, and even long-time Bitcoin skeptic JPMorgan, have all recognized the value proposition of crypto and blockchain and started to position themselves for a decided advantage in this new distributed value frontier. Without sufficient investment, education, resources and support, small businesses—especially minority and women-owned businesses—will likely be eclipsed by large enterprises looking to stake their proverbial flags in this new world of fintech advancement.

Government is uniquely positioned to ensure the economic viability of small and mid-size enterprises (SMEs), which have historically been the backbone and lifeblood of societal advancement. Public/private partnerships transform adversarial relationships to cooperative economic opportunities in a way that optimizes competitive innovation while mitigating potential harm to consumers, investors, and businesses.

The Technology: Blockchain and Crypto Assets

Blockchains are digital databases created by software and maintained by a network of computers rather than by a single entity or group. Blockchains rely on network effects and economic incentives to secure the network from fraud or failure. The incentives differ depending on the rules that make up the blockchain’s software protocol. These databases are also sometimes referred to as digital ledgers and crypto assets like Bitcoin rely on blockchain’s distributed ledger technology (DLT) to maintain a record of transactions and wallet balances.¹¹

The first blockchain, the Bitcoin blockchain, was launched in January 2009 by a person or group using the alias “Satoshi Nakamoto”.¹² The actual identity is shrouded in secrecy even to this day. Satoshi invented and implemented Bitcoin to empower individuals to control their own money while protecting their privacy and thereby reduce control by governments and powerful private corporations that act sometimes in monopolistic, anti-competitive ways. Satoshi’s goal was to eliminate the need for a middle person or centralized authority to complete and settle financial transactions and to solve the double-spending problem for digital currency resulting from fraud or counterfeiting. Satoshi accomplished this by creating a censorship-resistant, verifiable, shared ledger system of purely digital currency that could be exchanged directly in a peer-to-peer manner without the need to pay or to rely on mainstream banking intermediaries that had violated public trust and confidence during the housing and financial crisis in 2007-2009.¹³

¹¹ At the time of drafting, CoinMarketCap.com provided the following statistics: Cryptos: [10,905](#) Exchanges: [389](#) Market Cap: [\\$1,310,680,329,387](#) Market Dominance: [BTC: 45.5% ETH: 17.2%](#).

¹² Bitcoin is a decentralized cryptocurrency originally described in a 2008 [whitepaper](#) by a person, or group of people, using the alias [Satoshi Nakamoto](#).

¹³ In a Sept. 10, 2018, article titled *A Guide to the Financial Crisis—Ten Years Later*, the *Washington Post* described the impact as: “. . . the worst U.S. economic disaster since the Great Depression. In the United States, the stock market plummeted, wiping out nearly \$8 trillion in value between late 2007 and 2009. Unemployment climbed, peaking at 10 percent in October 2009. Americans lost \$9.8 trillion in wealth as their home values plummeted and their retirement accounts vaporized.

The data stored on a blockchain can relate to assets, transactions, contracts, and agreements entered into by users of the same blockchain. The ledger, which serves as a single source of truth about the state of the blockchain at any given time, is relayed across hundreds, perhaps thousands of member computers (aka nodes) within an organization, a country, multiple countries or the entire world. Each transaction is replicated in full on each member's computer. Those member-computers confirm that transactions have taken place by a process referred to as consensus. A blockchain is not located in one central place or controlled by one central entity or person. It can be public (open for all to view) or private (viewable only by a closed community). And it can offer open access for all or permissioned access after certain rules have been satisfied.

Blockchains maintain a single source of the true state of the transactions and balances ledger at any given time, like a shared excel spreadsheet or a group text message string. It is highly resistant to change (like read-only memory, or ROM) and it combines in a novel way three existing technologies the Internet, peer-to-peer (P2P) networks and public/private key (PPK) encryption with digital signatures to create a new data structure and a new way of storing information on a computer and synchronizing encrypted data across multiple computers. Encoded consensus mechanisms require that network participants agree on a single truth about the state of the ledger for each new transaction and this agreement maintains trust within a community of people who are strangers to each other.

Blockchains are append-only. Therefore, although new information can be added, once entered it cannot be deleted or reversed. A resulting concern from immutability is that this append-only nature makes stored transactional data impossible to change. They are also pseudonymous (but not anonymous, contrary to common belief), which raises concerns of the possible proliferation of illegal activity (money laundering, terrorist activity, drug sales, trafficking in goods or humans, for example).¹⁴

Blockchains are disintermediated and transnational and neither relies on any centralized intermediary for transactions to occur nor private or public entity controls. Therefore, public blockchains are censorship resistant. However, this raises concerns that the absence of a central point of accountability and lack of any geographical boundaries can render blockchains extremely difficult to govern.

Finally, the transparent and traceable nature raises concerns about user privacy because public, permissionless blockchains are not anonymous although privacy coins like Monero and coin mixers use heightened encryption to mask addresses.

....

'It was such a shock to the economic system that it unleashed dynamics that we still don't understand fully,' said Joe Brusuelas, chief economist at RSM, an audit and advisory firm."

https://www.washingtonpost.com/business/economy/a-guide-to-the-financial-crisis--10-years-later/2018/09/10/114b76ba-af10-11e8-a20b-5f4f84429666_story.html.

¹⁴ Some reports indicate that concerns of the illegal use of cryptocurrencies is vastly overstated. For more information, read the *Forbes.com* article by Hailey Lennon, Esq., *The False Narrative Of Bitcoin's Role In Illicit Activity* (Jan. 19, 2021) <https://www.forbes.com/sites/haileylennon/2021/01/19/the-false-narrative-of-bitcoins-role-in-illicit-activity/>.

The Goal: The Future of Financial Inclusion

Web 3.0 has the potential to be the decentralized and democratized internet promised when Web 2.0 emerged. An optimally functioning blockchain gives access to all and is fully transparent to mitigate (or in some cases eliminate) the asymmetry of information that plagues the current opaque, privileged financial system.

Given the still relatively early-stage development of blockchain infrastructure, it is imperative that private and public entities work together to explore and enhance those aspects of the blockchain, decentralized finance (DeFi), crypto assets (including non-fungible tokens (NFTs), stablecoins (ex: DAI, USDC), and central bank digital currencies (CBDCs) that empower, include, and uplift all communities, including black and brown communities. A critical and unique opportunity exists to achieve these aspirations, one that has not existed since the dot com era that created enormous Silicon Valley wealth for generations. The reason is because in a decentralized financial environment, it matters not one's race, ethnicity, age, gender, orientation, or any "othered" characteristic.

Bitcoin's rise in price since the early years to recent all-time highs¹⁵ on April 14, 2021 of \$64,805.00 turned early adopters, who chose to buy or mine Bitcoin early on and to hold the currency for the long-term (aka HODL), have seen the value of their portfolios rocket beyond Satoshi Nakamoto's wildest dreams. Bitcoin has gone from being valued at little more than one cent in 2009 to what J.P. Morgan Chase bank analysts now say could triple in value and challenge gold.¹⁶ And if one Bitcoin address represents one owner, there are now 74,975 Bitcoin millionaires and 6,066 Bitcoin deca-millionaires (as of 7/16/2021),¹⁷ a staggering statistic when compared to the protracted timeline one ordinarily takes to achieve millionaire status with traditional appreciating assets.

But as I explained in a January 1, 2021, Medium.com article, this new asset class comeuppance has largely benefited the privileged few with exclusive access to tech and finance inner circles that rarely include members of the black community. This is true despite the dogged libertarian principles of maximizing autonomy and political freedom, free association, live and let live individualism and voluntary association, from which Bitcoin emerged.

This year, The Hamilton Project released a comprehensive evaluation of wealth in the U.S.¹⁸ and found evidence of staggering racial disparities in generational wealth accumulation. For example, in 2016, the net worth of a typical white family was \$171,000, nearly 10 times greater than that of a black family (\$17,150). The report also shows that families with the same income can have dramatically different wealth profiles, thanks to lower debt, past accumulated income, inherited wealth and other liquid assets. This wealth gap can be viewed both as a cause and a

¹⁵ As of the date of this hearing.

¹⁶ <https://fortune.com/2020/10/26/jp-morgan-chase-bitcoin-predictions-analyst-jpm-cryptocurrency/>.

¹⁷ <https://bitinfocharts.com/top-100-richest-bitcoin-addresses.html> (7/16/2021).

¹⁸ https://www.hamiltonproject.org/blog/examining_the_black_white_wealth_gap.

symptom of a lack of access to affordable and reliable means to save, borrow and invest, especially when coupled with redlining and predatory loan practices that perpetuate and exacerbate these chronic concerns.

The FDIC.com website defines economic inclusion as when "... all consumers have access to safe, affordable financial products and services." Accordingly, "[o]wnership of a transaction account is a first step toward economic inclusion". Yet, the reality is the current system is broken because it does not serve all Americans equitably. In fact, a 2019 FDIC Survey titled "Key Findings from How America Banks: Household Use of Banking and Financial Services" revealed that 5.4 percent of U.S. households (approximately 7.1 million) were "unbanked" in 2019. Twenty-nine percent of unbanked households reported not having enough money to meet minimum balance requirements", the first-most cited reason, and 16.1 percent cited a lack of trust in the banking system as the main reason for not having an account—the second-most cited main reason. The black community's historical distrust of the centralized power of government, and healthcare and banking systems further compounds problems while widening the wealth gap.¹⁹

McKinsey & Co reports that "A lack of financial inclusion for black Americans exists at every level of the financial system."²⁰ And the International Monetary Fund (IMF) describes financial inclusion as the critical bridge between improved economic opportunity and improved economic outcomes. A company report noted that in 2017, nearly half of all black households were unbanked or underbanked.

So what does financial inclusion mean in the digital future for historically excluded communities? The future of financial inclusion is inextricably linked to meaningful access to opportunities in the digital future built on the rails of blockchains.

Use Cases²¹

A wealth of possible uses exists for blockchain technology beyond cryptocurrencies, some with obvious applications like to store public records that everyone can access and no one can change or destroy (for land records, for example). In fact, blockchain technology will impact and improve dozens of industries beyond banking and payments by making systems operate in a more efficient, effective and accessible manner, including supply chain management, insurance, philanthropy, provenance, identity, educational credentialing, government, intellectual property, healthcare, and energy to name just a few.

Social Impact

¹⁹ <https://www.forbes.com/sites/ericbrotman/2020/09/30/the-wealth-gap-widens-covid-19s-k-shaped-recovery/?sh=52f453bcce6e>

²⁰ <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/the-case-for-accelerating-financial-inclusion-in-black-communities>

²¹ These use case statistics are curated from a comprehensive 2021 Consensus.net compilation found at: <https://consensus.net/blockchain-use-cases/>.

Blockchains and blockchain-centric organizations and entities²² can be leveraged to establish fair competition, access and transparency in a modern economy of continual exploitation. An estimated 20-25% of funds globally are lost to corruption at the government level, intermediaries take up to 7% of remittances, and modern fintech solutions fail to include the 1.7 billion unbanked adults around the globe.

Capital Markets

For capital markets, blockchain unlocks easier, cheaper, and faster access to capital. It reduces the systemic barriers to issuance and enables peer-to-peer trading, faster and more transparent settlement and clearing, reduced costs, decreased counterparty risks, and streamlined auditing and compliance.

Decentralized Finance (DeFi)

DeFi is an umbrella term used to describe a vibrant ecosystem of blockchain-based decentralized applications (dApps) that offer a range of financial services similar to those provided by traditional banks, insurance brokers, and other financial intermediaries. The differentiator is that DeFi services are implemented by software applications powered by a special type of computer code (smart contract code), that automates the performance of various functions. Some are simple and straightforward “if, then” propositions and others are intricate, complex webs of interrelated functions, like decentralized autonomous organizations (DAOs).

Central Bank Digital Currencies (CBDC)

CBDCs are a digital form of central bank money that offers central banks unique advantages at the retail and wholesale levels, including increased financial access for individual customers and a more efficient infrastructure for interbank settlements.

Digital Identity

A blockchain-based digital identity system provides a unified, interoperable, and tamper-proof infrastructure that protects against theft and empowers individuals with greater sovereignty over their data, including portability.

Government and the Public Sector

Distributed ledgers can assist governments to deliver service and manage health, safety and general welfare of citizens in a way that provides greater accountability, transparency, security and responsiveness, along with increased efficiency, all at lower costs.

²² A prominent example is the work of Emerging Impact, which partners with International NGOs, financial service providers, and government agencies to modernize financial services in emerging markets. EI’s vision is to realize economic empowerment of millions of people at a time by leading the fight for inclusive, digital finance through open banking & decentralized microfinance.

Healthcare and the Life Sciences

Blockchain technology can offer faster, more efficient, and more secure medical data management and medical supply tracking. This could significantly improve patient care, facilitate the advancement to medical discoveries, and ensure the authenticity and provenance of drugs circulating global markets.

Insurance

Insurance claims can be efficiently streamlined using blockchains to verify data, process claims, automate disbursement, and reduce processing time significantly.

Media and Entertainment

Blockchain technology can be leveraged to maintain ownership records, and when coupled with NFT standards, can mitigate piracy, fraud, and intellectual property theft of digital items cost the entertainment industry an estimated \$71 billion annually. The transparent tracking of an asset over time and infusion of liquidity into secondary resale markets is a Blockchain technology that can track the life cycle of any content, which has the potential to protect digital content, and facilitate the distribution of authentic digital collectibles.

Tokenization of Real-World Assets

The ability to represent real-world asset ownership in a verifiably unique digital form promotes fractionalization of ownership, expanded access to global markets, increased liquidity, and democratized access to real estate investment opportunities.

Conclusion

Web 1.0 was fully centralized. It involved the original client-server data delivery model of the information age; that is, one central database making information available to users who interacted with that server-disseminated information passively. Web 2.0, or the decentralized, interactive, social web involves numerous mini client-server models. In Web 2.0, users are both recipients and users of creative content and, in many instances, creators. However, data is still siloed by powerful, hypercompetitive entities. By contrast, the distributed web—at least in its idealized configuration—has few, if any, centralized intermediaries, especially those engaging in predatory, rent seeking behavior or engaged in biased gatekeeping and cronyism. A Web 3.0 world envisions the consumer not just as an end-user but as a producer and owner, with full agency and autonomy, who controls the flow of information and, most essentially, of value.

Blockchain has been touted as a disruptive revolution. While it has not yet upended Web 2.0 as we know it, it *is* revolutionary. This is particularly true given its impact as an increasingly viable alternative to, and thus a major customer service concern of, traditional, centralized finance. Blockchain is not a single technological solution and that is a core part of its brilliance. The technology is highly versatile and can be customized to meet the needs of its adopters in most

cases, assuming the user or industry can benefit from a decentralized, transparent ledger of transactions.

The future of Web 3.0 has yet to be written. Only time will tell whether blockchain technology will replace the current system of data structures and whether blockchain's impact will be revolutionary or merely evolutionary. Regardless of the outcome, Pennsylvania has an exciting opportunity to discover ways to embrace innovation as the story (and code) are being written. Positioning the Commonwealth and its residents and corporate citizens to be fully prepared for the digital future may yield significant economic, cultural, social, and societal benefits. Education, access, transparency, and inclusion are key. Pennsylvania's digital future is now.

Sincerely,

A handwritten signature in black ink that reads "Tonya M. Evans". The signature is written in a cursive, flowing style.

Tonya M. Evans
Professor of Law

PENNSYLVANIA SHOULD CONSIDER CREATING REGULATORY SANDBOXES

Brian Knight

Director and Senior Research Fellow, Program on Innovation and Governance, Mercatus Center at George Mason University

Pennsylvania House Democratic Policy Committee
Blockchain + Cryptocurrency: Preparing PA for a Digital Future

July 19, 2021

Chair Bizzarro and distinguished members of the committee:

Thank you for the opportunity to testify today. My name is Brian Knight, and I am a senior research fellow at the Mercatus Center at George Mason University. My expertise is in financial technology, and I have done research on regulatory sandboxes. I appreciate the opportunity to testify today. I have attached a scholarly article I coauthored with Trace Mitchell that discusses some of these issues in more detail.¹

Today I would like offer three takeaways for regulatory sandboxes:

1. Regulatory sandboxes offer potential benefits, including increased innovation and competition.
2. Regulatory sandboxes also have potential risks, including risks to competition and consumer protection.
3. There are ways to mitigate against these risks while securing the benefits of a regulatory sandbox.

DEFINING REGULATORY SANDBOXES

Regulatory Sandboxes are an increasingly common feature in global regulation. Though the exact nature of regulatory sandboxes varies depending on the legal environment and policy preferences of the jurisdiction, as a general rule they can be defined as “a decreed state of exception within a regulatory regime that allows firms to offer products or services for a limited time to a limited number of customers in a modified regulatory environment for the purpose of allowing the firm to test a product or service before it is offered more broadly.”²

1. Brian Knight and Trace Mitchell, “The Sandbox Paradox: Balancing the Need to Facilitate Innovation with the Risk of Regulatory Privilege,” *South Carolina Law Review* 72, no. 2 (2020): 445–75.

2. Knight and Mitchell, “Sandbox Paradox,” 445, 446.

Beginning with the United Kingdom's Financial Conduct Authority in 2016,³ numerous national and state governments have launched regulatory sandboxes.⁴ Whereas the majority of sandboxes deal with financial services, several countries, including Japan and Singapore,⁵ as well as the state of Utah have launched sandboxes that serve other industries or multiple industries.⁶

The Commonwealth of Pennsylvania does not currently have a financial regulatory sandbox, but it may wish to consider creating one, especially given that Pennsylvania's robust financial sector, highly educated workforce, and proximity to other major economic centers such as New York position it well to play a leading role in beneficial financial innovation.

BENEFITS AND PITFALLS

Regulatory sandboxes were developed to achieve several important goals, including encouraging innovation, competition, and entry in highly regulated industries; providing regulators with greater insight and transparency into cutting edge products and services; and furthering consumer protection by both helping innovators design their products to be compliant with the law and encouraging the introduction of products and services that will better serve consumer needs.⁷

Although regulatory sandboxes are new innovations and their full effect remains to be determined, at least some evidence suggests that regulatory sandboxes can help new firms enter the market. For example, sandboxes may help increase access to funding by reducing regulatory uncertainty and information asymmetries between firms and investors.⁸

Although regulatory sandboxes carry significant potential benefits, some potential risks must be guarded against. One area of obvious concern is consumer protection. Some critics believe that regulatory sandboxes would remove necessary consumer safeguards.⁹ However, a well-executed sandbox, which would require applicants to have a viable plan to make customers whole in the event of a failure and to demonstrate the capacity and financial backing to execute such a plan, would help guard against such risk. In addition, the agency responsible for administering the sandbox would be able to conduct adequate vetting and supervision on participants and be able to compel participants to retribute customers if necessary and appropriate.

Another, perhaps less obvious, concern is the risk that a regulatory sandbox could grant an unfair regulatory advantage to firms that gain admission. This advantage could manifest itself as greater access to funding, greater exclusive access to the expertise provided by regulators, and the possibility that

3. "Regulatory Sandbox" Financial Conduct Authority, last updated June 1, 2021, <https://www.fca.org.uk/firms/regulatory-sandbox>.

4. In November 2020 researchers for the World Bank identified 73 sandboxes within 57 countries. World Bank, "Global Experiences from Regulatory Sandboxes" (Fintech Note No. 8, World Bank, Washington, DC, 2020).

5. Government of Japan, "How the Japanese Government's New 'Sandbox' Program Is Testing Innovations in Mobility and Technology," *Harvard Business Review*, February 11, 2020; "Licensing Experimentation and Adaptation Programme (LEAP) – A MOH Regulatory Sandbox," Singapore Ministry of Health, accessed June 28, 2021, [https://www.moh.gov.sg/home/our-healthcare-system/licensing-experimentation-and-adaptation-programme-\(leap\)-a-moh-regulatory-sandbox](https://www.moh.gov.sg/home/our-healthcare-system/licensing-experimentation-and-adaptation-programme-(leap)-a-moh-regulatory-sandbox).

6. James Czerniawski, "How Utah Aims to Help Businesses Flourish After Pandemic," *U.S. News & World Report*, March 25, 2021.

7. Knight and Mitchell discuss the purposes of regulatory sandboxes. Knight and Mitchell, "Sandbox Paradox," 445, 450–54.

8. See, for example, Jayoung James Goo and Joo-Yeun Heo, "The Impact of the Regulatory Sandbox on the Fintech Industry, with a Discussion on the Relation between Regulatory Sandboxes and Open Innovation," *Journal of Open Innovation: Technology, Market, and Complexity* 6, no. 2 (2020): 43–61; Guido Cornelli et al., "Inside the Regulatory Sandbox: Effects on Fintech Funding" (BIS Working Paper No. 901, Bank for International Settlements, Basel, Switzerland, November 2020).

9. Knight and Mitchell discuss critiques of regulatory sandboxes from a consumer protection perspective. Knight and Mitchell, "Sandbox Paradox," 461–62.

regulators may develop a culture of being stricter on firms that do not participate in a sandbox, even if such a culture is not actually justified.¹⁰

These risks are real and should be taken seriously, but they can also be managed and mitigated. The risk that access to the sandbox becomes a “golden ticket” can be reduced by granting relatively broad access to the sandbox, making sandbox administrators justify their decisions to reject applications, and providing maximal transparency with regard to any legal or regulatory guidance provided to sandbox participants. Sandboxes should be voluntary, and though participation in a sandbox may be evidence of good faith, a lack of participation should not be seen as evidence of bad faith on the part of a firm.¹¹

CONCLUSION

Financial services are evolving rapidly. This innovation offers the potential to benefit both consumers and states that create a regulatory environment that facilitates innovation while preserving necessary protections. Regulatory sandboxes, if designed and executed well, can play a role in creating this environment.

I appreciate the opportunity to testify and am happy to answer any questions to the best of my ability.

ATTACHMENT

Brian Knight and Trace Mitchell, “The Sandbox Paradox: Balancing the Need to Facilitate Innovation with the Risk of Regulatory Privilege,” *South Carolina Law Review* 72, no. 2 (2020): 445–75.

10. Knight and Mitchell, 462–65.

11. Knight and Mitchell, 471–75. Here Knight and Mitchell discuss means to mitigate the risk that a regulatory sandbox provides undue regulatory privilege.

**THE SANDBOX PARADOX:
BALANCING THE NEED TO FACILITATE INNOVATION WITH THE RISK OF
REGULATORY PRIVILEGE**

Brian R. Knight & Trace E. Mitchell*

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* The authors would like to thank the C. Boyden Gray Center for the Study of the Administrative State and the participants of the Technology, Innovation, and Regulation symposium; Dr. Christine Cumming; Dr. Walter Valdivia; Dr. Tyler Cowen; and two anonymous peer reviewers for their helpful comments and feedback. The authors would also like to thank Vera Soliman, William Gu, and Joe Brunk for their very able research assistance and Peter Rivera and Kayla Lahti for their administrative assistance. In addition, the authors would like to thank Vera Soliman and Christina Behe for their editing assistance. All errors are the fault of the authors.

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I. INTRODUCTION

In recent years, a new regulatory concept, commonly referred to as a “regulatory sandbox,” has gained a great deal of attention from regulators, regulatory scholars, and those engaged in the provision of financial services.¹ Firms within the sandbox usually receive some combination of reduced regulatory burdens, limitations on regulatory liability, increased communication with and advice from regulators, and expedited regulatory decisions.² Regulatory sandboxes are perhaps most prevalent in the field of financial technology, often referred to as “fintech.”³

The United Kingdom’s Financial Conduct Authority (FCA) launched the first regulatory sandbox centered around fintech in June of 2016 as part of its initiative, Project Innovate.⁴ Shortly thereafter, Singapore and Australia implemented their own regulatory sandboxes aimed at promoting the creation and development of fintech within their jurisdictions.⁵ Singapore has even proposed implementing new regulatory sandboxes focused on fast-tracking the approval process for experimental products as a way to complement its existing sandbox.⁶ In 2018, Arizona became the first jurisdiction, or

1. Ross P. Buckley et al., *Building FinTech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond*, 61 WASH. U. J.L. & POL’Y 55, 56 (2019). Although regulatory sandboxes can vary significantly in their design, these experimental regimes can generally be defined as a decreed state of exception within a regulatory regime that allows firms to offer products or services for a limited time to and a limited number of customers in a modified regulatory environment for the purpose of allowing the firm to test a product or service before it is offered more broadly. *Regulatory Sandbox*, FIN. CONDUCT AUTH. (Nov. 5, 2015), <https://www.fca.org.uk/firms/regulatory-sandbox> [<https://perma.cc/X28N-J3FF>] [hereinafter FIN. CONDUCT AUTH., *Regulatory Sandbox*].

2. U.N. SEC’Y-GEN.’S SPECIAL ADVOC. FOR INCLUSIVE FIN. FOR DEV. FINTECH WORKING GROUP & CAMBRIDGE CENTRE FOR ALT. FIN., *EARLY LESSONS ON REGULATORY INNOVATIONS TO ENABLE INCLUSIVE FINTECH: INNOVATION OFFICES, REGULATORY SANDBOXES, AND REGTECH* 27, 32 (2019) [hereinafter UNSGSA].

3. *Id.* at 4, 28.

4. See FIN. CONDUCT AUTH., *Regulatory Sandbox*, *supra* note 1.

5. See *Overview of Regulatory Sandbox*, MONETARY AUTH. OF SING., <http://www.mas.gov.sg/Singapore-Financial-Centre/Smart-Financial-Centre/FinTech-Regulatory-Sandbox.aspx> [<https://perma.cc/UDU9-BYPG>]; *FinTech Regulatory Sandbox*, AUSTRAL. SEC. & INVS. COMM’N, <https://asic.gov.au/for-business/your-business/innovation-hub/regulatory-sandbox> [<https://perma.cc/U79X-PG9S>].

6. See *MAS Proposes New Regulatory Sandbox with Fast-Track Approvals*, MONETARY AUTH. OF SING. (Nov. 14, 2018), <https://www.mas.gov.sg/news/media-releases/2018/mas-proposes-new-regulatory-sandbox-with-fasttrack-approvals> [<https://perma.cc/R5W7-J2NQ>].

regulatory body, within the United States to create a financial regulatory sandbox.⁷ Wyoming and Utah followed suit in 2019.⁸ Also in 2019, the Consumer Financial Protection Bureau (CFPB)⁹ finalized its own proposal for the first federal regulatory sandbox within the United States.¹⁰ More and more, legislative and regulatory bodies are considering adopting regulatory sandboxes to gain a competitive advantage for their jurisdictions by encouraging entrepreneurialism and innovation within the financial sphere.¹¹

Although regulatory sandboxes have generated considerable excitement among some policy scholars as a way to promote entrepreneurialism and innovation while keeping regulatory oversight in place, concerns about their soundness remain.¹² The most obvious concern is that sandboxes may pose a risk to consumers or reflect a “race to the bottom.”¹³ Firms faced with reduced liability or regulatory burden may be more likely to make risky decisions that could ultimately harm consumers in the pursuit of profit.¹⁴ This has been the primary focus of the criticism leveled against regulatory sandboxes.¹⁵

However, sandboxes pose another risk that has not received the same level of attention within the literature or public discourse. In addition to promoting innovation within the financial sphere, regulatory sandboxes have

7. Press Release, Ariz. Att’y Gen., Arizona Becomes First State in U.S. to Offer Fintech Regulatory Sandbox (Mar. 22, 2018), <https://www.azag.gov/press-release/arizona-becomes-first-state-us-offer-fintech-regulatory-sandbox> [<https://perma.cc/8D3E-9AED>].

8. Anthony C. Kaye, *Wyoming Creates Fintech Sandbox*, NAT’L L. REV. (June 6, 2019), <https://www.natlawreview.com/article/wyoming-creates-fintech-sandbox> [<https://perma.cc/3DZQ-U89J>]; Allen S. Li, *Utah Passes the Third State-Run “Sandbox” for Innovative Financial Products and Services*, NAT’L L. REV. (Aug. 1, 2019), <https://www.natlawreview.com/article/utah-passes-third-state-run-sandbox-innovative-financial-products-and-services> [<https://perma.cc/D7KS-9HRJ>].

9. Debate exists within the Bureau over whether it is called the Consumer Financial Protection Bureau (CFPB) or the Bureau of Consumer Financial Protection (BCFP), but both names refer to the same entity. This Article will refer to the Bureau as the CFPB.

10. *CFPB Issues Policies to Facilitate Compliance and Promote Innovation*, CONSUMER FIN. PROT. BUREAU (Sept. 10, 2019), <https://www.consumerfinance.gov/about-us/newsroom/bureau-issues-policies-facilitate-compliance-promote-innovation/> [<https://perma.cc/3HBX-LQJZ>]; Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,247 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

11. See, e.g., DELOITTE CTR. FOR REGUL. STRATEGY EMEA, *A JOURNEY THROUGH THE FCA REGULATORY SANDBOX 1* (2018) [hereinafter DELOITTE]; UTAH CODE ANN. § 13-55-104(2) (West, Westlaw through 2020 6th Spec. Sess.); ARIZ. REV. STAT. ANN. § 41-5602 (Westlaw through 2d Reg. Sess. of 54th Leg. 2020).

12. Linda Jun et al., Comment Letter on No-Action Letters and Product Sandbox (Feb. 11, 2019), <https://www.regulations.gov/document?D=CFPB-2018-0042-0026> (last visited Oct. 30, 2020).

13. Hilary J. Allen, *Regulatory Sandboxes*, 87 GEO. WASH. L. REV. 579, 622 (2019). One public comment filed by a collection of consumer advocacy groups referred to the CFPB’s “protections.” Jun et al., *supra* note 12, at 2.

14. Jun et al., *supra* note 12, at 1.

15. See, e.g., *id.*

the potential to give certain economic privileges to specific firms without extending those same privileges to other, similarly situated firms.¹⁶ Typically, regulators approve and allow only certain firms, or types of firms, to participate in their sandbox.¹⁷ Because regulatory sandboxes, by design, reduce the regulatory costs that an admitted firm incurs, firms approved to participate in the sandbox may receive an advantage over their nonapproved competitors. This presents something of a paradox for policy makers: for a regulatory sandbox to be effective, it must offer participants some form of regulatory relief, but this relief may provide firms with government-granted economic privilege at the expense of their rivals. This concern is an aspect of regulatory sandboxes that, so far, has been underexamined.

Critical analyses of regulatory sandboxes are almost always based on a concern for consumer protection.¹⁸ The goal of this Article is to look at the structure of regulatory sandboxes and examine both the possible sources of government-granted economic privilege and the potential costs associated with this privilege. This Article then proposes best practices that policy makers can use to reduce the potential for economic privilege and mitigate the costs associated with it. This Article does not argue that the risk of economic privilege outweighs the benefits created by regulatory sandboxes—the balance of that equation is context dependent, and a well-designed and well-executed sandbox could indeed provide significant benefits to consumers and competitors. What this Article does contend, however, is that the risk of economic privilege exists and should be thoroughly considered as regulatory sandboxes become more and more prevalent. Given that regulatory sandboxes are so new, there are limited data available to assess whether these risks are in fact occurring. This Article therefore seeks to flag potential dangers that policy makers, market participants, and researchers should consider.

Part I of this Article provides an overview of the current regulatory sandboxes that exist in various jurisdictions, both inside and outside of the United States, and the aspects of their design that have an effect on the potential for government-granted privilege. Specifically, Part I focuses on the

16. Similar issues have been identified regarding the somewhat analogous “special economic zones” that have been created within the past several decades. *See, e.g.*, Lotta Moberg, *The Political Economy of Special Economic Zones*, 11 J. INSTITUTIONAL ECON. 167, 167 (2015).

17. *See* Dirk A. Zetzsche et al., *Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation*, 23 FORDHAM J. CORP. & FIN. L. 31, 45–46 (2017).

18. *See, e.g.*, Kaye, *supra* note 8; Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,251 (Sept. 13, 2019) (to be codified at 12 C.F.R.); Jun et al., *supra* note 12, at 1.

regulatory sandboxes already established in the United Kingdom, Australia,¹⁹ Arizona, Utah, and by the CFPB. Part II analyzes the ways in which these regulatory sandboxes have the potential to create economic privilege for certain firms or industries. Part III discusses the potential costs associated with this economic privilege, including the notions of fairness and justice, the effect of economic privilege on market signals and competition, and the potential it creates for cronyism and favoritism. Part IV considers the ways in which regulators might mitigate these potential costs and the risk of cronyism. It also details best practices that regulators could follow to mitigate this risk. Finally, Part V concludes this Article.

II. WHAT ARE REGULATORY SANDBOXES AND HOW DO THEY WORK?

A. *What Is a Regulatory Sandbox?*

The term “regulatory sandbox” is a broad concept that encapsulates a wide variety of newly emerging regulatory regimes, primarily in the financial sector. Its precise definition varies, depending on the jurisdiction using it and the regulatory regime it has created.²⁰ For the purposes of this Article, a regulatory sandbox is a legal construct that allows firms to offer products or services for a limited time and to a limited number of customers in a modified regulatory environment so that those firms can test a product or service before it is offered more broadly.²¹

Regulatory sandboxes differ from general regulatory reform in that the relief a sandbox provides applies only to specific firms on a case-by-case basis and is in effect only for a limited time.²² Additionally, sandboxes frequently include an expectation of increased transparency, in which the regulator is able to monitor or review participating firms’ actions and progress as a way to learn; broad, rules-based changes do not generally provide such an opportunity.²³ Fast learning and course correction are two of the greater

19. As of September 1, 2020, the Australian Securities and Investment Commission (ASIC) introduced significant modifications to its regulatory sandbox program. This Article primarily describes the sandbox as it existed prior to these changes because it contained several unique elements compared to most other regulatory sandboxes. *Info 248 Enhanced Regulatory Sandbox*, AUSTL. SEC. & INVS. COMM’N, <https://asic.gov.au/for-business/innovation-hub/enhanced-regulatory-sandbox/info-248-enhanced-regulatory-sandbox/> (last visited Oct. 30, 2020) [hereinafter ASIC, *Info 248*]. While many of the changes made by the ASIC merely expand or modify existing requirements, this Article includes a discussion of some of the more material changes to the ASIC sandbox implemented in September of 2020. See *infra* notes 29, 45, 83, 102, 107, 118, and accompanying text.

20. UNSGSA, *supra* note 2, at 19, 26.

21. *Id.* at 27.

22. Zetzsche et al., *supra* note 17, at 75.

23. See UNSGSA, *supra* note 2, at 15.

potential virtues of regulatory sandboxes, where adjustments by firms and regulators can be quickly implemented to enhance the public interest.

B. How Do Regulatory Sandboxes Work?

Although regulatory sandbox designs vary across jurisdictions, they frequently share certain common criteria.²⁴ Where there is differentiation among jurisdictions, that may be the result of differing policy preferences or differences in the administrative bodies' authority. The relief a regulatory body offers is constrained by the relief it is empowered to offer. This Section discusses the common criteria and processes found in sandboxes, as well as their variations. It also analyzes a variety of different sandboxes, including the U.K. FCA's Project Innovate sandbox; the Australian Securities Investments Commission's (ASIC) Fintech Licensing Exemption, which operated from December of 2016 until September of 2020, as well as some material changes introduced in the ASIC's new, enhanced regulatory sandbox; Arizona's fintech sandbox, administered by the Arizona Attorney General's Office; Utah's regulatory sandbox, administered by the Utah Department of Commerce; and the CFPB's Compliance Assistance Sandbox (CAS).

1. Sandbox Purpose

Jurisdictions create regulatory sandboxes to further specific policy objectives.²⁵ While the purposes for these sandboxes are frequently similar across jurisdictions, especially with regard to the goal of encouraging innovation, differences may arise from the mandates placed on various regulators overseeing the sandboxes, as well as from the economic and policy goals of different jurisdictions.²⁶

a. Innovation

Unsurprisingly, encouraging entrepreneurialism and innovation is one of the most frequently cited goals for regulatory sandboxes.²⁷ For example, the FCA established its sandbox in part to support "disruptive innovation" in the financial services market by helping reduce the regulatory uncertainty that the

24. *See id.* at 21.

25. *See id.* at 22, 28.

26. *See id.* at 28.

27. *Id.* at 22, 58.

FCA believes inhibit the ability of innovative products to reach the market.²⁸ Likewise, the ASIC's Innovation Hub project, which included its sandbox, sought to "foster innovation that could benefit consumers by helping Australian [Fintech] startups navigate [Australia's] regulatory system."²⁹ The ASIC's new, enhanced regulatory sandbox does not include (or renounce) the old language, but it does explicitly require the product or service being tested to meet an innovation test.³⁰ Arizona similarly established its sandbox to "encourage businesses to develop innovative products and services in the financial services sector."³¹ By the same token, Utah created its sandbox to attract "innovative products and services to Utah's financial services sector."³² Finally, the CFPB pursued its CAS in part to further its mission to "facilitate access and innovation" when it comes to financial services.³³

b. Consumer Benefit and Protection

Of course, innovation is not an end in itself but rather a means to obtaining the benefits that emanate from innovation. One of those benefits is consumer protection either from harmful or substandard products or from the harms that result from a lack of access to financial services.³⁴ The FCA believes that its sandbox will benefit consumers by facilitating "an increased range of products and services, reduced costs, and improved access to financial services."³⁵ Likewise, the ASIC's original sandbox arose from the agency's commitment to "encourage[e] and facilitate[e] innovation in financial services and credit *where this is likely to produce good outcomes for investors and financial consumers.*"³⁶ Arizona's sandbox intends to help foster "innovation aimed at

28. Christopher Woolard, Fin. Conduct Auth. Dir. of Strategy & Competition, Regulating for Innovation, Speech Delivered at the Financial Conduct Authority's Event on UK FinTech (Feb. 22, 2016), in FIN. CONDUCT AUTH. (Feb. 23, 2016), <https://www.fca.org.uk/news/speeches/uk-fintech-regulating-innovation> [<https://perma.cc/9KCE-RCDL>].

29. *Crowd-Sourced Funding*, AUSTL. SEC. & INVS. COMM'N, <https://asic.gov.au/regulatory-resources/financial-services/crowd-sourced-funding/> (last visited Oct. 30, 2020).

30. See ASIC, *Info 248*, *supra* note 19.

31. *Frequently Asked Questions: Why Was the Sandbox Created?*, ARIZ. ATT'Y GEN., <https://www.azag.gov/fintech/faq> [<https://perma.cc/NN85-QXAX>] [ARIZ. ATT'Y GEN., *FAQs*].

32. *Regulatory Sandbox: Frequently Asked Questions*, STATE OF UTAH DEP'T OF COM., <https://commerce.utah.gov/sandbox.html> [<https://perma.cc/266B-3RAK>] [hereinafter UTAH DEP'T OF COM., *FAQs*].

33. See Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,255 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

34. *Id.* at 48,251.

35. FIN. CONDUCT AUTH., REGULATORY SANDBOX 5 (2015) [hereinafter FIN. CONDUCT AUTH., REGULATORY SANDBOX].

36. AUSTL. SEC. & INVS. COMM'N, REGULATORY GUIDE 257.1, TESTING FINTECH PRODUCTS AND SERVICES WITHOUT HOLDING AN AFS OR CREDIT LICENSE (2017) (emphasis added) [hereinafter ASIC, REGULATORY GUIDE].

making financial products and services *more available, affordable, and safe for consumers.*³⁷ Utah's sandbox requires applicants to describe how their product will benefit consumers as a criterion for evaluation when firms seek entry to the sandbox.³⁸ For its part, the CFPB explicitly justifies its CAS on the grounds that innovation leads to several benefits for consumers,³⁹ including increased competition, lower prices, and access to more and better financial services.⁴⁰ In all of these cases, innovation intends to bring about benefits and protections for consumers.

c. Regulatory Access and Knowledge Sharing

Another goal that drives the creation of sandboxes is their potential to gain access to innovations early in their life cycles, permitting regulators to gain a better understanding of the products and services they are tasked with regulating and giving them the ability to encourage “responsible” development.⁴¹ This access is obtained through communication with and supervision of entrepreneurs that the sandbox structure usually provides.⁴² The FCA notes that its sandbox allows the FCA to work with firms and ensure that their products and services are built with appropriate consumer protections before they are released more broadly.⁴³ The ASIC operated its original sandbox somewhat differently from most other examples.⁴⁴ It requested that firms using the sandbox submit an after-action report, in part to help the ASIC identify “key risks or issues faced by testing businesses and consumers.”⁴⁵ The new ASIC sandbox retains this requirement.⁴⁶

d. Industry Support and Economic Development

Sandboxes can be established with a variety of different goals. Many of these goals aim to benefit consumers, either directly through more and better products or indirectly through a more educated and effective regulator.⁴⁷ Other sandboxes are explicitly aimed at supporting the development of the fintech industry; specific types of firms within the fintech industry, such as

37. See ARIZ. ATT'Y GEN., *FAQs*, *supra* note 31 (emphasis added).

38. UTAH CODE ANN. § 13-55-103(3)(f)(ii) (West, Westlaw current through 2020 5th Spec. Sess.).

39. *Id.*

40. *See id.*

41. *See Zetzsche et al.*, *supra* note 17, at 102.

42. *Id.* at 78; *see UNSGSA*, *supra* note 2, at 30; Allen, *supra* note 13, at 580, 614–16.

43. *See* FIN. CONDUCT AUTH., *Regulatory Sandbox*, *supra* note 1.

44. *See supra* Section II.B.1.b.

45. *See* ASIC, *Info 248*, *supra* note 19.

46. *See id.*

47. *See UNSGSA*, *supra* note 2, at 10, 30.

nonbank money transmitters and online lenders; and economic development more generally.⁴⁸

Directly supporting innovative firms by helping accelerate their paths to market and attract investors serves as an explicit justification for the sandbox in some jurisdictions.⁴⁹ For example, the FCA's sandbox is justified in part by the FCA's desire to help provide innovative firms with a way to reach the market at a lower cost and receive improved access to investment.⁵⁰ On this latter point, the FCA notes that regulatory uncertainty can serve as a barrier to firms obtaining investment and can lead to lower valuations because investors have to consider regulatory risk, which is difficult for them to assess.⁵¹ When the sandbox is able to reduce this regulatory risk for a specific firm, it increases the firm's value for a potential investor as the firm no longer has to bear the compliance costs associated with that risk.⁵² The ASIC also views improving innovative firms' speed to market and access to capital as goals of its sandbox.⁵³ It believes that a lack of access to capital can become a consumer protection issue to the extent that a lack of funds forces firms to race to market without taking the steps necessary to confirm they are actually ready to (1) operate their business in a safe and appropriate manner or (2) hire individuals with adequate experience and competence.⁵⁴

Regulators also use sandboxes to make their jurisdiction more attractive to potential firms, with the expectation that the sandbox will result in more jobs and tax revenue within their jurisdiction.⁵⁵ The FCA views its sandbox as a tool to "ensure that [the United Kingdom] continue[s] to be an attractive market [for innovative financial firms] with an appropriate regulatory framework."⁵⁶ Arizona established its sandbox in part to "encourage businesses to develop innovative products and services in the financial services sector [in Arizona]" and to "sen[d] a strong message that Arizona is leading the way in fostering innovation aimed at making financial products and services more available, affordable, and safe for consumers."⁵⁷ Likewise, Utah cited a desire to attract "innovative products and services to Utah's financial services sector."⁵⁸

48. *See id.* at 7.

49. *See id.* at 32.

50. *See* FIN. CONDUCT AUTH., *Regulatory Sandbox*, *supra* note 1.

51. *See* FIN. CONDUCT AUTH., *REGULATORY SANDBOX LESSONS LEARNED REPORT 3*, 16 (2017) [hereinafter *FIN. CONDUCT AUTH., LESSONS LEARNED*].

52. *See id.* at 16.

53. *See* ASIC, *REGULATORY GUIDE*, *supra* note 36.

54. *See id.*

55. Allen, *supra* note 13, at 611.

56. FIN. CONDUCT AUTH., *REGULATORY SANDBOX*, *supra* note 35, at 5.

57. ARIZ. ATT'Y GEN., *FAQs*, *supra* note 31.

58. *See* UTAH DEP'T OF COM., *FAQs*, *supra* note 32.

This support for the industry has borne fruit in some cases.⁵⁹ For example, the FCA reported that “at least 40% of firms [that] completed testing in the first cohort received investment during or following their sandbox tests.”⁶⁰ Further, firms that went through the FCA sandbox appear to enjoy “a greater degree of legitimacy with customers and investors alike.”⁶¹ However, participation in a sandbox is not a guarantee of success, as evidenced by the fact that a nontrivial number of firms that used sandboxes ended up failing or becoming insolvent.⁶²

2. *Entry Criteria and Process*

Sandboxes are limited regulatory environments that apply only in certain circumstances to further their stated purposes.⁶³ As such, entry is usually predicated on some sort of criteria that firms need to meet in order to qualify.⁶⁴ Unsurprisingly, these criteria are generally tied to the underlying purpose of the sandbox, but they can also reflect other concerns, such as the need to preserve scarce regulatory resources.⁶⁵ Entry criteria present an important inflection point for the risk that the sandbox will become a source of undue regulatory advantage because an excessively exclusory set of criteria makes it more likely that a sandbox will underserve its relevant market and extend its benefits too narrowly.

a. *Firm Characteristics*

Different jurisdictions place varying requirements on firms that seek to enter the sandbox.⁶⁶ The FCA sandbox, for example, is open exclusively to FCA-regulated firms, firms normally regulated by the FCA but lacking a license, and service providers of FCA-regulated firms.⁶⁷ The ASIC opens its new, enhanced regulatory sandbox to “[u]nlicensed Australian businesses[,]” “[l]ocally registered unlicensed foreign companies[,]” and “licensed

59. See generally FIN. CONDUCT AUTH., LESSONS LEARNED, *supra* note 51, at 5–7 (noting indicators of success).

60. *Id.* at 6.

61. DELOITTE, *supra* note 11, at 7.

62. See Buckley et al., *supra* note 1, at 57.

63. See *id.* at 59.

64. See *id.* at 58.

65. See *id.* at 59.

66. See *id.* at 61, 63–64.

67. *Applying to the Regulatory Sandbox*, FIN. CONDUCT AUTH. (June 16, 2017), <https://www.fca.org.uk/firms/regulatory-sandbox/prepare-application> [<https://perma.cc/LK3S-7NVL>] [hereinafter FIN. CONDUCT AUTH., *Applying to the Regulatory Sandbox*].

businesses testing new services they are currently [unauthorized] to provide[.]”⁶⁸

Arizona requires that firms be subject to the Arizona attorney general’s jurisdiction and have a “physical or virtual” location accessible to the attorney general’s office where testing will be conducted and records will be maintained.⁶⁹ Utah, likewise, opens its sandbox to firms that are subject to Utah’s jurisdiction, that have a physical office within Utah where testing will be conducted and where a repository for books and records will be located, and that meet certain requirements with regard to its management team and ability to adequately conduct testing.⁷⁰ The CFPB does not impose specific requirements on the types of firms that can apply for its sandbox, although they must presumably either be subject to the CFPB’s jurisdiction or intend to work with firms that are.⁷¹

b. *Product Characteristics*

Much like jurisdictions place requirements on firms for admission, most jurisdictions also require that products meet certain characteristics before they can be tested in their regulatory sandbox.⁷² Limiting the type of products that can be tested may be a result of limits in the regulator’s jurisdiction, specific policy objectives (e.g., a desire to attract certain types of businesses or concerns about consumer protection), or efforts to conserve scarce regulatory resources.⁷³

Many of the requirements placed on products are not controversial. For example, the FCA requires that a product seeking to enter the sandbox be “in scope[,]” which means it is the type of product an FCA-regulated company would offer or purchase.⁷⁴ Likewise, the CFPB’s sandbox is broad as to what types of products can be tested.⁷⁵ Conversely, Arizona limits its sandbox to “money transmission, consumer lending, and investment advice[.]”⁷⁶ The

68. *Comparison of Key Features of the ASIC Sandbox and the Australian Government’s Enhanced Regulatory Sandbox*, AUSTL. SEC. & INVS. COMM’N 1, <https://download.asic.gov/au/media/5763623/comparison-asic-sandbox-enhanced-regulatory-sandbox-published-25-august-2020.pdf> [<https://perma.cc/G3TT-B8HK>] [hereinafter ASIC, *Comparison of Key Features*].

69. ARIZ. REV. STAT. ANN. § 41-5603(C)(2) (Westlaw through 2020 2d Reg. Sess. of 54th Leg.).

70. UTAH CODE ANN. § 13-55-103(3)(a)–(b) (West, Westlaw through 2020 5th Spec. Sess.).

71. *See* Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,247, 48,251–52 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

72. *See* Buckley et al., *supra* note 1, at 61–62; UNSGSA, *supra* note 2, at 21.

73. Buckley et al., *supra* note 1, at 63.

74. *See* FIN. CONDUCT AUTH., *Applying to the Regulatory Sandbox*, *supra* note 67.

75. Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,252.

76. Buckley et al., *supra* note 1, at 64.

FCA additionally requires that the product be in a position to be tested.⁷⁷ All this makes sense. Accepting a product outside of the regulator's jurisdiction would be a waste of the regulator's resources and the firm's time because the regulator would not be in a position to grant meaningful relief or gain useful knowledge from the experiment.

Other criteria can be more controversial and potentially problematic. For example, the FCA, Australia, Arizona, and Utah all require that a product be innovative to qualify for admission to the sandbox.⁷⁸ The definition of "innovative" varies by jurisdiction.⁷⁹ The FCA favors products that are new or significantly different from those currently offered and disfavors products that have numerous comparable competitors.⁸⁰ Arizona and Utah also look to whether there are comparable products widely available within their state.⁸¹ Additionally, they both require the innovation to have either new technology or new use of an existing technology.⁸² The ASIC's original sandbox regime expected firms to be new and innovative and excluded firms whose products were insufficiently innovative or failed to use technology adequately.⁸³ As of September 2020, however, the ASIC imposed a formal innovation test under which it evaluates an applicant prior to accessing the regulatory sandbox to determine whether the applicant's product or service is sufficiently innovative to qualify for sandbox relief.⁸⁴ Depending on how strictly the technology and uniqueness requirements are interpreted, there is a risk that innovative but non-first mover firms might be blocked from entry. Further, this requirement empowers regulators to determine just what counts as "innovative," a decision they are likely ill-equipped to evaluate.⁸⁵

In contrast, the CFPB's sandbox does not contain a technological component when it considers whether a product is eligible;⁸⁶ nor does it appear to require that the product be unique.⁸⁷ In fact, when a substantially similar product exists, the CFPB allows for an applicant to seek "compliance

77. See DELOITTE, *supra* note 11, at 3.

78. See *id.*; ARIZ. REV. STAT. ANN. § 41-5603(A) (Westlaw through 2020 2d Reg. Sess. of 54th Leg.); UTAH CODE ANN. § 13-55-104(1) (West, Westlaw through 2020 6th Spec. Sess.); FIN. CONDUCT AUTH., *Regulatory Sandbox*, *supra* note 1; ASIC, *Info 248*, *supra* note 19.

79. See, e.g., § 41-5601(4); UTAH CODE ANN. § 13-55-102(7).

80. See FIN. CONDUCT AUTH., *Applying to the Regulatory Sandbox*, *supra* note 67.

81. § 41-5601(4); § 13-55-102(7).

82. § 41-5601(4); § 13-55-102(7).

83. See ASIC, *Info 248*, *supra* note 19.

84. *Id.*

85. See Buckley et al., *supra* note 1, at 61–63.

86. Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,251–52, 48,259 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

87. See *id.* at 48,251–52 (listing the evaluation criteria for application, which do not include a uniqueness component).

assistance based on public information” on the existing product.⁸⁸ Utah created a similar provision whereby if a competitor is participating in the sandbox, this favors a firm’s admission.⁸⁹

Many sandboxes also impose a limit on the number of consumers that can access the product.⁹⁰ For example, the FCA negotiates limits with a firm at the time of application,⁹¹ and Arizona limits the number of customers, the size of individual transactions, and the size of aggregate transactions per customer that the firm may have while within the sandbox.⁹² Meanwhile, Utah grants its regulator the discretion to set limits on the number of customers allowed to experiment with a specific sandboxed product and to establish dollar limits the firm must adhere to.⁹³

c. *Entry Process*

The FCA, Arizona, Utah, and the CFPB all require that firms submit an application to access their respective sandboxes.⁹⁴ As part of the application process, the firm is generally required to provide details about itself; the product or service it seeks to test; the type of questions or regulatory uncertainty it seeks to address through the use of the sandbox; how the product can benefit consumers; what form of regulatory relief or clarity the firm seeks; and how the firm plans to protect consumers.⁹⁵

Once a firm submits an application, the regulator evaluates it.⁹⁶ Regulators in Arizona, in Utah, and at the CFPB must review and decide on the application within a limited time frame (ninety days for Arizona and Utah, with the possibility of a mutually agreed upon extension⁹⁷ and sixty days for the CFPB, with the understanding that extenuating circumstances may increase the time required).⁹⁸ Regulators generally have broad discretion as to

88. *Id.* at 48,259.

89. UTAH CODE ANN. § 13-55-103(10) (West, Westlaw through 2020 5th Spec. Sess.).

90. *See* DELOITTE, *supra* note 11, at 4; FIN. CONDUCT AUTH., *Regulatory Sandbox*, *supra* note 1; *see, e.g.*, UTAH CODE ANN. § 13-55-104(2)(b).

91. *See* FIN. CONDUCT AUTH., *Regulatory Sandbox*, *supra* note 1.

92. ARIZ. REV. STAT. ANN. §§ 41-5605(B)(3), (B)(4), (C)(2) (Westlaw through 2020 2d Reg. Sess. of 54th Leg.).

93. § 13-55-104(2)(b)–(d).

94. *See* DELOITTE, *supra* note 11, at 3; § 41-5601(7); § 13-55-103(3); Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,247 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

95. *See* DELOITTE, *supra* note 11, at 3; § 41-5603(F)(1)–(3); § 13-55-103(3)(f)(i)–(viii); Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,256.

96. *See* DELOITTE, *supra* note 11, at 3; § 41-5603(B); § 13-55-103(9)(a); Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,247.

97. § 41-5603(I); § 13-55-103(7)–(8).

98. *See* Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,247.

whether to grant an application,⁹⁹ although Utah at least requires the regulator to provide a written description of its reasons for rejection.¹⁰⁰

d. Australia as a Limited Exception

The original ASIC sandbox differed considerably from the FCA, Arizona, Utah, and CFPB sandboxes in that it did not require the regulator to approve a firm before the firm could take advantage of the sandbox.¹⁰¹ As Dirk Zetzsche and his coauthors argue, the ASIC “sandbox” may have served, at least in part, as more of a “class waiver” for a broad swath of fintech firms that met certain criteria, rather than as a traditional sandbox.¹⁰² In fact, the ASIC’s new, enhanced regulatory sandbox explicitly states that the sandbox acts as a “class waiver from licensing for certain financial services and credit activities.”¹⁰³ In addition to programs that provide firm-specific relief, the ASIC’s Fintech Licensing Exemption formerly allowed qualifying firms to test certain products in the market for a limited period of time without obtaining a license that would otherwise be required.¹⁰⁴

Although the ASIC’s Fintech Licensing Exemption lacked a front-loaded application process, a firm was still required to notify the ASIC if it intended to take advantage of the exemption and to provide information showing it met the necessary qualifications.¹⁰⁵ This requirement included information on the firm’s business model, management, insurance coverage, and membership in a dispute resolution regime.¹⁰⁶ Further, despite the ASIC’s Fintech Licensing Exemption lacking the firm-by-firm discretion of other sandboxes, it had more proscriptive requirements that firms had to satisfy, including limiting the number of customers and amount of value transacted, requiring the firm to

99. *Id.*; § 41-5603(J); § 13-55-103(12)(a).

100. § 13-55-103(12)(b).

101. See *ASIC Releases World-First Licensing Exemption for Fintech Businesses*, AUSTL. SEC & INVS. COMM’N (2016), <https://asic.gov.au/about-asic/news-centre/find-a-media-release/2016-releases/16-440mr-asic-releases-world-first-licensing-exemption-for-fintech-businesses/> [<https://perma.cc/7KZE-GG6V>] [hereinafter ASIC, *World-First Licensing Exemption*]; cf. DELOITTE, *supra* note 61, at 2–3; § 41-5603(I); § 13-55-103(9)(a); Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,247.

102. Zetzsche, *supra* note 17, at 82–83

103. *ASIC Issues Guidance for Government’s Enhanced Regulatory Sandbox*, AUSTL. SEC & INVS. COMM’N, <https://asic.gov.au/about-asic/news-centre/find-a-media-release/2020-releases/20-195mr-asic-issues-guidance-for-government-s-enhanced-regulatory-sandbox/> [<https://perma.cc/8AQN-EAQA>].

104. ASIC, *Comparison of Key Features*, *supra* note 68.

105. See *id.*

106. ASIC, REGULATORY GUIDE, *supra* note 36, at 257.113–14.

have adequate resources to compensate customers in the event of mishap, and mandating the firm to make certain disclosures to customers.¹⁰⁷

As of September 2020, the ASIC modified the entry requirements for its enhanced regulatory sandbox.¹⁰⁸ While the new, enhanced ASIC sandbox is still primarily a notification system, it now requires firms seeking access to submit a prescribed notification form to the ASIC and have their product or service satisfy certain eligibility requirements.¹⁰⁹ This includes the firm leadership's character and fitness as well as the net public benefit and innovative nature of a product or service, which is determined by two formal tests.¹¹⁰ While these requirements are similar to the ASIC's previous requirements, the new regime allows the ASIC staff to block a firm from taking advantage of the sandbox if the firm fails to meet the entry criteria.¹¹¹ The ASIC staff has thirty days to notify the firm.¹¹² If it fails to notify within 30 days, the firm can begin to take advantage of the sandbox, though the ASIC staff can remove the firm at any time for failing to meet criteria.¹¹³

3. *Relief Offered*

The type of relief a sandbox will offer depends on the policy goals that led to its establishment, as well as the powers held by the administering regulator.¹¹⁴ For example, the FCA operates with broad authority as both a licensing and conduct regulator with a competition mandate.¹¹⁵ Therefore, the FCA can offer multiple forms of relief, ranging from restricted authorization (a sort of learner's permit) to no-action letters, rule waivers and modifications, and individual guidance.¹¹⁶ The former ASIC Fintech Licensing Exemption served to remove the need—at least temporarily—for a license to allow firms

107. ASIC, *Comparison of Key Features*, *supra* note 68.

108. ASIC, *Info 248*, *supra* note 19.

109. *Id.*

110. *Id.*

111. *Id.*

112. *Id.*

113. *Id.*

114. See, e.g., UTAH DEP'T OF COM., *FAQs*, *supra* note 32; UTAH CODE ANN. § 13-55-103(2)(b) (West, Westlaw through 2020 5th Spec. Sess.); *About Us*, STATE OF UTAH DEP'T OF COM., <https://commerce.utah.gov/about.html> [<https://perma.cc/F5WD-F2GA>] [hereinafter UTAH DEP'T COM., *About Us*].

115. *How We Authorise*, FIN. CONDUCT AUTH. (Apr. 5, 2016) <https://www.fca.org.uk/about/how-we-authorise> [<https://perma.cc/F7LH-ULSJ>] [hereinafter FIN. CONDUCT AUTH., *How We Authorise*]; *Enforcement*, FIN. CONDUCT AUTH. (Apr. 22, 2016), <https://www.fca.org.uk/about/enforcement> [<https://perma.cc/WK63-CDF6>] [hereinafter FIN. CONDUCT AUTH., *Enforcement*].

116. *Sandbox Tools*, FIN. CONDUCT AUTH. (Dec. 15, 2017), <https://www.fca.org.uk/firms/innovation/regulatory-sandbox-tools> [<https://perma.cc/UR49-QW7A>] [hereinafter FIN. CONDUCT AUTH., *Sandbox Tools*].

to test their products or services.¹¹⁷ Additionally, the ASIC offered other forms of relief, such as a waiver of certain rules and regulations.¹¹⁸ The ASIC's new, enhanced regulatory sandbox appears to contemplate providing similar relief.¹¹⁹ Conversely, both Arizona and Utah explicitly state they will not provide firms with legal advice.¹²⁰ Rather, relevant regulators in Arizona and Utah provide firms with a limited license to test their products or services.¹²¹

Although the FCA, the ASIC, Arizona, and Utah are all licensing bodies and can therefore offer limited-access licenses or temporarily waive the licensing requirement, the CFPB does not license firms.¹²² As such, it cannot provide a limited-purpose license.¹²³ Instead, the CFPB provides firms with a Compliance Assistance Statement of Terms (CAST) that extends CFPB approval for a particular offering, provided it meets the requirements stipulated in the CAST.¹²⁴ Approval means that the CFPB believes the product or service is in compliance with the law and that the firm will have a safe harbor from liability so long as it remains in compliance with the requirements set forth in the CAST.¹²⁵

An additional limitation to the scope of relief that can be offered exists when there are regulators with overlapping jurisdictions.¹²⁶ For example, a firm obtaining relief from the Arizona or Utah sandbox will still need to worry about federal regulators, including the CFPB, because Arizona and Utah cannot bind the federal government.¹²⁷ Although the CFPB has a process for entering into agreements with other jurisdictions and plans to coordinate with

117. ASIC, *Comparison of Key Features*, *supra* note 68.

118. Austl. Sec. & Invs. Comm'n, *Retaining ASIC's Fintech Licensing Exemption 7* (Austl. Sec. & Invs. Comm'n, Consultation Paper No. 297, 2017), <https://download.asic.gov.au/media/4570456/cp297-published-12-december-2017.pdf> [<https://perma.cc/9FQV-7X4U>].

119. ASIC, *Info 248*, *supra* note 19.

120. *See* UTAH DEP'T OF COM., *FAQs*, *supra* note 32; ARIZ. ATT'Y, GEN., *FAQs*, *supra* note 31.

121. UTAH CODE ANN. § 13-55-103(2)(b) (West, Westlaw through 2020 5th Spec. Sess.); ARIZ. REV. STAT. ANN. § 41-5602 (Westlaw through 2020 2d Reg. Sess. of 54th Leg.).

122. *See The Bureau*, CONSUMER FIN. PROT. BUREAU, <https://www.consumerfinance.gov/about-us/the-bureau/> [<https://perma.cc/7NFU-57RS>]; FIN. CONDUCT AUTH., *How We Authorise*, *supra* note 115; *Powers*, AUSTL. SEC. & INVS. COMM'N, <https://asic.gov.au/about-asic/what-we-do/our-role/powers/> [<https://perma.cc/6PP8-K7ZQ>]; UTAH DEP'T COM., *About Us*, *supra* note 114; *Business Licensing*, ARIZ. COM. AUTH., <https://www.azcommerce.com/small-business/quick-links/business-licensing/> [<https://perma.cc/ZH9K-NMZF>].

123. *See* CONSUMER FIN. PROT. BUREAU, *supra* note 122.

124. *See* Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,257 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

125. *Id.* at 48,256.

126. *See* § 41-5603(F); § 13-55-104(5); Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,249.

127. *See* § 41-5603(F); § 13-55-104(5); Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,249.

other regulatory bodies for the purposes of its CAS,¹²⁸ there is no guarantee it will.¹²⁹

C. *Potential Costs of Regulatory Sandboxes*

Regulatory sandboxes have been adopted to obtain certain potential gains, but they also pose risks and costs. Although some cost is inevitable because administering a sandbox requires scarce regulatory resources, other potential risks, such as risks to consumer protection, are more speculative or susceptible to mitigation.¹³⁰ This Section briefly discusses some of the potential costs of regulatory sandboxes.

1. *Taxing Scarce Regulatory Resources*

Regulatory sandboxes are generally “high touch” affairs in which the regulator and participating firms engage in significant interaction.¹³¹ This interaction requires adequate staffing and resources, with sandboxes typically taking six months and significant staff time to develop.¹³² Sandbox staff can also become overwhelmed by applications and requests when there is strong demand from the market.¹³³ Concerns have been raised that regulatory sandboxes will cause regulators to divert resources that could be better deployed elsewhere, such as on more general innovation hubs.¹³⁴

2. *Consumer Protection*

Concerns also have been raised that regulatory sandboxes will become “consumer protection desert[s],”¹³⁵ where consumers will lose the protection of regulation and be left vulnerable.¹³⁶ Regulators may also misjudge the

128. Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,259–60.

129. *Id.*

130. *See infra* Section II.C.

131. *See* ASIC, *Info 248*, *supra* note 45.

132. UNSGSA, *supra* note 20, at 31.

133. *Id.*

134. *Id.* at 31–32.

135. *See* Lauren Saunders, *Are Fintech Sandboxes a Consumer Protection Desert?*, THE HILL (Nov. 29, 2018), <https://thehill.com/blogs/congress-blog/economy-budget/418770-Are-fintech-sandboxes-a-consumer-protection-desert%3F> [<https://perma.cc/BKG6-RLTE>].

136. *See* Jun et al., *supra* note 12, at 2; *see also* State of N.Y. Off. of the Att’y Gen., Comment Letter on Policy on No-Action Letters and the BCFP Product Sandbox 2 (Feb. 11, 2019), <https://www.regulations.gov/document?D=CFPB-2018-0042-0031> [<https://perma.cc/C7PA-KJE4>] (“The Proposed Policies do not reflect [a cautious and deliberative regulatory] approach. Instead, they would permit the CFPB to exempt—in some cases indefinitely—companies and even entire industries from certain consumer protection laws and regulations through a process designed to value speed over careful decision-making.”).

success of an experiment and allow an unduly risky product into the market.¹³⁷ Further, there is concern that sandboxes may lead to a race to the bottom where, in an effort to become more attractive to innovative firms, jurisdictions progressively expand the scope of the sandbox and reduce the amount of regulations that apply within.¹³⁸ How much of a risk this actually is has yet to be determined. Many sandbox regimes, including those discussed earlier, explicitly include consumer protection concerns in their requirements for entry.¹³⁹ For example, Australia requires that firms carry adequate insurance to compensate consumers who are harmed,¹⁴⁰ and Arizona and Utah require firms to detail how they will protect consumers in the event of a failure.¹⁴¹ How effective these requirements will be depends on the quality of the regulators' execution.

III. THE RISK OF ECONOMIC PRIVILEGE IN REGULATORY SANDBOXES

As described earlier, leading regulatory sandboxes seek to make it easier for firms to test new products and services, with the goal of encouraging competition, innovation, and access within the financial sector.¹⁴² Regulatory sandboxes work toward this goal by granting specific firms authorization to test new products and services without having to go through the traditional licensing process by either waiving certain legal and regulatory requirements or limiting the firms' potential legal liability.¹⁴³ Although promoting entrepreneurialism and innovation in a sector burdened by heavily restrictive regulatory requirements is in the public interest, it also presents a potential public problem. What happens to firms that are not admitted into the sandbox?

In a competitive market, a benefit granted to one firm may be a blow to that firm's competitors. Firms typically compete with each other for market power, so a benefit that makes it easier or cheaper for one firm to obtain a larger share of the market is ultimately a detriment to its competitors.

137. See Jun, *supra* note 12, at 3.

138. Jemima Kelly, *A "Fintech Sandbox" Might Sound Like a Harmless Idea. It's Not*, ALPHAVILLE (Dec. 5, 2018), <https://ftalphaville.ft.com/2018/12/05/1543986004000/A--fintech-sandbox--might-sound-like-a-harmless-idea--It-s-not/> [<https://perma.cc/PSU7-NRCN>] ("Worryingly, there now appears to be a kind of race to the bottom among global regulators to set up the most 'light-touch' possible regimes so as to attract start-ups to their jurisdictions—whether they are offering consumers and investors anything useful. Sandboxes are a part of that.")

139. See ASIC, *Info 248*, *supra* note 19; ARIZ. REV. STAT. ANN. § 41-5603(F)(3), (F)(3)(g) (Westlaw through 2020 2d Reg. Sess. of 54th Leg.); UTAH CODE ANN. § 13-55-103(3)(f), (3)(f)(viii) (West, Westlaw through 2020 5th Spec. Sess.).

140. ASIC, *Info 248*, *supra* note 19.

141. § 41-5603(F)(3), (F)(3)(g); § 13-55-103(3)(f), (3)(f)(viii).

142. See *supra* Section II.B.1.

143. See *supra* Sections II.A.–II.B.1.d.

Therefore, any time a regulator helps a specific firm, it potentially harms other firms within the industry that did not receive that same benefit.¹⁴⁴

This is not just a problem for the admitted firm's competitors; it also harms overall market competition, which, in turn, can reduce consumer benefits. Additionally, when the government allows only one firm to experiment with a particular product or service, it gives that firm—at least for a limited time—monopolistic control over that product or service, which can lead to worse outcomes for consumers.¹⁴⁵ Herein lies the paradox: To make a sandbox worthwhile, it must provide some benefits to the firms operating within it. However, those benefits may confer a competitive advantage to the sandbox firms over their competitors, which could be detrimental to market competition in the sector and, ultimately, to consumers.

The exact nature of the potential advantage will depend on the structure of the sandbox and the advantages it offers. For example, making it easier for Firm A to obtain a limited-use license for testing a new product or service could harm incumbent Firm B, which was not able to obtain the limited-use license. Firm B would then be compelled to spend the time, money, and effort necessary to obtain a full license. All the while, Firm A would already be establishing a customer base and gaining what is commonly referred to as the “first-mover advantage.”¹⁴⁶ This, in turn, would redirect Firm B's investment resources that could have been spent on research and development or marketing. Although at a fixed point in time, Firm B may seem to have the advantage as an incumbent, Firm A's smoother entry point may lead to a long-term advantage.

To the extent sandbox entry is limited on the basis of the innovative nature or novelty of a product or service—the regulatory sandboxes established by Australia and Arizona, as examples—a new firm that competes in a space but offers a more traditional product may not be able to get a testing license. This would give a marked advantage to firms that seek to offer new, innovative

144. As Christopher Coyne and Lotta Moberg have articulated in the context of state-provided targeted economic benefits generally, “Targeted benefits are valuable to firms because of their discriminatory nature[:] they give the recipient favorable advantages over competitors that do not receive the same benefits.” Christopher J. Coyne & Lotta Moberg, *The Political Economy of State-Provided Targeted Benefits*, 28 REV. AUSTRIAN ECON. 337, 348 (2015).

145. MATTHEW D. MITCHELL, *THE PATHOLOGY OF PRIVILEGE: THE ECONOMIC CONSEQUENCES OF GOVERNMENT FAVORITISM* 18 (2012) (“When a government grants one firm a monopoly, however, there is no discipline. The firm will possess pricing power that a competitive firm lacks. It need not accept the price that would emerge in a competitive market and is instead said to be a ‘price maker.’ If the firm is interested in maximizing its profit, it will set a higher price than that which would prevail in a competitive industry.”).

146. See generally Roger A. Kerin et al., *First-Mover Advantage: A Synthesis, Conceptual Framework, and Research Propositions*, 56 J. MKTG. 33, 33 (1992) (providing insight as to the types of advantages that accrue from entering the market first).

products and services over firms that offer more traditional products and services.

Making admittance into a sandbox contingent on the novel or innovative nature of a product or service may be justified on the grounds that more traditional firms lack the regulatory uncertainty associated with novel and innovative products or services. It also may make sense because the stated purpose of many sandboxes is to encourage entrepreneurialism and innovation. However, there are countervailing concerns that may outweigh these justifications.

First, there may be sources of regulatory uncertainty that do not arise from developments in technology or from the novel nature of a product or service. In those cases, a firm might benefit from a trial period but still not meet the entry criteria necessary to gain admittance into a specific sandbox. Additionally, because a firm admitted into a sandbox can bring its product or service to market more quickly than its non-admitted rivals, a sandbox may give admitted firms head starts over their more traditional competitors. For example, admitted firms could start working on brand creation and developing customer loyalty by successfully serving customers during the trial, while their non-admitted counterparts would still be navigating the standard regulatory process. The longer a firm is allowed to exist within the sandbox's advantageous regulatory environment, the more pronounced this benefit will likely be.

In a similar vein, the exposure a firm can gain within the sandbox may make it easier for that firm to find and obtain investment compared to its non-sandbox rivals. As Jemima Kelly points out in the *Financial Times Alphaville*, there is a risk that participation in a sandbox becomes a form of government-provided public relations for firms lucky enough to gain admittance.¹⁴⁷ If investors see that a firm has participated in a sandbox, that participation can signal a number of things. First, it can signal that the firm is engaging in entrepreneurial and innovative activities to stay ahead of the competition. This is especially true if regulators restrict sandbox entry to novel products and services. Second, it can signal that regulators have reviewed the firm and have found it to be stable and capable of expansion. Likewise, it can signal that regulators view the firm favorably, or as Hilary Allen insists, it can “lend[] [the firm] a certain regulatory imprimatur,”¹⁴⁸ which can affect an investor's view of that firm's regulatory liability.

There is also a risk that the regulators behind the sandbox become government-provided legal or consulting advisers to the accepted firms. “Informal steers” and other private guidance could allow firms in the sandbox to obtain a great benefit from the regulator, while a non-sandbox firm would

147. See Kelly, *supra* note 138.

148. Allen, *supra* note 13, at 625.

need to hire a law firm to receive the same guidance. Even then, the non-sandbox firm would lack the certainty provided by getting the answer straight from the regulator's mouth. This is not to say that it is bad for regulators to provide guidance and clarity; in fact, it is generally a good thing. But if the benefit falls unequally onto some participants, it could offer an advantage to those firms at the expense of others.

Risks of unequal treatment with regard to enforcement also exist to the extent that the sandbox limits regulatory exposure. For example, the CFPB's sandbox provides mechanisms for firms to eliminate the risk of liability for certain activities if the CFPB grants approval relief.¹⁴⁹ Although this is not necessarily objectionable if the firm's conduct is consistent with the law and should therefore not be subject to liability, the risk is that because firms must obtain the relief from the CFPB directly and at the CFPB's discretion, firms may face different liability risks for comparable behavior depending on whether they went through the sandbox process. This can be a significant advantage to firms within the sandbox because litigation is a costly and time-consuming endeavor that can hinder a firm's ability to compete effectively, even if the firm ultimately prevails.

None of this is to say that regulatory sandboxes are inherently bad or undesirable. To the extent they facilitate a better understanding of regulation, more entry, greater competition, and increased innovation, regulatory sandboxes can benefit consumers—and that is valuable. However, there are also potential risks that can detrimentally affect competitors and the market as a whole.

IV. THE COST OF ECONOMIC PRIVILEGE

As previously discussed, regulatory sandboxes have the potential to create a form of government-granted economic privilege not enjoyed by outside firms.¹⁵⁰ This is a problem for several reasons. First, it can be considered unjust for the government to empower certain firms at the expense of others. When the government engages in the business of picking winners and losers, it goes against the notions of the rule of law, equal rights, and the generality principle.¹⁵¹

149. See Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,249 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

150. See *supra* Part III.

151. See *Overview - Rule of Law*, U.S. CTS., <https://www.uscourts.gov/educational-resources/educational-activities/overview-rule-law> [<https://perma.cc/4C5Q-4VMZ>]; Jarret B. Wollstein, *The Idea of Equality*, FOUND. FOR ECON. EDUC. (Apr. 1, 1980), <https://fee.org/articles/the-idea-of-equality/> [<https://perma.cc/A4XU-MPHN>]; *What Is*

Additionally, firm-specific economic privileges distort the market and undermine its function as a knowledge process. When the government decides that one firm, or even one industry, should retain some form of advantage over another, it gives that firm or industry market power it would not otherwise have. This can make comparatively efficient firms perform worse in the market than they otherwise would have, while making comparatively inefficient firms perform better. This result means that firms could succeed or fail even if consumer preferences would have led to the opposite outcome. Because individuals rely on these types of market signals to make decisions, government-granted economic privilege could lead to misallocated resources as well as forgone profits opportunities for firms and individuals.

Finally, allowing the government to grant privileges to some firms at the expense of others opens the door for cronyism and favoritism in the regulatory process. As the political satirist P.J. O'Rourke once quipped: "When buying and selling are controlled by legislation, the first things to be bought and sold are legislators."¹⁵² Again, all this is not to say the costs associated with economic privilege outweigh the benefits that come from the increased entrepreneurialism and innovation spurred by regulatory sandboxes. However, these costs do exist. They should be acknowledged and taken into account when analyzing regulatory sandboxes, and policy makers should work to find methods and best practices to mitigate them when feasible.

A. *Government-Granted Economic Privilege Is Unjust*

One of the main issues with government-granted economic privilege is that it goes against basic notions of fairness and justice.¹⁵³ Why should a bureaucrat be in charge of deciding which firms or individuals succeed within the market? Because of an individual regulator's decision, a firm that might otherwise be more successful than its competitors may very well perform poorly. This could lead to some firms succeeding that would have otherwise failed and some firms failing that would have otherwise succeeded. When regulators have broad discretion over whether to grant a particular advantage to a firm, that discretion undermines the underlying notions of the rule of law and the generality principle.¹⁵⁴

Generality Principle in Political Science?, THE HINDU (Sept. 27, 2018, 23:58), <https://www.thehindu.com/opinion/op-ed/what-is-generality-principle-in-political-science/article25050116.ece> [<https://perma.cc/WGL7-BK9X>].

152. P.J. O'ROURKE, PARLIAMENT OF WHORES 210 (1992).

153. See generally Michelle Maise, *Principles of Justice and Fairness*, BEYOND INTRACTABILITY, https://www.beyondintractability.org/essay/principles_of_justice [<https://perma.cc/ARD7-A437>] (discussing generally the notions of justice and "fair play").

154. The generality principle was best articulated by the economist James M. Buchanan:

To be sure that resources are allocated efficiently, individuals and firms should have as much certainty as possible when making decisions on how they think they will be regulated. Because of the basic notion of fairness, similarly situated firms or individuals should not be regulated in highly disparate ways that heavily favor some firms over others. When regulators are given greater discretion, individuals' certainty surrounding how they will be regulated decreases, and market participants may be left to the will of a bureaucrat. In this situation, similarly situated firms could face remarkably different regulatory requirements and legal liability. For many individuals, this disparate treatment may feel intuitively unfair.

Defenders of certain forms of government-granted economic privilege will likely argue there are good reasons for regulators to support or hinder certain firms from time to time. The government could be working to address other issues. It could be working to achieve other goals. Giving certain firms advantages over others could simply be the inevitable result of an otherwise completely justifiable government policy. For example, after the 2008 financial crisis, certain banking firms received substantial bailouts while others did not.¹⁵⁵ However, these actions were justified as a way to stabilize the U.S. economy.¹⁵⁶ As former U.S. Secretary of the Treasury Timothy Geithner said, "It wasn't fair. But it was necessary."¹⁵⁷ Although that sentiment may be true and although there may be justifiable reasons for allowing the government to grant specific firms privileges over their competitors in certain situations, it does not change the fact that this is unjust. It may be a necessary evil, but it is still an evil that should be avoided whenever possible.

[The generality principle is] that which modern politics is not. What we observe is "politics by interest," whether in the form of explicitly discriminatory treatment (rewarding or punishing) of particular groupings of citizens or of some elitist-dirigiste classification of citizens into the deserving and non-deserving on the basis of a presumed superior wisdom about what is really "good" for us all. The proper principle for politics is that of generalization or generality.

JAMES M. BUCHANAN & ROGER D. CONGLETON, *POLITICS BY PRINCIPLE, NOT INTEREST: TOWARD NONDISCRIMINATORY DEMOCRACY*, at xix (11th ed. 2003).

155. See *Bailed Out Banks*, CNN MONEY, <https://money.cnn.com/news/specials/storysupplement/bankbailout/> [<https://perma.cc/9H7U-4BJN>]; Miranda Marquit, *Too Big to Fail Banks: Where Are They Now?*, INVESTOPEDIA, <https://www.investopedia.com/insights/too-big-fail-banks-where-are-they-now/> [<https://perma.cc/DUV5-XKCG>].

156. See Kimberly Amadeo, *What Was the Bank Bailout Bill? Cost, Impact, How It Passed*, THE BALANCE (Apr. 19, 2020), <https://www.thebalance.com/what-was-the-bank-bailout-bill-3305675> [<https://perma.cc/6UV3-8784>].

157. Press Release, Tim Geithner, Sec'y of Treasury, Remarks at Office of Financial Stability Town Hall (Sept. 22, 2020), <https://www.treasury.gov/press-center/press-releases/Pages/tg866.aspx> [<https://perma.cc/U5RM-A9YY>].

B. *Government-Granted Economic Privilege Distorts the Market*

Another cost associated with government-granted economic privilege is that it distorts the market's function as a knowledge process.¹⁵⁸ When consumers decide whether to purchase a particular good or service, they are signaling to other market participants they have a demand for that good or service.¹⁵⁹ This process provides information to other market participants on how likely it is that the good or service is of high quality or, at the very least, how popular it is among other consumers.¹⁶⁰ In an undistorted market, firms can only succeed if they are able to establish consumer demand for their product, which in turn brings in enough revenue to outweigh the cost of doing business.¹⁶¹ When the government begins granting economic privileges, it muddles this signaling function and makes it difficult for a consumer or investor to determine whether a firm's success has been earned in the market or granted by a government body.

A firm could be doing relatively well, or at least could be perceived as doing relatively well, even though it would be doing far worse if not for its government-granted advantage over rivals. This advantage could allow the firm to bring in more consumers than it naturally would have because of the reputational boost that comes from its unearned market advantage. As a result, the firm could drive higher-quality, lower-cost, or more innovative competitors out of the market, and those competitors might have created more benefits for consumers and the market in general than their government-empowered counterpart. Additionally, this advantage could allow a firm to attract new investors that would not have otherwise invested in the firm. Investors could see the short-term economic gain enjoyed by the firm as a result of its unearned economic privilege and choose to invest in that firm over a competitor that may better in the long run. Investors could also view this government-granted privilege as the government endorsing certain firms and not others. Government endorsement is valuable because it signals that a regulatory body has likely reviewed a firm to some extent. It may also signal the firm's access to government resources and powers that its competitors lack. This provides a firm's own type of signaling function that could lead investors to allocate their resources inefficiently.

158. See Friedrich A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519 (1945).

159. See Jim Chappelow, *Demand*, INVESTOPEDIA (Sept. 22, 2020), <https://www.investopedia.com/terms/d/demand.asp> [<https://perma.cc/2RF6-KW6N>].

160. See Hayek, *supra* note 158; Chappelow, *supra* note 159.

161. See Chappelow, *supra* note 159; Alicia Tuovila, *Economic Profit (or Loss)*, INVESTOPEDIA (June 27, 2020), <https://www.investopedia.com/terms/e/economicprofit.asp> [<https://perma.cc/VU4R-PX38>].

All this may have a compounding effect in which each benefit that a firm gains as a result of government-granted economic privilege provides the firm with more resources or market power, consequently allowing the firm to use those resources to obtain future benefits. It becomes a cycle of mutual reinforcement. Additionally, as firms gain more resources, market power, and political influence through government-granted economic privilege, they are often able to obtain even more unearned economic privilege through the political process.

C. *Government-Granted Economic Privilege Could Lead to Cronyism*

Allowing regulators to grant certain firms economic privilege without extending that privilege to other firms can create a supply of and demand for economic privilege. This supply of and demand for government-granted economic privilege could easily lead to rent-seeking or rent-extracting behavior.¹⁶² As stated earlier, if a firm is able to obtain a government-granted economic privilege, this gives the firm an advantage over firms that were not able to obtain the privilege. Because this advantage has the potential to provide admitted firms with more market power than they would naturally have had, the privilege becomes more valuable when it is granted to fewer firms. A firm that has obtained the privilege will want the number of other firms that are also granted this privilege to be as small as possible. If firms are able to obtain the necessary political power, there is good reason to believe they will attempt to limit regulatory sandbox entry to themselves and, potentially, the few firms they do business with and benefit from. Regulators, in turn, could limit access as a way to maximize their ability to extract rent from firms seeking entry.¹⁶³

In 1982, George Stigler won the Nobel Prize in economic sciences for his work on how regulation is often “captured” by interest groups, industries, or powerful firms and individuals.¹⁶⁴ He argued that the standard “protection of the public” theory of regulation did not sufficiently explain how the regulatory process actually functioned.¹⁶⁵ Instead, he posited that “as a rule, regulation

162. Rent extraction can occur when policy makers, realizing they have the ability to offer something of value or to impose a cost on market participants, demand rents from those participants to either provide some form of gain or avoid any potential for harm. *See generally* Fred S. McChesney, *Rent Extraction and Rent Creation in the Economic Theory of Regulation*, 16 J. LEGAL STUD. 101, 102–03 (1987) (broadly explaining how and why rent extraction comes to fruition).

163. *See id.*

164. Press Release, The Nobel Prize, The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1982 (Oct. 20, 1982), <https://www.nobelprize.org/prizes/economic-sciences/1982/press-release/> [<https://perma.cc/TAL5-KNBW>].

165. *See* George Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3, 4 (1971).

is acquired by the industry and is designed and operated primarily for its benefit.”¹⁶⁶ He went on to say that “every industry or occupation that has enough political power to utilize the state will seek to control entry.”¹⁶⁷ Further, his theory asserted that even if an industry is not able to obtain regulation that fully prohibits new entry into the industry, “the regulatory policy will often be so fashioned as to retard the rate of growth of new firms.”¹⁶⁸ This is because restricting competition and erecting barriers to entry within an industry help incumbent firms gain a larger share of the market and greater market power than they would naturally have.¹⁶⁹ Competing with three other firms is much easier than competing with hundreds. If firms are able to restrict entry, it will be in their interest to do so.

William A. Jordan further developed this idea in his “producer-protection” theory of regulation.¹⁷⁰ He argued that, regardless of whether it is the motivating factor, “the actual effect of regulation is to increase or sustain the economic power of an industry.”¹⁷¹ Similar to Stigler, Jordan contrasted this with what he called the “consumer-protection” theory of regulation.¹⁷² In Jordan’s view, if the producer-protection theory is correct, it is likely that regulation will have the effect of doing “such things as increasing prices, promoting price discrimination, reducing or preventing the entry of rival firms, and increasing industry profits.”¹⁷³ Other scholars have also built upon this work and supported similar theories that integrate the industry-benefiting justifications and effects of regulation.¹⁷⁴

As this Article has established, regulatory sandboxes have the potential to create government-granted economic privilege.¹⁷⁵ If regulators are given broad discretion to choose which firms are allowed to participate in the

166. *Id.* at 3.

167. *Id.* at 5.

168. *Id.*

169. *See id.* at 7.

170. William A. Jordan, *Producer Protection, Prior Market Structure and the Effects of Government Regulation*, 15 J.L. & ECON. 151, 152 (1972).

171. *Id.* at 153.

172. *See id.* at 152–53.

173. *Id.* at 153 (footnote omitted).

174. *See* Richard A. Posner, *Taxation by Regulation*, 2 BELL J. ECON. & MGMT. SCI. 22, 22 n.3 (1971) (“The ‘capture’ of regulation by the regulatees is, of course, an old theme in the literature of regulation. Professor Stigler’s theory allows for capture by effective political groups other than the regulated firms themselves, and there is accordingly no necessary inconsistency between it and the analysis in this paper.”). *See generally* Gary S. Becker, *A Theory of Competition Among Pressure Groups for Political Influence*, 98 Q.J. ECON. 371, 372, 396 (1983) (explaining that Stigler was an influence and providing a model that expands on his theory); Sam Peltzman, *Toward a More General Theory of Regulation*, 19 J.L. & ECON. 211, 211–12, 240 (1976) (explaining that Stigler and Jordan were influences and expanding on their work).

175. *See supra* Part IV.

sandbox, they will be able to limit entry as they see fit. Firms that are already admitted to the sandbox will have a strong desire to see regulators restrict sandbox entry to the greatest extent possible. Because there is a potential supply of regulation—arising from regulators’ discretion on whether to admit a firm into the sandbox—and a demand for the regulation—by firms that would benefit if entry into the sandbox were more heavily restricted—there is the potential for regulatory capture. If firms are able to use their political power to have regulators restrict entry into the sandbox, they have a strong incentive to do so. This is not to say that firms will necessarily work toward this end or that regulators will be susceptible to it if they do, but only that this potential exists and should be considered when designing the procedures underlying a regulatory sandbox.

V. HOW TO MITIGATE THE RISK OF SANDBOX PRIVILEGE

Acknowledging there is a risk that regulatory sandboxes may create certain types of harm does not mean that sandboxes should be abandoned. Instead, when creating sandboxes, policy makers should design them in a way that will minimize the risk of harm while balancing the benefits to innovation and entry. And to be clear, the existing sandbox regimes are not blind to these concerns or tradeoffs.¹⁷⁶ This Part looks at existing regimes’ proposals to identify ways to mitigate risk while allowing sandboxes to function. Generally, these solutions seek to address two core potential sources of trouble: lack of access and differential treatment.

A. *Lack of Access*

In a world of few regulatory resources, there is a risk that access to a sandbox will be limited. The more “high touch” the sandbox experience is, the more acute this risk is; the more resources a regulator needs to spend on any given firm, the fewer firms the regulator can service.¹⁷⁷ The resulting lack of access for some firms may place them at an unfair disadvantage, but there are ways to mitigate this risk to some degree.

The first and most obvious option is simply to grant liberal access by lowering or eliminating substantive and procedural restrictions. For example, sandboxes, such as Arizona’s, that use novelty as a criterion¹⁷⁸ risk excluding a marginal firm that is new enough to raise regulatory certainty questions with

176. See ASIC, *World-First Licensing Exemption*, *supra* note 101; ARIZ. REV. STAT. ANN. § 41-5601(4) (Westlaw through the 2d Reg. Sess. of the 2020 54th Leg.); UTAH CODE ANN. § 13-55-103(12)(b) (West, Westlaw through 2020 5th Spec. Sess.).

177. See UNSGSA, *supra* note 2, at 31.

178. § 41-5601(4).

regard to its specific business model while at the same time, not new or unique enough to qualify as “innovative” in the eye of the regulator. Adopting an intentionally wide definition of “innovation” could help move more firms into eligibility. The second option is to consider explicitly whether comparable firms have previously received entry into the sandbox as a factor weighing in favor of entry—this helps avoid arbitrary exclusion.¹⁷⁹

The third option, seen in the ASIC’s original Fintech Licensing Exemption, is to have a set of objective criteria related to consumer protection and allow any firm that meets those criteria to take advantage of the exemption without the regulator exercising discretion.¹⁸⁰ This option is not without its own risk that the criteria will be set unnecessarily high or idiosyncratically, unduly benefiting some firms over others. But it does lower the risk of arbitrary decision making by the regulator at the admission stage.

Additionally, providing rejected firms with the ability to appeal the regulator’s decision to reject the firm, or at least requiring regulators to explain why a firm was rejected (as seen in Utah)¹⁸¹ and allowing the firm to reapply after correcting the defect, may help avoid the risk that admission decisions become arbitrary or opaque.

The fourth option, seen in the CFPB sandbox, is allowing industry groups and other third parties to help facilitate sandbox entry on behalf of their members.¹⁸² This innovation may help expand access and mitigate competitive risk by allowing many market participants to benefit from the sandbox at the same time. However, there are also risks to this approach. First, industry groups rarely cover the entire competitive landscape,¹⁸³ so although allowing them to apply will help limit the risk of unfair competitive advantage, it may not eliminate this risk and might instead just shift the advantage to the industry-group level instead of the firm-specific level. Second, as the CFPB notes, decisions on whether to grant relief are specific to facts and circumstances,¹⁸⁴ so it is possible that industry groups may not be able to provide sufficient specificity to lead to meaningful relief.

Utah and the CFPB also help firms obtain access to the sandbox if they have competitors that have used the sandbox previously.¹⁸⁵ Although not a

179. Brian Knight, Comment Regarding the Consumer Financial Protection Bureau’s Proposed No-Action Letter and Product Sandbox Policies, 6 (Jan. 28, 2019), <https://www.mercatus.org/publications/financial-regulation/comment-regarding-consumer-financial-protection-bureaus-proposed> [<https://perma.cc/BA6D-VKGT>].

180. See ASIC, *World-First Licensing Exemption*, *supra* note 101.

181. § 13-55-103(12)(b).

182. See Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,254 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

183. See *The Global Industry Classification Standard*, MCSI, <https://www.msici.com/gics> [<https://perma.cc/2UB9-WRCE>].

184. See Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. at 48,251.

185. See *supra* Section II.B.2.b.

guarantee of admission, these provisions could help mitigate against the risk that access to the sandbox becomes a unique advantage for only one market participant.

In addition to expanding access to participation, regulators and policy makers should make certain that the duration of the sandbox is no longer than is necessary to achieve the sandbox's legitimate ends. Allowing a firm to simply "hang out" in the sandbox's more favorable regulatory environment would exacerbate the risks of regulatory privilege. This is not to say that sandbox terms must be objectively short, but they should be tailored to the specific needs of the regulatory question at hand.

Likewise, regulators should seek to expand access to the learning that occurs in the sandbox so that, to the extent regulators find themselves acting as de facto consultants or legal counsel, they do so for the public and market and not just for a specific firm. Although some regulatory questions will be tightly wrapped up in the details of a particular business practice such that they are only valuable to that specific firm, there are likely to be many others in which the factors, analyses, and determinations created by regulators will be valuable more broadly. To the greatest extent possible, regulators should promptly report their findings to the general public without revealing trade secrets or proprietary information.

Although some sandboxes include periodic reports, such as the FCA's lessons learned report,¹⁸⁶ so far these reports do not seem to contain a detailed analysis of the law and regulation.¹⁸⁷ A better analogy may be no-action letters from agencies like the Securities and Exchange Commission that frequently contain legal and factual analysis.¹⁸⁸ Although these no-action letters technically apply only to the firms that receive them, they are frequently used to inform other firms' expectations.¹⁸⁹

B. Differential Treatment

Another risk is that comparable behavior will be treated differently depending on whether the firm is (or was) in the sandbox. This risk could turn sandbox participation from being voluntary to de facto mandatory. Such a situation would be highly undesirable because it would in effect grant regulators a veto power over who could participate in a market. It would also impose new regulatory burdens and, given the potential resource limitations discussed earlier, risk unfairly constricting the entry of new firms.

186. See FIN. CONDUCT AUTH., LESSONS LEARNED, *supra* note 60, at 1, 3.

187. See *id.* at 2.

188. *No Action Letters*, U.S. SEC. & EXCH. COMM'N (Mar. 23, 2017), <https://www.sec.gov/fast-answers/answersnoactionhtm.html> [<https://perma.cc/5H7Z-BN8G>].

189. *Id.*

Although participation in the sandbox may well be evidence of good faith on the part of a participating firm, failure to participate is not necessarily evidence of malevolence. Some sandboxes, like the FCA, explicitly contemplate relaxing certain legal and regulatory requirements.¹⁹⁰ In the FCA's case, this is consistent with the relevant authorities that the FCA enjoys, so it cannot be considered outside of or inconsistent with the law, and the firms that obtain the exemptions or approvals will be entitled to them.¹⁹¹ However, because firms are required to apply for and receive exemption or approval from the FCA (rather than just being able to conform to an existing safe harbor),¹⁹² there is a risk that two firms engaged in the same behavior would face different liabilities. Although this can arguably be justified as compensation for cooperating with regulators and providing them with information, this justification is not entirely satisfying.

Punishment can be justified as being morally just, creating deterrence, or providing compensation to a harmed party.¹⁹³ In the case of a firm operating within a sandbox in good faith, neither punitive nor deterrence justifications apply because the firm is not seeking to violate the law, and no one wants to discourage firms from pursuing innovation with the regulator in a transparent way. However, a firm that operates in good faith outside of the sandbox also does not seem to deserve punishment because it is operating in good faith, just as the sandbox firm is. Moreover, because sandboxes should be voluntary, it is unclear whether firms should be deterred from avoiding operation in the sandbox. This leaves limited justification for lower regulatory barriers to and, most especially, lighter punishment for sandbox firms.

In addition to the risk of de jure disparate treatment between sandbox and non-sandbox firms, there is also the risk that a de facto enforcement culture may develop an agency that views sandbox firms as "good" and non-sandbox firms as "bad." Firms that go through the extra steps to ingratiate themselves to the regulator and demonstrate tangible good faith may develop a relationship with the regulator that non-sandbox firms do not enjoy—a circumstance which might lead to implicit bias when it comes time for enforcement.

Another risk is that firms using a sandbox will be seen as de facto endorsed by the regulator. Many existing sandboxes require firms to clearly state that their participation in the sandbox is not an endorsement on the part

190. See FIN. CONDUCT AUTH., *Sandbox Tools*, *supra* note 116.

191. See FIN. CONDUCT AUTH., *How We Authorise*, *supra* note 115; FIN. CONDUCT AUTH., *Enforcement*, *supra* note 115.

192. See FIN. CONDUCT AUTH., *REGULATORY SANDBOX*, *supra* note 35, at 7.

193. See generally Richard S. Frase, *Punishment Justification and Goals*, OXFORD BIBLIOGRAPHIES (Mar. 2, 2011), <https://www.oxfordbibliographies.com/view/document/obo-9780195396607/obo-9780195396607-0116.xml> [<https://perma.cc/6NGN-WAKG>] (explaining the justifications for punishment).

of the regulator.¹⁹⁴ Such clear disclaimers should be broadly adopted to prevent consumers from conflating experimentation with recommendation.

To address these concerns, the regulator should first acknowledge this risk and create both formal guidance and informal norms for enforcement staff to recognize that although participation in the sandbox can be taken as evidence of good faith, a lack of participation is not necessarily evidence of bad faith. Second, enforcement staff should clearly understand what justifies a level of punishment, allowing non-sandbox firms that are comparably acting in good faith and that stand willing to make harmed customers whole to be treated similarly to sandbox firms.

VI. CONCLUSION

Sandboxes are exciting developments in the field of regulation. Driven by a need to keep up with quickly changing technology and a desire to facilitate innovation and competition, several leading jurisdictions have adopted sandboxes, with others on the way.¹⁹⁵ However, by their very nature, sandboxes pose a risk to market competition by conferring advantages to some firms over others. Given how new sandboxes are, it is not surprising that the literature on this risk is largely underdeveloped.

This Article identifies possible risks and highlights potentially fruitful areas of future research and scrutiny by academics, policy makers, and others interested in creating regulatory environments that facilitate innovation and competition to the benefit of consumers. As more sandboxes are established and as more firms gain or are denied entry, it will become easier to assess empirically the extent to which sandboxes serve to benefit the market as a whole and just those firms fortunate enough to participate. Although the legitimate benefits to both the market and consumers that are created by well-designed and well-implemented regulatory sandboxes may supersede the potential risk for economic privilege, that risk should not be ignored and should instead be examined when analyzing new or existing regulatory sandboxes.

194. See ARIZ. REV. STAT. ANN. § 41-5606(A)(3) (Westlaw through 2020 2d Reg. Sess. of 54th Leg.); UTAH CODE ANN. § 13-55-105(1)(e) (West, Westlaw through 2020 5th Spec. Sess.); Policy on the Compliance Assistance Sandbox, 84 Fed. Reg. 48,246, 48,257 (Sept. 13, 2019) (to be codified at 12 C.F.R.).

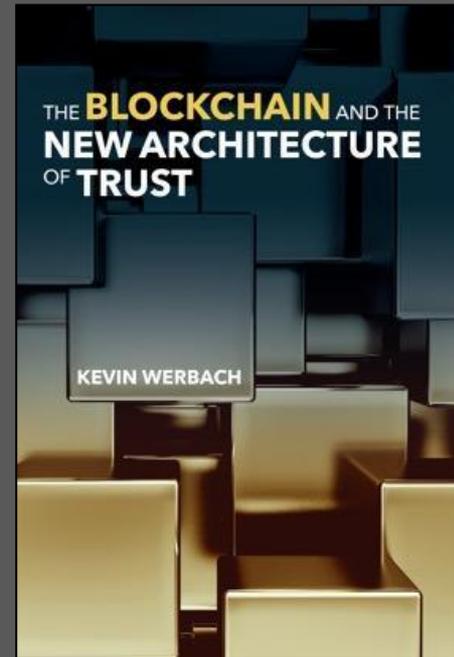
195. See Jayoung James Goo & Joo-Yeun Heo, *The Impact of the Regulatory Sandbox on the Fintech Industry, with a Discussion on the Relation Between Regulatory Sandboxes and Open Innovation*, J. OPEN INNOVATION: TECH., MKT., & COMPLEXITY 1, 4 tbl.1 (2020).

Blockchain + Cryptocurrency: Preparing Pennsylvania for a Digital Future

Kevin Werbach

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Director, Wharton Blockchain and Digital Asset Project

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LOW CONFIDENCE IN THE SYSTEM

Percent who agree the system is...

 **Informed Public**



Working for me



Not sure



Failing me

 **Mass Population**



Working for me



Not sure

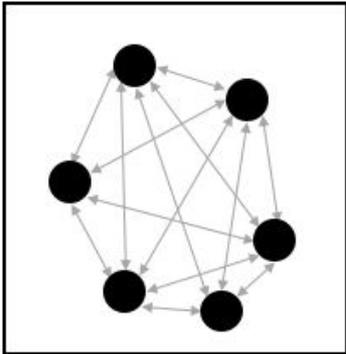


Failing me

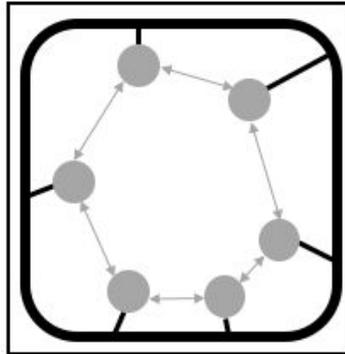
Only
1 in 5
believe the system is working for them

Trust Architectures

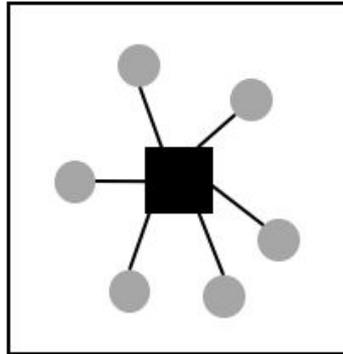
Peer-to-Peer



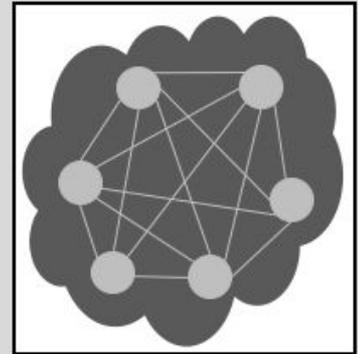
Leviathan



Intermediary



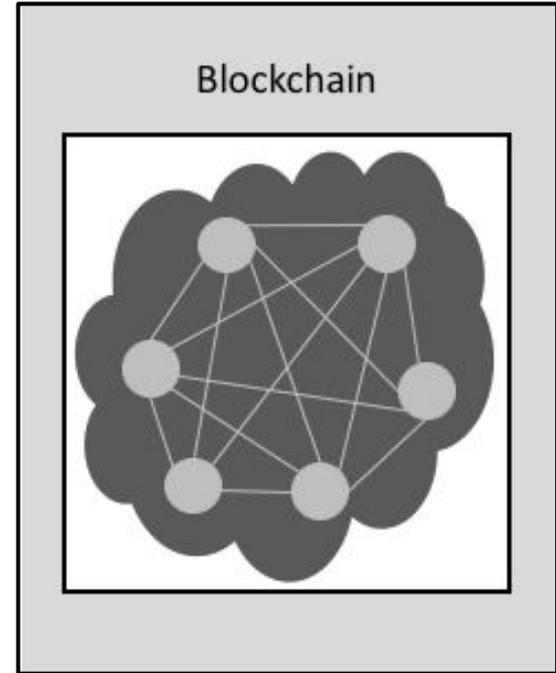
Blockchain



Blockchain = Decentralized Trust

Trust the transaction history (ledger) without trusting any specific actor to verify it.

A family of approaches for decentralized **consensus**, based on cryptography and **immutability** (strong tamper-resistance).



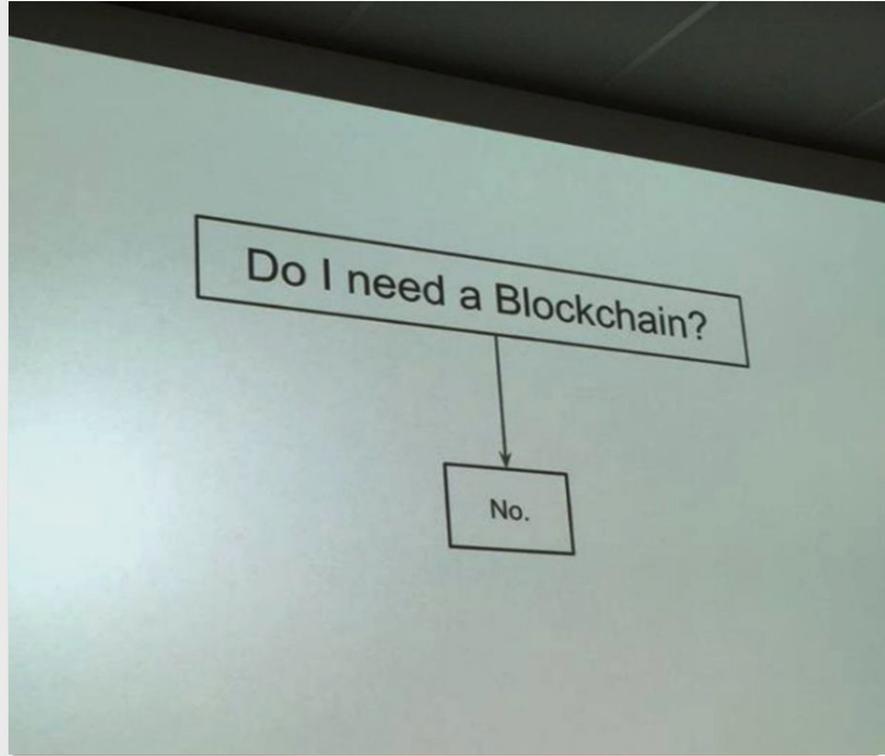
When Do You Need a Blockchain?



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@vgcerf

Follow

Simple flowchart:

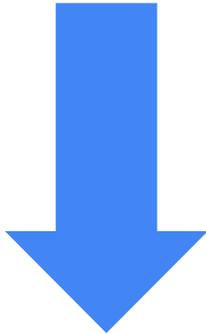


12:49 PM - 19 Jul 2018

When Might You WANT a Blockchain?

Single point of failure
Monopoly tax
Friction of intermediation

**TRUST
MINIMIZATION**



**TRUST
EXPANSION**

Avoid reconciliation
Auditability
Automated execution

Four Distinct Functions for Blockchain

Transacting

Decentralizing money

Trading

Financial markets
around programmable
digital assets

Tracking

Cross-organizational
processes on shared
ledgers

Transforming

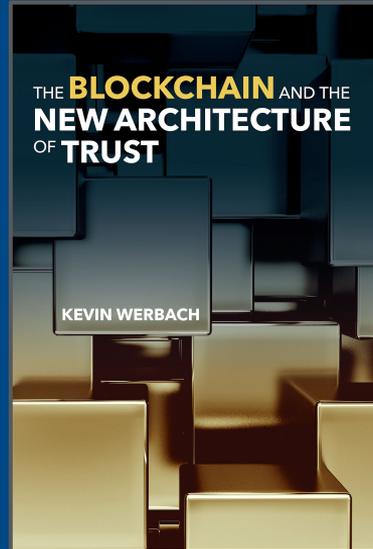
Decentralized software
applications

Recommendations for Policy-Makers

- Distinguish blockchain/cryptocurrency activities
- Where is regulatory clarity/enforcement/forbearance needed?
- Explore potential for demonstration projects
- Work to improve understanding

Thank you!

<http://TrustTheBlockchain.net>





Pennsylvania House Democratic Policy Committee

Virtual Hearing: Blockchain + Cryptocurrency—Preparing PA for a Digital Future

July 19, 2021

Written Statement of Kevin Werbach

werbach@wharton.upenn.edu

Representative Nelson, Representative Bizzarro, and members of the Committee:

Thank you for the opportunity to testify at this hearing on the implications of blockchain and cryptocurrencies for the citizens of Pennsylvania.

I am a Professor and Chair of the Department of Legal Studies and Business Ethics at the Wharton School, University of Pennsylvania. I direct the Wharton Blockchain and Digital Asset Project, which studies the business, legal, policy, and governance implications of distributed ledger technologies. I am the author of *The Blockchain and the New Architecture of Trust* (MIT Press 2018), and other scholarship on technology policy generally, as well as blockchain specifically. Earlier in my career, I served as Counsel for New Technology at the Federal Communications Commission and as an Expert Advisor to both the FCC and U.S. Department of Commerce. The perspectives expressed here are my own.

Blockchain and cryptocurrencies are exciting technological and business developments. They have great potential to deliver significant benefits to the citizens of Pennsylvania. At the same time, there is a great deal of hype and excessive enthusiasm in this area for technologies that are still quite immature. And there are real dangers and limitations that are appropriately addressed through public policy.

In my oral remarks, I will focus on introducing blockchain and its significance as what I call a new architecture of trust. In this written statement, I provide additional details on the current state of regulatory activity around blockchain and cryptocurrencies, at both the state and federal level. I hope this will assist you and your colleagues in considering how Pennsylvania might engage on some of these questions. I would like to thank Gerald Adams, a student at the University of Pennsylvania Carey Law School, for outstanding work in assisting me in preparation of the written materials.

I. INTRODUCTION

A. What Are Blockchain and Cryptocurrencies?

Blockchain is not a single thing. There is not one blockchain, nor is there one specific “blockchain technology.” Blockchain is a category of distributed ledger technologies. Blockchain as we know it began with the Bitcoin white paper published in October 2008 by Satoshi Nakamoto.¹ However, Bitcoin and subsequent networks build on decades of research in distributed databases, cryptography, and a branch of applied game theory called mechanism design.²

Blockchain and cryptocurrencies are also distinct, although they are connected. Blockchain is a way to record data securely on a network of computers, without having to trust any specific administrator. It is called blockchain because transactions are typically aggregated into “blocks,” and the blocks are “chained” together in a sequence. Cryptocurrencies are tokens representing value, which are maintained on blockchains. The token could function as money, if used for payments, or it could represent something else, such as your voting rights for governance of a service.

Today, there are a number of competing public blockchain networks, which anyone can participate in, such as Bitcoin, Ethereum, EOS, Algorand, and Stellar, as well as permissioned networks run by private consortia, corporations, or government agencies. And there are many more cryptocurrencies; thousands in fact. It is easy to create virtual “tokens” on top of Ethereum and other major blockchains, which then function as their own cryptocurrency. Most of these are traded on exchanges in some parts of the world, so they have a market value. The total market value of cryptocurrencies today is over \$1 trillion, with about half of that Bitcoin and one-fifth Ether, the Ethereum cryptocurrency.³

¹ See Satoshi Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System, Bitcoin.org (October 31, 2008), at <https://bitcoin.org/bitcoin.pdf>.

² See Arvind Narayanan and Jeremy Clark, *Bitcoin’s Academic Pedigree*, 60 COMM’S ACM 36 (2017).

³ Top 100 Cryptos by Market Cap, OnChainFX, <https://onchainfx.com/> (visited July 15, 2021).

B. Blockchain and Trust

Blockchain and cryptocurrencies can be used for many purposes. It is easy to become fixated on some of them, and miss the big picture. At a fundamental level, the great innovation of these technologies involves trust.

We are experiencing today a crisis of trust. According to the 2019 Edelman Trust Barometer, a global survey of thousands of people released each year at the World Economic Forum Annual Meeting in Davos, Switzerland, only one in five respondents believe that the system is working for them.⁴ Trust has plunged in virtually every major form of institution: government, corporations, the media, and non-governmental organizations. And that's worldwide, before Covid-19. I don't need to tell you how trust has frayed in our country in recent years.

Trust is essential to society, and business. The problem with traditional mechanisms of trust is that they are centralized. You have to trust someone or something. If it turns out to be untrustworthy, or if the costs of the trust mechanism are too great, it undermines the whole system.

Blockchain offers a new, decentralized form of trust. It provides confidence in a history of transactions, known as a ledger, without having to trust any specific actor to verify that ledger. Again, different blockchain networks use slightly different approaches. They make various tradeoffs in terms of the degree of decentralization of trust, whether for performance, security, or some other reason. All of them, however, remove the dependence on a single powerful actor. If you have dollars in a bank, you have to trust the Federal Reserve to maintain the value of the currency and the bank to protect your assets. If you hold cryptocurrency, there is no central actor with that power.

But what's the point? Why would you need a blockchain? The answer to that question is very simple: You never need a blockchain. A blockchain is a type of database. Any function that could be supported on a blockchain could, in theory, be delivered on a traditional centralized database. And there is almost always a tradeoff involved in order to achieve blockchain's decentralized consensus. Generally speaking, a blockchain won't be as fast, or as easy to use, as an ordinary database.

⁴ See 2019 Edelman Trust Barometer: Global Report, at https://www.edelman.com/sites/g/files/aatuss191/files/2019-02/2019_Edelman_Trust_Barometer_Global_Report.pdf.

So if you never have to use a blockchain, a better question is why would want to use one? The answer comes back to trust.

Sometimes trust is a problem. It's what cybersecurity experts call a single point of failure. If your bank wanted to, it would have the power to stop you from accessing your money. Or if the bank was hacked, your money would be gone. You would have to trust regulation or the legal system in order to get it back. If you want to move your money from one country to another, you have to pay significant costs to convert it out of your bank, through what's called a correspondent bank in the other country, and to the receiving bank. The other problem with centralized trust is that it leads to centralized power. Companies such as Google, Amazon, Facebook, Microsoft, Uber, and Twitter have built massive repositories of user data, which gives them great power to influence people's experiences. They leverage our data for their own benefit, and create exclusive platforms that keep out competitors. We trust them because we have to, even if we would rather control our data ourselves.

Blockchain can overcome this centralized trust. It allows data to be shared, without giving up control. The exclusive power of intermediaries is weakened, because they aren't necessary. And the friction that these intermediaries introduce, with associated costs and limitations, might also be mitigated.

Sometimes the problem is too little trust. In a global supply chain, for example, dozens of organizations—from manufacturers, to distributors, to logistics firms, to banks involved in trade finance, to government authorities in multiple jurisdictions—may be involved in the process of delivering a sofa or a mobile phone. They each store their own information, because they don't trust each other. There is no place that everyone can go to see a trustworthy view of the relevant documentation and status of those goods.

Blockchain could bridge that trust gap. Everyone can share data on a blockchain and rely on it, without giving up control of their own information. Once everything is on a common platform, transactions can be automated, increasing efficiency and lower costs. And time-consuming processes such as auditing or settlement may become unnecessary because the transaction ledger itself is transparent.

Cryptocurrencies are the digital assets that can be used to power those blockchain networks. They are potentially stores of value or methods of payment, functioning as money. But for many practical reasons, those use cases haven't really taken off, except in certain limited circumstances. Again, just because you can do something with a blockchain doesn't mean that it's desirable to. Recently we've started to see uses of cryptocurrencies beyond payments, including file storage, online games, and financial services.

This market is changing fast. It's important not to get caught up in the hype, and have appropriate skepticism about what it takes for real mass market adoption. Just because the price of Bitcoin or other cryptocurrencies goes up doesn't prove that there is real adoption. And there are plenty of reasons to question how sustainable those prices will be. However, realism shouldn't get in the way of appreciating the potential of these technologies.

II. REGULATION OF DIGITAL ASSETS

Regulation is one of the most important determinants of the future of blockchain and cryptocurrencies. There is a misnomer that they cannot be regulated, or that the whole point of the technologies is to prevent regulation. In reality, while blockchain may make some regulation unnecessary or difficult to implement, it also raises significant public policy questions that regulators can and should and are addressing around the world. And ultimately, for blockchain and cryptocurrencies to be trusted, they need to be integrated into the regulatory system.

There are many regulatory questions that could be discussed in this context. Not all of them are relevant at the state level, although federal rules, and activity in other countries, will impact the market in Pennsylvania. Below I summarize major regulatory activity around blockchain and cryptocurrencies. Most of these issues concern cryptocurrencies, or as they are often labeled, digital or virtual assets. Again, a blockchain is just a kind of database, and we don't generally regulate databases. We regulate their uses in specific contexts, such as healthcare or for collection of personal information. On the other hand, we do regulate money, and financial services based on it. Cryptocurrencies that function as money or investment assets are thus the primary focus of current regulatory activity.

A. Federal Regulatory Developments

Federal digital asset regulation to date has mostly involved three regulators—the Financial Crimes Enforcement Network (FinCEN), the Securities and Exchange Commission (SEC), and the Commodity Futures Trading Commission (CFTC).

1. FinCEN Guidance

FinCEN classifies virtual currencies as “money” for transmission purposes. FinCEN's 2019 guidance states that certain operating contexts—virtual currency exchanges, interfaces storing virtual currency (“wallets”), electronic exchange terminals (“ATMs”), and peer-to-peer software programs designed to transfer virtual currencies (“DApps”)—constitute money service businesses engaged in

transmission.⁵ The agency in 2020 proposed a rule that would impose recordkeeping, reporting, and customer identity verification requirements on large virtual currency transactions.⁶ After significant industry pushback, FinCEN extended its comment period for considering the rule.⁷

Recent FinCEN actions have built on the precedent of the \$110 million fine against the exchange BTC-e in 2017.⁸ The agency imposed a \$60 million civil money penalty against the exchange and mixing service Helix for failure to comply with FinCEN requirements.⁹ Related criminal proceedings allege that Helix laundered bitcoin proceeds for criminal enterprises.¹⁰ In addition, FinCEN's enforcement focus has noticeably extended to penalties against individual persons. A pair of prominent enforcement actions have targeted over-the-counter exchange activities by individuals who failed to register with FinCEN, implement an anti-money laundering program, and institute a reporting regime.¹¹ One of the actions included related criminal proceedings for money laundering of illicitly obtained bitcoin funds.¹²

⁵ See FinCEN Guidance, *Application of FinCEN's Regulations to Certain Business Models Involving Convertible Virtual Currencies* (May 9, 2019), <https://www.fincen.gov/sites/default/files/2019-05/FinCEN%20Guidance%20CVC%20FINAL%20508.pdf>.

⁶ Requirements for Certain Transactions Involving Convertible Virtual Currency or Digital Assets, 85 FR 83840 (Dec. 23, 2020) (to be codified at 47 C.F.R. pts. 1020, 1022).

⁷ See Press Release, FinCEN, FinCEN Extends Comment Period for Rule Aimed at Closing Anti-Money Laundering Regulatory Gaps for Certain Convertible Virtual Currency and Digital Asset Transactions (Jan. 14, 2021), <https://www.fincen.gov/news/news-releases/fincen-extends-comment-period-rule-aimed-closing-anti-money-laundering>.

⁸ *In the Matter of BTC-E a/k/a Canton Business Corp. & Alexander Vinnik, Assessment of Civil Money Penalty*, FinCEN (July 26, 2017), https://www.fincen.gov/sites/default/files/enforcement_action/2020-05-21/Assessment%20for%20BTCeVinnik%20FINAL2.pdf.

⁹ *In the Matter of Larry Dean Harmon d/b/a/ Helix*, FinCEN (Oct. 19, 2020), https://www.fincen.gov/sites/default/files/enforcement_action/2020-10-19/HarmonHelix%20Assessment%20and%20SoF_508_101920.pdf.

¹⁰ Indictment, *United States v. Larry Dean Harmon*, 474 F. Supp. 3d 76 (D.D.C. 2019) (No. 19-cr-00395), available at <https://www.justice.gov/opa/press-release/file/1249026/download>.

¹¹ See Press Release, U.S. Dep't of Just., 'Bitcoin Maven' Sentenced to One Year in Federal Prison in Bitcoin Money Laundering Case (July 9, 2018), <https://www.justice.gov/usao-cdca/pr/bitcoin-maven-sentenced-one-year-federal-prison-bitcoin-money-laundering-case>; see also *In the Matter of Eric Powers*, FinCEN (Apr. 18, 2019), https://www.fincen.gov/sites/default/files/enforcement_action/2020-05-21/Assessment%20Eric%20Powers%20Final%20for%20Posting%2004.18.19.pdf.

¹² Judgment, *United States v. Theresa Lynn Tetley*, No. 17-cr-00738 (C.D. CA 2018), https://storage.courtlistener.com/recap/gov.uscourts.cacd.695757/gov.uscourts.cacd.695757.45.0_1.pdf.

2. SEC Guidance

The SEC's framework for analyzing digital assets is based on the longstanding *Howey* test for classifying securities.¹³ A 2018 statement by then Corporation Finance Director Bill Hinman stated that Bitcoin and Ether were sufficiently decentralized that they did not appear to meet the requirements of securities classification at this time.¹⁴ Hinman recognized that decentralization removes the ability for managerial or entrepreneurial efforts to be effective and, as a result, a digital asset resembles a currency more than a security. A second functional prong developed following a pair of no-action letters issued by the SEC. The agency has indicated that when a coin exclusively derives its value through operations on an already developed platform, there is no capacity to achieve investment returns. As a result, the coin functions as a "utility" within the platform and not a security. Few virtual currencies fall within these exceptions and the SEC regards most initial coin offerings (ICOs) as security issuances.¹⁵

To date, the SEC has issued over seventy enforcement actions against token issuers. Arguably, none are more significant than its 2020 action against the digital platform Ripple. The SEC claimed that Ripple's issuance of the digital token XRP constituted an unregistered securities offering totaling approximately \$600 million.¹⁶ The case, which has not yet gone to trial, could clarify the regulatory landscape for virtual currency offerings. New SEC Chairman Gary Gensler recently urged Congress to clarify the SEC's regulatory authority over digital assets, in particular exchanges, claiming the breadth of the industry is outpacing the SEC's purview.¹⁷

¹³ See SEC FinHub, *Framework for "Investment Contract" Analysis of Digital Assets* (Apr. 3, 2019), <https://www.sec.gov/corpfm/framework-investment-contract-analysis-digital-assets>.

¹⁴ Bill Hinman & Valerie Szczepanik, Statement on "Framework for 'Investment Contract' Analysis of Digital Assets," SEC (Apr. 3, 2019), <https://www.sec.gov/news/public-statement/statement-framework-investment-contract-analysis-digital-assets>.

¹⁵ *Oversight of the Securities and Exchange Commission, Before the S. Comm. on Banking, Housing, and Urban Affairs*, 116th Cong. (2019) (statement of Jay Clayton, Chairman, SEC).

¹⁶ Complaint, *SEC v. Ripple Labs, Inc., Bradley Garlinghouse, and Christian A. Larsen*, No. 20-cv-10832 (S.D.N.Y. 2020), <https://www.sec.gov/litigation/complaints/2020/comp-pr2020-338.pdf>; see also Press Release, SEC, SEC Charges Ripple and Two Executives with Conducting \$1.3 Billion Unregistered Securities Offering (Dec. 22, 2020), <https://www.sec.gov/news/press-release/2020-338>.

¹⁷ *Oversight of the Securities and Exchange Commission, Before the Subcomm. on Fin. Serv. And General Govt. of the H. Appropriations Comm.*, 117th Cong. (2021) (statement of Gary Gensler, Chairman, SEC).

3. CFTC Guidance

Similar to FinCEN, the CFTC maintains a broad conception of its regulatory authority—if an active futures market exists for a digital asset, it is within the CFTC’s purview. The CFTC has plainly stated that it has standing to regulate bitcoin and other virtual currencies in futures or options contracts, as well as any transactions involving margin financing or fraud.¹⁸ Self-certifications of both the CME and CBOE, as well as a 2018 suit, legitimized this authority.¹⁹ The CFTC has issued three order filings in 2021, including a \$6.5 million monetary penalty against the exchange Coinbase for an alleged wash trading scheme.²⁰

4. Banking Guidance: OCC and FDIC

There is a growing emphasis on banking and depository institutions serving as custodians, issuers, or redemption agents for virtual currencies. A series of interpretive letters by the OCC indicates that commercial and savings banks may implement traditional banking services for virtual currency holdings. These services include virtual currency custody services²¹ and reserve holdings for virtual currencies pegged to a fiat currency, known as “stablecoins.”²² The FDIC has an outstanding request for comments on the potential for digital assets to integrate into the activities of financial institutions.²³ The Federal Reserve Board and the Financial

¹⁸ *In the Matter of Coinflip Inc.*, CFTC (Sept. 17, 2015), <https://www.cftc.gov/sites/default/files/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfcoinfliporder09172015.pdf>.

¹⁹ *CFTC v. McDonnell*, 287 F. Supp. 3d 213 (E.D.N.Y. 2018); *see also* Press Release, CFTC, CFTC Statement of Self-Certification of Bitcoin Products by CME, CFE and Cantor Exchange (Dec. 1, 2017), <https://www.cftc.gov/PressRoom/PressReleases/7654-17>.

²⁰ Press Release, CFTC, CFTC Orders Coinbase Inc. to Pay \$6.5 Million for False, Misleading, or Inaccurate Reporting and Wash Trading (Mar. 19, 2021), <https://www.cftc.gov/PressRoom/PressReleases/8369-21>.

²¹ *See* OCC Interpretive Letter, *Authority of a National Bank to Provide Cryptocurrency Custody Services for Customers* (July 22, 2020), <https://www.occ.gov/topics/charters-and-licensing/interpretations-and-actions/2020/int1170.pdf>.

²² *See* OCC Interpretive Letter, *OCC Chief Counsel’s Interpretation on National Bank and Federal Savings Association Authority to Hold Stablecoin Reserves* (Sept. 21, 2020), <https://www.occ.gov/topics/charters-and-licensing/interpretations-and-actions/2020/int1172.pdf>; *see also* OCC Interpretive Letter, *OCC Chief Counsel’s Interpretation on National Bank and Federal Savings Association Authority to Use Independent Node Verification Networks and Stablecoins for Payment Activities* (Jan. 4, 2021), <https://www.occ.gov/news-issuances/news-releases/2021/nr-occ-2021-2a.pdf>.

²³ Press Release, FDIC, FDIC Issues Request for Information on Digital Assets (May 17, 2021), <https://www.fdic.gov/news/press-releases/2021/pr21046.html>.

Stability Oversight Council (FSOC) are also looking at potential oversight of stablecoins.

5. IRS Guidance

The IRS treats virtual currencies as property for income tax purposes.²⁴ The IRS has not provided clear guidance on whether certain virtual currencies and positions are commodities under Internal Revenue Code provisions. In the past, the IRS has deferred to the CFTC's classification, and will likely impose commodity tax treatment on virtual currency transactions designated by the CFTC.²⁵ Following a 2016 report by the Treasury Inspector General, the agency has worked to build a more cohesive policy for addressing tax compliance and underreporting of virtual currency transactions.²⁶ Similar to a 2016 petition filing directed at Coinbase,²⁷ the IRS has issued a summons demanding the information of consumers transacting large sums on the Circle, Poloniex, and Kraken platforms.²⁸

B. Federal Legislation

Several bills regarding regulation of cryptocurrencies have been introduced in recent years, although none has yet generated significant support. Most recently, the Stablecoin Classification and Regulation (STABLE) Act of 2020 was introduced in the House but did not get out of committee.²⁹ The bill would have required stablecoin issuers to obtain a banking charter and adhere to Dodd-Frank

²⁴ See IRS Notice, *Guidance for Individuals and Businesses on the Tax Treatment of Transactions Using Virtual Currencies* (Apr. 14, 2014), <https://www.irs.gov/pub/irs-drop/rr-19-24.pdf>; see also IRS Notice, *Frequently Asked Questions on Virtual Currency Transactions* (Oct. 9, 2019), <https://www.irs.gov/pub/irs-drop/rr-19-24.pdf>.

²⁵ New York State Bar Association Tax Section Report, *Report on the Taxation of Cryptocurrency* (Jan. 26, 2020), <https://nysba.org/app/uploads/2020/03/Report-1433.pdf>.

²⁶ Treasury Inspector General for Tax Administration, *As the Use of Virtual Currencies in Taxable Transactions Becomes More Common, Additional Actions are Needed to Ensure Taxpayer Compliance* (Sept. 21, 2016), <https://www.treasury.gov/tigta/auditreports/2016reports/201630083fr.pdf>.

²⁷ *United States of America v. John Doe*, No. 16-cv-06658-JSC (N.D. CA 2017).

²⁸ See Press Release, U.S. Dep't of Just., Court Authorizes Service of John Doe Summons Seeking Identities of U.S. Taxpayers Who Have Used Cryptocurrencies (Apr. 1, 2021), <https://www.justice.gov/opa/pr/court-authorizes-service-john-doe-summons-seeking-identities-us-taxpayers-who-have-used-0>; see also Press Release, U.S. Dep't of Just., Court Authorizes Service of John Doe Summons Seeking Identities of U.S. Taxpayers Who Have Used Cryptocurrency (May 5, 2021), <https://www.justice.gov/opa/pr/court-authorizes-service-john-doe-summons-seeking-identities-us-taxpayers-who-have-used-1>.

²⁹ Stablecoin Classification and Regulation (STABLE) Act of 2020, H.R. 8827, 116th Cong. (2d Sess. 2020).

regulations. Currently, many issuers maintain reserve portfolios of illiquid, risky assets³⁰ and include redemption loopholes.³¹ The Token Taxonomy Act was recently reintroduced in the House and is currently pending.³² As structured, the bill proposes codifying the SECs guidance that decentralized virtual currencies are not securities.

Additional legislation introduced by the 117th Congress is largely procedural and would establish working groups to study the potential of virtual currencies. Current bills have suggested studies for: virtual currency integration minority and community banking programs,³³ blockchain’s potential in consumer protection initiatives,³⁴ and utilization of distributed ledger technology for enhancing voter security.³⁵ Another bill directs the Secretary of Commerce to establish an office for coordinating all non-defense related uses of distributed ledger technology within the Federal Government.³⁶

C. State Regulatory Activity

State regulators face the same challenge as their federal counterparts—how to impose legacy regulatory paradigms on a nascent industry. States are taking a broad array of positions in regulating virtual currencies.

³⁰ See, e.g., Omar Faridi, *Nearly \$60B in Tether (USDT) in Circulation as Largest Stablecoin Issuer Shares Detailed Breakdown of its Reserves*, CROWDFUND INSIDER (May 16, 2021), <https://www.crowdfundinsider.com/2021/05/175421-nearly-60b-in-tether-usdt-in-circulation-as-largest-stablecoin-issuer-shares-detailed-breakdown-of-its-reserves/>.

³¹ See generally *Terms of Service*, TETHER, <https://tether.to/legal/> (last updated May 12, 2020) (“The right to have Tether Tokens redeemed or issued is a contractual right personal to you. Tether reserves the right to delay the redemption or withdrawal of Tether Tokens if such delay is necessitated ... [and] Tether reserves the right to redeem Tether Tokens by in-kind redemptions of securities and other assets held in the Reserves.”).

³² Token Taxonomy Act of 2021, H.R. 1628, 117th Cong. (1st Sess. 2021).

³³ RESCUE Act for Black and Community Banks, H.R. 154, 117th Cong. (1st Sess. 2021).

³⁴ To Direct the Secretary of Commerce, in Consultation With the Federal Trade Commission, to Conduct a Study and Submit to Congress a Report on the State of Blockchain Technology and Its Use in Consumer Protection, and for Other Purposes, H.R. 3639, 117th Cong. (1st Sess. 2021).

³⁵ For the People Act of 2021, H.R. 1, 117th Cong. (1st Sess. 2021).

³⁶ To Establish an Office Within the Department of Commerce to Coordinate all Non-Defense Related Deployment and Activities Related to Blockchain Technology Within the Federal Government, H.R. 3543, 117th Cong. (1st Sess. 2021).

1. Money Transmission

There is little consensus between state regulators on whether money transmitter rules apply to the sale or exchange of virtual currencies. Several states have followed Pennsylvania, indicating, via legislation or regulatory guidance, that virtual currencies are not legal tender and do not constitute “money” for transmission.³⁷ This position has frequently been conferred by state agencies through regulatory guidance. Wyoming, however, has passed a statutory safe harbor that explicitly excludes virtual currencies.³⁸

Alternatively, some states have taken the opposite approach. One subset broadly construes their respective money transmitter statutes to include virtual currencies without any explicit language discussing digital assets within the text.³⁹ Another subset has acknowledged an inability to extend traditional money transmitter laws to virtual currencies and responded by enacting specific legislation.⁴⁰ As a result, virtual currencies are explicit within the statutory language of the affiliated money transmitter laws. Last, multiple states remain indeterminate on the applicability of state money transmitter laws to virtual currencies.⁴¹

Additionally, most states have aligned with Pennsylvania in rigidly adhering to a “third-party requirement” for money transmission that requires intermediation between two distinct persons or entities. States which are more critical of virtual currency operations, such as Washington, have broadly construed money transmission to include ATMs and hosting services (“wallets”) for virtual currencies.

One notable of this dichotomy, and its repercussions, is Florida. In 2018, the Florida Office of Financial Regulation issued a declaratory statement confirming a strict third-party requirement to impose its money transmission laws.⁴² A holding by the courts, however, would impose a directly contrary view. In *Florida v. Espinoza*, the Third Circuit ruled that the statutory plain language of Florida’s money transmitter law did not mandate a third-party requirement, and that money transmission could also apply to a direct transaction between two people or

³⁷ There are at least 22 states which have provided positions which harmonize with the state of Pennsylvania.

³⁸ H.R. 19, 64th Leg., Budget Sess. (Wyo. 2018).

³⁹ States which have taken this position include Colorado, Louisiana, New Mexico, and Oregon. See generally *FinTech Survey: Money Transmission*, GEORGE WASHINGTON CENTER FOR LAW, ECONOMICS, & FINANCE, <http://www.fintechsurvey.org/> (last visited July 5, 2021).

⁴⁰ States which have taken this position include Washington and Kentucky. *Id.*

⁴¹ Notably California. *Id.*

⁴² See *In the Matter of Cryptobase*, Index No. 2018-320 (Fla. Office of Fin. Reg.) (June 28, 2018).

entities.⁴³ This fragmented guidance remains within the state. As a result, Florida serves as a cautionary tale to state regulators. It is worthwhile to ensure that the state’s regulatory position, and coincident authority, are unambiguous.

2. Licensing Regulation

New York’s BitLicense standard was the first, and most acrimonious, regulatory action pursued by a state regarding virtual currencies. A BitLicense requires licensure through the New York Department of Financial Services.⁴⁴ The framework imposes application burdens, evaluation proceedings, and stringent compliance measures against entities interested in providing business services to New York residents and engaging with virtual currencies.

Many organizations argued the BitLicense imposed significant barriers to entry and stifled innovation. Several cryptocurrency firms exited the state after it was adopted in 2015, and others complained that the NYDFS was unreasonably strict in issuing BitLicenses to those firms that applied. A minority of industry participants have suggested that the compliance requirements impose a vetting process that ensures long-run stability and good-faith action by virtual currency operators. To encourage broader entity participation under the BitLicense regime, the New York Division of Financial Services instituted a Conditional BitLicense alternative tailored to market entrants.

Despite the pushback from industry members, multiple states have proposed bills that would require similar registration and compliance burdens. For example, New Jersey and Washington state have proposed bills that would impose a licensure framework. In 2020, California proposed a bill containing requirements modeled after the BitLicense and a non-compliance penalty of \$50,000 per day. The bill, however, died in committee.

3. Securities Registration

Many states, including Pennsylvania, have securities legislation that aligns with the statutory authority emphasized by the SEC in regulating virtual currencies as securities.⁴⁵ As a result, the states maintain the capacity to harmonize any regulation or registration requirements with any framework pursued by the SEC. Some states, however, have codified exemptions. The Colorado Digital Token Act provides securities exemptions for “digital tokens” as specified. Additionally, in

⁴³ *Florida v. Espinoza*, 264 So.3d 1055 (Fla. 3d DCA 2019).

⁴⁴ *See* 23 NYCRR §§ 200.2-220.3.

⁴⁵ *See* 70 PA Stat. Ann. § 1-101.

2019, Wyoming codified the Utility Token Bill which specifies an exemption for tokens whose consumptive purpose is exclusive to the platform.⁴⁶ This position aligns with an exception impliedly recognized by the SEC, as mentioned above.

4. Corporate Governance

Delaware passed a series of bills amending sections of the Delaware General Corporation Law for recordkeeping and stock ledgers.⁴⁷ Under the bills, entities incorporated in Delaware can utilize distributed ledgers to create and maintain corporate records. The amended Sections also provide similar opportunities to the other corporate forms. Wyoming has also passed a series of supplemental statutes. The first enables issuing certificate tokens instead of stock certificates. The second is more significant and allows distributed autonomous organizations (“DAOs”) to register as a limited liability company within the state. Similarly, Vermont passed a statute allowing limited liability company registration for entities that can demonstrate a material implementation of distributed ledger technology in their business activities.

5. Tax Liability

Many states have identified platforms enabling or providing virtual currencies for product sales transactions as “marketplace facilitators.” As a result, these platforms must perform collection and remittance of state sales and use taxes. A small number of states have pending legislation which would exempt virtual currency from property taxation. Last, states have taken diverging approaches to the taxation of virtual currency mining operations.

6. Stablecoin Regulation

New York has been uniquely proactive in asserting prosecutorial authority against virtual currency operators. In 2019, the New York Office of the Attorney General sought an injunction against the exchange Bitfinex and its affiliated stablecoin issuer Tether.⁴⁸ The injunction was based on an investigation into unregistered transactions in New York and allegations of fraud that included Bitfinex

⁴⁶ H.R. 62, 66th Leg., Budget Sess. (Wyo. 2019).

⁴⁷ See DGCL §§ 219(c), 224.

⁴⁸ See Ex-Parte Order, *In the Matter of the Inquiry by Letitia James, Attorney General of the State of New York v. iFINEX Inc., et al.*, No. 450545/2019 (Sup. Ct. N.Y. County), https://ag.ny.gov/sites/default/files/2019.04.24_signed_order.pdf; see also Press Release, New York Office of the Attorney General, Attorney General James Announces Court Order Against “Crypto” Currency Company Under Investigation For Fraud (Apr. 25, 2019), <https://ag.ny.gov/press-release/2019/attorney-general-james-announces-court-order-against-crypto-currency-company>.

misleading consumers about losses to customer funds and a lack of reserves for outstanding Tether.

In February 2021, the Attorney General's office settled with Bitfinex and Tether. The settlement requires the entities to cease transactions with New York residents, pay an \$18.5 million penalty, and complete mandatory reporting of reserve assets, any loans or receivables, and any transmission of client funds with outside processors.⁴⁹

III. THE IMPACT OF REGULATION

Diverse state regulations have resulted in varied obligations for commercial operators in the digital asset area. The argument is often made that regulation chills innovation in areas of fast-developing technology. Digital asset services providers argue that, as nascent competitors with powerful financial services incumbents, regulation is a burden that limits their ability to reach customers. They also sometimes claim that regulation is not just un-necessary, but counterproductive in the context of decentralized, transparent, blockchain-based services.

It is easy to generalize that regulation is either desirable or undesirable in the abstract. This is a complex area, with many different types of activity and many categories of regulatory obligations. I will not attempt to answer definitively whether you should seek to adopt a posture that is favorable or unfavorable to cryptocurrencies. My goal is simply to provide information that can assist you in evaluating policy decisions, regulatory actions, and potential legislation.

It is worth emphasizing that regulation and innovation are not necessarily in conflict. The U.S. has among the most vibrant and liquid and fast-moving financial markets in the world, not because it is lightly regulated, but because it is effectively regulated. Regulation can be an important component of trust. And if services lead to significant illicit activity, fraud, or other harms, it may be that the benefits of innovation to some market participants are not worth the costs.

That being said, it is appropriate for policy-makers to consider the consequences of their actions for business activity in the jurisdiction. Cryptocurrency regulation does impact decisions of firms regarding where they enter and exit.

⁴⁹ See Settlement Agreement, *In the Matter of the Inquiry by Letitia James, Attorney General of the State of New York v. iFINEX Inc., et al.*, No. 450545/2019 (Sup. Ct. N.Y. County), https://ag.ny.gov/sites/default/files/2021.02.17_-_settlement_agreement_-_execution_version.b-t_signed-c2_oag_signed.pdf.

Table 1: Illustration of Notable Exits by Virtual Currency Exchanges

		Exchange Operator Exits							
		Binance US	Coinbase	FTX.US	eToro	Kraken	Gemini	Shapeshift	Bitstamp
States	CT								
	DE								
	HI	X	X		X				X
	ID								
	LA								
	MN								
	NH								
	NV								
	NY	X		X	X	X		X	
	TN								
	VA								
	WA					X		X	X

Table 1 lists the eight most prominent virtual currency exchanges and twelve states that have established significant regulatory regimes for digital asset service providers. The “X” labels within the table indicate reported exits by exchange operators.⁵⁰

⁵⁰ All information listed is as of July 2021 and is based on reported filing information by the exchanges. eToro has pending applications in Delaware, Minnesota, New Hampshire, Nevada, and Tennessee. Binance has pending applications in Connecticut, Idaho, and Louisiana. CEX.IO’s

All exits are within the three states—Hawaii, New York, and Washington—that impose the most extensive regulatory obligations on operators engaging in virtual currency transactions.

Hawaii’s Money Transmitter Act requires virtual currency operators to adhere to uniquely rigid solvency requirements. In particular, for each outstanding virtual currency transaction, an exchange must maintain an equivalent cash value in trust. Many exchange operators claim the requirements make commercial operations infeasible.⁵¹ Hawaii has implemented a sandbox program that allows issuers to operate without a money transmitter license and obviate solvency requirements. A second round of applicants was approved in January, including CEX.IO and Gemini.⁵²

New York’s BitLicense regime set the precedent for exchange providers exiting a market.⁵³ Though some operators exited the state, others, such as Gemini, Coinbase, and Bitstamp, have received BitLicenses and welcomed tailored regulation. In particular, Gemini has noted that the BitLicense regime provides “[a] thoughtful approach to regulation [that] is helping propel the cryptocurrency industry forward.”⁵⁴ In 2020, the New York Department of Financial Services reformed its conditional licensing framework to make complying with the BitLicense requirements easier.⁵⁵

application is pending in Virginia. Some operators are acting under conditional licensing and sandbox program arrangements in Hawaii and New York.

⁵¹ See, e.g., Neeraj Agrawal, *Hawaii’s Issue with Bitcoin Businesses Has an Obvious and Easy Solution*, COIN CENTER (Mar. 1, 2017), <https://www.coincenter.org/hawaiis-issue-with-bitcoin-businesses-has-an-obvious-and-easy-solution>.

⁵² See, e.g., *DCIL Participating Companies*, Hawaii Technology Development Corporation, <https://www.htdc.org/dcil-participating-companies/> (last visited July 3, 2021).

⁵³ In particular, the BitLicense standard requires applicants to demonstrate anti-money laundering and consumer identification programs and adhere to affiliated reporting obligations. See NYCRR §§ 200.2–220.3

⁵⁴ See, e.g., Benjamin Pirus, *Gemini Chose to Wade Regulation in New York, Weighs in on Conditional Bitlicense*, COINTELEGRAPH (July 4, 2020), <https://cointelegraph.com/news/gemini-chose-to-wade-regulation-in-new-york-weighs-in-on-conditional-bitlicense> (quoting Gemini Chief Compliance Officer, Noah Perlman).

⁵⁵ See *Virtual Currency*, NEW YORK DEP’T OF FIN. SERVS., https://www.dfs.ny.gov/apps_and_licensing/virtual_currency_businesses/gn/req_comments_prop_framework (last visited July 3, 2021).

Washington's money transmitter laws place obligations on virtual currency operators that are functionally similar to the BitLicense regime.⁵⁶ Coincidentally, most of the exchange operators that received licensure in Washington also have been able to demonstrate active BitLicenses. A few select entities, such as Binance US, are operating in Washington and lack a BitLicense. Procedurally, this requires Binance to undergo extensive individual verification processes for each consumer account prior to authorizing trading privileges. Other exchanges, including Bitstamp and Kraken, have left the state and are no longer providing service to Washington residents.

These data points indicate that regulation does impact decisions about whether a cryptocurrency business will operate in a state. However, certain factors should be borne in mind. With the possible exception of Hawaii, major exchanges have been able to comply with the requirements of even those states, such as New York, considered to have strict licensing obligations. And some firms welcome the institution of regulation similar to that on traditional exchanges, believing that it will ultimately promote customer trust.

Furthermore, this analysis focuses only on centralized cryptocurrency exchanges. There are many other kinds of blockchain and digital asset businesses, which do not trigger the same regulatory scrutiny. Jurisdictions seeking to stimulate development of business activity in this sector should not necessarily conclude that a more developed regulatory regime conflicts with that agenda. The details of regulatory obligations matter, as does the implementation process.

⁵⁶ See generally *Virtual Currency Regulation*, WASHINGTON DEP'T OF FIN. INST., <https://dfi.wa.gov/documents/money-transmitters/virtual-currency-regulation.pdf> (last visited July 3, 2021).



The State of Blockchain & Cryptocurrency

Introduction

Gerard Dache

- Founder & Executive Director, Government Blockchain Association (4 Years)
- Business Owner, Government Services (22 Years)
- US Army, Active & Reserves (13 Years)

- gerard.dache@GBAglobal.org



Blockchain and Cryptocurrency Adoption

Part I: The State of Blockchain

Why is Blockchain Important?



- The internet facilitates the peer-to-peer movement of information
 - Resulting in transformative changes to every industry that uses information
- Blockchain facilitates the peer-to-peer movement of value
 - Resulting in transformative changes to every industry that has transactions
- Blockchain is the most transformative technology since the internet
- And blockchain is everywhere....

GBA Global Chapters



Working Groups



- Acquisition Management
- Artificial Intelligence
- Asset Management
- Aviation
- Big Data
- Budgeting, Accountability
- Campaign Accountability
- Cannabis
- Contract Management
- Crypto Asset Compliance
- Cybersecurity
- Economic Analysis
- Education and Training
- Elections
- Emergency Management
- Energy
- Financial Regulatory
- Gaming
- Governance (DAO)
- Grant Management

Working Groups (Cont.)



- Health Care
- Identity Management
- Information Technology
- Insurance
- Intellectual Property
- International Trade
- Land Titling
- Legal
- Legislative & Policy
- Licensing, & Permitting
- Mining & Cryptocurrency
- Records Management
- Smart City
- Space
- Standards & Certifications
- Supply Chain
- Sustainable Environmental Stewardship
- Telecommunications
- Transportation
- Voting



PalmettoChain



Economic Development & Impact



- Education
- Jobs
- Small Business
- Investments
- Enterprise
- Government

Part II: The State of Cryptocurrency

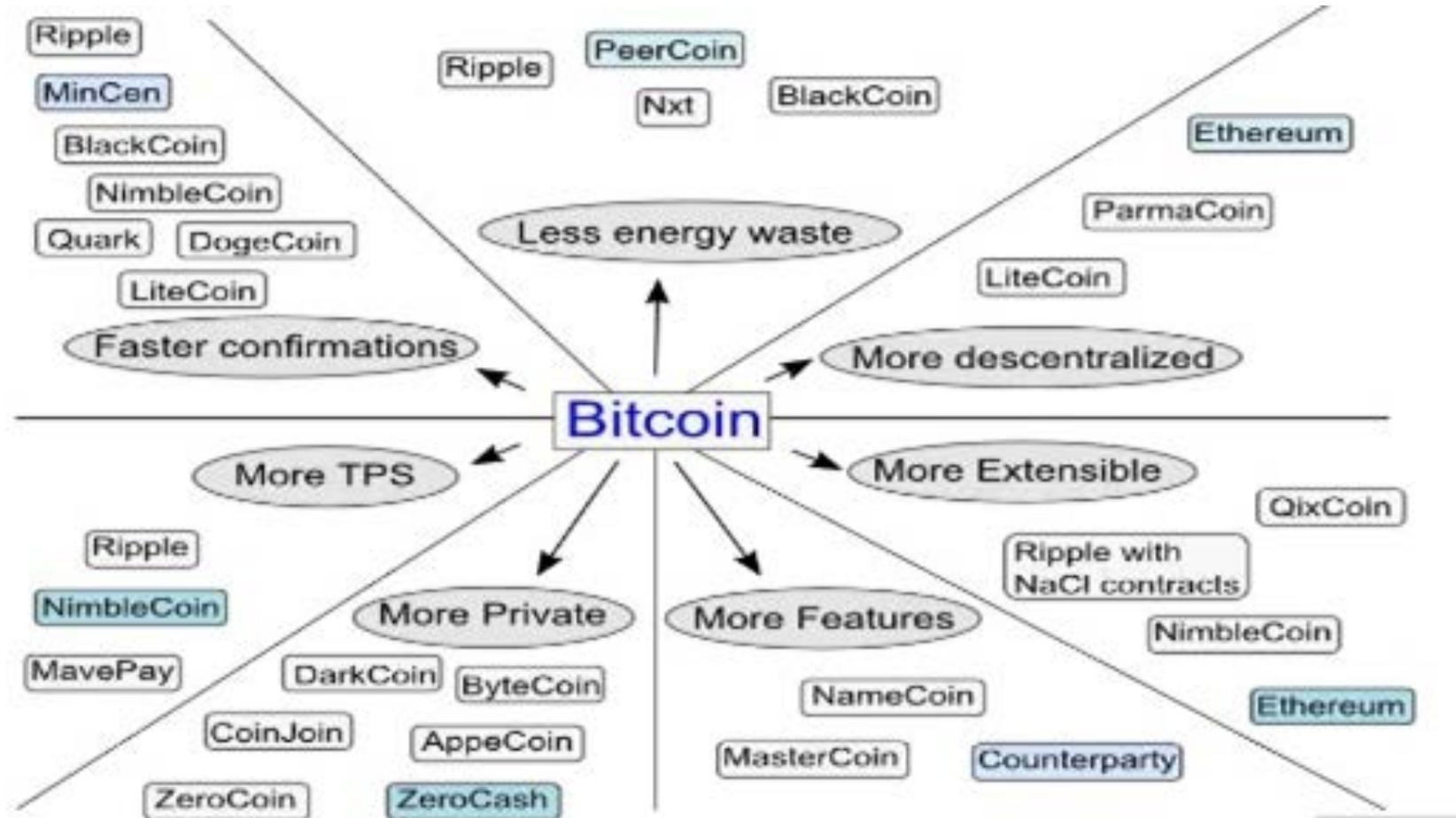


Blockchain Family Tree

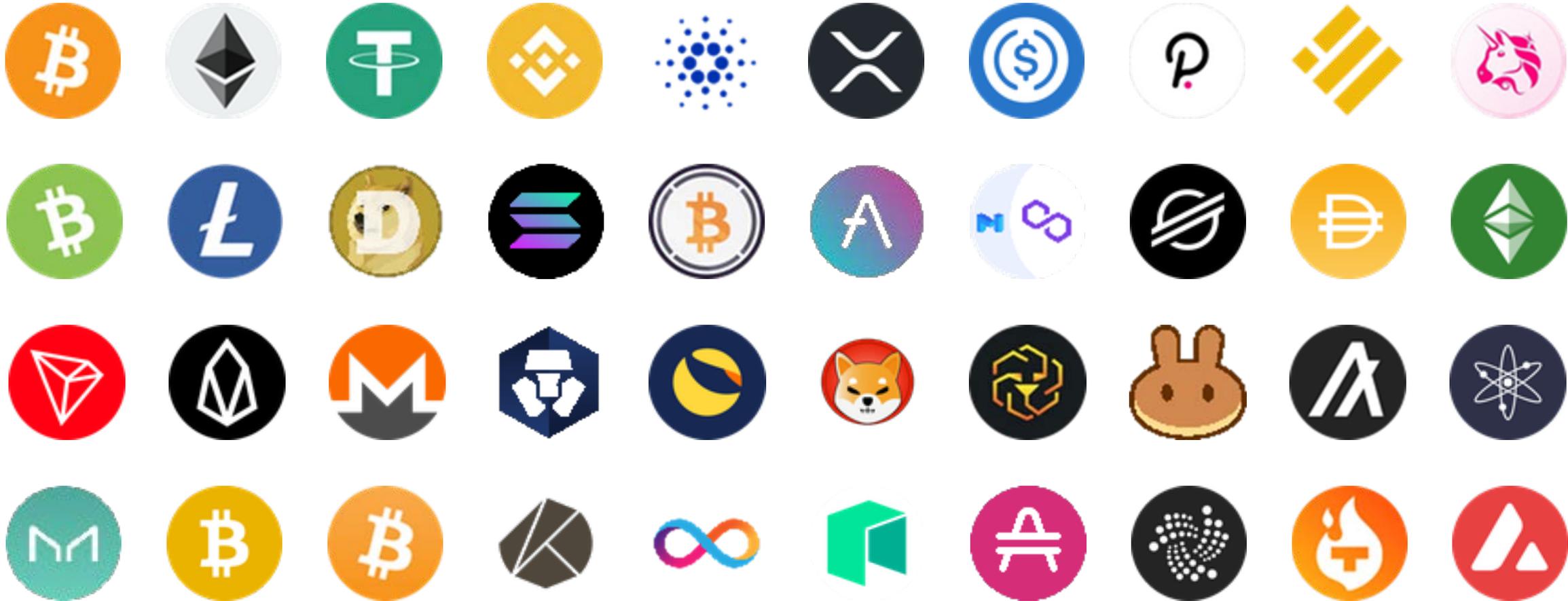
- Bitcoin: first major blockchain
- The first fork (Ethereum)
- But wait, there is more!



Bitcoin Gave Birth to Blockchains



But, Bitcoin Was Just The First



Money Supply



Global Trend: Value of USD vs Bitcoin



Year	USD	500 Bitcoins
2009	\$1.00	\$1
2010	\$0.98	\$17
2011	\$0.95	\$299
2012	\$0.93	\$5,178
2013	\$0.92	\$89,473
2014	\$0.91	\$424,640
2015	\$0.91	\$182,900
2016	\$0.89	\$276,040
2017	\$0.88	\$814,253
2018	\$0.85	\$6,385,753
2019	\$0.85	\$4,394,875
2020	\$0.83	\$9,129,365



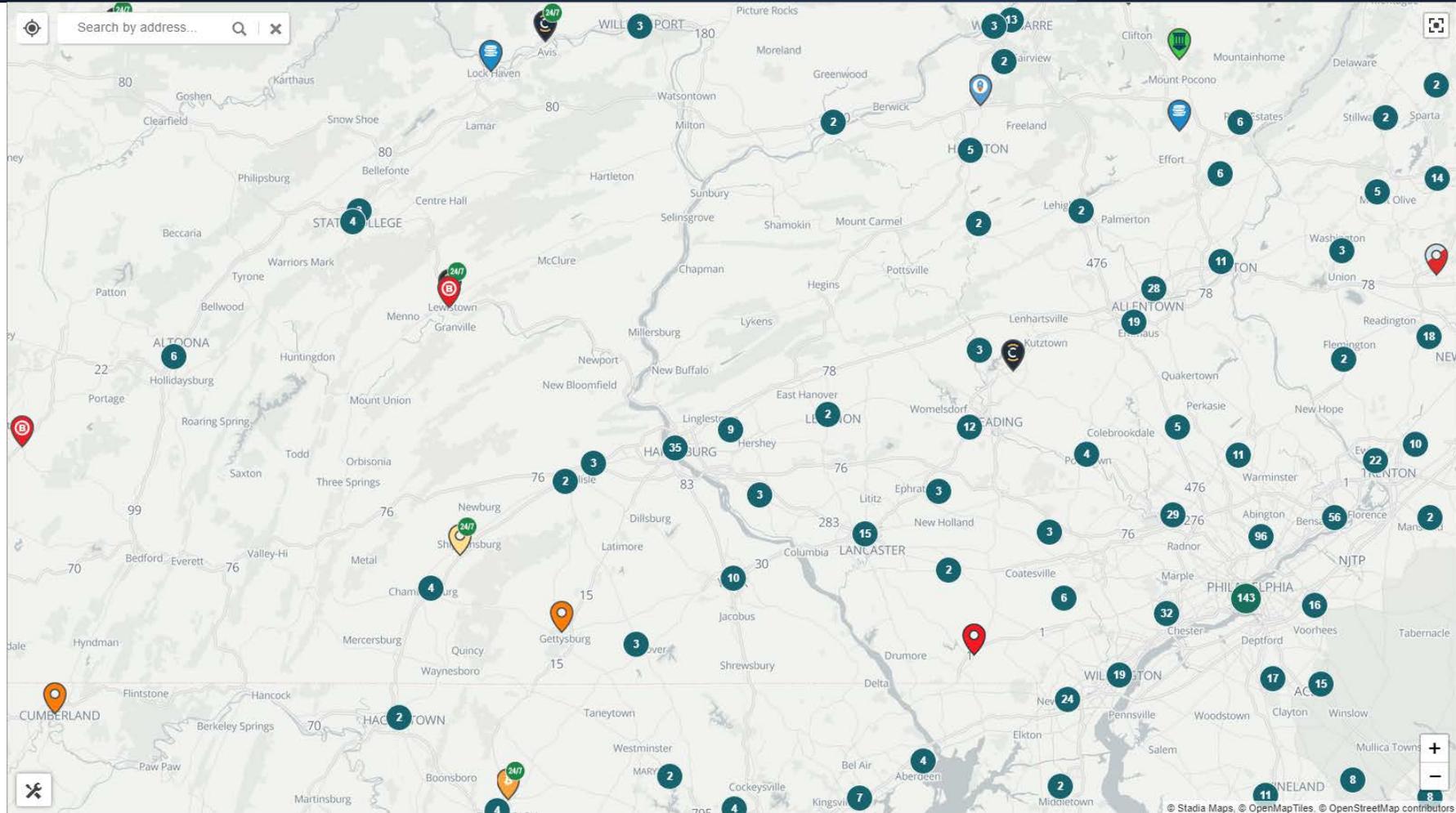


Today – The Blockchain Ecosystem

- Applications
- Associations
- Exchanges
- Financial Services
- Infrastructure
- Investments
- Mining
- News & Data
- Payments
- Services
- Wallets

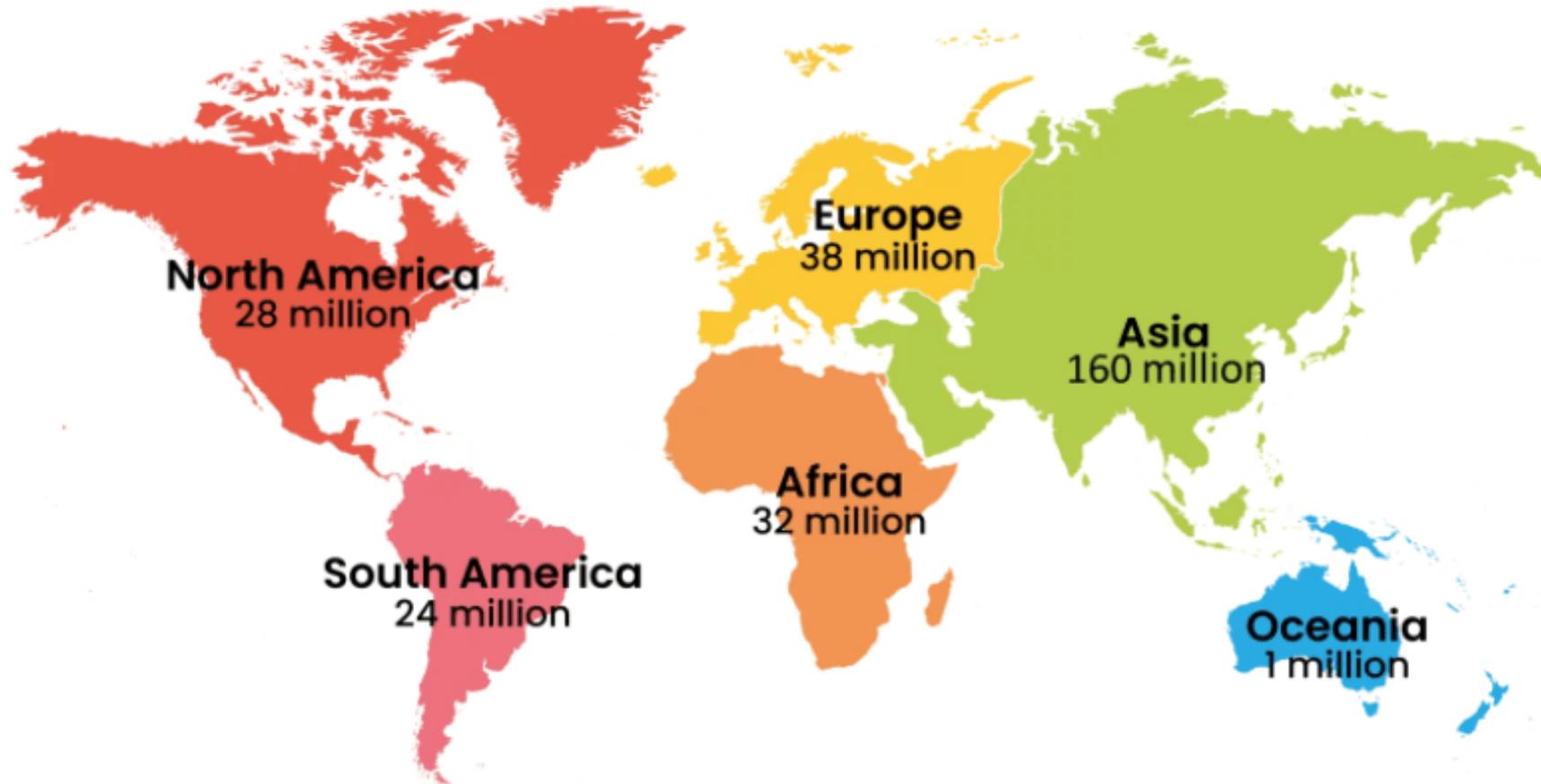


Cryptocurrency ATMs in Pennsylvania



Global Adoption

Over 300+ MILLION CRYPTO USERS WORLDWIDE



Resources



Study produced by the
Government Blockchain Association (GBA)
Tax Working Group
April 2021

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<https://bit.ly/crypto-adopt-gov>

The poster for Government Blockchain Week 2021 has a yellow-to-blue gradient background. It features a globe icon, the event title "Government Blockchain Week", and the subtitle "GOVERNMENT BLOCKCHAIN WEEK 2021 'The Future of Money Governance and The Law'". It also lists the location "Washington DC, September 27- October 2, 2021" and the website "www.GBAglobal.org/GBW20". A central collage of photos shows attendees at the event, including a woman in front of the US Capitol, a man with a GBA sign, and several people in professional attire. The text "Come to Washington DC for the largest government blockchain event in history" and the dates "September 27- October 2, 2021" are prominently displayed. The GBA logo is in the bottom right corner.

www.gbaglobal.org/event/2021gbw

Conclusion

- Cryptocurrency adoptions is
 - Global
 - Pervasive
- A new reality / norm
- Will impact everything
- Best to learn about it now and be part of the future

Questions & Answers



Download This Presentation



<https://bit.ly/3ifnrnc>

Blockchain and Cryptocurrency Preparing PA for a Digital Future

Ben Franklin Technology Partners of Southeastern Pennsylvania
Scott Nissenbaum, *President & CEO*

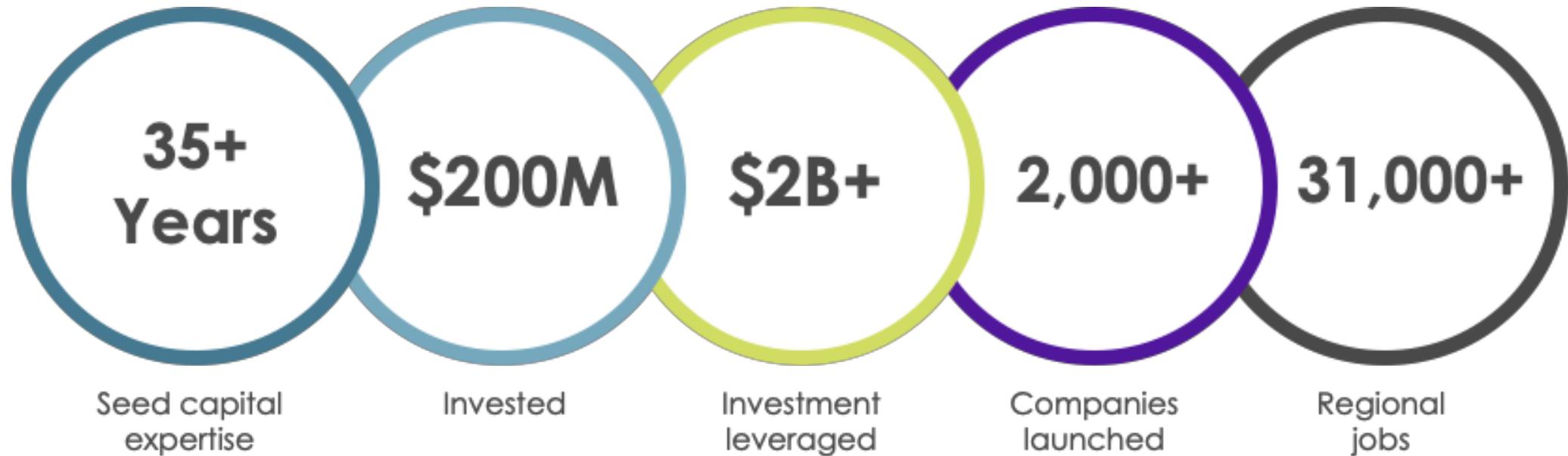
July 19, 2021

Confidential

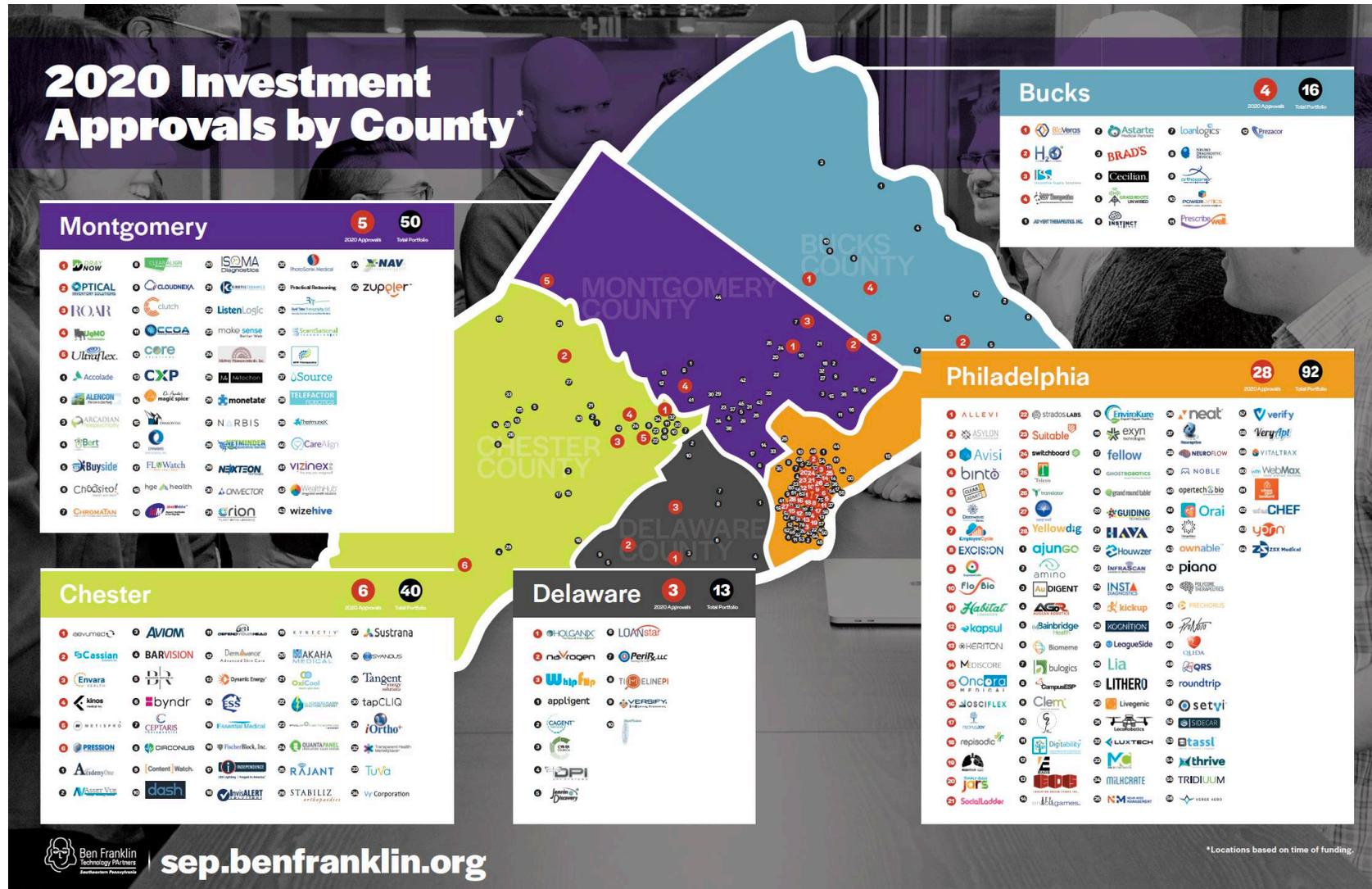




Ben Franklin generates \$3.90 of economic impact for every \$1.00 invested



Location (Active Portfolio)



*Locations based on time of funding.



Our Blockchain Portfolio



The premier 1st party data platform

AuDigent is an audience and data platform built around the music, entertainment, sports, and pop culture verticals with exclusive audience data segments from major record labels, influencers, and some of the largest content publishers.



Digital asset exchange software

AlphaPoint is a financial technology company which enables customers to launch new products and services by providing institutions enterprise-grade blockchain solutions to digitize assets, launch markets, and reduce operational costs.



Programmatic ad-tech transparency

Amino Payments is an Ad-Tech technology company whose brands can track where their ad dollars are spent through all levels of ad-exchange an ad network.



Blockchain for life science

Developing Life Science Ledger a clinical platform for CROs and Drug Sponsors to manage many key aspects of the clinical trial process using Blockchain Technology.



Automated identify screening to improve compliance

Verif-y is a technology software company who is on a mission to give people back control of their Digital Identity while streamlining compliance and credentialing solutions for organizations.



Our Perspective on Blockchain

Blockchain is an underlying infrastructure technology that can reduce the transaction costs and increase the efficiency and security of any transaction that requires a third-party intermediary.

A Case Study: The Global Opportunity Philadelphia Fund



In 2019, we utilized the blockchain and current US regulations to raise the first fully blockchain enabled venture capital fund. The use of blockchain provided three major benefits:

1. Allowed an automated AML / KYC approval process on a country specific basis
2. Streamlines the back office for capital calls, capital accounts, LPs notifications, etc.
3. Creates a digital security from the underlying limited partnership interests that, in theory, could be traded on the secondary exchanges for liquidity



Thank You

partnerswithapurpose.org

Andrew Bull, Esq. | *Founding Partner*

Bull Blockchain Law

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Philadelphia, PA 19107

andrew@bullblockchainlaw.com | 267.614.4627

Thank you to the House Democratic Policy Committee for hosting today's event. My name is Andrew Bull, and I'm the founding partner of Bull Blockchain Law LLP, a Philadelphia based law firm that specializes in cryptocurrency and blockchain technology. I've been fortunate enough to spend the last decade in this industry, starting out on the technology side running a cryptocurrency mining business and investment fund, and then moving into the legal side to address the lack of legal clarity that I, myself, faced running blockchain based businesses.

Throughout my time, I've witnessed multiple inflection points whereby a series of events would occur in the industry, creating a substantial step in expansion and recognition as well as increased usage and exposure of blockchain technology. For example, moving from only Bitcoin usage to private companies creating new versions of cryptocurrencies, or when cryptocurrency exchanges and payment applications allowed a broader consumer base to access these unique assets, and more recently, smart contract development and the expansion of decentralized online applications.

Each point carries a new set of regulatory issues, and many jurisdictions fall short in incorporating the lightning speed that this industry operates at. Unfortunately, many inflection points are rarely byproducts of legislation or regulation and only a handful of jurisdictions in the world have been able to foster innovation through regulation.

The positive is that these jurisdictions began with communications such as the one we are having today. So, as we kick-off this dialogue between industry stakeholders and legislators, it is important to acknowledge this as a step towards a unique opportunity to foster a legislative agenda that is more proactive than reactive. Incorporating a borderless technology into traditional regulatory constructs is no easy feat, and while this technology has immense application in government and can certainly be utilized by the Commonwealth of Pennsylvania, it is important to understand that the diversity of applications within this industry is significantly deeper than the public understands, and over broad regulation can and will stifle innovation.

I believe we are at the next inflection point, and that state and federal legislative recognition of cryptocurrency and blockchain technology will not only integrate the myriad of technology applications into our society, but it will also bring stability and clarity to an ambiguously regulated industry. Consumer protection is paramount, but we've seen jurisdictions fall short of helping the industry because they took rash actions, such as banning certain types of cryptocurrencies, or not officially recognizing blockchain transactions as proof of ownership.

Indeed, several regulatory decisions across the globe have left industry stakeholders to grapple with uncertainty and take on more risk than is needed.

My firm deals with clients daily who seek an answer to questions that have yet to be clarified. Clients ask whether their token is a security, or whether they should move their entities offshore to avoid the U.S. entirely. The confusion and uncertainty runs deep, and much of this is from entities and individuals already operating in the industry, which also leads to a concern within companies who are peripherally considering adopting blockchain into their business. To date, Congress has yet to pass legislation that would properly address this industry, and while initiatives are ongoing, states now have an opportunity to serve as laboratories for introducing innovative regulation.

We are still in the beginning stages of state regulation, but we already have data regarding which ways foster innovation, and which ways lead to more exclusivity and uncertainty. The underpinning to blockchain technology is transparency. The potential for individuals, entities, and governments to remove the ability for third parties to game the system or commit fraud. As a result, state regulation should seek to put the power back in the hands of the stakeholders that are already starting on a lower playing field. This technology can even out who controls and facilitates the transfer of information. However, to get to that point, we need to take note of recent developments and changes that help pave the way for increased adoption.

In Wyoming, multiple legislative initiatives addressing cryptocurrency and blockchain

Wyoming is arguably the most crypto-friendly jurisdiction in the United States. The laws enacted by Wyoming clarified the treatment of digital assets in commercial law, setting the legal foundation for so-called “smart contracts,” or contracts that are automatically executed by computer code on the blockchain. They also made it easier for crypto investors to set up limited liability company through which investors who live outside the state can still store their digital assets in Wyoming for legal purposes. Wyoming’s Governor signed legislation to give legal status to decentralized autonomous organizations, or member-owned communities that operate using blockchain technology. The changes also required the Wyoming Division of Banking to issue a new type of banking charter, called a special purpose depository institution, for banks that deal mostly in digital assets.

New York, on the other hand, is now considered a state where over broad regulation is deterring innovation in the industry as well as the state's economy. The BitLicense, which passed back in 2015, is considered one of the first state actions addressing the industry in the United States. It requires companies that fall within a certain definition, typically cryptocurrency exchanges, to apply for a separate license, that the New York Department of Financial Services may grant after reviewing the internal policies of the company. While theoretically the legislation is well intentioned in that it seeks to protect consumers from companies not properly adhering to anti-money laundering, the practical implementation is overly broad because it applies to many businesses that do not have the resources to satisfy the strict requirements. This deters innovation with small businesses, and only reserves the

opportunity to operate an exchange or financial payment company to a select few large corporations.

This was not accomplished simply by state regulators passing legislation. Instead, collaboration between the legislators and the state's residents is what drove these regulatory changes. Incorporating stakeholder opinions and experiences in the industry into any legislative agenda is crucial.

Overall, blockchain technology can be utilized to protect consumers, create more transparency in business and finance, and even out the drastic discrepancy we have between different sections of our society. Any legislative initiative should focus on the stakeholders of the industry while incorporating elements of consumer protection.

This technology is intentionally meant to challenge the traditional notions of borders and centralized control, but in a way that focuses on transparency and looking out for the person and entities that may be inherently disadvantaged due to our current financial structure. Any legislation or regulation created should adhere to these fundamental concepts without prohibiting certain uses simply because of a disconnect between the technology and traditional structures. I greatly appreciate the time I've been given today and thank you for hosting this hearing. It is a great step towards factoring in blockchain and cryptocurrencies into our state economy.

--

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**Testimony Before the Pennsylvania House Democratic Policy Committee
On Preparing Pennsylvania for a Digital Future**

Submitted by Michelle M. Bohnke on July 19, 2021

Senior Leadership Legislative Assistant, PA House Democratic Caucus
Founder, Blockchain Innovation Group of PA

To Chairman Bizzarro and Representative Nelson:

Thank you for allowing me to be a part of this important discussion.

I am a Senior Leadership Legislative Assist to the 'history making' House Democratic Leader, Joanna McClinton, Esq. Prior to this, I served for 11 years with the House Democratic Policy Committee, chaired by Rep. P. Michael Sturla. I am also the founder of Blockchain Innovation Group of PA, where I advocate to bring education and awareness of blockchain technology and serve as a connector for public and private sectors in hope of fostering advancement of technology innovation in Pennsylvania.

I discovered blockchain technology the same way as most people, Bitcoin (crypto). But while researching other cryptocurrencies, I came across a digital asset (software) with an actual use-case. This particular digital asset (software) promised to make the insanely high cost of sending and receiving money across borders (remittances) via Nostro Vostro accounts a thing of the past. It promised that by using this technology, customers would only pay pennies on the dollar, if not, a percentage of a penny.

I quickly realized that this would be extremely helpful to the unbanked and underbanked community, as well as people who regularly send money to family members overseas. Then it hit me. Institutions (banks, governments, etc.) are the biggest users of cross-border payments. Further research led me to the World Economic Forum's Policy Maker Toolkit. This is where I learned that I was late to the party. World leaders had been developing and planning to use this technology since the 2008 economic crisis. I dove in, head- first. I learned that this particular digital asset (software) was built to exist on a blockchain-based digital ledger.

Most people will never know, or care, what blockchain technology is, just like they don't know the intricacies of the internet protocol. But blockchain technology is now being called by a new name, Web 3.0. Where internet 1.0 allowed us to view information, and internet 2.0 allowed us to send and receive information, Web 3.0 is capable of that and so much more. It allows the purchase, movement, storage of anything deemed 'of value' and its full potential has yet to be tapped.

There will be very few areas in life that blockchain technology will not touch, whether we are aware or not. The innovation in music, art and entertainment only scratch the surface. My goal is to ensure that Pennsylvania is on the leading edge of this new sector, as companies and creatives are fleeing places like New York and its extremely high cost of living. Pennsylvania can prepare for this by building an infrastructure, creating welcoming regulatory environment, and dynamic workforce with which to greet this new industry. Thank you.

Sincerely,

Michelle M. Bohnke

Michelle M. Bohnke
Blockchain Innovation Advocate