

The COMPUTER & INTERNET *Lawyer*

Volume 36 ▲ Number 6 ▲ JUNE 2019

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Overview of Blockchain Technology and US Blockchain Law

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In the past decade, blockchain technology has gone mainstream. It has rapidly evolved from a few bitcoin software nodes in January 2009 to a multibillion dollar industry backed by Wall Street, Silicon Valley, and major banks. Blockchain software, which permits the maintenance of a public ledger secured by cryptography, can be used to increase the speed and lower the cost of consumer and business transactions.

The blockchain technology that is currently being developed by both new startups and established software companies (such as IBM) may prove to have a significant economic impact in the next decade. Small businesses will be able to purchase software to issue their shares of stock as digital tokens, rather than as paper certificates. State and local governments will be able to purchase

software to permit real estate transactions to be instantly recorded through “smart contract” software that utilizes electronic signatures and metadata, rather than physical filings. Banks will be able to permit their customers to utilize blockchain-based software that will enable instantaneous and irrevocable transfers of funds between bank accounts (rather than on a delayed basis using wire or Automated Clearing House (ACH) transfers).

In the next decade, it is likely that attorneys shall find themselves called on to assist clients with matters related to digital assets and blockchain technology. This article explains the basics of blockchain technology. It also provides an overview of the applicable laws and regulatory framework that apply to it.

Blockchain Technology

At its core, blockchain technology is an enhanced method of maintaining a ledger. Blockchain software creates a transaction ledger database that is secured by cryptography and shared by a distributed network of computers. The blockchain software records and stores every transaction that occurs on the computer network. All of the computers on the network can view all of the blockchain records, and to the extent any change to the distributed ledger is made, it is visible to everyone.

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Blockchain

Blockchain software can create a blockchain that is either decentralized or centralized. The differences between the two types of blockchains can be summarized as follows:

- **Decentralized.** Decentralized and permissionless blockchain technology is used in the creation of cryptocurrencies (such as Bitcoin) and other digital assets (through the use of “smart-contract” blockchains such as Ethereum). In a decentralized, public blockchain, anyone can download software to send and receive funds, without the need for a centralized financial institution (such as a bank) to process the transactions. Transaction processing is done through a decentralized mesh of computers located around the world, with anyone being able to operate a computer node to process transactions.
- **Centralized.** Centralized and permissioned blockchain technology is used in the creation of secure and high-speed recordkeeping by businesses and governments. A significant amount of centralized blockchain software development is being done using IBM’s Hyperledger Fabric software. Access to a centralized blockchain is restricted, with only known participants being permitted to process and view records on the blockchain. Centralized blockchains are usually distributed among fewer computer nodes. The advantage of centralized blockchains is that they can currently process records and transactions at a higher speed, and with a lower energy cost, than decentralized blockchains.

Here are some examples of how blockchain technology is currently being implemented by businesses and governments:

- **Deed Recordation**—In the United States, the high-speed recordation of real estate deeds through the blockchain has been tested in Cook County, Illinois, and South Burlington, Vermont. In addition, deed recordation through blockchain software has also been tested internationally in Brazil, Dubai, Georgia, and Sweden;
- **Automobile Recordkeeping**—In May 2018, Ford, General Motors, BMW and Renault formed the Mobility Open Blockchain Initiative (MOBI). The intent of MOBI is to create common standards for blockchain software related to such data as vehicle identity, vehicle history, and supply chain tracking;

- **Higher Speed Funds Transfer**—In September 2018, two New York nondepository trust companies (Paxos and Gemini) launched FDIC-insured “stablecoins,” with each digital token backed by a stable \$1.00 in value. In December 2018, Signature Bank, a New York bank, announced the launch of a blockchain-based digital payments platform to enable real-time payments for its commercial clients. In February 2019, JP Morgan Chase announced that it was launching its own stablecoin, JPM Coin (on its proprietary, centralized Quorum blockchain), for use in payment transactions between institutional clients. In March 2019, IBM announced the launching of “World Wire,” which will initially permit three banks (RCBC Bank of Phillipines, Banco Bradesco of Brazil, and Bank Busan of South Korea) to issue stablecoin tokens that utilize the Stellar blockchain;
- **Securities Issuance and Settlement**—In July 2017, IBM and Borsa Italiana, a part of the London Stock Exchange Group, announced their intent to build a blockchain solution for the issuance of securities for small and medium enterprises in Europe. In January 2019, tZERO, an alternative trading system (ATS) that is registered with the Securities and Exchange Commission, initiated secondary market trading of the tZERO preferred stock securities token (which is an ERC-20 token that utilizes the Ethereum blockchain);
- **Food Safety**—In August 2017, IBM, Walmart, Nestle, and other grocery companies began collaborating on the creation of a centralized blockchain food-tracking system to increase the safety of food and reduce the spread of food-borne illnesses;
- **Healthcare Recordkeeping**—Estonia is currently implementing blockchain technology to better protect the security of over 1 million electronic medical records. Estonia has already issued smart cards to its citizens, which enable them to have online access to over 1,000 government services (including the viewing of their health records); and
- **Tax Payments**—Since November 2018, Ohio has been accepting bitcoin for the payment of 23 types of state business taxes at the Web site, *ohiocrypto.com*.

Blockchain Law

The ownership and sale of cryptocurrency and other digital assets are subject to a complex patchwork of

federal and state laws and regulations. Below is a summary of the significant areas of law.

Taxation. Be aware that federal income taxes are owed on any realized gains in the value of cryptocurrency on the following events:

- The sale of cryptocurrency for cash;
- The purchase of goods and services with cryptocurrency; and
- The exchange of one cryptocurrency for another cryptocurrency.

Ordinary income tax is also owed for the “fair market value” of any cryptocurrency that has been mined by the taxpayer. To the extent, mining of cryptocurrency is done as a hobby activity, then the value of the cryptocurrency on the date of mining would be reported in the “other income” line of the taxpayer’s Form 1040.

IRS Notice 2014-21,¹ details that, for tax purposes, “virtual currency” (such as Bitcoin and other cryptocurrency) is treated as “property.” This means that taxes are owed on any realized gain on sale. For an individual filing a federal income tax return, the gains or losses from a sale of virtual currency that was held as a “capital asset” (*i.e.*, for investment purposes) are reported on (1) Schedule D of IRS Form 1040 and (2) IRS Form 8949 (Sales and Other Dispositions of Capital Assets).

The IRS requires, on Form 8949, for each virtual currency transaction, that the following information be disclosed: (1) a description of the amount and type of virtual currency sold; (2) the date acquired; (3) the date the virtual currency was sold; (4) the amount of proceeds from the sale; (5) the cost (or other basis); and (6) the amount of the gain or loss. It should be noted that the recordkeeping requirements of IRS Form 8949 can be particularly onerous for those who have used cryptocurrency to make numerous small purchases of goods or services throughout the year. Any realized gains on cryptocurrency held for more than one year as a capital asset by an individual are subject to capital gains tax rates. Any realized gains on cryptocurrency held for one year or less as a capital asset by an individual are subject to ordinary income tax rates.

It should be mentioned that, as of this writing, the IRS has not yet provided specific guidance as to whether or not it is a taxable event for a taxpayer to retrieve, through wallet software, a free “fork” or “air-drop” of cryptocurrency. For example, individuals who held Bitcoin in certain types of software wallets as of August 1, 2017, are able to use software to retrieve an equal amount of Bitcoin Cash. If the IRS specifically

determines that cryptocurrency retrieved from a fork is not a taxable event, then taxable gain will not be realized until the forked cryptocurrency has been sold or exchanged. If the IRS determines that cryptocurrency received from a fork or airdrop is a taxable event, it is possible that the IRS could deem ordinary income to be realized for the “fair market value” of the coin on the date of retrieval of the cryptocurrency.

Securities. The Securities and Exchange Commission (SEC) has regulatory authority over the issuance or resale of any token or cryptocurrency that has the characteristics of an “investment contract.” Under Securities Act § 2(a)(1) and Securities Exchange Act § 3(a)(10), a security includes “an investment contract.”² An “investment contract” has been defined by the US Supreme Court as an investment of money in a common enterprise with a reasonable expectation of profits to be derived from the entrepreneurial or managerial efforts of others.³

In making a determination as to whether a token is an “investment contract,” both the SEC and the courts look at the substance of the transaction, instead of its form.

In 1943, the US Supreme Court determined that “the reach of the [Securities] Act does not stop with the obvious and commonplace. Novel, uncommon, or irregular devices, whatever they appear to be, are also reached if it be proved as matter of fact that they were widely offered or dealt in under terms or courses of dealing which established their character in commerce as ‘investment contracts,’ or as ‘any interest or instrument commonly known as a ‘security.’”⁴ In 1990, the US Supreme Court determined that “Congress’ purpose in enacting the securities laws was to regulate investments, in whatever form they are made and by whatever name they are called.”⁵ On September 11, 2018, the US District Court for the Eastern District of New York held that a digital token can be deemed to be a security under the Howey test.⁶

On April 3, 2019, the SEC published on its Web site the *Framework for “Investment Contract” Analysis of Digital Assets*, which provides a checklist for analyzing whether a digital asset is being sold as an investment contract. In an addition, the SEC also issued a no-action letter to TurnKey Jet, Inc. (TKJ) that set forth the view of the SEC’s Division of Corporate Finance that utility tokens issued to customers to purchase TJK’s jet charter services are not securities.

The SEC no-action letter to TKJ stated that the SEC’s position was based on the following facts: “TKJ will not use any funds from Token sales to develop the TKJ Platform, Network, or App, and each of these will be fully developed and operational at the time any Tokens are sold;

the Tokens will be immediately usable for their intended functionality (purchasing air charter services) at the time they are sold; TKJ will restrict transfers of Tokens to TKJ Wallets only, and not to wallets external to the Platform; TKJ will sell Tokens at a price of one USD per Token throughout the life of the Program, and each Token will represent a TKJ obligation to supply air charter services at a value of one USD per Token; If TKJ offers to repurchase Tokens, it will only do so at a discount to the face value of the Tokens (one USD per Token) that the holder seeks to resell to TKJ, unless a court within the United States orders TKJ to liquidate the Tokens; and the Token is marketed in a manner that emphasizes the functionality of the Token, and not the potential for the increase in the market value of the Token."

The Chairman of the SEC has taken the position that even if a cryptocurrency token issued in an initial coin offering (ICO) has "utility," the token can still be deemed a security that is regulated under the Securities Act. On February 6, 2018, in written testimony to the US Senate Banking Committee, the chairman of the SEC stated as follows: "Tokens and offerings that incorporate features and marketing efforts that emphasize the potential for profits based on the entrepreneurial or managerial efforts of others continue to contain the hallmarks of a security under US law."

The operation of a securities token exchange is also subject to (i) the regulatory and enforcement authority of the SEC and (ii) the licensing, examination, and enforcement authority of the Financial Industry Regulatory Authority (FINRA). FINRA is a private, nonprofit corporation that acts as a self-regulatory organization for securities broker-dealers.

On March 7, 2018, the SEC provided the following guidance: "If a platform offers trading of digital assets that are securities and operates as an 'exchange,' as defined by the federal securities laws, then the platform must register with the SEC as a national securities exchange or be exempt from registration."⁷ The SEC further stated that "investors should use a platform or entity registered with the SEC, such as a national securities exchange, alternative trading system (ATS), or broker-dealer."

An ATS is a trading system that meets the definition of "exchange" under federal securities laws but is not required to register as a national securities exchange, pursuant to the exemption provided under Rule 3a1-1(a)(2) of the Securities Exchange Act. To operate under this exemption, an ATS must (i) register as a broker-dealer, (ii) file an initial operation report with the SEC on Form ATS prior to commencing operations, (iii) comply with FINRA reporting requirements, and (iv) comply with the additional requirements of SEC Regulation ATS.

Commodities. On September 17, 2015, the Commodities Futures Trading Commission (CFTC) ruled that "virtual currencies" are commodities subject to CFTC regulation. The Commodities Exchange Act (CEA) provides the CFTC with enforcement jurisdiction to investigate and conduct civil enforcement action against fraud and manipulation in both cryptocurrency derivatives markets and in underlying cryptocurrency spot markets.⁸

On March 6, 2018, a US district court upheld the authority of the CFTC under 7 U.S.C. § 9(1) to take enforcement action against a contract of sale of a virtual currency in interstate commerce.⁹

Anti-Money Laundering. Under the Bank Secrecy Act (BSA), a money services business (MSB) is subject to the federal anti-money laundering regulations of the Financial Crimes Enforcement Network (FinCEN). In addition, the Internal Revenue Service (IRS) has the authority to examine MSBs with respect to their compliance with FinCEN's anti-money laundering regulations. A "money transmitter" is a type of MSB that is regulated by FinCEN.

On March 18, 2013, FinCEN deemed a "money transmitter" to include a virtual currency exchange and an administrator of a centralized repository of virtual currency who has the authority to both issue and redeem the virtual currency. FinCEN issued guidance that stated as follows: "An administrator or exchanger that (1) accepts and transmits a convertible virtual currency or (2) buys or sells convertible virtual currency for any reason is a money transmitter under FinCEN's regulations, unless a limitation to or exemption from the definition applies to the person."¹⁰

An MSB that is a money transmitter must conduct a comprehensive risk assessment of its exposure to money laundering and implement an anti-money laundering (AML) program based on such risk assessment. FinCEN regulations require MSBs to develop, implement, and maintain a written program that is reasonably designed to prevent the MSB from being used to facilitate money laundering and the financing of terrorist activities. The AML program must (1) incorporate written policies, procedures, and internal controls reasonably designed to assure ongoing compliance; (2) designate an individual compliance officer responsible for ensuring day-to-day compliance with the program and Bank Secrecy Act requirements; (3) provide training for appropriate personnel that specifically includes training in the detection of suspicious transactions; and (4) provide for independent review to monitor and maintain an adequate program.¹¹ FinCEN requires a money transmitter's anti-money laundering program to identify its customers, report suspicious activities for transfers in amounts of \$2,000 or more in a day, retain detailed

records for transfers by a single customer in one day of \$3,000 or more, keep records for at least five years, and file a Currency Transaction Report for single customer transactions that are more than \$10,000 a day.

State Money Transmitter Regulation. Currently, in most states, a virtual currency exchange is deemed to be a money transmitter that is subject to the same state licensing and regulation requirements as other money transmitters. A virtual currency exchange that desires to be licensed in all 50 states is subject to the following expensive licensing requirements: (i) minimum surety bond requirements that range from \$1,000 to \$500,000 per state, (ii) application fees that range from \$0 to \$5,000 per state, (iii) licensing fees that range from \$0 to \$3,750 per state, and (iv) minimum net worth requirements that usually range from \$5,000 to \$2,000,000. In addition, a money transmitter is required to comply with the financial disclosure and consumer compliance requirements of each state in which it does business.

Estate Planning. Each state has its own laws regarding trusts, estates, and probate requirements. In order to bequeath cryptocurrency to heirs, specific, and detailed written instructions will need to be provided in their estate planning documents. The information that will need to be included will depend on the type of cryptocurrency wallet that is utilized.

There are wide range of cryptocurrency wallets available at this time. The current types of cryptocurrency wallets include: (i) a single device software wallet in which you hold the private keys (example: Exodus wallet), (ii) a multiple device Web wallet in which you hold the private keys (example: Blockchain wallet), (iii) a multiple device Web wallet in which you *do not* hold the private keys (example: Coinbase account wallet), (iv) a USB hardware dongle wallet in which you hold the private keys (example: Trezor wallet), and (v) a “paper wallet” in which the private keys and public keys are written down (which can be later loaded into a software wallet of your choice to be spent).

The instructions that are provided in a will (for the personal representative) or in a declaration of trust (for the successor trustee of a revocable living trust) should be written in a manner that is easy to understand for individuals who are not familiar with cryptocurrency. For example, in the case of a single-device software wallet in which the owner holds the private keys, instructions could include (i) a description of the name and version of the wallet software, (ii) a description of the name and version of the operating software system of the wallet device (*i.e.*, iOS, Android, MacOS, Windows, or Linux), (iii) a description of the types of virtual currency held by the wallet, (iv) either the long-form private and public keys for the wallet or the 12 word “seed” recovery

phrase for the wallet, and (v) step-by-step instructions (which may include screenshots) showing how the wallet can be restored onto a new device, if the current wallet device cannot be accessed.

As transfers from a bitcoin wallet are irrevocable, private key information about cryptocurrency accounts will need to be kept in a secure manner. Security can be enhanced by storing the private key information in a safe-deposit box or vault, which could only be accessed after your death by the personal representative designated in a will (or the successor trustee designated in a revocable living trust).

UCC Article 9: Perfection of Security Interests in Cryptocurrency. Under Article 9 of the Uniform Commercial Code (UCC), cryptocurrency is a type of personal property that appears to be categorized as a “general intangible.” This is because a “general intangible” is defined as “any personal property, including things in action, other than accounts, chattel paper, commercial tort claims, deposit accounts, documents, goods, instruments, investment property, letter-of-credit rights, letters of credit, money, and oil, gas, or other minerals before extraction. The term includes payment intangibles and software.”¹²

A security interest in a “general intangible” is perfected by filing a UCC-1 financing statement in the jurisdiction where the debtor is located.¹³ Consequently, a creditor that is making a loan that is secured by cryptocurrency (such as Bitcoin) can preserve and perfect its security interest in the collateral by both (i) transferring the cryptocurrency from the debtor’s wallet to a wallet controlled by either the creditor or an escrow agent and (ii) filing a UCC-1 financing statement in the jurisdiction where the debtor is located. The financing statement will need to include the name of the debtor, the name of the secured party, and a description of the collateral.

On February 26, 2019, Wyoming became the first state to update its UCC with respect to the specific treatment of a security interest in cryptocurrency and two other types of digital assets. The new law, which will be effective on July 1, 2019, defines three types of digital assets: (i) a “digital consumer asset,” which is specifically classified under the Wyoming UCC as a general intangible, (ii) a “digital security,” which is specifically classified under the Wyoming UCC as a security and investment property, and (iii) “virtual currency,” which is specifically classified under the Wyoming UCC as money.¹⁴

In addition, the new Wyoming law (i) specifies a method of perfection of security interest in a digital asset based on control and (ii) provides that a transferee of a digital asset takes the asset free of any security interest two years after the transferee takes the asset for value and does not have actual notice of any adverse claim.¹⁵

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Bankruptcy. Federal bankruptcy law requires a debtor who is declaring bankruptcy to identify all cryptocurrency on the debtor's bankruptcy schedules. On the filing of a bankruptcy petition, such cryptocurrency would be property of the debtor's bankruptcy estate.¹⁶ If a debtor fails to disclose ownership of cryptocurrency, and the existence of such cryptocurrency is later discovered, this can result in (i) the bankruptcy court denying the discharge of the debtor's indebtedness or (ii) in less frequent cases, the subsequent criminal prosecution of the debtor.¹⁷

Section 550(a) of the US Bankruptcy Code permits a bankruptcy court, under certain circumstances, to avoid a transfer of an asset that was made prior to the filing of a bankruptcy petition. If a transfer is avoided by the court, the bankruptcy trustee can "recover, for the benefit of the estate, the property transferred, or, if the court so orders, the value of such property. . ."¹⁸

On February 22, 2016, the US Bankruptcy Court for the Northern District of California issued an order that stated bitcoin was *not* to be considered US currency in determining its value under 11 U.S.C. § 550(a). The court held as follows: "The court does not need to decide whether bitcoin are currency or commodities for purposes of the fraudulent transfer provisions of the bankruptcy code. Rather, it is sufficient to determine that, despite defendant's arguments to the contrary, bitcoin are not United States dollars. If and when the Liquidating Trustee prevails and avoids the subject transfer of bitcoin to defendant, the court will decide whether, under 11 U.S.C. § 550(a), he may recover the bitcoin (property) transferred or their value, and if the latter, valued as of that date."¹⁹

Conclusion

Blockchain technology debuted as a single cryptocurrency nearly a decade ago. We have seen innovation

in blockchain software development expand its capabilities and uses to a broad range of digital assets and inventory management software. In the next decade, attorneys should expect to be helping clients address potential issues presented by the complex regulatory requirements that govern the use of this technology.

Notes

1. *Guidance on Virtual Currency* (March 25, 2014).
2. See 15 U.S.C. §§ 77b-77c.
3. See *SEC v. Edwards*, 540 U.S. 389, 393 (2004); *SEC v. W.J. Howey Co.*, 328 U.S. 293, 301 (1946).
4. *SEC v. C.M. Joiner Leasing Corp.*, 320 U.S. 344, 351 (1943).
5. *Reves v. Ernst & Young*, 494 U.S. 56, 61 (1990).
6. See *U.S. v. Zaslavskiy*, No.17- CR-647(RJD) (E.D.N.Y. September 11, 2018).
7. SEC Public Statement, *Potentially Unlawful Online Platforms for Trading Digital Assets* (March 7, 2018).
8. See 7 U.S.C. § 9(1) and (3).
9. See *CFTC v. CabbageTech Corp.*, No. 18-CV-361 (E.D.N.Y. March 6, 2018).
10. See FIN-2013-G001, *Application of FinCEN's Regulations to Person's Administering, Exchanging or Using Virtual Currencies* (March 18, 2013).
11. See 31 U.S.C. §§ 5318(a)(2) and 5318(h); 31 C.F.R. § 1022.210.
12. UCC § 9-102(a)(42).
13. See UCC § 9-310.
14. See Wyo. Stat. Ann. § 34-29-102 (effective July 1, 2019).
15. See Wyo. Stat. Ann. § 34-29-103 (effective July 1, 2019).
16. See 11 U.S.C. §§ 521, 541.
17. See 11 U.S.C. § 727(a); 18 U.S.C. §§ 152-57.
18. 11 U.S.C. § 550(a).
19. *Hashfast Technologies LLC v. Lowe*, No. 14-30725DM, Adv. No. 15-03011DM (Bankr. N.D. Cal. Feb. 22, 2016).

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