

Reproduced with permission from Tax Management Estates, Gifts, and Trusts Journal, 45 EGTJ 02, 03/05/2020. Copyright © 2020 by The Bureau of National Affairs, Inc. (800-372-1033) <http://www.bna.com>

Blockchain Basics for Estate Planning

By Livia K. DeMarchis, Esq. and Catherine A. Burke, Esq.*
Gravel & Shea PC
Burlington, VT

“Blockchain” is a term that attorneys have grown accustomed to hearing of late. Some legal technology experts have hailed blockchain as revolutionary,¹ but many attorneys remain uncertain about precisely what blockchain means and how blockchain could impact their clients or their practices. Issues related to blockchain, blockchain businesses, and cryptocurrency have begun making their way into non-tech legal practices, and will continue to do so with increasing frequency over the coming years. This article provides

* Livia DeMarchis is a shareholder at Gravel & Shea PC in Burlington, Vermont. Her practice focuses on tax and estate planning, and probate and trust administration. Before joining Gravel & Shea, Livia completed a clerkship with the Honorable John Dooley at the Vermont Supreme Court and practiced for several years with a large law firm in Boston. Livia is a graduate of Yale Law School, Yale School of Forestry & Environmental Studies, and Yale College.

Catherine Burke is an associate at Gravel & Shea PC in Burlington, Vermont. Her practice focuses on business formations, corporate governance, mergers and acquisitions, sales tax audits, and other tax issues. Catherine also specializes in the formation, regulation, and governance of legal entities for decentralized autonomous organizations (DAOs) and other blockchain companies, including blockchain-based limited liability companies (BLLCs). Before joining Gravel & Shea, Catherine provided tax consulting services through a large accounting firm, litigated on behalf of indigent civil clients, and prosecuted misdemeanors. Catherine graduated from George Mason University School of Law and the University of Vermont.

¹ A panel at the 2017 annual conference of the International Legal Technology Association characterized blockchain as “the most important additional to the legal infrastructure since William the Conqueror gave rise to common law.” Robert Ambrogi, *In Legal, Blockchain is the New Black*, Above The Law (Aug. 28, 2017), <https://abovethelaw.com/2017/08/in-legal-blockchain-is-the-new-black/>.

an introduction to blockchain and a primer on how it may impact estate planning in the years to come.

BLOCKCHAIN TERMINOLOGY AND USES

Many people think of Bitcoin when they hear the word “blockchain.” Although Bitcoin does use blockchain technology, not all blockchain technology or businesses use Bitcoin (or, indeed, any form of cryptocurrency).² Bitcoin and other cryptocurrencies (such as Ethereum, Litecoin, and Ripple) are simply a subset of the blockchain industry.

Blockchain is a form of distributed ledger technology.³ The feature that sets blockchain apart from other distributed ledger technology is the chained structure used to connect individual data blocks in a blockchain. All distributed ledgers, including blockchain, are databases that store multiple copies of their data on a decentralized network of computers or servers, known as “nodes.”⁴ A traditional, non-distributed ledger—such as an Excel workbook—stores data in single or double entry, with all data collected in the same source. That data centralization makes it vulnerable to hacking, corruption, and data loss. Distribut-

² Cryptocurrency is a “[v]irtual currency that relies on cryptographic software protocols to create the currency and track and validate its ownership.” Amy Leisinger, J.D. et al., *Blockchain, Virtual Currencies and ICOs: Navigating the Legal Landscape*, 434 (Wolters Kluwer Legal and Regulatory U.S. Editorial Staff, 2018). The term “virtual currency” is broader than the term “cryptocurrency,” because virtual currency refers to any digital means of recording monetary value, including digital currencies issued by a central issuer instead of through a decentralized database, as is the case with cryptocurrency. Leisinger at 16. The more precise term “cryptocurrency” is used throughout this article, except when referencing documents produced by the IRS or state legislatures that use the term “virtual currency.” See, e.g., Notice 2014-21.

³ Parker F. Taylor et al., *Estate Planning with Cryptocurrency*, American Bar Association, *Probate & Property Magazine* 33:04 (July/Aug. 2019), https://www.americanbar.org/groups/real_property_trust_estate/publications/probate-property-magazine/2019/july-august/estate-planning-cryptocurrency/.

⁴ Leisinger, above Note 2, at 13.

ing data across multiple nodes greatly increases data security and longevity.

Blockchain incorporates data verification and validation tools, which removes the need for a single, trusted party controlling data.⁵ Different blockchain systems use different forms of unique identifiers, permitting users to authenticate each data entry in a blockchain, identify false entries, and validate existing chains of data.⁶ Those unique algorithmic identifiers are known as “hashes.”⁷ Each new transaction or piece of data (which is stored as its own “block”) must contain the hash corresponding to the prior block, plus its own unique hash.⁸ Multiple data blocks strung together form a blockchain. The decentralized nature of blockchain allows anyone who can view a blockchain to prove the validity of an individual block in that blockchain or even the validity of the entire blockchain.⁹

Simply storing backup copies of a traditional database would not achieve the same security as using a blockchain. A lengthy power outage or flood impacting one or two servers cannot wipe out an entire data set if it’s distributed across hundreds or thousands of nodes in a blockchain. Data is also much harder to corrupt when the full data set can only be corrupted if a hacker modifies the data on every single node where it is stored.¹⁰ In contrast, if someone hacks into the central server of a bank that does not use blockchain or another form of distributed ledger technology, compromising that single server could permanently compromise all of the bank’s transaction records and account records or even cut off the bank’s access to those records.

Data corruption or hacking can also be detected much faster in blockchain-based systems than in tra-

ditional data storage systems. Anytime a transaction occurs or a piece of data needs to be stored as a new block, the blockchain stored at every node in the system is evaluated and compared to the other blockchains to determine where to add the new block.¹¹ A blockchain that does not contain all of the correct hashes for prior blocks is quickly detected as a fake, and new blocks are no longer added to that chain. The other, valid blockchains all continue to grow as new data blocks are verified and added.¹²

Bitcoin sales and other cryptocurrency transactions utilize blockchain technology. A Bitcoin owner could transfer bitcoin to someone else by entering the recipient’s public key¹³ and the number of bitcoins they wish to send, then directing the network to complete the transfer.¹⁴

The following frequently-used terms are also useful to understand when working with clients who hold blockchain-based assets, store data on blockchain, or run blockchain-based companies: “smart contracts,” “miners,” “digital wallets,” and “cold storage.”

The thought of “smart contracts” may strike fear in the hearts of many attorneys, but the term “smart contract” is a misnomer. Smart contracts are not really contracts at all.¹⁵ Rather, they are executable computer code that permits a certain action, such as a payment, to be made upon the happening of a defined event or occurrence.¹⁶ For example, software could be programmed to automatically send anyone who clicks the link to attend a certain webinar the slide deck for that webinar. Smart contracts can, in theory, be used to perform traditional contract duties, but only if there is a way to code software to recognize when the condition precedent to performance has occurred.¹⁷ For a smart contract to govern a multiparty transaction, the parties often need to agree first to use software to automatically execute certain tasks, perhaps even through an actual, traditional contract.¹⁸

⁵ Digital authentication mechanisms on the blockchain solve issues of institutional and data mistrust, which is a vaunted feature of blockchain. Ambrogi, above Note 1. Many blockchain resources even refer to the technology as “immutable.” See, e.g., Leisinger above Note 2, at 32.

⁶ Leisinger, above Note 2, at 13-14.

⁷ Dean Sonderegger, *Blockchain: Building Trust in Transactions*, Above The Law (Jan. 30, 2018), <https://abovethelaw.com/legal-innovation-center/2018/01/30/blockchain-building-trust-in-transactions/?rf=1>.

⁸ Leisinger, above Note 2, at 13-14.

⁹ Taylor, above Note 3; Leisinger, above Note 2, at 13-14.

¹⁰ As explained in the MIT Technology Review, “if you want to change an entry in the [blockchain] ledger retroactively, you have to calculate a new hash not only for the block it’s in but also for every subsequent block. And you have to do this faster than the other nodes can add new blocks to the chain.” Mike Orcutt, *How Secure is Blockchain Really?* MIT Technology Review (Apr. 25, 2018), <https://www.technologyreview.com/s/610836/how-secure-is-blockchain-really/>. The only way that is even theoretically possible is if the hacker’s computer has more computing power than all of the other nodes combined.

¹¹ Leisinger, above Note 2, at 14-15.

¹² The transaction verification process used for Bitcoin transactions is described in more detail in Leisinger, above Note 2, at 17-18.

¹³ A public key is the virtual address where a particular party can accept payments. Leisinger, above Note 2, at 437. In contrast to the private key of a cryptocurrency account, the public key cannot be used to move funds out of the receiving account, only to receive them. Leisinger, above Note 2, at 437.

¹⁴ Taylor, above Note 3.

¹⁵ Leisinger, above Note 2, at 16, 20.

¹⁶ Jake Frankenfield, “*Smart Contracts*,” Investopedia (Oct. 8, 2019), <https://www.investopedia.com/terms/s/smart-contracts.asp>.

¹⁷ Leisinger, above Note 2, at 20-21.

¹⁸ Leisinger et al. write that regardless of the degree of automation involved in a particular smart contract, “smart contracts must abide by the hornbook elements of contracting, such as offer, ac-

“Miners” are used in some types of blockchain systems.¹⁹ Bitcoin, for example, uses computational models and rewards to incentivize participants to build and validate blockchains, adding new data blocks on the occurrence of transactions that form those blocks.²⁰ Each time a bitcoin is transferred or sold, bitcoin miners around the globe compete to be the first to solve the puzzle needed to add the block representing that latest transaction in the blockchain.²¹ The block that represents a single transaction is added in sequence to each blockchain in a blockchain network after a miner solves the related puzzle, and the first miner to solve the computational puzzle associated with a given block receives a reward for adding that block to the blockchain.²² Miners verifying the hashes in each blockchain prevent fraudulent double-spending of the same bitcoin.²³

“Digital wallets” are electronic wallets that are used to store *any* type of account or payment information, not just cryptocurrency.²⁴ For instance, Apple Wallet stores users’ credit card information, allowing them to securely pay retailers whose payment systems are compatible with digital wallet payments. Some digital wallets can be used on computers as well as on mobile devices. Digital wallets are the most readily-available tool for buying and selling cryptocurrency, and for paying others who have a digital wallet.²⁵ Coinbase and Trezor are examples of digital wallets commonly used to store the private keys needed to access, sell, and manage wallet holders’ cryptocurrency.²⁶ Selecting a multi-signature digital wallet gives cryptocurrency users more flexibility to send and transfer funds, because any authorized party listed on the multi-signature account can transfer funds from

that account,²⁷ in contrast to consolidating control in a single signatory.

Finally, “cold storage” is an alternative to storing cryptocurrency in a digital wallet. Cold storage refers to storing cryptocurrency offline, which makes it harder for it to be stolen or transferred inadvertently than if it is instantly accessible in a digital wallet. Cryptocurrency stored in a digital wallet can be transferred instantly, by entering the account password (known as a “private key”) of the digital wallet account.²⁸ Cold storage, on the other hand, shields and encrypts the account holder’s private key, adding a second layer of protection before cryptocurrency can be transferred or exchanged. Cold storage involves using a specially-designed USB drive or other hardware that contains an encrypted version of the private key needed to access and move the account holder’s cryptocurrency.²⁹ A cold storage user connects that encryption hardware at the time they wish to transfer their cryptocurrency.

Blockchain can also be used anonymously (or at least pseudonymously) in some programs, which is one of the features of the technology that its proponents often find most appealing.³⁰ This anonymity is also what can make blockchain and cryptocurrency appealing to those seeking to fund criminal activity or engage in money laundering.³¹

BLOCKCHAIN LAWS AND REGULATIONS IN GENERAL

There is no federal blockchain legislation, and a varied patchwork of state laws governs the technology and authorizes or regulates particular uses of it.

At least 20 U.S. states have enacted laws related to blockchain.³² They range from directing the state to study potential uses of blockchain, to authorizing the

ceptance, and consideration.” Leisinger, above Note 2, at 25.

¹⁹ A general overview of nodes, miners and other blockchain terminology is available in the Cointelegraph article “*How Blockchain Technology Works Guide for Beginners*,” <https://cointelegraph.com/Bitcoin-for-beginners/how-blockchain-technology-works-guide-for-beginners>.

²⁰ Leisinger, above Note 2, at 15.

²¹ Leisinger, above Note 2, at 17-19.

²² The form of the reward provided to blockchain miners varies by blockchain, but often includes cryptocurrency or digital tokens specific to that blockchain, and may even include a transaction fee. Leisinger, above Note 2, at 15, 17-18.

²³ Leisinger, above Note 2, at 16-19. Theoretically, a large group of miners could collude to verify an invalid transaction, but it is practically quite unlikely. Leisinger, above Note 2, at 16-19.

²⁴ Geoff Williams, “*What is a Digital Wallet?*” U.S. News & World Report (May 21, 2019), <https://money.usnews.com/money/personal-finance/saving-and-budgeting/articles/what-is-a-digital-wallet>.

²⁵ Williams, above Note 24.

²⁶ Eric Rosenberg, “*The 7 Best Bitcoin Wallets of 2020*,” The Balance (Nov. 20, 2019), <https://www.thebalance.com/best-bitcoin-wallets-4160642>.

²⁷ Ameer Rosic, “*Cryptocurrency Wallet Guide: A Step-by-Step Tutorial*,” Blockgeeks, <https://blockgeeks.com/guides/cryptocurrency-wallet-guide/>.

²⁸ Taylor, above Note 3.

²⁹ Taylor, above Note 3.

³⁰ Many people refer to blockchain as anonymous, but the parties to cryptocurrency transactions can be traced back to their public keys, even if their names are not listed in connection with those keys. See Taylor, above Note 3, *contra* Sonderegger, above Note 7, at fn. 1.

³¹ See, e.g., Nikita Malik, “*How Criminals and Terrorists Use Cryptocurrency: And How to Stop It*,” Forbes (Aug. 31, 2018), <https://www.forbes.com/sites/nikitamalik/2018/08/31/how-criminals-and-terrorists-use-cryptocurrency-and-how-to-stop-it/#546fc8dd3990>.

³² A sampling of state blockchain laws is available from the National Conference of State Legislatures, but it has not been updated since early 2019. Heather Morton, “*Blockchain State Legislation*,” Nat’l Conference of State Legislatures (Mar. 28, 2019), <https://www.ncsl.org/research/financial-services-and-commerce/>

use of blockchain for certain transactions or record-keeping, or creating new blockchain-specific business types.³³ California and Delaware permit companies to store stock ledgers, stockholder information, or LLC membership records on a blockchain. Vermont reduced the authentication requirements needed to enter blockchain-based business records into evidence.³⁴ New York requires businesses that engage in any of the following activities to obtain a state-issued BitLicense:

- transmitting virtual currency;
- storing, holding, or otherwise maintaining custody or control of virtual currency for others;
- buying and selling virtual currency as a business;
- acting as a digital currency exchange for customers; or
- controlling, administering or issuing any kind of virtual currency.³⁵

Currently, two U.S. states provide legal business frameworks designed for blockchain companies: Wyoming and Vermont.³⁶ Wyoming allows blockchain corporations, as well as offering a host of other blockchain-friendly laws, such as recognizing certain digital assets as property governed by the Uniform Commercial Code, allowing blockchain token registrations, and authorizing the formation of state-chartered banks that cater to the blockchain industry.³⁷ Vermont permits the formation of blockchain-based LLCs (BLLCs),³⁸ which is a new business type created to suit the needs of businesses that use blockchain technology, particularly those that rely on blockchain for the management and governance of their businesses.³⁹

The Uniform Electronic Transactions Act (the UETA), which has been adopted in 47 states, recog-

nizes electronic signatures and electronic records as written records.⁴⁰ The UETA applies to the use of any electronic tool to make or record legally-binding decisions, and does not require records of such contracts or signatures to be saved in any particular format, such as a printable PDF.⁴¹ The broad, technology-agnostic language of the UETA means that it gives legally-binding effect to blockchain-based decision-making and documents or agreements parties assented to using blockchain technology, as well as to digital signature stamps and other forms of electronic signatures.⁴² Despite the absence of ambiguity as to whether the UETA authorizes the use of blockchain for signing contracts and making decisions, some states have also passed laws explicitly identifying blockchain as an acceptable form of electronic data storage under the UETA.⁴³

IMPLICATIONS OF BLOCKCHAIN FOR ESTATE PLANNING PRACTITIONERS

To the authors' knowledge, there currently are no laws or regulations in the United States directly related to blockchain technology in estate administration or probate. The IRS guidance on the proper tax classification of cryptocurrency and the reporting obligations associated with it do, however, affect estate planning.⁴⁴ The Revised Uniform Fiduciary Access to Digital Assets Act (the RUFADAA), which has been adopted by 46 states,⁴⁵ also provides general direction on how to tailor estate planning document language

the-fundamentals-of-risk-management-and-insurance-viewed-through-the-lens-of-emerging-technology-webinar.aspx.

³³ Morton, above Note 32.

³⁴ 12 V.S.A. §1913(b).

³⁵ 23 N.Y. Comp. Codes R. and Regs. tit. 23, §200.1 *et seq.*; "Virtual Currency Business," New York State Dept. of Financial Services, https://www.dfs.ny.gov/apps_and_licensing/virtual_currency_businesses.

³⁶ Jason Tashea, "Wyoming and Vermont Hope to Attract Tech Entrepreneurs by Passing Laws Favorable to Blockchain," ABA Journal (Mar. 1, 2019), <http://www.abajournal.com/magazine/article/blockchain-wyoming-vermont-regulations-laws>.

³⁷ See, e.g., Wyo. Stat. §34-29-102, §34-29-106(c), §13-12-103.

³⁸ 11 V.S.A. §4171 *et seq.*

³⁹ Decentralized autonomous organizations (DAOs), in particular, find the BLLC business option attractive, because of its explicit authorization of on-chain management. DAOs are designed to operate without any central management, instead allowing a broad group of members or stakeholders to manage the organization digitally.

⁴⁰ New York, Illinois, and Washington state have not adopted the UETA as of February 13, 2020, though a bill proposing its adoption was pending in Washington in February 2020. Electronic Transactions Act, Uniform Law Commission, <https://www.uniformlaws.org/committees/community-home?CommunityKey=2c04b76c-2b7d-4399-977e-d5876ba7e034>.

⁴¹ Uniform Electronic Transactions Act (1999), Uniform Law Commission.

⁴² Uniform Law Commission, "Guidance Note Regarding the Relation Between the Uniform Electronic Transactions Act and Federal ESign Act, Blockchain Technology and 'Smart Contracts' ", <https://www.uniformlaws.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=d2026984-1040-3c6f-62c8-a676b12d7bff>.

⁴³ For instance, Ohio and Nevada have passed laws explicitly recognizing records created through the use of blockchain as electronic records for purposes of the UETA. Ohio R.C. §1306.01; Nev. Rev. Stat. Ann. §719.090.

⁴⁴ See Rev. Rul. 2019-24 and Notice 2014-21.

⁴⁵ The Revised Uniform Fiduciary Access to Digital Assets Act has been enacted by every state but Kentucky, Massachusetts, Oklahoma, and Pennsylvania. Fiduciary Access to Digital Assets Act, Revised, Uniform Law Commission, <https://www.uniformlaws.org/committees/community-home?CommunityKey=f7237fc4-74c2-4728-81c6-b39a91ecdf22>.

for clients who hold cryptocurrency, blockchain assets, or digital accounts or assets of any kind.⁴⁶

Estate Planning Considerations for Blockchain-Related Assets, Including Identifying Assets and Roadblocks to Transferring Them

A primary goal of estate planning is generally to structure clients' asset ownership to avoid the need for probate estate administration on death. The first steps to achieve that goal for clients who have blockchain-related assets mirror the first steps involved in handling most assets. First, a planner must find out how much and what type of assets a client holds and what he or she would like to have happen to those assets on death. Not all blockchain-based assets can be owned by a trust or pass under a will, so further analysis and creativity is required once you know what you're working with. A basic understanding of the potential issues that might come up is important.

Cryptocurrency, unlike some other blockchain-based assets, parallels real property and currency in that it should generally be possible to hold it in a trust, which should allow it to pass to trust beneficiaries without the need for probate.⁴⁷ Cryptocurrency could also generally be owned by a limited liability company,⁴⁸ which, in turn, might be owned by a trust or which could include automatic transfer-on-death provisions to achieve probate avoidance goals. In some cases, cryptocurrency accounts may also be transferred automatically on death via a special beneficiary designation. Having said the above, attention must be paid to the terms of service specific to the digital wallet at issue in each case, because these terms of service can differ.

Most hurdles involved in retitling cryptocurrency to avoid probate are imposed by the terms of service of digital wallet companies or cryptocurrency asset management firms, rather than by state or federal law.⁴⁹ Although having the private keys to a digital wallet that holds cryptocurrency should be enough to pass that cryptocurrency to a new owner, the terms of ser-

vice or the policies and procedures of the digital wallet where that cryptocurrency is stored could prove a sticking point.⁵⁰ Some digital wallet companies require a court order to transfer assets after the owner's death, even if the intended recipient has the private key for the account.⁵¹ An estate planner would be wise to either ask his or her clients for the contracts or user agreements associated with their digital wallets or to contact any relevant digital wallet companies directly to learn about the rules or requirements they apply before transferring assets.

Evaluating the wallet-specific rules for titling and transferring assets will allow estate planners to determine whether the blockchain-based assets in those digital wallets can be transferred into trust or if beneficiaries or agents could be named to automatically receive the assets upon the owner's death. If owning cryptocurrency in trust or designating automatic beneficiaries are not options, then cryptocurrency will need to be transferred during the owner's lifetime or through probate.

One of the most important differences for estate planning purposes between blockchain-based assets and more traditional assets are the complexities involved in using private keys to authenticate ownership. If a client owns cryptocurrency or any other blockchain-based asset, their estate administrators must know how to access it after their death in order to pass the assets to the intended heirs. Lost private keys are a common bar to accessing cryptocurrency. In one infamous case, a cryptocurrency asset manager died without sharing the private key to hundreds of millions of dollars' worth of cryptocurrency assets he managed for clients, permanently depriving those clients of their assets.⁵²

It can be helpful to advise clients who own cryptocurrency to store their private keys securely and to

⁴⁶ Revised Uniform Fiduciary Access to Digital Assets Act (2015), Uniform Law Commission.

⁴⁷ See Taylor, above Note 3. If cryptocurrency is placed in a trust, be sure to advise the grantor and the trustees that liquidating cryptocurrency will produce reportable capital gains or losses, because the IRS views cryptocurrency as property, not currency. Notice 2014-21, §1.

⁴⁸ See Taylor, above Note 3.

⁴⁹ Jamie Hopkins, "What Happens to My Bitcoin When I Die? Simplifying Estate Planning of Digital Assets," *Forbes* (Aug. 12, 2019), <https://www.forbes.com/sites/jamiehopkins/2019/08/12/what-happens-to-my-bitcoin-when-i-die-simplifying-estate-planning-of-digital-assets/#227b762f4816>.

⁵⁰ Taylor, above Note 3.

⁵¹ See Taylor, above Note 3.

⁵² One analysis suggests that access to as many as half of all bitcoins may ultimately be lost to their owners due to lost private keys. After a private key is lost, there is no way to retrieve it. Christina Comben, "Not Your Keys, Not Your Coins' Raises Some Serious Issues," *Coin Rivet* (Dec. 3, 2019), https://finance.yahoo.com/news/not-keys-not-coins-raises-120011537.html?soc_src=social-sh&soc_trk=ma. Bill Murphy, Jr., "A CEO Died. He Never Shared His Passwords. Now His Customers Are Out \$190 Million That Can't Be Accessed," *Inc.* (Feb. 4, 2019), <https://www.inc.com/bill-murphy-jr/a-ceo-died-he-never-shared-his-passwords-now-his-customers-are-out-190-million-that-cant-be-accessed.html>. Fraud and mismanagement of Quadriga assets not uncovered until after the founder's death also contributed to the woes of Quadriga exchange users. Doug Alexander, "Investigation Uncovers Mystery of Quadriga's Missing Cryptocurrencies Worth Millions," *Insurance Journal* (June 21, 2019), <https://www.insurancejournal.com/news/international/2019/06/21/530149.htm>.

back them up (ideally in hard copy). Clients should also consider leaving detailed instructions to their agents or administrators about any private keys needed to gain access to, sell, or otherwise use their blockchain-based assets, to enable them to pass the assets to intended heirs. Consider having clients who own cryptocurrency or other blockchain-based assets sign a power of attorney designating a digital agent under RUFADAA (or any equivalent state laws), who should gain access to the client's digital wallet account in the event of the owner's incapacity.⁵³ Estate planners already use bills of sale to transfer traditional digital assets into trust, thereby giving successor trustees access to these assets, and this practice has been tested in the context of more traditional digital assets. Bills of sale that encompass digital assets should also theoretically work to give trustees control over private keys, though it will take some time to assess how well this works in the context of blockchain-based assets and private keys for cryptocurrency. It's important to note that storing cryptocurrency in cold storage (discussed above) is more secure than storing it in a digital wallet,⁵⁴ but cold storage also raises issues that can be problematic for estate planning. Chief among these is that if a cold storage wallet is owned directly by a decedent, rather than by a trust, probate may be needed to access that cold storage hardware to unlock the private key needed to manage the cryptocurrency at issue.⁵⁵

In addition to the issues surrounding private keys, estate planners should also be aware of ownership limitations associated with some blockchain-based businesses. Membership interests in BBLLCs and other blockchain companies may be less transferrable than those in traditional businesses. Depending upon the governance structure used by a particular BBLLC, a member may need to remain actively involved in the business in order to maintain an interest. In that sense, BBLLC membership interests are more akin to partnership interests in a law firm than to traditional LLC membership interests. If personal services or other direct involvement are requirements of a BBLLC membership, there will not necessarily be a membership interest to pass after a BBLLC member's death. If your clients have membership interests in a BBLLC, you need to first determine if that interest is personal to the client or if it could pass to someone else

⁵³ See Fiduciary Access to Digital Assets Act, Revised, above Note 46; Hopkins, above Note 49.

⁵⁴ Comben, above Note 52.

⁵⁵ A cold storage wallet is somewhat analogous to a safe deposit box in this sense—tangibles transferred to a trust through a bill of sale might be owned by the trust, but if they are stored in a safe deposit box held in a deceased owner's sole name, probate will likely be needed to open the safe deposit box so that a trustee can get access to the tangibles.

through the client's estate. Evaluate the operating agreement and/or any other business governance documents to find any such limitations. If the BBLLC interest is able to pass to a new owner, speak with your client about their role in the business and to determine whether they would like their business partners to continue the company, or whether they prefer that other beneficiaries be involved with or receive membership distributions from the company. If the governing terms of the BBLLC or other blockchain-based business prevent a business interest from being owned by someone who is not actively engaged in the business, investigate whether and how the membership interest can be liquidated on death.

Valuing Cryptocurrency and Other Blockchain-Based Assets

Any cryptocurrency or other blockchain-based asset that is part of an estate or trust administration needs to be valued, just like other assets. Valuation is also critical for estate and gift tax planning and reporting.⁵⁶

Cryptocurrencies are not legally recognized tender, and, for tax purposes, the IRS treats them as property, not as currency.⁵⁷ Nonetheless, many forms of cryptocurrency have active exchanges that can be used to value the assets in U.S. dollars, euros, or other legal tender.⁵⁸ In 2014, the IRS published a notice explaining the tax treatment of virtual currency, which stated that if a virtual currency exchange is available, the exchange should be used to determine the fair market value of that virtual currency.⁵⁹

Consult with a blockchain attorney or a cryptocurrency financial specialist about how best to value cryptocurrency.⁶⁰ Cryptocurrency markets are still quite volatile, so valuations of the same cryptocurrency assets done on different dates could vary

⁵⁶ Nexus issues related to state estate and income taxation are beyond the scope of this article.

⁵⁷ Notice 2014-21, §1.

⁵⁸ Popular cryptocurrency exchanges include Coinbase, Gemini, and Kraken. Ameer Rosic, "The Best Cryptocurrency Exchanges: Most Comprehensive Guide List" (July 12, 2019), <https://blockgeeks.com/guides/best-cryptocurrency-exchanges/>. Both Coinbase and Gemini both offer digital wallet that interface with their exchanges. Coinbase, <http://www.coinbase.com>; Gemini, <http://www.gemini.com>.

⁵⁹ Notice 2014-21, §4.

⁶⁰ Two helpful resources regarding valuation of crypto assets are: Joseph H. Nesler, "Valuation of Crypto Assets," Winston & Strawn LLP (Feb. 4, 2019), <https://www.winston.com/en/crypto-law-corner/valuation-of-crypto-assets.html> and Mike Orcutt, "The Tricky Art (and Emerging Science) of Valuing Crypto-Assets," MIT Technology Review (Apr. 23, 2018), <https://www.technologyreview.com/s/610953/the-tricky-art-and-emerging-science-of-valuing-crypto-assets/>.

widely. Given the wide variation in exchange prices, using a weighted average of the exchange prices from multiple exchange platforms may be the most prudent plan in certain situations.⁶¹ It is also advisable to provide information about the valuation date and methodology in all valuation reports.

Anytime probate avoidance has not succeeded with respect to blockchain-based assets, and probate administration is needed, be prepared to educate the probate judge about these assets, including how they are valued. It could well be the first time the judge (or court system) has handled this type of asset during a probate administration.

Other Topics to Issue-Spot

Estate planning attorneys have unique insight into their clients' business dealings, and may detect potential liability and/or unmet legal needs for clients beyond the scope of estate planning.

Blockchain clients or companies may not think of their LLCs, BLLCs or other blockchain-based activities as businesses in the traditional sense, and may therefore mistakenly ignore tax obligations. Running a blockchain business may be some tech experts' first ventures as a business owner, so it is best if any attorneys who assist them have the ability to issue-spot potentially unmet legal or accounting needs. It is important to ask clients to explain their business plan—not just what their business does—so that you can help spot issues beyond your area of expertise and refer clients to appropriate counsel.

If you work with a client who owns blockchain-based assets, it is worth asking whether they have discussed those assets with an accountant. Owners of

⁶¹ Taylor, above Note 3, citing Ivan Taback & Nathaniel Birdsell, "The Bitcoin GRAT," *Wealthmanagement.com*, (July 2, 2014), <https://www.wealthmanagement.com/estate-planning/Bitcoin-grat>.

cryptocurrency should be made aware that they must report cryptocurrency on their income tax returns.⁶² If they have not yet, recommend that they consult with an accountant about how they hold blockchain-based assets and when and how they trade them, so that they can get appropriate advice about recognition events and reporting requirements. If a blockchain-based company employs people, its owners could require expert advice on how to withhold payroll taxes. They may also need accountants to help issue 1099s to vendors, K-1s to partners, and to consider which tax elections make the most sense for unincorporated businesses.

As you learn more about what your clients do and how they make their money, consider if they engage in any businesses that are not organized as legal entities. If so, advise them to seek the advice of corporate and/or tax counsel about any potential liability risk⁶³ and partnership tax issues. Also consider referring them to a corporate attorney or a blockchain attorney for assistance forming a business.

CONCLUSION

Blockchain is still relatively new technology, but it is poised to continue to grow in size and importance. Estate planners rightly wonder how this emerging field may affect their practice. We hope that this article provides one starting place for thinking about blockchain and blockchain-based assets in the estate planning context.

⁶² See Notice 2014-21. See also the topical page "Virtual Currencies" published by the IRS and available at <https://www.irs.gov/businesses/small-businesses-self-employed/virtual-currencies>.

⁶³ Oliver Goodenough and Katie Taylor, "Blockchain Companies Should Be Banging Down the BLLC Doors," *Vermont Blockchain Law* (Sept. 17, 2019), <https://vtblockchainlawblog.com/2019/09/17/blockchain-companies-should-be-banging-down-the-bllc-doors/>.