Bit by Bit: The Relationship Between Blockchain and the Law Grows

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During this year's session of the Virginia General Assembly, lawmakers introduced a resolution seeking to establish a joint subcommittee to study blockchain technology and its uses.[1] The move reflects the growing interest of legislators across the country in blockchain technology and its potential to transform how governments function, companies operate, and businesses transact with their customers. Many states have passed legislation aimed at making their laws more welcoming to companies and others that want to invest in the technology. Lawyers will, of course, be called on by clients from a wide range of industries to help them comply with these new laws and regulations.

Blockchain, a form of distributed ledger technology, is a relatively uncomplicated concept. The term "blockchain" refers to a "decentralized, peer-to-peer network that maintains a public, or private, ledger of transactions."[2] In basic terms, a blockchain is a type of ledger or database that is written in code and distributed across a network of computers that are all running the same software.[3] The entire network will create and maintain this ledger of transactions using the same set of rules.[4] Unlike most ledgers that are maintained by one person or institution, a distributed ledger is decentralized such that all computers (or "nodes") on the network maintain and authenticate a copy of that ledger.[5] All transactions are encrypted and distributed throughout the network, with each node validating the transaction on its own and recording it on its system.[6] Transactions, whether related or not, are then bundled together by certain computers on the network ("miners"), and recorded as a "block" on the ledger chain, with each block containing a reference to the previous block.[7] This reference is actually a specific mathematical algorithm (a "hash") that is completed by the miners. Any changes to a block or transaction after it has been created will be subject to the same algorithm, resulting in a different hash and causing a noticeable cascading error in the chain.[8]

One leading expert has likened the blockchain to amber and each transaction to the fly that gets caught and embedded in the amber, creating the block.[9] Once another layer of amber is placed on top, it becomes virtually impossible to undo. Similarly, once a block is created on the chain, it becomes mathematically and cryptographically impossible to unwind without having a cascading effect on the entire ledger.[10] It is not feasible for one node on the network to manipulate the ledger without all other nodes on the system becoming aware of and rejecting the manipulation through their consensus.[11]

Blockchain is perhaps best known as being the backbone of Bitcoin and the cryptocurrency market. The potential uses of blockchain technology, however, far exceed the cryptocurrency realm. The secure and transparent nature of blockchain technology has caught the attention of a wide range of industries that maintain and rely on accurate and accessible databases, including banking, finance, real estate, and healthcare. For lawyers, blockchain technology is impacting practice in a number of ways. An increasing number of law firms, for example, have started accepting payment in the form of digital currency.[12] How lawyers are compensated is an area of interest to bar regulators, and one ethics body has held that lawyers who accept digital currency for legal services must promptly convert that form of currency into U.S. dollars and credit the client's account.[13]

But what happens when a dispute involving blockchain transactions lands in court? How do the evidentiary rules, for example, apply to blockchain transactions? Providing a hearsay exception, Virginia's business records rule allows for records of a "regularly conducted activity" to come into evidence if a custodian or qualified witness can establish, among other things, that the "record was made and kept in the course of a regularly conducted activity" of an organization and that the "record was made at or near the time of the acts, events, calculations, or conditions by—or from information transmitted by—someone with knowledge."[14] The decentralized, multi-custodian nature of blockchain transactions does not easily mesh with the current business records rule.

One state, Vermont, has passed legislation designed to increase the likelihood that blockchain evidence will be admissible in a legal proceeding. Vermont's blockchain enabling statute provides that a "digital record electronically registered in a blockchain shall be self-authenticating" if it is "accompanied by a written declaration of a qualified person, made under oath, stating the qualification of the person to make the certification and: (i) the date and time the record entered the blockchain; (ii) the date and time the record was received from the blockchain; (iii) that the record was maintained in the blockchain as a regularly conducted activity; and (iv) that the record was made by the regularly conducted activity as a regular practice."[15] If this certification can be made, the statute provides that a number of presumptions apply. First, a fact or record verified through a valid application of blockchain technology is authentic.[16] Second, the date and time of the recordation of the fact or record established through the blockchain is the date and time the fact or record was added to the blockchain.[17] Third, the person established through such a blockchain as the person who made such recordation is the person who, in fact, made the recordation.[18] Finally, the statute enumerates a number of ways the presumptions can apply to a fact or record maintained on a blockchain, including "contractual parties, provisions, execution, effective dates, and status."[19] The presumptions similarly apply in establishing the "ownership, assignment, negotiation, and

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transfer of money, property, contracts, instruments, and other legal rights and duties."[20] Vermont's statute will likely serve as a useful tool for litigators in proving the trustworthiness of blockchain transactions in jurisdictions where the business records rule has not been expanded to cover this type of evidence.

The emergence of blockchain serves as an example of the Virginia State Bar's recently adopted command that "[a]ttention should be paid to the benefits and risks associated with relevant technology."[21] Because blockchain technology is relatively new, the universe of its "benefits and risks" has not been fully mapped. With blockchain's more secure, decentralized, and immutable characteristics, however, innovators will continue to find ways to use it. Accordingly, because blockchain is becoming more relevant, lawyers should become competent in the technology that will not only add another area of practice for many lawyers, but will also change how many more of us practice law.

Endnotes:

1 H.J. 153, 2018 Va. Gen. Assembly, Reg. Sess. (2018), http://lis.virginia.gov/cgi-bin/legp604.exe?181+ful+HJ153.

2 Josias N. Dewey, Shawn S. Amuial & Jeffrey R. Seul, The Blockchain: A Guide for Legal and Business Professionals 2 (Thomson Reuters 2016); *see also CFTC v. McDonnell*, No. 18-CV-361, 2018 U.S. Dist. LEXIS 3685, at *6-8 (E.D.N.Y. Mar. 6, 2018) (providing background on Bitcoin, virtual currencies, and blockchain).

3 Dewey, Amuial & Suel, *supra* note 2, at 4.

4 *Id.* at 4.

5 *Id.* at 5.

6 *Id.* at 4.

7 *Id.* at 5-6, 16.

8 *Id.* at 6.

9 *Quiet Master of Cryptocurrency – Nick Szabo*, The Tim Ferriss Show (Jun. 3, 2017), https://tim.blog/2017/06/04/nick-szabo/.

10 Dewey, Amuial & Suel, *supra* note 2, 13-14.

11 *Id.* at 4.

12 Sara Merken, *More Law Firms are Accepting Bitcoin Payments*, Bloomberg BNA (Sept. 6, 2017), https://www.bna.com/law-firms-accepting-n73014464226/.

13 Nebraska Lawyer's Advisory Comm., Formal Op. 17-03 (2017), https://supremecourt.nebraska.gov/sites/default/files/ethics-opinions/Lawyer/17-03.pdf.

14 Va. Sup. Ct. R. 2:803(6); Va. Sup. Ct. R. 2:902(6).

15 Vt. Stat. Ann. Tit.12 § 1913(b).

16 *Id.* § 1913(b)(3)(A).

17 *Id.* § 1913(b)(3)(B).

18 *Id.* § 1913(b)(3)(C).

19 *Id.* § 1913(c)(1).

20 *Id.* § 1913(c)(2).

21 Virginia Professional Guidelines and Rules of Conduct 1.1 (2016).

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