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Blockchain Symposium Introduction: Overview and Historical Introduction

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BLOCKCHAIN SYMPOSIUM INTRODUCTION: OVERVIEW AND HISTORICAL INTRODUCTION

BRIAN RAY

The following is a lightly edited transcription of Brian Ray’s oral remarks at the 2018 *Cleveland State Law Review* Blockchain Law & Technology Symposium.

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I. INTRODUCTION

Imagine a world where human drivers can access on-demand micro-insurance contracts tailored to cover only the actual time spent driving.¹ How about a secure, decentralized identity system that allows individuals to purchase a vehicle and obtain insurance without sharing unnecessary private information exposing it to cyber criminals?² Take that a step further and consider a system of driverless cars that transact with autonomous gas stations and take payments directly from passengers.³ These are some of the fascinating applications that blockchain technology could enable. But these applications give rise to significant technical, social, and legal questions, all of which we explored in early April 2018 at the *Cleveland State Law Review’s* Blockchain Law & Technology Symposium.⁴

The Symposium’s timing was propitious. Following a meteoric rise to its historic peak of \$20,000 in mid-December 2017, Bitcoin had dropped back to close to \$7,000

¹ Pauline Adam-Kalfon & Selsabila El Moutaouakil, *Blockchain, a Catalyst for New Approaches in Insurance*, PwC 10 (2017), https://www.pwc.ch/en/publications/2017/Xlos_Etude_Blockchain_UK_2017_Web.pdf.

² See, e.g., Federic Kerrest, *Commentary: How Blockchain Could Put an End to Identity Theft*, FORTUNE (Apr. 20, 2018), <http://fortune.com/2018/04/20/blockchain-technology-identity-theft-data-privacy-protection/>.

³ Toshendra Kumar Sharma, *How Is Blockchain Relevant to Self-Driving Cars?*, BLOCKCHAIN COUNCIL (Feb. 12, 2018), <https://www.blockchain-council.org/blockchain/how-is-blockchain-relevant-to-self-driving-cars/>.

⁴ See Videotape: Cleveland State Law Review Symposium: Blockchain Law & Technology, CLEV. ST. L. REV. (forthcoming 2018).

in April 2018.⁵ In spite of those losses and the growing debate over whether even that price was unsustainable,⁶ Bitcoin's dramatic price increase in late 2017 had put cryptocurrencies and blockchain technology squarely on the mainstream map, with a lost Bitcoin wallet featured as the central plot premise in an episode of the *Big Bang Theory*.⁷

The “[s]ensational headlines and intense fascination” surrounding the technology that “drove ‘Bitcoin’ to second place as a global news topic in Google’s Year in Search,” also attracted notice by such staid organizations as the Joint Economic Committee of the U.S. Congress, which dedicated an entire chapter of its *2018 Joint Economic Report of the President* to blockchain.⁸ Citing the “explosion” in capital raised through initial coin offerings, or “ICOs,” the Report dubbed 2017 the “Year of Cryptocurrencies.”⁹

The Joint Economic Committee emphasized that ICOs and cryptocurrencies were far from the whole story when it came to this new technology: “With all the headlines focusing on financial applications, people may miss the digital revolution now happening with other blockchain applications.”¹⁰ In sharp contrast to popular perception that the pseudonymity afforded by cryptocurrencies allowed them to “attempt to skirt laws or regulations and become associated with the underground,” these newer applications “attempt to comply with the current system and even work with regulators.”¹¹ Citing examples ranging from payment coordination to supply-chain management, the Report concluded that “the potential for blockchain is truly revolutionary.”¹²

II. SECURITIES LAWS, ICOS, AND THE “SAFT” DEBATE

Many analysts attributed Bitcoin’s sharp price drop in early 2018 to the significant uncertainty surrounding the legal status of cryptocurrencies and the heightened scrutiny they were facing in several countries, including the U.S.¹³ In January 2018,

⁵ See Bitcoin Price Index, COIN TELEGRAPH (Dec. 3, 2017–Apr. 29, 2018), <https://cointelegraph.com/bitcoin-price-index>.

⁶ See, e.g., Janine Wolf, *Bitcoin, the Biggest Bubble in History, Is Popping*, BLOOMBERG (Apr. 9, 2018), <https://www.bloomberg.com/news/articles/2018-04-09/bitcoin-seen-popping-like-the-greatest-bubbles-by-bofa>.

⁷ *The Big Bang Theory: The Bitcoin Entanglement* (CBS television broadcast Nov. 30, 2017).

⁸ H.R. REP. NO. 115-596, pt. 1, at 202 (2018).

⁹ *Id.* at 202, 211.

¹⁰ *Id.* at 212.

¹¹ *Id.* at 213.

¹² *Id.* at 214.

¹³ See, e.g., Roger Aitken, *Are Wheels Coming Off Bitcoin’s Bandwagon & Meteoric Rise Crunched by Reg Concerns?*, FORBES (Feb. 4, 2018), <https://www.forbes.com/sites/rogeraitken/2018/02/04/are-wheels-coming-off-bitcoins-bandwagon-meteoric-rise-crunched-by-reg-concerns/#464e6a067387> (discussing regulatory inquiries in the U.S. by the Securities and Exchange Commission and the Commodities Futures Trading Commission and regulatory actions and statements by Chinese, South Korean, and Indian government authorities).

the United States Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC) issued a joint statement on virtual currency enforcement actions, cautioning that:

When market participants engage in fraud under the guise of offering digital instruments—whether characterized as virtual currencies, coins, tokens, or the like—the SEC and the CFTC will look beyond form, examine the substance of the activity and prosecute violations of the federal securities and commodities laws. The Divisions of Enforcement for the SEC and CFTC will continue to address violations and bring actions to stop and prevent fraud in the offer and sale of digital instruments.¹⁴

Five days later, SEC Chairman Jay Clayton and CFTC Chairman J. Christopher Giancarlo published an editorial in the *Wall Street Journal* ominously titled, “Regulators Are Looking at Cryptocurrency: At the SEC and CFTC, We Take Our Responsibility Seriously.”¹⁵ While acknowledging that blockchain or “distributed ledger” technology “is the advancement that underpins an array of new financial products,” which many have identified “as the next great driver of economic efficiency,” the chairmen went on to compare the boom in ICOs to the internet bubble.¹⁶ They warned that “only a fraction” of internet companies survived the market collapse of the early 2000s and “[f]ewer still provided their investors with life-changing returns.”¹⁷ Shortly after publishing that editorial—and three weeks before the Symposium—the SEC issued nearly eighty subpoenas to companies involved in ICOs and several of their advisers, including a number of prominent law firms.¹⁸

Prior to the sequence of events that culminated with that raft of subpoenas, U.S. regulators had taken a largely *laissez faire* approach to cryptocurrencies, developing internal expertise and tracking developments in the nascent industry without taking much direct action.¹⁹ In the absence of specific regulatory guidance by financial

¹⁴ Press Release, Stephanie Avakian, Steven Peikin & James McDonald, U.S. Securities and Exchange Commission, Joint Statement by SEC and CFTC Enforcement Directors Regarding Virtual Currency Enforcement Actions (Jan. 19, 2018), https://www.sec.gov/news/public-statement/joint-statement-sec-and-cftc-enforcement-directors?lipi=urn%3Ali%3Apage%3Ad_flagship3_feed%3BpNba0W7eTJGeW%2FSWptamAQ%3D%3D.

¹⁵ Jay Clayton & J. Christopher Giancarlo, *Regulators Are Looking at Cryptocurrency: At the SEC and CFTC, We Take Our Responsibility Seriously*, WALL ST. J. (Jan. 24, 2018), <https://www.wsj.com/articles/regulators-are-looking-at-cryptocurrency-1516836363>.

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ Nathaniel Popper, *Subpoenas Signal S.E.C. Crackdown on Initial Coin Offerings*, N.Y. TIMES (Feb. 28, 2018), <https://www.nytimes.com/2018/02/28/technology/initial-coin-offerings-sec.html>.

¹⁹ See, e.g., Press Release, Jay Clayton, U.S. Securities and Exchange Commission, Statement on Cryptocurrencies and Initial Coin Offerings (Dec. 11, 2017), <https://www.sec.gov/news/public-statement/statement-clayton-2017-12-11> (stating that there is no official legal status or classification of ICOs); Danny Bradbury, *Who Will Protect Investors in a Cryptocurrency Crowdsale?*, COINDESK (May 28, 2014), <https://www.coindesk.com/will-protect-investors-cryptocurrency-crowdsale/> (stating that ICOs are not afforded any protections because they are not classified); *Recent Developments in the Regulation of Bitcoin Under State*

regulators, an intense debate developed among legal analysts over the status of tokens under securities and other regulations, whether and how ICOs should be regulated, and whether these ICOs could be conducted compliant with those laws.²⁰

On October 2, 2017, several attorneys from the Cooley, LLP law firm and Protocol Labs, a well-respected peer-to-peer technology company, issued a detailed whitepaper titled “The SAFT Project: Toward a Compliant Token Sale Framework.”²¹ Protocol Labs’ announcement explained that, the “SAFT Project is dedicated to evolving the token investment and sale ecosystem in a compliant and standardized fashion.”²²

The SAFT Whitepaper argued that ICOs represented “a powerful new tool for creating decentralized communities, kickstarting network effects, incentivizing participants, providing faster liquidity to investors, and forming capital for creators.”²³ The central problem the SAFT Project attempted to address was the substantial legal uncertainty surrounding the status of tokens sold in ICOs.²⁴

According to the SAFT Whitepaper, the legal status of a token as a security turned to a large degree on the motivation for purchasing it, specifically whether a purchaser intends to use the token to perform a function or receive a service on the application or primarily as an investment that she hopes will increase in value.²⁵ The problem is that, in an ICO, “network creators sell an amount of the network’s tokens at a discount to users, investors, or both.”²⁶ As a result, the same token could serve as both an

and Federal Securities Laws, HUNTON & WILLIAMS (Mar. 2014), <https://www.huntonak.com/images/content/2/9/v3/2926/Developments-in-the-Regulation-of-Bitcoin-under-Securities-Laws.pdf> (quoting SEC Chairman Mary Jo White’s statement saying that the classification of the cryptocurrency depends on specific facts and circumstances).

²⁰ See generally Jared Paul Marx, *Token Sales and the US’ Impressionistic Securities Laws*, COINDESK (Mar. 23, 2015), <https://www.coindesk.com/token-sales-and-the-us-impressionistic-securities-laws/> (discussing the general uncertain classification of tokens). The SEC has released statements stating that tokens meet the definition of a security, but not formally stating the classification. See Press Release, U.S. Securities and Exchange Commission, Statement on Potentially Unlawful Online Platforms for Trading Digital Assets, (Mar. 7, 2018), <https://www.sec.gov/news/public-statement/enforcement-tm-statement-potentially-unlawful-online-platforms-trading>; Jay Clayton, *supra* note 19; HUNTON & WILLIAMS, *supra* note 19; Stan Higgins, *SEC U.S. Securities Las ‘May Apply’ to Token Sales*, COINDESK (July 16, 2017), <https://www.coindesk.com/securities-exchange-commission-us-securities-laws-may-apply-token-sales/> (reporting on the SEC’s statements that point to tokens being regarded as securities).

²¹ Juan Batiz-Benet, Jesse Clayburgh & Marco Santori, *The SAFT Project: Toward a Compliant Token Sale Framework*, COOLEY (Oct. 2, 2017) [hereinafter *SAFT Whitepaper*], <https://saftproject.com/static/SAFT-Project-Whitepaper.pdf>.

²² *Announcing the SAFT Project*, PROTOCOL LABS (Oct. 2, 2017), <https://protocol.ai/blog/announcing-saft-project/>.

²³ *SAFT Whitepaper*, *supra* note 21, at 1.

²⁴ *Announcing the SAFT Project*, *supra* note 22.

²⁵ *SAFT Whitepaper*, *supra* note 21, at 9.

²⁶ *Id.* at 1.

investment and as an essential tool to use a blockchain application making it difficult to draw a clean distinction between the two.²⁷

An example helps to illustrate this fundamental duality of most blockchain tokens. Consider the Ethereum blockchain—the second largest blockchain platform after Bitcoin.²⁸ To use the Ethereum platform requires owning its signature token, Ether.²⁹ Ethereum first launched with a “presale” of 60 million Ether tokens in July 2014 that helped raise the capital necessary to build and expand the platform.³⁰ Ether’s price was initially set at 2000 Ether per Bitcoin, which meant each Ether token was worth approximately \$0.30.³¹ Within twelve hours of the presale opening, Ethereum sold over seven million dollars in ether.³² By its close, the sale had raised more than eighteen million.³³

During the presale, Ethereum attempted to characterize ether tokens, or “ETH,” solely as a product “useful for paying transaction fees or building or purchasing decentralized application services on the Ethereum platform.”³⁴ It also required purchasers to sign an agreement stating: “Purchaser is not exchanging bitcoin (BTC) for ETH for the purpose of speculative investment.”³⁵ The Ethereum blog warned in bold lettering that Ether is “NOT a security or investment offering.”³⁶ Yet, there was little question that many presale purchasers viewed Ether as an investment and had little intention—or even sufficient understanding of the platform—to use it as a product.³⁷

²⁷ *Id.*

²⁸ Kellie Ell, *Ethereum May Drive Blockchain to Be as Broadly Adopted as the Internet, Fintech CEO Says*, CNBC (July 18, 2018), <https://www.cnbc.com/2018/07/18/ethereum-is-a-leading-driver-in-blockchain-says-circle-ceo.html>.

²⁹ *Id.*

³⁰ *See What Is Ether: FAQ*, ETHEREUM, <https://www.ethereum.org/ether> (last visited Oct. 6, 2018).

³¹ Ethereum offered Ether at the price of 2000 ether/1 bitcoin from July 22, 2014 through August 5, 2014. During that period bitcoin prices ranged from \$572 to \$632. *See* Vitalik Buterin, *Launching the Ether Sale*, ETHEREUM BLOG (July 22, 2014) [hereinafter *Launching the Ether Sale*], <https://blog.ethereum.org/2014/07/22/launching-the-ether-sale/>.

³² Victoria Van Eyk, *Ethereum Launches Own “Ether” Coin, with Millions Already Sold*, COINDESK (July 23, 2014), <https://www.coindesk.com/ethereum-launches-ether-coin-millions-already-sold/>.

³³ Bernard Marr, *Blockchain: A Very Short History of Ethereum Everyone Should Read*, FORBES (Feb. 2, 2018), <https://www.forbes.com/sites/bernardmarr/2018/02/02/blockchain-a-very-short-history-of-ethereum-everyone-should-read/#78a52511e89>.

³⁴ *See Launching the Ether Sale*, *supra* note 31.

³⁵ Josiah Wilmoth, *Ether, the Fuel of the Ethereum Project, Is Available for Pre-Order*, CCN (July 23, 2014), <https://www.ccn.com/ether-fuel-ethereum-project-can-now-pre-ordered>.

³⁶ *Launching the Ether Sale*, *supra* note 31.

³⁷ *See, e.g.,* Adrienne Jeffries, *Why Are All My Friends Buying an Overhyped Digital Currency?*, THE OUTLINE (July 17, 2017), <https://theoutline.com/post/1924/why-are-all-my-friends-buying-an-overhyped-digital-currency?zd=1&zi=virs6qmu>.

However, the near certainty that many purchasers bought Ether tokens purely as an investment did nothing to change the fact that Ethereum's description of ether as a product necessary to perform essential functions on the platform was also accurate. Indeed, it was precisely that aspect combined with the extensive decentralization of the platform that ultimately lead William Hinman, SEC Director of Corporation Finance, to declare in a June 2018 speech that "putting aside the fundraising that accompanied the creation of Ether, based on my understanding of the present state of Ether, the Ethereum network and its decentralized structure, current offers of Ether are not securities transactions."³⁸

Director Hinman's careful caveat distinguishing between the initial presale of Ether from its status in June 2018, highlights another important dimension of token sales that the SAFT Project sought to trade on in developing a legally compliant token-sale structure.³⁹ The question of whether a token purchaser intends primarily to use the token directly, or hold it as an investment, arguably changes depending on the timing of the sales with some occurring "when or after the token network is launched, as a means to disseminate some fraction of the token supply to early users," while others "happen long before the token network has genuine functionality; so-called 'direct token pre-sales' are sold at greater discounts with the goal of financing the development of the network and its launch."⁴⁰ According to the SAFT Whitepaper authors, "[p]urchasers in these direct presales tend to expect profit predominantly from the seller's efforts to create functionality in the token. As such, these sellers may unintentionally be selling securities, and may have failed to comply with several U.S. laws."⁴¹

The SAFT Project proposed a multi-step token sale structure as a solution that would disconnect the initial capital-raising token—which the Whitepaper authors acknowledged in most circumstances would qualify as a security offering under U.S. law—from the operational token, which they argued should not be considered a security.⁴² The SAFT proposal attracted criticism immediately.⁴³ A responding whitepaper from the Cardozo Blockchain Project found that "while the framework proposed in the [SAFT] Whitepaper is arguably attractive in its simplicity, it may create more problems than it solves for sellers that follow its prescriptions."⁴⁴ Specifically, the authors asserted, the SAFT framework: (1) "Blurs the true test of how tokens will be analyzed under U.S. federal securities law;" (2) "[i]ncreases the risk that a token will be treated as a security by emphasizing the token's speculative, profit-generating potential and relying on vague notions of 'functionality' as a panacea to

³⁸ William Hinman, Dir. of Div. of Corp. Fin., Remarks at the Yahoo Finance All Markets Summit: Crypto (June 14, 2018), <https://www.sec.gov/news/speech/speech-hinman-061418>.

³⁹ *Id.*

⁴⁰ *SAFT Whitepaper*, *supra* note 21, at 1.

⁴¹ *Id.*

⁴² *Id.* at 1, 15–19.

⁴³ *Not So Fast—Risks Related to the Use of a "SAFT" for Token Sales*, CARDOZO L. SCHOOL BLOCKCHAIN PROJECT REPORT 1 (2017), <https://cardozo.yu.edu/sites/default/files/Cardozo%20Blockchain%20Project%20-%20Not%20So%20Fast%20-%20SAFT%20Response%20final.pdf>.

⁴⁴ *Id.*

guard against broad securities laws implications;” and (3) “[c]reates a class of early investors that are incentivized to flip their holdings instead of supporting enterprise growth, which could fuel speculation and hurt consumers.”⁴⁵

The SAFT Whitepaper responded, in part, to the SEC’s first significant intervention in the debate over the regulatory status of tokens and ICOs, which came in a July 25, 2017 Report of Investigation and accompanying Statement of an ICO by the Decentralized Autonomous Organization or “DAO.”⁴⁶ The *DAO Report* concluded that the specific facts surrounding the DAO platform and its token sale qualified the tokens as securities.⁴⁷ While clearly establishing that token sales in some circumstances would be regulated as securities—and therefore subject to the same limitations as other securities offerings—the Report carefully noted in its conclusion that “[w]hether or not a particular transaction involves the offer and sale of a security—regardless of the terminology used—will depend on the facts and circumstances, including the economic realities of the transaction.”⁴⁸

The SEC’s *DAO Report* “sent shockwaves through the cryptocurrency world” with its unequivocal conclusion that token sales could be subject to the rules and restrictions of securities offerings.⁴⁹ Prior to its issuance, “virtually every ICO” followed the Ether presale lead and took the position that its tokens were not securities and therefore not subject to those restrictions.⁵⁰ In the weeks that followed, speculation grew rampant within the industry that the *DAO Report* was merely the first warning shot fired by the SEC, and that the agency was gearing up to take much more aggressive action against other ICO offerings.⁵¹ Those predictions proved true, as the SEC announced two enforcement actions in early December 2017—both brought by its newly created “Cyber Unit”—against the PlexCoin and Munchee token launches, followed shortly

⁴⁵ *Id.*

⁴⁶ SECURITIES AND EXCHANGE COMMISSION, REPORT OF INVESTIGATION PURSUANT TO SECTION 21(A) OF THE SECURITIES AND EXCHANGE ACT OF 1934: THE DAO (2017) [hereinafter DAO REPORT], <https://www.sec.gov/litigation/investreport/34-81207.pdf>; SECURITIES AND EXCHANGE COMMISSION, DIV. OF CORP. FINANCE AND ENFORCEMENT, STATEMENT ON REPORT OF INVESTIGATION ON THE DAO (2017) [hereinafter DAO STATEMENT], <https://www.sec.gov/news/public-statement/corpfen-enforcement-statement-report-investigation-dao>.

⁴⁷ DAO REPORT, *supra* note 46, at 10–16; DAO STATEMENT, *supra* note 46.

⁴⁸ DAO REPORT, *supra* note 46, at 17–18.

⁴⁹ Jon Buck, *Forewarned Is Forearmed: Key Takeaways from SEC DAO Report*, COINTELEGRAPH (Jul. 30, 2017), <https://cointelegraph.com/news/forewarned-is-forearmed-key-takeaways-from-sec-dao-report>.

⁵⁰ Jason Somensatto, *The DAO Report: Understanding the Risk of SEC Enforcement*, COINDESK (Jul. 27, 2017), <https://www.coindesk.com/dao-report-understanding-risk-sec-enforcement>.

⁵¹ *See, e.g., id.* (“The SEC explicitly noted in the DAO report that its findings were intended to put the industry on notice. As a result, I doubt this is the last we will hear from the SEC on this issue, and I expect future enforcement action releases for those who blindly continue raising capital through ICOs.”).

after by the aggressive public statements and raft of subpoenas in early 2018 described above.⁵²

III. SMART CONTRACTS, SECURITY, AND HARD FORKS

The SEC's investigation into the DAO token offering was triggered in part by the notoriety the DAO achieved following a security breach that allowed a hacker to exploit a software vulnerability in the underlying code to steal 3.6 million Ether—worth close to \$50 million at the time.⁵³ The DAO was created as a decentralized investment platform that would operate on the Ethereum platform and enable DAO token holders to vote on funding proposals backed by smart contracts.⁵⁴ The voting process was itself a smart contract that would automatically fund or reject proposals based on the rules established in the DAO Whitepaper.⁵⁵

A flaw in the Solidity smart contract programming language used throughout the Ethereum platform posed a risk to applications throughout the network and enabled the DAO attack.⁵⁶ As a result, reports of the DAO attack and the scope of the underlying vulnerability sent the price of Ether plummeting on major exchanges and prompted calls for Ethereum to implement a change to the underlying code that would both correct the Solidity software and restore the DAO investors funds.⁵⁷

This proposal to “hard fork” the Ethereum platform triggered a heated debate that raised fundamental questions about the relationship between the computer code used to create smart contracts and the practical and legal status of the agreements smart contracts are intended to implement.⁵⁸ On one side, “code-as-contract” purists insisted that changing the underlying code to supposedly “correct” errors runs directly counter

⁵² Richard M. Martinez et al., *Crackdown: SEC's New Cyber Unit Targets Blockchain and ICO Abuses*, LEXOLOGY (Dec. 18, 2017), <https://www.lexology.com/library/detail.aspx?g=af82f7f4-5854-4f21-932a-d5291e3f743f>. PlexCorps, which launched the PlexCoin cryptocurrency promoted it by claiming investors could earn more than a 1,000% return in less than one month. *Id.* The Munchee tokens were marketed as rewards that would be paid for restaurant reviews and could be redeemed at restaurants that advertised in the network. *Id.*

⁵³ See DAO REPORT, *supra* note 46, at 9; Klint Finley, *A \$50 Million Hack Just Showed that the DAO Was All Too Human*, WIRED (June 18, 2016), <https://www.wired.com/2016/06/50-million-hack-just-showed-dao-human/>.

⁵⁴ See DAO REPORT, *supra* note 46, at 6–7; Christoph Jentzsch, *The History of the DAO and Lessons Learned*, SLOCK.IT (Aug. 24, 2016), <https://blog.slock.it/the-history-of-the-dao-and-lessons-learned-d06740f8cfa5#.5o62zo8uv>.

⁵⁵ Christoph Jentzsch, *Decentralized Autonomous Organization to Automate Governance Final Draft – Under Review*, https://archive.org/stream/DecentralizedAutonomousOrganizations/WhitePaper_djvu.txt; see also Carla Reyes et al., *Distributed Governance*, 59 WM. & MARY L. REV. ONLINE 1, 7 (2017).

⁵⁶ Andrew Quenston, *Ethereum's Solidity Flaw Exploited in DAO Attack Says Cornell Researcher*, CCN (Jun 19, 2016), <https://www.ccn.com/ethereum-solidity-flaw-dao>.

⁵⁷ *Id.*; Rob Price, *Digital Currency Ethereum Is Cratering Because of a \$50 Million Hack*, BUSINESS INSIDER (Jun 17, 2016), <https://www.businessinsider.com/dao-hacked-ethereum-crashing-in-value-tens-of-millions-allegedly-stolen-2016-6>.

⁵⁸ See Adam J. Kolber, *Not-So-Smart Blockchain Contracts and Artificial Responsibility*, 21 STAN. TECH. L. REV. 198, 219 (2018).

to the decentralized nature and immutability of blockchain technology in ways that undermine its integrity.⁵⁹ Indeed, a person purporting to be the DAO “attacker” argued that she was legally entitled to keep the funds under the DAO’s own governing terms, which explicitly stated that the “DAO’s code controls” any potential conflict between the written description of its functionality and the code’s actual operation.⁶⁰

On the other side, many in the community argued that this new technology should be viewed like any other, requiring technical fixes to address unintended bugs in the software and updates over time to improve functionality.⁶¹ Social consensus, which also is a fundamental aspect of blockchain technology, they argued should govern, not the code itself, which is generally the product of a small subset of developers within a community.⁶² Many legal analysts, likewise, rejected the notion that the law should treat smart contract code as the final word on what the parties who agreed to incorporate it into a legal contract intended.⁶³

IV. STATE AND FEDERAL GOVERNMENT BLOCKCHAIN INITIATIVES

At the same time that federal financial regulators were ratcheting up scrutiny of cryptocurrencies and ICOs, a number of U.S. states—with some notable exceptions⁶⁴—were starting to compete to attract investment by blockchain companies through legislation that relaxed restrictions on the technology, clarified legal uncertainties and, even more ambitiously, experimented with public applications.⁶⁵ The Brookings Institution issued an “initial assessment” of state blockchain legislation and initiatives in April 2018 which echoed the Joint Economic Committee Report’s description of the breadth of blockchain applications emerging.⁶⁶ The Brookings report explained that blockchain “is no longer a tool to mine cryptocurrencies or

⁵⁹ *Id.* at 2–3; Muhammad Mehar et al., *Understanding a Revolutionary and Flawed Grand Experiment in Blockchain: The DAO Attack* (Nov. 28, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3014782.

⁶⁰ Carla L. Reyes et al., *More Legal Aspects of Smart Contract Applications*, PERKINS COIE LLP (March 2018), <https://www.perkinscoie.com/en/news-insights/more-legal-aspects-of-smart-contract-applications.html>.

⁶¹ *See* Mehar, *supra* note 59, at 12 (cataloguing arguments on both sides of the Ethereum hard fork debate following the DAO attack).

⁶² *Id.*

⁶³ *See, e.g.*, Kolber, *supra* note 58, 22–27 (outlining “five reasons why The DAO code should not be viewed as the entirety of a contract”).

⁶⁴ New York adopted a highly restrictive set of regulations governing cryptocurrencies requiring exchanges and other entities involved in issuing, transmitting, storing, holding or maintaining virtual currencies for others to obtain a BitLicense from the New York Department of Financial Services. *See* 23 N.Y. FIN. SERV. LAW § 200 (2015) (effective Aug. 8, 2015); *see generally* Jen Wieczner, *Inside New York’s BitLicense Bottleneck: An “Absolute Failure?”*, FORTUNE (MAY 25, 2018), <http://fortune.com/2018/05/25/bitcoin-cryptocurrency-new-york-bitlicense/>.

⁶⁵ *Id.*

⁶⁶ Kevin C. Desouza et al., *Blockchain and U.S. State Governments: An Initial Assessment*, BROOKINGS INST. (Apr. 17, 2018), <https://www.brookings.edu/blog/techtank/2018/04/17/blockchain-and-u-s-state-governments-an-initial-assessment>.

manage databases. Now U.S. state governments have recognized the technology's potential for the delivery of public services, and are at various stages of implementation."⁶⁷

As the Brookings report describes it, "the 'trustless' nature of the blockchain—no need for a trusted third party . . . in the transfer of assets from one party to another," was driving both general interest in the technology and the surge of attention by U.S. states.⁶⁸ Quoting Delaware's former Governor Jack Markell, who launched the Delaware Blockchain Initiative, the Report noted "that 'Smart contracts offer a powerful and innovative way to streamline cumbersome back office procedures, lower transactional costs for consumers and businesses, and manage and reduce risk'" and stimulate local economies in the process.⁶⁹

The report issued a report card of sorts rating the intensity of state engagement with the technology on a scale ranging from "Unaware" to "Recognizing Innovation Potential."⁷⁰ The report also identified states that had taken steps to restrict cryptocurrencies or issued cautionary statements regarding them as "Reactionary."⁷¹ Over twenty states reached the first positive rating—"Appreciative"—in most instances for proposing legislation clarifying the status of cryptocurrencies under existing money transmission laws.⁷² Only three states achieved the top rating.⁷³ Delaware reached this elite group for its expansive initiative centered on creating a state blockchain system for permitting corporate registration and other UCC filings.⁷⁴ Illinois' Blockchain Initiative, which launched a series of pilot projects seeking to "transform the delivery of public and private services, redefine the relationship between government and the citizen in terms of data sharing, transparency and trust, and make a leading contribution to the State's digital transformation," also achieved the top rank.⁷⁵ Finally, Arizona made the cut based on the recent enactment of blockchain legislation and regulations "ranging from making signatures, transactions, and contracts on a blockchain legally valid to allowing residents to pay their income tax in cryptocurrencies."⁷⁶

Reflecting this same emerging awareness and excitement about the technology's potential to revolutionize government operations and services, two subcommittees of the U.S. House of Representatives Committee on Science, Space and Technology held

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ Kevin C. Desouza et al., *Blockchain and U.S. State Governments: An Initial Assessment*, BROOKINGS (Apr. 17, 2018), <https://www.brookings.edu/blog/techtank/2018/04/17/blockchain-and-u-s-state-governments-an-initial-assessment/>.

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Governor Markell Launches Delaware Blockchain Initiative*, CISION PR NEWSWIRE (May 2, 2016), <https://www.prnewswire.com/news-releases/governor-markell-launches-delaware-blockchain-initiative-300260672.html>.

⁷⁵ *Id.*

⁷⁶ *Id.*

a joint hearing on February 14, 2018 titled, “Beyond Bitcoin: Emerging Applications for Blockchain Technology.”⁷⁷ Chairman Ralph Abraham explained in his opening statement that “this hearing is an opportunity to learn more about the standards, guidelines and best practices that may be necessary to ensure effective and appropriate implementation of blockchain technology” and “about ways to improve government efficiency and private sector success with this technology.”⁷⁸ One of the witnesses, Cardozo Law Professor Aaron Wright, testified that:

[G]overnments across the globe, including China, Japan and the European Union, are increasing experimentation with blockchain technology, exploring whether blockchains can secure and manage critical public records, including vital information, identity, and title or deeds to property, and whether blockchains can improve government procurement and taxation processes.⁷⁹

The Government Services Administration (GSA) was already taking a leading role in both exploring potential blockchain applications within its own operations and documenting and facilitating projects in other federal and state agencies.⁸⁰ To facilitate information sharing and public awareness, the GSA established a public listserv for blockchain open to any government and military employees and hosted the first “U.S. Federal Blockchain Forum” on July 18, 2017, which brought together “more than 100 federal managers from dozens of unique agencies to discuss use cases, limitations, and solutions.”⁸¹

V. INDUSTRY ASSOCIATIONS AND INITIATIVES

The period from 2017 to early 2018 also saw an explosion of blockchain industry associations, alliances and initiatives, including several focused specifically on legal and regulatory issues.⁸² The Enterprise Ethereum Alliance (EEA)—the “world’s largest open source blockchain initiative,” whose charter members included tech heavyweights Microsoft and Intel as well as several of the world’s largest financial institutions, including Santander and J.P. Morgan—officially launched in

⁷⁷ *Beyond Bitcoin: Emerging Applications for Blockchain Technology: Joint Hearing Before Subcomm. on Science, Space, and Technology, Comm. on Oversight & Research and Technology*, 115th Cong. (2018) [hereinafter *Joint Hearing on Beyond Bitcoin*].

⁷⁸ *Id.* (Statement of Rep. Ralph Abraham, Chairman, Subcomm. on Science, Space, and Technology).

⁷⁹ *Id.* (Statement of Aaron Wright, Clinical Professor, Benjamin N. Cardozo School of Law).

⁸⁰ *Blockchain*, GENERAL SERVICES ADMINISTRATION (Aug. 13, 2017), <https://www.gsa.gov/technology/government-it-initiatives/emerging-citizen-technology/blockchain>.

⁸¹ *Id.*; see also Sara Friedman, *GSA Ramps Up Blockchain Exploration*, GCN MAGAZINE (July 11, 2017), <https://gcn.com/articles/2017/07/11/blockchain-forum.aspx>.

⁸² See Andrew Nelson, *Cryptocurrency Regulation in 2018: Where the World Stands Right Now*, BITCOIN MAGAZINE (Feb. 1, 2018), <https://bitcoinmagazine.com/articles/cryptocurrency-regulation-2018-where-world-stands-right-now/>.

February 2017 and rapidly grew to include 200 members.⁸³ EEA announced the creation of several working groups, including one focused on the Legal Industry in July 2017.⁸⁴

The following month, a group of major law firms and technology companies such as Baker Hostetler, Orrick, IBM Watson Legal, and Integra Ledger formed the Global Legal Blockchain Consortium (GLBC) to explore how blockchain technology could solve real-world legal problems.⁸⁵ Several months after GLBC's formation, ConsenSys, the blockchain consultancy founded by Ethereum co-founder Joe Lubin, announced that it was establishing the Brooklyn Project “to help fulfill the promise of tokenization by addressing head-on and—we hope—solving the issues that some regulators and others have raised over the last year regarding token launches.”⁸⁶

Notably, within this flurry of activity, several initiatives formed to address the long-standing diversity gap in the tech sector.⁸⁷ Prominent among these was a group that eventually became Diversity in Blockchain Inc. (DiB).⁸⁸ Several well-known blockchain attorneys and consultants, including Laura Jehl, Joshua Ashley Klayman Kuzar, and Susan Joseph, co-founded DiB following the MIT Legal Blockchain Forum in early 2018, with the mission “to empower everyone from all walks of life to engage with blockchain technology in order to ensure equal participation and distribution.”⁸⁹

VI. SYMPOSIUM

These events formed a dramatic backdrop to the Symposium and the issues they raised created rich fodder for discussion. The brief descriptions of the Symposium sessions that follow capture only select highlights of the discussions that occurred

⁸³ Ernie Smith, *What's Behind the Fast Growth of an Ethereum Alliance?*, ASSOCIATIONS NOW (Oct. 19, 2017), <https://associationsnow.com/2017/10/whats-behind-fast-growth-ethereum-alliance/>; *Enterprise Ethereum Alliance Becomes the World's Largest Open-source Blockchain Initiative*, ENTERPRISE ETHEREUM ALLIANCE (July 18, 2017), <https://entethalliance.org/enterprise-ethereum-alliance-becomes-worlds-largest-open-source-blockchain-initiative/>.

⁸⁴ *Enterprise Ethereum Alliance Unveils New Technical Steering Committee and Seven New Working Groups*, ENTERPRISE ETHEREUM ALLIANCE (July 14, 2017), <https://entethalliance.org/enterprise-ethereum-alliance-unveils-new-technical-steering-committee-seven-new-working-groups/>.

⁸⁵ Robert Ambrogi, *Consortium Formed to Drive Blockchain Adoption in Legal Industry*, LAWSITES BLOG (Aug. 17, 2017), <https://www.lawsitesblog.com/2017/08/consortium-formed-drive-blockchain-adoption-legal-industry.html>.

⁸⁶ See CONSENSYS, <https://new.consensys.net/> (last visited Oct. 27, 2018); Joseph Lubin, *Announcing “The Brooklyn Project” for Token Launches*, MEDIUM (Nov. 30, 2017), <https://media.consensys.net/announcing-the-brooklyn-project-for-token-launches-22ba89279f5f>.

⁸⁷ See Erin Griffiths, *For Women in CryptoCurrency, A New Effort to Grow Their Ranks*, WIRED (Feb. 20, 2018), <https://www.wired.com/story/for-women-in-cryptocurrency-a-new-effort-to-grow-their-ranks/>.

⁸⁸ DIVERSITY IN BLOCKCHAIN, <https://diversityinblockchain.com/> (last visited Oct. 27, 2018).

⁸⁹ *Id.*

throughout the day. Consider them an invitation to explore—and short preview of—the edited texts of the two keynote addresses included in this volume and the complete set of video presentations, which are archived on the *Law Review*'s website.⁹⁰

The exciting developments at the state-level were the focus of a pre-Symposium informal workshop on the recent state initiatives led by Andrea Tinianow, the Founding Director of the Delaware Blockchain Initiative.⁹¹ Tinianow explained in detail the history of the Delaware Initiative, which at that point had been on hold following the election of a new Governor.⁹² She also shared candid advice on creating broad coalitions to educate lawmakers and build support for blockchain innovations, and the disruptions they often create in established industries.

Tinianow also helped set the table for the panel discussions at the Symposium itself with an opening interview of Joshua Ashley Klayman Kuzar, who Chambers and Partners had named one of the top twelve Blockchain and Cryptocurrency lawyers globally in 2018, about her practice and the legal issues surrounding blockchain technology.⁹³ Kuzar explained that she first approached blockchain defensively, thinking that the technology “was going to take away my job because I heard that smart contracts were going to reduce legal spend.”⁹⁴ However, after digging into the topic, Kuzar quickly learned that cryptocurrencies and blockchain technology posed challenging new issues that she recognized would quickly create “more legal work than anyone can handle.”⁹⁵

Kuzar and Tinianow developed a long list of significant legal questions that drew extensively from the events described above. Top of mind, unsurprisingly from a former structured finance attorney, were the uncertainties surrounding the legal status of tokens and the rapidly evolving debate over the viability of the SAFT and other proposals for ways to structure a legally compliant token offering.⁹⁶ But they also explored broader themes, including the growing interest by hedge funds in cryptocurrencies, the significant move by large corporations towards starting blockchain projects, and whether and how smart contracts can and should incorporate legal concepts into computer code. Several of the other panels picked up those themes and dove more deeply into them.

⁹⁰ See Videotape: Cleveland State Law Review Symposium: Blockchain Law & Technology, CLEV. ST. L. REV. (forthcoming 2018).

⁹¹ Andrea Tinianow & Caitlin Long, *Delaware Blockchain Initiative: Transforming the Foundational Infrastructure of Corporate Finance*, HARV. L. SCH. F. ON CORP. GOVERNANCE AND FIN. REG. BLOG (March 16, 2017), <https://corpgov.law.harvard.edu/2017/03/16/delaware-blockchain-initiative-transforming-the-foundational-infrastructure-of-corporate-finance/>.

⁹² Karl Baker, *Delaware Eases Off Early Blockchain Zeal After Concerns over Disruption to Business*, NEWS J. (Feb. 1, 2018), <https://www.delawareonline.com/story/news/2018/02/02/delaware-eases-off-early-blockchain-zeal-after-concerns-over-disruption-business/1082536001/>.

⁹³ Andrew Gerlach & Rebecca Simmons, *Professional Advisers-Fintech Guide: Legal: Blockchain & Cryptocurrencies—Global-Wide*, CHAMBERS AND PARTNERS (OCT. 17, 2018), <https://practiceguides.chambers.com/practice-guides/fintech-2018>.

⁹⁴ See Cleveland State Law Review Symposium: Blockchain Law & Technology, *supra* note 4.

⁹⁵ *Id.*

⁹⁶ *Id.*

The opening keynote by Pat Berarducci, Vice President for Legal and Software at ConsenSys, provided an excellent overview of the intersection between law and blockchain technology as well as an introduction to the ConsenSys-led Brooklyn Project.⁹⁷ As the edited transcript of Berarducci's remarks published in this issue explain in greater detail, the Brooklyn Project is an ambitious effort to crowdsource creative solutions to the difficult legal questions raised by tokens, smart contracts, and other aspects of blockchain technology.⁹⁸ Berarducci also introduced the novel concept of a "consumer" token. Distinct from both capital-raising security tokens and the catch-all utility token that permits any function on a blockchain platform, "[c]onsumer tokens are digital tokens that are inherently consumptive in nature and are designed to be used or consumed in some way."⁹⁹

Two panels shifted the conversation from strictly legal questions to the practical applications of blockchain covering both its blue-sky promise to transform industries ranging from financial services to supply-chain operations and the current state of play. Jeremy Mio, a senior IT and security professional at Cuyahoga County, led the first of these, entitled "Public-Private Applications, Interactions and Regulation: Autonomous Vehicles and State Government" and included Tinianow, joined by Susan Joseph, a blockchain consultant specializing in the insurance industry, as well as Jeff Ward, Director of Duke Law's Center on Law and Technology.

This group explored how blockchains operating in very different sectors could connect and work together in the context of a hypothetical state-organized autonomous vehicle system. The discussion opened with the simple idea of storing the VIN number of vehicles on a blockchain, which Mio explained could enable a host of functions from improved supply-chain operations to providing a unique identifier that could allow autonomous vehicles to interact with humans and other autonomous agents. From there, the panel developed a reticulated hypothetical system of interdependent blockchain-based systems.

This extended hypothetical lead to a discussion of the fundamental transformations the technology could affect. In one representative exchange, Ward explained that the peer-to-peer trust blockchains create allows for a complex array of "micro-transactions," that could create entirely new business models, such as autonomous vehicle fleets that interact directly with riders and hourly insurance contracts, based on individual driver use. Joseph cited examples of auto manufacturers she has consulted, who are anticipating precisely that kind of shift away from individual car ownership to a world with large corporate fleets and the ways that blockchain could assist in financing, insuring, and reinsuring that system. Tinianow highlighted the need for alternative forms of corporate structure to facilitate these new economic paradigms, including micro-ownership structures or "mini-LLCs" that blockchains could much more readily enable.

The next panel featured Berarducci, Laura Jehl, Baker Hostetler's Blockchain Technologies and Digital Currencies co-leader, Mike Dolan, Vice President for Strategic Programs and Counsel at the Linux Foundation, and Paul Hugenberg, co-founder and CEO of InfoGPS. The panel brought the discussion back to present day

⁹⁷ *Id.*

⁹⁸ *See* Lubin, *supra* note 86.

⁹⁹ Mark Ziade, *Token Work: Introducing the Token Utility Canvas*, MEDIUM (May 16, 2018), <https://media.consensys.net/tokenwork-introducing-the-token-utility-canvas-tuc-9a1f32979dc0>.

by focusing on operational and close-to-operational blockchain applications and the challenges that the technology needs to overcome to realize the full potential the prior panel described. Hugenberg opened citing some sobering statistics from a recent Deloitte survey which found that thirty-nine percent of enterprise respondents believe that blockchain is “overhyped” and noted that blockchain use cases are still only “dribbling into production at this point.”¹⁰⁰ That same report, however, concluded that “momentum is shifting” and that the survey respondents generally “see great value in blockchain’s potential to reinvent processes across the business value chain” as investment increases and more use cases develop.¹⁰¹

Dolan explained that much of the “hype” over blockchain derives from unrealistic expectations for the technology based on a lack of understanding of the core features of the blockchain. He posited that many the failed projects could be traced to the basic failure to understand that immutability means that “you can’t simply back out a record of a transaction.” Most of the successful applications using Hyperledger—the blockchain platform created through a partnership between Linux and IBM—he noted, involve incremental improvements to functions in existing systems. For example, streamlining invoicing and other aspects of supply chains.

Jehl cautioned that, before rushing to adopt blockchain solutions, organizations should carefully consider whether the technology is appropriate and has advantages over existing alternatives considering its distinctive features. She emphasized that blockchain is most useful where there is a need for decentralization, disintermediation, and transparent, reliable record-keeping. Berarducci echoed Jehl’s comments, citing facilitating large networks of people looking to collaborate or coordinate as a paradigmatic example where those features are useful. Blockchain enables expansion of networks on a direct peer-to-peer basis without the need for a centralized entity and it allows individuals to take advantage of the economic value those networks create rather than allowing a centralized entity, like Facebook, to exploit that value itself.¹⁰²

In the afternoon, the Symposium shifted back to legal topics. Haimera Workie, Senior Director of the Financial Industry Regulatory Authority (FINRA) Office of Emerging Regulatory Issues blockchain working group, provided our second keynote address, returning the conversation to the financial sector and providing important insights into the tightly coordinated approach among FINRA, the SEC, and CFTC to balance effective policing of fraudulent and misleading activity without stifling innovation in this nascent industry.¹⁰³ Of particular note, Mr. Workie discussed the differences between tokens used to raise capital and “utility” or functional tokens. Previewing to some extent Director Hinman’s discussion of the evolution of Ether tokens into utility or “use” tokens, he noted that blockchain applications could be

¹⁰⁰ Linda Pawczuk et al., *Breaking Blockchain Open: Deloitte’s 2018 Global Blockchain Survey*, DELOITTE 5–8, <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-fsi-2018-global-blockchain-survey-report.pdf>.

¹⁰¹ *Id.* at 3.

¹⁰² Aaron Wright & Primavera De Filippi, *Decentralized Blockchain Technology and the Rise of Lex Cryptographia*, SSRN ELEC. J. 4 (March 10, 2015), https://www.intgovforum.org/cms/wks2015/uploads/proposal_background_paper/SSRN-id2580664.pdf.

¹⁰³ See *Innovative Outreach Initiative*, FINRA (2018), <https://www.finra.org/about/finra360-progress-report/innovation-outreach-initiative>.

appropriately structured to avoid the tokens they use becoming securities. In particular, tokens that operate solely as the digital equivalent of a “gift card,” permitting direct engagement with an application, Workie posited, hypothetically could avoid the status of a securities, provided they were not offered or promoted in any way as an investment opportunity and the application had effective safeguards.¹⁰⁴

A panel of financial services attorneys and experts followed Mr. Workie’s presentation with a discussion of blockchain financial regulations and applications lead by Mike Stovsky, leader of Benesch’s blockchain practice. Sarah Jane Hughes, University Scholar and Fellow in Commercial Law at Indiana University Maurer School of Law, and Paolo Saguato, Assistant Professor of Law at George Mason University’s Antonin Scalia Law School, opened the panel sharing insights on the future of financial regulation in the industry drawn from their extensive academic work in the field. Professor Hughes, who served as the Uniform Law Commission Reporter for the Uniform Law Commission’s Regulation of Virtual Currency Businesses Act (URVCBA), described the important work being done at the state level to lay the regulatory framework for blockchain businesses to operate, including the URVCBA.¹⁰⁵ As Hughes explained, in addition to creating much needed clarity and potential uniformity, the Act contains several innovations, in particular a three-tier licensing system that includes a “sandbox” for startup entities engaging in smaller levels of activity to enable experimentation in this new industry.¹⁰⁶

Professor Saguato outlined the cutting-edge applications and challenges raised by the application of blockchain to the “post-trade” environment—the set of transactions involved in clearing and settling financial transactions.¹⁰⁷ Rather than merely disrupting existing operations in dramatic ways, he observed the initial set of blockchain applications are primarily focused on creating efficiencies within the existing system. Moreover, the initial rush to adopt the technology appears to have slowed down considerably, in recognition of the fact that the existing system created its own efficiencies—including stability and certainty in transactions—as well as the challenges of implementing new technology.

Lewis Cohen shared his perspective from the front lines advising new blockchain companies trying to navigate these uncertain legal waters. Cohen outlined the overall landscape of financial sector applications identifying two general categories where the technology is being used: (1) to create operational efficiencies in areas like clearing and settlement mentioned by Prof. Saguato and (2) to establish decentralized, peer-to-peer alternatives to traditional financial services. Cohen went on to note that the

¹⁰⁴ See Cleveland State Law Review Symposium: Blockchain Law & Technology, *supra* note 4.

¹⁰⁵ UNIF. L. COMM’N, UNIFORM REGULATION OF VIRTUAL-CURRENCY BUSINESSES ACT (July 19, 2017), www.uniformlaws.org. The URVCBA is the first uniform model state law proposal related to blockchain technology and attempts to harmonize state licensure and other laws regulating businesses that provide services allowing others to transfer virtual currencies. ¹⁰⁵

¹⁰⁶ See Cleveland State Law Review Symposium: Blockchain Law & Technology, *supra* note 4; UNIF. LAW COMM’N, *supra* note 105.

¹⁰⁷ See, e.g., Maxime Boonen, *Blockchain’s Post-Trade Credibility Problem*, BRAVE NEW COIN (Jan. 6, 2018), <https://bravenewcoin.com/news/blockchains-post-trade-credibility-problem/> (describing and critiquing arguments for applying blockchain to improve post-trade transactions in mainstream financial markets).

original aspiration of Bitcoin was, of course, to provide a decentralized system for money exchange.

Turning to ICOs and the SEC's recent activity, David Silver represented the plaintiffs' bar, introducing himself as an attorney who files lawsuits against "the bad players in the space" and noting that his name is on most of the lawsuits filed in the industry over the past three years, including against Coinbase, Kraken, Poloniex, Kraken, Gigawatt, Tezos, and others.¹⁰⁸ Silver surmised that the SEC's recent actions were only the tip of the iceberg in both public and private actions against the large number of ICO scams that had sought to take advantage of the gold rush mentality generated by Bitcoin's dramatic price rise in late 2017.¹⁰⁹ He noted that both the plaintiffs' bar and regulators were starting to develop new tactics that could fundamentally affect how the industry operates, citing a lawsuit he filed that morning against the company Nano demanding the novel remedy of a "rescue fork" to restore the loss of seventeen million Nano tokens in an alleged hack.¹¹⁰ Issuing a remedy like that would force a court to intervene in the code-as-law debate prominently raised following the DAO and Ethereum hacks.¹¹¹

Federal Bureau of Investigation Supervisor Special Agent Milan Kosanovich described the FBI's role in investigating cryptocurrency-related financial crimes, including several recent ICOs. Kosanovich noted that investigating potential ICO fraud rapidly has developed into a major aspect of his work. This dramatic increase has been fueled by the explosion of money invested in ICOs over the past six months and the accompanying spike in transparently substance-less ICO offerings—some of which do not even bother to remove the prior watermark from whitepapers they've stolen from and recycled from other ICOs, much less attempt to create a working prototype.¹¹²

The next panel explored the vast potential of smart contracts to enable automated transactions across multiple industries. Diana Stern, Legal Innovation Designer at Baker Hostetler, opened the panel with a discussion of the difference between "legal" smart contracts and smart contracts in general. Dan Rice, Co-Founder and CTO of Sagewise a blockchain startup focusing on smart contract dispute resolution applications, provided the technologist's perspective explaining that smart contracts at the basic level are simply self-executing transactions that are often impossible, or at least very difficult, to stop executing once the process is initiated—often referred to

¹⁰⁸ See Cleveland State Law Review Symposium: Blockchain Law & Technology, *supra* note 4.

¹⁰⁹ See David Silver, *If Crypto Exchanges and ICO Teams Only Had a Brain . . .*, COINDESK (Mar. 16, 2018), <https://www.coindesk.com/crypto-exchanges-ico-teams-brain/>.

¹¹⁰ See Mike Orcutt, *Fork This: What an Unprecedented Court Battle Says About the Future of Cryptocurrency*, MIT TECH. REV. (Apr. 19, 2018), <https://www.technologyreview.com/s/610928/fork-this-what-an-unprecedented-court-battle-says-about-the-future-of-cryptocurrency/>.

¹¹¹ *Id.*; Lukas Abegg, *Code Is Law? Not Quite Yet*, COINDESK (Aug. 27, 2016), <https://www.coindesk.com/code-is-law-not-quite-yet/>.

¹¹² Peter Terlato, *The FBI Is Investigating 130 Crypto Cases*, FINDER (June 28, 2018), <https://www.finder.com/fbi-investigating-130-crypto-cases>.

as the “unstoppable code” problem.¹¹³ Carla Reyes, Assistant Professor of Law and Director of Michigan State’s LegalRnD Center, explained that legal smart contracts, by contrast, involve using computer code to implement some aspect of a legal agreement.¹¹⁴ This ranges from translating specific terms into code so that they become self-executing to taking natural language contracts and translating them completely into code.¹¹⁵

With that foundation laid, the panel examined several key issues raised by the intersection between computer code and legal contracts. The late Jonathan Rohr, a former Assistant Professor of Law at University of Tennessee, and Reyes emphasized that existing legal concepts can and should continue to apply to legal agreements that incorporate smart contracts for execution. Reyes noted that much of her work has focused on pushing back against the frequent misconception that existing legal concepts do not apply to smart contracts.

Rohr agreed and asked, for example, what happens when the execution of the code produces results that are different from what one party claims to have bargained for in the legal agreement. From a legal perspective, disputes like these are no different than other run-of-the-mine contract disputes. While the technology makes the factual matrix more complex, the legal questions fit within the boundaries of existing contract law. At the same time, however, there is a clear need to educate lawyers and judges on how the technology works and the relationship between the code and legal agreements.

The immutability of blockchains and the “unstoppable code” problem also pose challenges for unwinding a transaction.¹¹⁶ Reyes again emphasized that, while there is much work to be done defining the how to use them in the context of smart contracts, existing legal tools clearly apply in many instances. It is not necessary in every case to implement potential remedies “on chain” because courts can order alternatives that simply operate outside of the blockchain platform.¹¹⁷ Rohr agreed, citing as an example ordering repayment in fiat currency for a mistaken financial transaction or equivalent compensation that approximates the financial loss following a breach.¹¹⁸

Diversity in blockchain and a keynote address by Joshua Fairfield, Washington & Lee Law School’s William Donald Bain Family Professor of Law, closed the day. I facilitated the final panel, which featured a rich discussion—complete with audience participation—of the challenges and unique opportunities for creating a diverse and inclusive blockchain industry among Joyce Lai, Law & Technology, ConsenSys, Susan Joseph, Lewis Cohen, Laura Jehl, and Andrea Tinianow.

¹¹³ Erika Morphy, *The Problems with Blockchain’s Smart Contract*, CMS WIRE (April 9, 2018), <https://www.cmswire.com/information-management/the-problems-with-blockchains-smart-contracts/>.

¹¹⁴ Reyes, *supra* note 60.

¹¹⁵ *Id.*

¹¹⁶ Jonathan Beckham et al., *Smart Contracts Lead the Way to Blockchain Implementation*, THOMSON REUTERS (Mar. 12, 2018), <https://www.gtlaw.com/-/media/files/insights/published-articles/2018/03/jonathan-beckhamalicia-rosenbaummaria-sendrathomson-reuters-westlawsmart-contracts-lead-the-way-to-b.pdf>.

¹¹⁷ See *infra* Jonathan G. Rohr, *Smart Contracts and Traditional Contract Law, Or: The Law of the Vending Machine*, 67 CLEV. ST. L. REV. 67 (2018).

¹¹⁸ *Id.*

Tinianow, Joseph, and Jehl provided a brief history of Diversity in Blockchain Inc.¹¹⁹ Joseph explained that, while diversity is a challenge in the tech sector generally, blockchain was created in large part to decentralize and democratize access to existing centralized power structures.¹²⁰ True democratization, she emphasized, requires incorporating a diverse range of perspective and voices.

Citing her experience working in the tech industry during the 1990s internet boom, Jehl noted that it is easy to champion diversity in the early days of a developing industry. Blockchain is in that early phase and she cautioned that when money enters the picture, which the ICO boom already was doing in blockchain, that “the elbows come out,” and suddenly everyone is in it for themselves.

Cohen picked up on Joseph’s observation that there was something about blockchain that speaks more eloquently to inclusion and diversity. Citing the opening lines of the Satoshi Nakamoto Bitcoin Whitepaper, he argued that the very nature of peer-to-peer technology “suggests that there ought to be a level playing field and no gatekeepers or people controlling others.”¹²¹ He added that “[i]f you don’t get that, I wonder if you really understand what this whole topic is all about.”

Lai agreed and added that, in her experience, people who are attracted by the crypto world tend to have an idealistic viewpoint. Many join the industry with ambitions to “change the world” and are more willing to speak up and challenge assertions of centralized control. At ConsenSys and throughout the industry, she has found a consistent focus on having conversations about “what should the culture should look like.”

Tinianow emphasized that education is key to enabling inclusion. Becoming part of the community requires time and resources. One of the most important ways industry veterans can empower others to get involved is by providing helpful, accessible information about the technology and the opportunities available to a wide range of people, not just wealthy entrepreneurs and cryptocurrency investors.

Fairfield ended the conference with a brilliant, largely off-the-cuff, synthesis of the key themes that developed throughout the day. Picking up directly on the conversation in the Diversity panel, Fairfield argued that the question of how we define the relationship between technology and the community that builds it permeated each of the sessions. He used this question to frame many of the specific issues covered during the day as well as several new ones. These included the difficult governance questions that recently were coming to the fore as major public chains sought solutions to enable faster transactions, whether and how regulators or the industry itself should intervene to inform and protect consumers when they enter into smart-contract-enabled transactions and the complexities—and culturally determined specifics—of the behavioral economic theories that public blockchains incorporate.¹²² While much of his address sounded cautionary notes regarding human capacity to address these problems as the speed of technology accelerates, Fairfield ended his remarks with an optimistic description of the transformative potential of the

¹¹⁹ See DIVERSITY IN BLOCKCHAIN, *supra* note 88.

¹²⁰ Wright & Filippi, *supra* note 102.

¹²¹ Satoshi Nakamoto, *A Peer-to-Peer Electronic Cash System*, BITCOIN (2008), <https://bitcoin.org/bitcoin.pdf>.

¹²² See *infra* Joshua Fairfield, *The Human Element: The Under Theorized and Underutilized Component Vital to Fostering Blockchain Development* 67 CLEV. ST. L. REV. 31 (2018).

technology, as well as a reminder that in the end, we have a responsibility to control the nature, speed, and effects of those transformations:

What [blockchain technology] is going to do in the end, remember, is change our groups. If we do this right. And what that means is that it's going to change us. It's going to change how we interact with each other; how we trust each other; how we make money; how we talk to each other; how we go to work; how we organize; and how we prove something's true. That's not going to just be a difference in how we do things, it's going to be a difference in who we are. We're social animals and this is a social technology. There's every reason, therefore, for us to be as careful about this as we possibly can.¹²³

VII. RECENT DEVELOPMENTS

Time moves quickly in the crypto world. In the short five months since the Symposium, we have witnessed a number of dramatic changes in the industry as well as some exciting developments among the experts who participated. On the legal side, as Director Hinman's observations regarding Ether's current status as a utility token best illustrate, the SEC has signaled some modest flexibility on the status of tokens and demonstrated a genuine willingness to work with the industry.¹²⁴

Partially in response, several legal initiatives have developed proposals for structuring tokens and token sales to creatively separate the revenue-raising function from other functions.¹²⁵

The Brooklyn Project recently issued a public draft of a token taxonomy that includes three top-level categories, including the consumer tokens that Pat Berarducci discussed in his keynote address.¹²⁶ The Project also published a detailed framework and set of guidelines for consumer tokens.¹²⁷

In a clear sign that the blockchain legal sector is maturing, law firms are rushing to create new blockchain and cryptocurrency-focused practices.¹²⁸ Notably, two Symposium participants, Josh Ashley Klayman Kuzar and Lewis Cohen, each recently announced that they were leaving large firms to establish what, are most likely, the first two boutique blockchain practices in the U.S.¹²⁹

¹²³ *Id.* at 83.

¹²⁴ *See* Hinman, *supra* note 38.

¹²⁵ THE BROOKLYN PROJECT, DIGITAL ASSET TAXONOMY 6 (2018).

¹²⁶ *Id.*

¹²⁷ *Consumer Token Framework*, THE BROOKLYN PROJECT (Sept. 7, 2018), <https://collaborate.thebcp.com/project/BKP/document/1/version/2>.

¹²⁸ Stephanie Russel-Kraft, *Blockchain Makes New Waves as Law Firms Build Expertise*, BLOOMBERG LAW (January 9, 2018), <https://biglawbusiness.com/blockchain-makes-new-waves-as-law-firms-build-expertise/>.

¹²⁹ KLAYMAN LLC, <https://klaymanllc.com/team/> (last visited Oct. 9, 2018); JD Alois, *Prominent Cryptocurrency Attorneys Lewis Cohen and Angela Angelovska-Wilson Launch New Law Firm DLx Law*, CROWDFUND INSIDER (May 11, 2018), <https://www.crowdfundinsider.com/2018/05/133332-prominent-cryptocurrency-attorneys-lewis-cohen-and-angela-angelovska-wilson-launch-new-law-firm-dlx-law/>.

The Diversity in Blockchain project evolved into a full-fledged organization now called Diversity in Blockchain, Inc (DiB).¹³⁰ DiB participated in the first ever Blockchain for Impact Global Summit held at the United Nations in June 2018.¹³¹ Two of DiB's founding members, Susan Joseph and Shawna Hoffman, presented to the entire delegation about the importance of diversity in the industry and how the global blockchain community can shape the future of technology in truly inclusive ways.¹³²

Several more states have introduced new blockchain-related legislation, or announced new initiatives aimed at the industry.¹³³ That list includes three states, Connecticut, Hawaii, and Nebraska, who have introduced versions of the URVCBA. In addition, Ohio recently passed legislation that clarifies existing laws related to computer transactions, including blockchain technology.¹³⁴ The Ohio legislation was the first formal product to come out of an ambitious initiative in Northeast Ohio called "Blockland" organized by local entrepreneur and civic leader Bernie Moreno, which has brought together leaders in business, education, the non-profit sector, and government to identify ways the region and Ohio can assist the industry and attract investment.¹³⁵

It is with deep regret and sadness that I end this Introduction on a much more somber note. Several months prior to the start of the editing process, one of our experts, Jonathan Rohr, passed away unexpectedly. The *Law Review* Editors requested permission to dedicate this Issue to Jonathan. Aaron Wright, Jonathan's friend, colleague, and frequent co-author, graciously offered to write a brief memorial to Jonathan, which is published in this Issue. I had the pleasure of knowing Jonathan only briefly. But that was time enough to experience his kindness, generosity, and thoughtfulness and to see that he had an extremely bright future ahead of him as a leader in this fast-growing field.

¹³⁰ See DIVERSITY IN BLOCKCHAIN, *supra* note 88.

¹³¹ *Diversity in Blockchain, Inc. Attends Blockchain for Impact Global Summit Held at the United Nations Headquarters in New York City*, DIVERSITY IN BLOCKCHAIN (July 16, 2018), <https://diversityinblockchain.com/news/2018/7/16/diversity-in-blockchain-inc-attends-blockchain-for-impact-global-summit>.

¹³² *Id.*

¹³³ *Blockchain State Legislation*, NAT'L CONFERENCE OF STATE LEGISLATURE, <http://www.ncsl.org/research/financial-services-and-commerce/the-fundamentals-of-risk-management-and-insurance-viewed-through-the-lens-of-emerging-technology-webinar.aspx>. (last visited on Oct. 9, 2018).

¹³⁴ UNIF. L. COMM'N, LEGISLATIVE FACT SHEET – REGULATION OF VIRTUAL-CURRENCY BUSINESSES ACT (Oct. 9, 2018), <http://www.uniformlaws.org/LegislativeFactSheet.aspx?title=Regulation%20of%20Virtual-Currency%20Businesses%20Act>; Ohio S.B. 220, 132nd Gen. Assemb., Reg. Sess. (2017); Thomas Gnau, *Ohio Enacts Law Recognizing Blockchain Records in Industries from Real Estate to Health Care*, DAYTON DAILY NEWS (Aug. 7, 2018), <http://www.govtech.com/policy/Ohio-Enacts-Law-Recognizing-Blockchain-Records-in-Industries-from-Real-Estate-to-Health-Care.html>.

¹³⁵ Editorial Board, *Let's Explore What 'Blockland' Could Mean for an Innovating Cleveland on Blockchain: Editorial*, CLEVELAND.COM (June 10, 2018), https://www.cleveland.com/opinion/index.ssf/2018/06/lets_explore_what_blockland_co.html.