

The Path of the Blockchain Lexicon (and the Law)

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On January 8, 1897, “the most important event in American legal history to have taken place at Boston University School of Law” occurred.¹ Oliver Wendell Holmes, Jr., then an Associate Justice of the Massachusetts Supreme Judicial Court, delivered a speech entitled “The Path of the Law” to a group of law students, faculty, judges, and practicing attorneys.² Touching on many themes that foreshadowed the Legal Realism movement, the speech became a classic of legal theory.³ In the speech, Holmes explored the “unnecessary confusion” created by the use of legal terms that carry the baggage of “moral significance” and “ethical associations.”⁴ He noted that, “[t]he law is full of phraseology drawn from morals, and by the mere force of language continually invites us to pass from one domain to the other without perceiving it, as we are sure to do unless we have the boundary constantly before our eyes.”⁵ Holmes speculated

whether it would not be a gain if every word of moral significance could be banished from the law altogether, and other words adopted which should convey legal ideas uncolored by anything outside the law. We should lose the fossil records of a good deal of history and majesty got from ethical associations, but by ridding ourselves of an unnecessary confusion we should gain very much in the clearness of our thought.⁶

One hundred twenty years later at Boston University School of Law, Holmes’ insights into the problems indeterminate language creates for law remain relevant. This essay picks up on the linguistic challenges identified by Holmes, and explores the confusion they can sow for regulators grappling with blockchain technology.

Regulators face numerous challenges in approaching blockchain technology,⁷ whether in the world of finance or in the multiplicity of other social systems the technology is predicted to transform.⁸ The regulatory dilemmas include the classic one when approaching innovative

¹ David J. Seipp, *Holmes’ Path*, 77 B.U. L. REV. 515 (1997) at 515. Note that when Seipp made this claim in 1997, the *Boston University Review of Banking & Financial Law’s* 2017 Fintech Symposium, held on February 27, 2017, had not yet occurred.

² *Id.* at 546-548.

³ Gerald J. Postema, *LEGAL PHILOSOPHY IN THE TWENTIETH CENTURY: THE COMMON LAW* (2011). [Page 1 of Chapter 2, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1874112].

⁴ Oliver Wendell Holmes, Jr., *The Path of the Law*, 10 HARV. L. REV. 457 (1897) at 997.

⁵ *Id.* at 993.

⁶ *Id.* at 997.

⁷ Commentators have offered a plethora of advice to regulators on when and how to regulate blockchain technology. See, e.g., Kevin V. Tu & Michael Meredith, *Rethinking Virtual Currency Regulation in the Bitcoin Age*, 90 WASH. L. REV. 271 (2015); Carla L. Reyes, *Moving Beyond Bitcoin To An Endogenous Theory Of Decentralized Ledger Technology Regulation: An Initial Proposal*, 61 VILL. L. REV. 191 (2016).

⁸ Blockchain technology, as a record-keeping technology, is predicted by its proponents to disrupt property records, voting, government benefits administration, academic and identity records, supply chain management, and virtually every single system that keeps track of anything. For a rosy and wide-ranging overview of the possibilities of the technology, see generally, DON TAPSCOTT & ALEX TAPSCOTT, *BLOCKCHAIN REVOLUTION* (2016).

technologies or practices: finding *just the right moment* to regulate, such that regulation is available immediately when people need to be protected and to have guidance in how to structure their businesses, but not so early that regulation inappropriately inhibits innovation and the possibility of new jobs or industries.⁹ Blockchain technology, along with most of the fintech practices considered in this symposium, certainly has generated this struggle for regulators.¹⁰

In this piece, however, I focus on a less-discussed dilemma: the fast-moving vocabulary around blockchain technology, and the challenges this unstable verbal terrain poses for regulators (not to mention those developing and deciding whether this technology is appropriate for their needs). This is significant for fintech law in that blockchain technology is being actively considered and experimented with for use in practically every financial practice and system, from digital fiat currencies, to clearing and settlement systems, to cross-border payments and beyond.¹¹ So, the unsettled vocabulary is relevant to how regulators understand, discuss, and ultimately regulate (or not) the technology or its uses, as well as how any regulation or regulatory guidance will be interpreted by courts in the future.

In Part I of this paper, I provide a high-level overview of the contested lexicon of blockchain technology. In Part II, I outline some of the problems this creates for regulators. And in Part III, I offer initial suggestions for reducing these problems. In such a short symposium piece, I can only scratch the surface of this issue, with the goal of stimulating further work on the topic.

I. BLOCKCHAIN TECHNOLOGY'S UNSETTLED TERMINOLOGY

The vocabulary used in the blockchain technology, er, DLT, I mean SLT, space is notoriously confusing. A quick sampling of the lingo makes the point:

- Blockchain technology, sometimes called “the blockchain” or just “blockchain,”¹² is alternatively referred to as “distributed ledger technology” (DLT) or “shared ledger technology” (SLT)¹³ or mutual distributed ledger technology, or even a decentralized or distributed “database.”¹⁴

⁹ This dilemma is known as the “pacing problem” in regulating innovation. See Mark Fenwick et.al, *Regulation Tomorrow: What Happens When Technology is Faster than the Law?*, 2016, available at <https://ssrn.com/abstract=2834531> (providing an overview of how innovative practices and technologies create regulatory challenges).

¹⁰ See, e.g., Oz Shy et al., Fed. Reserve Bank Bos., CAN eCASH & VIRTUAL CURRENCY COMPETE WITH OTHER ELECTRONIC PAYMENTS? 12 (2014) (stating that “[the] longstanding Federal Reserve position on virtual currency [was that] . . . regulators should be careful not to inhibit experimentation and growth of innovative payment technologies.”).

¹¹ For an optimistic vision of how blockchain technology will transform the financial system, see, e.g., WORLD ECONOMIC FORUM, THE FUTURE OF FINANCIAL INFRASTRUCTURE: AN AMBITIOUS LOOK AT HOW BLOCKCHAIN CAN RESHAPE FINANCIAL SERVICES (2016), http://www3.weforum.org/docs/WEF_The_future_of_financial_infrastructure.pdf.

¹² See Juri Mattila, *The Blockchain Phenomenon: The Disruptive Potential of Distributed Consensus Architectures*, Berkeley Roundtable on the International Economy Working Paper (2016), available at <http://www.brie.berkeley.edu/wp-content/uploads/2015/02/Juri-Mattila-.pdf>, at 6-7 (noting that “the term blockchain is now quickly becoming a vacuous buzzword” and the shifting meaning of the term).

¹³ <http://discourse.corda.net/t/distributed-ledger-technology-vs-shared-ledger-technology/62>.

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- There are “public blockchains” (also called “permissionless blockchains” or “open blockchains”) and “private blockchains” (also called “permissioned blockchains” or “closed blockchains”).¹⁵ There are also “restricted” and “unrestricted” DLTs.¹⁶
- There are various parties involved in operating these databases or ledgers, who are sometimes called “miners,” and other times “nodes” or “transaction processors” or “validators.”¹⁷ Of course, some of the “nodes” might be “partial,” and some of the “miners” might be in a “mining pool.”¹⁸
- There are “virtual currencies,” “digital currencies,” “digital fiat currencies” (which may or may not use blockchain technology at some point), “cryptocurrencies,” “tokens,” “protocol tokens,” “app tokens,” “app coins,” and “alt coins.”¹⁹
- Whatever the technology is called, people say it is “immutable,” “trustless” and “secure.”²⁰

Many of the terms listed above refer to the same thing, or almost the same thing, or something closely related, or even something completely opposite. There are various language guides and explainers that have been produced by different parties within the space,²¹ but the reality is that the terminology is very much evolving in the area.²² At the moment, it would be difficult to provide a clear or uncontested definition of any of the terms above,²³ and recent conferences have included discussions of the unsettled terminology.²⁴

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²¹ See, e.g., Peter Van Valkenburgh, *What are Forks, Alt-coins, Meta-coins, and Sidechains?*, COIN CENTER (Dec. 8, 2015), available at <https://coincenter.org/entry/what-are-forks-alt-coins-meta-coins-and-sidechains> (visited Jan. 21, 2017) (explaining certain terminology and “technical concepts from the ever-changing universe of Bitcoin-derived innovations”); Sebastien Meunier, *Blockchain technology — a very special kind of Distributed Database* (Dec. 29, 2016), available at <https://medium.com/@sbmeunier/blockchain-technology-a-very-special-kind-of-distributed-database-e63d00781118#.oywrg7qOr> (visited Jan. 21, 2017) (providing a taxonomy of distributed database technology, including blockchain technology, and noting the contested definition of a blockchain).

²² As Juri Mattila recently described it:

[O]ne thing is quite clear: the terminology around the whole phenomenon [of blockchain technology] is still heavily in flux. Caught in the middle of it all, it can be difficult to form a clear picture on blockchain technology and the phenomenon that surrounds it. As a result of all the hype and excitement, the development of the blockchain ecosystem is often perceived to progress so rapidly that in order to keep up, there is often a tendency to try to dive in too deep too quickly. Understandably, the big picture can remain blurry as a result.

Mattila, *supra* note 6, at 3.

²³ Cf. Peter Van Valkenburgh, *Does it matter that different government agencies define Bitcoin differently?*, COIN CENTER (Jan. 11, 2017), available at <https://coincenter.org/entry/does-it-matter-that-different-government->

This vocabulary free-for-all is due to a number of factors, some of which are:

- *Word Taint.* Certain terminology within the blockchain and cryptocurrency space has developed undesirable connotations, and people have introduced new terms to avoid the negative associations.²⁵ For instance, references to “Bitcoin” or “cryptocurrency” were (and still are, in some cases) associated with crime due to Bitcoin’s use in money laundering and in illicit marketplaces like Silk Road.²⁶ It was not socially acceptable for banks to use something associated with the underworld, so the term “blockchain technology” took hold, in some ways as a deliberate attempt to sever the ties to “Bitcoin” and its criminal undertones. Over the past year, we have seen an increase in the use of the term “distributed ledger technology” (DLT) in lieu of “blockchain technology,” perhaps in response to the extreme hype around “blockchain technology,” in an attempt to sound more restrained and controlled.
- *Technology Variations.* Blockchain technology emerged in 2009 with Bitcoin, and has been evolving ever since. Many new public blockchains and cryptocurrencies have been created, as have many “private” ones.²⁷ Indeed, one of the biggest transformations that happened with blockchain technology once it was discovered by the financial sector was that the open network of transaction processors was eschewed for a private, trusted group of parties to maintain the list, under defined sets of terms and conditions.²⁸ This was a change to a fundamental feature of the technology, and there is still great debate among the technologists in the field over how the attributes of public and private blockchains differ.²⁹ As variations to the technology have been created, new terms have been introduced to distinguish new from existing forms. This is seen most clearly with the

[agencies-define-bitcoin-differently](#) (visited Jan. 21, 2017) (acknowledging that different government regulators have categorized Bitcoin differently (e.g., “virtual currency,” “property,” “commodity”), based on the activity the particular regulator governs).

²⁴ *CoinDesk’s “Construct 2017”* conference for blockchain software developers included a panel discussion on “Taxonomy & Lexicon Standards in Blockchain Tech.” <http://www.coindesk.com/events/construct-2017/agenda/> (visited Feb. 1, 2017) (noting that blockchain’s “universe of verbiage is only becoming more and more complex and intimidating for newcomers to the space”).

²⁵ The process of contamination and replacement of contaminated terms in common discourse is a familiar process for linguists, and is explored in Edna Andrews, *Cultural Sensitivity and Political Correctness: The Linguistic Problem of Naming*, *AMERICAN SPEECH*, Vol. 71, No. 4 (Winter 1996), pp. 389-404.

²⁶ Mark Walport, *DISTRIBUTED LEDGER TECHNOLOGY: BEYOND BLOCK CHAIN* (A REPORT BY THE UK GOVERNMENT CHIEF SCIENTIFIC ADVISOR), December 2015, available at

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/492972/gs-16-1-distributed-ledger-technology.pdf, at 7 (stating that “[t]he first difficulty in communication [of blockchain technology’s significance to policy makers and the public] is the strong association of block chain technology with Bitcoin...[, which] creates suspicion amongst citizens and government policymakers because of its association with criminal transactions and ‘dark web’ trading sites, such as the now defunct Silk Road”) [hereinafter the “Walport Report”].

²⁷ Ethereum and ZCash are examples of new public blockchains/cryptocurrencies. Private blockchains (or distributed ledgers) are being created at Digital Asset Holdings, Monax, and in consortiums like R3 and Hyperledger.

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²⁹ For example, there is not yet settled agreement on how the security profile or immutability (permanency) differs in a public versus a private blockchain.

creation of the terms “private blockchain,” “closed blockchain” or “permissioned blockchain” to distinguish blockchains with known transaction validators from those with no restraints on joining the transaction validating network.

- *Cross-Field Communications.* Blockchain technology is incredibly interdisciplinary, and brings together fields such as software engineering, networks, distributed systems, cryptography, security, economics, finance, monetary theory, risk, law, philosophy, ethics, sociology, psychology, political science, archival and record-keeping studies, and no doubt others. Thus, people from disparate fields of expertise are often called to communicate with one another about the technology. The translation required to speak across fields can yield imperfect understandings, and an attempt to use the vocabulary of one’s own field to imperfectly express concepts from the original field. For instance, though Bitcoin birthed the blockchain phenomenon, the word “ledger,” now a common term to refer to the record created by blockchain software, does not appear in the original whitepaper that introduces and explains Bitcoin.³⁰ Rather, the term likely appeared as part of explaining the technology to non-technical people, analogizing the record created by the Bitcoin software to the more familiar concept of a ledger.
- *Industry “Pivots.”* Related to word contamination and technology experimentation, the language around blockchain technology has shifted as the associated startup industry has “pivoted” (in Silicon Valley parlance) to what is trendy and likely to attract investment. For instance, as “blockchain technology” and “DLT” increased in popularity over Bitcoin and cryptocurrencies, a number of startup companies changed both their names and their business models to move away from Bitcoin-based ones.³¹
- *Fixing Inaccuracies.* Terminology around blockchain technology has also changed through efforts to replace words that seemed misleading or imprecise. For example, there is now a debate about whether “distributed ledger technology” or “shared ledger technology” more accurately describes these systems.³² Further, some argue that “validators” or “transaction processors” are more descriptive of the role played by computers within a blockchain network, rather than referring to them as “miners” as is

³⁰ See Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, 2008, available at <https://bitcoin.org/bitcoin.pdf> (visited February 13, 2017).

³¹ Among the companies that have changed names from a “Bitcoin” based name are Itbit (now Paxos), and BitReserve (now Uphold). Stan Higgins, *ItBit Rebrands as Paxos Amid Blockchain Pivot*, COINDESK, Sept. 14, 2016, available at <http://www.coindesk.com/itbit-rebrands-paxos-amid-blockchain-pivot/> (visited Jan. 22, 2017); Johnathan Schieber, *Rebranding As Uphold, Bitreserve Says Goodbye To Bitcoin*, TECH CRUNCH, Oct. 14, 2015, available at <https://techcrunch.com/2015/10/14/rebranding-as-uphold-bitreserve-says-goodbye-to-bitcoin/> (visited Feb. 1, 2017).

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common with cryptocurrencies like Bitcoin.³³ And a debate over the meaning of “decentralized” is ongoing.³⁴

In short, the language of blockchain technology is moving quickly, and the language differences are for reasons both substantive (to distinguish qualitatively different items) and non-substantive (e.g., to achieve marketing goals).

II. TERMINOLOGY HEADACHES FOR REGULATORS

Unsurprisingly, the fluctuating terminology around the technology can cause difficulties for global regulators seeking to understand and appropriately govern the technology. This problem is not unique to blockchain technology, but occurs across fields and with new technologies or practices. It takes time for people to figure out how to talk consistently about a new topic, and many times, we never do.

In this Part II, I outline some of the particular challenges the unsettled terminology of blockchain technology poses for regulators.

These include:

- Challenges in *understanding* the technology. How can regulator accurately follow the discussion and practices around the technology, when the terms are so malleable and potentially overlapping? How would regulators even know whether people are discussing the same topic or manifestation of technology, when people explain the technology, its risks, and potential benefits to one another in diverging terminologies?

This challenge is what scholars of the regulation of innovation call the difficulty of nailing down the “facts” about a technology so that it can be regulated appropriately.³⁵ If a regulator can’t know what the facts are, it can’t fully identify or quantify the risks posed by the technology.

[One potentially worrying example of this terminology problem is the significant divergence in how people use the term “immutable” to describe blockchain technology. The term appears to have been used early on in the Bitcoin community to describe one of Bitcoin’s distinguishing features. In this world, “immutable” is used as if it means “unchangeable.” However, it seems understood within the Bitcoin community that this “immutability” is an emergent property that arises through the efforts of the globally distributed validation network (known as the “miners”) in creating and maintaining the blockchain. The expense required to alter the blockchain is said to make it “immutable,” making the blockchain reliable back to the point of its creation, and limiting the ability of

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³⁴ Vitalik Buterin, *The Meaning of Decentralization*, MEDIUM (February 6, 2017), available at <https://medium.com/@VitalikButerin/the-meaning-of-decentralization-a0c92b76a274#.oz2xb0yxx> (visited February 6, 2017) (exploring the different meanings of “decentralization” with regard to blockchain technologies).

³⁵ Fenwick, Mark and Kaal, Wulf A. and Vermeulen, Erik P. M., *Regulation Tomorrow: What Happens When Technology is Faster than the Law?* (September 4, 2016). Lex Research Topics in Corporate Law & Economics Working Paper No. 2016-8; U of St. Thomas (Minnesota) Legal Studies Research Paper No. 16-23; TILEC Discussion Paper No. 2016-024. Available at SSRN: <https://ssrn.com/abstract=2834531> or

corrupt humans to manipulate its content. Immutability is a key selling point of blockchain technology.

Yet, events since Bitcoin emerged in 2009 have cast doubt on its actual “immutability” – at least in the sense of “immutable” meaning “unchangeable.” Describing the technology as “immutable” suggests that it is impossible to alter the blockchain, when actually it would merely be very expensive and certainly not beyond the financial reach of a state or well-funded terrorist organization. Indeed, I have argued that “hard to change” is a much more accurate way to describe blockchain technology, including Bitcoin. Further, Bitcoin’s younger sibling Ethereum, another blockchain launched in 2015, was also described as “immutable” until the key software developers of the community, along with a critical mass of its transaction processing network (the “miners”) acted in July 2016 to roll back (i.e., erase) part of its blockchain to recover stolen funds from an attacker who had exploited a bug in the software code to steal the equivalent of \$60 million. Since Ethereum’s revision of its blockchain, the blockchain community has been engaged in a debate over what “immutability” means and whether it is an essential feature of a blockchain. Andreas Antonopoulos, a prominent Bitcoin advocate, has recently explained that it is appropriate to describe Bitcoin as “immutable” because it represents humanity’s best approximation of something that is unchangeable or permanent – i.e., we should call it that because it’s as close as we can get to it (which idea sounds pretty horrifying to a law professor...)

To those who follow the activities of the blockchain community with a critical eye, the contested meaning of “immutable” is evident. But, as I have learned through my engagements with the community on Twitter, even suggesting that “immutable” may be a problematic or inaccurate term draws virulent disagreement and denial. So, the issues remain about what features are fundamental to the technology, and how it may fairly be described.

One would never guess that blockchain technology is anything other than absolutely, 100% impossible to change or alter from descriptions of the technology in the mainstream press, in reports from major global organizations like the World Economic Forum, speeches by regulators, books and speeches by blockchain “thought leaders,” or articles by trade publications in each of the industries or disciplines that blockchain technology is said to be poised to transform (which, at this point, is pretty much every industry and every discipline...). Sometimes, the technology is called “immutable.” In other settings, it is called “unchangeable,” “unalterable,” “permanent,” or “tamper-proof.” Each of these adjectives are synonyms for “immutable” in a thesaurus, and appear to reflect the lay understanding of the word, taking at face value the specialist technology community’s use of the adjective for the technology. The computer science meaning of immutable, which means unchangeable given a certain set of assumptions or parameters, has lost its qualification, and is used as if it means unchangeable no matter what. Further, in a lay sense, it makes no sense to describe something as “strongly” or “weakly” immutable – something either can be changed or it can’t. The subtlety and limited meaning of the word in the specialist context has been lopped off, and as referred to above, the “meaning stretch” has happened.

It gets worse. As discussed earlier, there is a great deal of experimentation happening around blockchain technology, with certain features being altered to attempt to serve alternative needs. Among the most fundamental alterations to the technology has been the creation of “private” or “permissioned” blockchains, with a limited, trusted set of transaction processors, and an explicit contract formed amongst the transaction processors to govern how they will operate the blockchain. This contrasts against the original form of blockchain technology (that of Bitcoin), which is a “public” or “permissionless” blockchain, because there are no limits placed on who can be part of the transaction processing network. Once this change to the network is made, the “immutability” (or, as I would say, the “hard to change” capacity) of the blockchain is fundamentally altered. [Explain how.] Essentially (and unsurprisingly), tweaking fundamental attributes of the technology changes both its risks and benefits, making the variants of the technology potentially strikingly different.

Again, one would have a hard time discovering this from the mainstream discourse around the technology. Most articles, books, etc, describe all variations of blockchain technology as “immutable”, “inalterable”, “unchangeable”, “permanent”, or “tamper-proof.” While public blockchains like Bitcoin have the best claim to be able to say they are “immutable” (though I take issue with even that), private blockchains claim to immutability is substantially weaker, and perhaps even completely inaccurate.]

- Related to challenges in *understanding* the technology are challenges in *identifying* each variant of the technology, so that regulators can assess the risks and benefits of each, and determine which variants should be treated alike, and which should be treated differently. For example, are public and private blockchains different enough from one another that they should be managed differently by regulators? [] has noted the difficulty of categorizing new technologies – part of the challenge of developing a reliable set of “facts” about them.³⁶
- Challenges in using language to regulate the technology – how does one craft the ‘definitions’ section of a regulation seeking to address this technology, when both words and the technology are still in flux? A meaning or terminology shift that occurs after regulation is crafted can mean that there is a poor fit between the regulation and the practice it is regulating, which can end up undermining the regulation and regulator itself.

We saw this particular challenge play out in the difficulties regulators have had with the term “virtual currencies.”³⁷ These challenges were demonstrated in the difficulties that Fin-Cen had with its early guidance, and its need for repeated clarifications of just what its terms meant.³⁸ Further, New York State called its 2015 tailored licensing scheme for money transmission issues the “Bit-License,” which now seems quite dated as companies

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using variants of the technology have been busy deleting “bit” from their names, and adding “chain” or “ledger” to them.³⁹

- The potentially undesirable effect of regulation shaping the technology’s evolution, as developers seek to avoid regulatory burdens. This may be a desirable outcome of regulation, but it can be undesirable as well if regulation sends the technology down a less fruitful path than it would otherwise have taken. (This is related to the classic regulatory dilemma of *when* it is best to regulate.)

As lawyers know, all of these language problems will likely result in interpretive problems down the road, as regulators, companies, lawyers, and the courts decipher actions (e.g., regulation or guidance) taken by regulators in regards to blockchain technology. For example, if the technology is rapidly evolving as regulation is written, perhaps a blockchain technology company could argue that the regulation is inapplicable to its variant of the technology, even though its technology flavor raises similar policy concerns.

Law and lawyers are deeply concerned with achieving accuracy and precision in the use of language, and although law comes equipped with tools to interpret problematic language (think of the canons of statutory construction,⁴⁰ and rules for contract interpretation⁴¹), good drafters strive for precision generally and ambiguity only by choice. A fluid terminology in the subject being regulated makes this difficult, if not impossible.

III. POSSIBLE MITIGATION STRATEGIES

Given the fluctuating and contested vocabulary of the blockchain technology space, what can regulators do to minimize the problematic terminology’s impact on their actions? In this Part III, I offer some suggestions, tempered by the understanding that the problems of unsettled terminology cannot be completely resolved.

These mitigation suggestions include:

1) *Educate Themselves.*

Regulators should become as educated as possible about the technology, so that their understanding of blockchain technology is less affected by vocabulary problems. If regulators are well educated, they will be alert to sometimes over-inclusive or under-inclusive terminology, the incentives some parties may have for pushing one set of terminology over another, and subtle but consequential distinctions between variants of the technology.

To become better educated, regulators can seek advice from outside experts, such as consulting firms, academics, or companies operating in the industry. Regulators and legislative bodies such as Congressional committees and the European Parliament have done this by holding hearings, convening conferences or workshops, and inviting expert speakers to address

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⁴⁰ See generally Cass Sunstein, *Interpreting Statutes in the Regulatory State*, 103 HARV. L. REV. 405 (1989) (discussing principles of statutory interpretation, including the canons of statutory construction).

⁴¹ See 11 Williston on Contracts § 31:1 (4th ed.).

their members.⁴² As with all industries, regulators must be alert to the potential for conflicted advice from outside experts, who may have interests in educating the regulators a particular way. A lobbying group (the Chamber of Digital Commerce),⁴³ a think tank with a defined agenda and blockchain industry funding (Coin Center),⁴⁴ and a Congressional Blockchain Caucus focused on pushing the technology forward, have formed,⁴⁵ and regulators need to be sensitive to how the goals and incentives of these parties may shape the information and recommendations they provide.⁴⁶

Regulators can also hire internal experts, bringing expertise in-house. This could be difficult with blockchain technology, however, as developers with experience in the area are in great demand,⁴⁷ and regulators may be unable to compete with high private sector compensation.⁴⁸

Self-education is also a possibility, meaning that teams within different regulators can work to become internal experts on the technology. Indeed, this has been the case with many regulators, with many creating a “blockchain” or “distributed ledger technology” internal team to steer knowledge and experimentation. However, the multidisciplinary nature of the technology makes its mastery challenging, as deeply understanding the technology requires knowledge of fields such as economics, computer science, law, finance, cryptography, and many more.

2) *Seek to Separate the Hype from the Reality*

⁴² See, e.g., *Beyond Silk Road: Potential Risks, Threats, and Promises of Virtual Currency: Hearing Before the S. Comm. on Homeland Sec. and Governmental Affairs*, 113th Cong. 5 (available at www.hsgac.senate.gov/download/?id=4cd1ff12-312d-429f-aa41-1d77034ec5a8) (2013);

⁴³ The Chamber of Digital Commerce’s “About Us” section states:

The Chamber of Digital Commerce is the world’s leading trade association representing the digital asset and blockchain industry. Our mission is to promote the acceptance and use of digital assets and blockchain-based technologies. Through education, advocacy, and working closely with policymakers, regulatory agencies and industry, our goal is to develop a pro-growth legal environment that fosters innovation, jobs and investment.

<http://www.digitalchamber.org/about.html> (visited Feb. 1, 2017).

⁴⁴ Coin Center is “the leading non-profit research and advocacy center focused on the public policy issues facing cryptocurrency and decentralized computing technologies like Bitcoin and Ethereum.”

The donors to Coin Center listed on Coin Center’s website include venture capital firms with investments in the blockchain technology space (e.g., Andreessen Horowitz and Union Square Ventures) and companies in the blockchain technology space (e.g., Chain, Blockstream, and BitFury).

⁴⁵ Olga Kharif, *New Congressional Caucus Seeks Favorable Laws for Blockchain*, BLOOMBERG, September 26, 2016, available at <https://www.bloomberg.com/news/articles/2016-09-26/new-congressional-caucus-seeks-favorable-laws-for-blockchain> (visited February 6, 2017) (reporting on the formation of a congressional caucus by Representatives Mick Mulvaney and Jared Polis “to advocate for cryptocurrencies and blockchain-based technologies”).

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Blockchain technology has been notoriously hyped over the last year or two, and even regulators are not immune to hype.⁴⁹ Further, vocabulary problems can increase hype's ability to cloud reality. This is because imprecise vocabulary usage, whether deliberate or unknowing, can suggest that each variation of the technology has the same fundamental characteristics, when the characteristics of a given variant may be vastly different from the characteristics of other forms of the technology that are also labeled "blockchain."⁵⁰ We see this in references to "the blockchain" in describing the technology, as if all forms of blockchain technology were essentially like Bitcoin or Ethereum, when in fact there are extremely consequential differences amongst the features.⁵¹

To reduce the impact of hype on regulators' understandings of the technology, regulators should seek wide counsel and read commentary and analysis from both supporters and critics of the technology. This can create a more balanced, hopefully more accurate, understanding of the technology, and lead to better crafted regulation. The wide reading will cast light on vocabulary inconsistencies, and minimize the distorting impact they can have on regulation.

3) *Watch Activity by Standards Organizations*

Standards bodies such as the International Organization for Standardization (ISO) and the United Nations' International Telecommunications Union (ITU) play an important role in streamlining terminology and other common practices across a field or technology.⁵² These bodies, along with the Internet-focused W3C, have begun to look at blockchain technology, and have formed working groups to determine where standards may be appropriate.⁵³ These initiatives stimulate potentially affected parties to join the conversation, with the goal of shaping useful standards. Regulators should closely follow the work of standards bodies, but should also keep in mind that standards organizations themselves are not immune to politics among groups with diverging interests.⁵⁴

4) *Buy Time Until the Language and Technology Stabilize Somewhat*

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⁵³ See Stan Higgins, *Australia to Lead International Blockchain Standards Effort*, COINDESK, September 15, 2016, available at <http://www.coindesk.com/australia-lead-international-blockchain-standards-effort/> (visited February 6, 2017) (reporting that Australia will manage the international technical committee for the development of blockchain standards [for] the International Organization for Standardization (ISO), including standards for terminology).
<http://www.standards.org.au/OurOrganisation/News/Documents/Australia%20to%20lead%20international%20blockchain%20standards%20committee.pdf>. See <https://www.w3.org/community/blockchain/> (W3C Blockchain Community Group); <http://www.coindesk.com/w3c-events-industry-begins-long-road-blockchain-standards/>; <http://www.itu.int/en/ITU-T/Workshops-and-Seminars/201703/Pages/default.aspx> (coverage of ITU workshop on blockchains and security in March 2017).

⁵⁴ See Craig N. Murphy & JoAnne Yates, *THE INTERNATIONAL ORGANIZATION FOR STANDARDIZATION: GLOBAL GOVERNANCE THROUGH VOLUNTARY CONSENSUS* (2009) (Chapter 2: Standards wars and the future of ISO); J.M. Porup, *A battle rages for the future of the Web*, ARS TECHNICA UK, Feb. 13, 2017, available at <https://arstechnica.co.uk/information-technology/2017/02/future-of-the-www-timbl-drm/> (describing heated battle over DRM standards in W3C, the Internet's informal governing body).

Time and continued experimentation with blockchain technology will hopefully lead to a more unified and stable terminology, which will be easier to understand, and therefore regulate. A strategy of waiting for a stable terminology is in tension with consumer protection and financial/social stability regulatory goals, so regulators can look for creative ways to achieve their core missions while giving the technology a chance to evolve and stabilize.

This will be difficult due to the rush to incorporate blockchain technology into numerous critical social practices, and in key parts of the financial system. Notably, the Depository Trust and Clearing Company (the DTCC) announced in January 2017 that it was putting derivatives on a blockchain (or distributed ledger, or who knows).⁵⁵ Industry may not wait until a stable technology or terminology emerges before using the technology in important ways. So, consumers and financial stability may be put at risk before the technology or its vocabulary gets nailed down.

Regulators around the globe have been looking for creative ways to enable safe technological experimentation in “fintech” (including blockchain technology), and the latest trend is to create “regulatory sandboxes.”⁵⁶ These safe harbors, which have been adopted or proposed in a growing number of countries around the world, essentially allow certain fintech companies to escape regulatory sanction in their startup phase, while still protecting consumers in certain specified ways.⁵⁷ Each sandbox is slightly different, and each are in different phases of rollout or discussion,⁵⁸ but the idea seeks to emulate the clinical trials held for pharmaceuticals in allowing limited “trying out” of financial technology before making it available to the masses. CFTC Acting Chair Christopher Giancarlo has advocated the creation of a regulatory sandbox in the US so that the US does not lose ground to countries more willing to allow experimentation with the technology.⁵⁹

5) *Target Underlying Activity (Not Particular Technology) in Regulation*

My final suggestion for minimizing the impact that a shifting terminology has on regulators’ actions is for regulators to focus on the underlying activity that is being conducted

⁵⁵ Nathaniel Popper, *Wall Street Clearinghouse to Adopt Bitcoin Technology*, N.Y. TIMES, Jan. 9, 2017 (reporting that the D.T.C.C., America’s primary clearinghouse, would be developing a permissioned distributed ledger to manage derivatives trading).

⁵⁶ See Herbert Smith Freehills, *Hong Kong Launches Regulatory Sandbox in Wake of Developments in Australia, Malaysia, Singapore, and the UK*, Sept. 30, 2016, available at <http://sites.herbertsmithfreehills.vuturevx.com/103/12430/landing-pages/2016.09.30-apac-fintech-briefing.pdf> (visited February 13, 2017) (providing overview of regulatory sandbox initiatives around the world). The Financial Conduct Authority (FCA) of the United Kingdom pioneered the “regulatory sandbox” concept in 2015, and launched its first cohort of companies into the sandbox in 2016. The FCA has compiled relevant information about the sandbox concept and status at <https://www.fca.org.uk/firms/project-innovate-innovation-hub/regulatory-sandbox> (visited February 13, 2017).

⁵⁷ See Herbert Smith Freehills, *supra* note 56.

⁵⁸ See *id.*; <https://www.fca.org.uk/firms/project-innovate-innovation-hub/regulatory-sandbox> (describing Singapore’s regulatory sandbox for fintech companies); <http://www.conventuslaw.com/report/australia-asic-issues-sandbox-framework-including/> (describing Australia’s regulatory sandbox for fintech companies);

⁵⁹ See J. Christopher Giancarlo, *CFTC’s Giancarlo: How US Regulators Can Boost Blockchain in 2017*, Opinion, COINDESK, December 16, 2016, available at <http://www.coindesk.com/cftcs-giancarlo-how-regulators-can-boost-blockchain-2017/>.

(e.g., processing stock trades), rather than on the technology used to conduct the activity. Essentially, being technology agnostic, as long as individual consumers and financial stability are protected in the underlying activity. This approach, otherwise known as “activities-based regulation,”⁶⁰ is often urged by technology advocates, and has been a frequent recommendation of Coin Center, the prominent think tank advocating for blockchain technology.⁶¹ This approach would counsel treating blockchain technology no differently from other technologies, and essentially fitting it into existing regulations about financial practices. This is basically what FinCen did when integrating virtual currencies into its money transmission and money laundering rules,⁶² and what the IRS did in specifying that it would treat Bitcoin as property under the Internal Revenue Code.⁶³

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In the end, however, the basic answer is that we just do our best, given our human tendencies to fight about how to communicate with one another, accepting that perfection is an impossible goal.

IV. CONCLUDING THOUGHTS

In this short piece, I have sought to illuminate one of the myriad challenges facing regulators as they grapple with how to treat blockchain technology – the technology’s fluid, contested vocabulary. Such a shifting terminology can cause a variety of problems for regulators, and I offer possible ways to minimize its negative effects.

As the law evolves around blockchain technology (or whatever we end up calling it), these basic suggestions may prove useful in approaching fintech more broadly, and I am hopeful that language problems will not stop us from making full (and relatively safe) use of this technology. In the end, contested language around the technology reflects the underlying uncertainties about the forms the technology will ultimately take, so until these more fundamental issues are resolved, the language around blockchain technology will continue to move.

[Tie back to *Path of the Law*.]

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⁶¹ See, e.g., Van Valkenburgh, *supra* note X.

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