Technology
Probate

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Technology—Probate provides information on current technology and microcomputer software of interest in the probate and estate planning areas. The editors of *Probate & Property* welcome information and suggestions from readers.

Planning on Blockchain

Blockchain is touted by many technology experts as a tool that may become the most powerful disruptor to the legal field since the creation of the Internet. Few attorneys, apart from those that closely follow the tech community or who own cryptocurrencies (most notably, Bitcoin) have directly encountered this emerging technology or have contemplated its potentially vast impact on the legal community. The general consensus among supporters of blockchain favor its future adoption across a wide range of applications and industries; however, there is not a clear understanding of what this brave new world will look like for estate planning and probate attorneys. This column will provide a general overview of blockchain and why it is considered such a promising technology, discuss several reasons why the trust and estates community should learn about and monitor the technology, explore potential ways it could revolutionize the world of trust and estates, and discuss some current roadblocks to its implementation. Because of the vast possibilities ahead in this broad and uncharted territory, this piece merely skims the surface of blockchain's potential and is meant to leave readers interested and more inquisitive of future applications of this technology.

What Is Blockchain?

Blockchain is a fairly new technology with origins dating back approximately 25 years. In general, blockchain can be described as a decentralized digital ledger that records transactions in chronological order. Transactions that take place on the network are collected into "blocks" and assembled on the chain. The decentralized network is comprised of thousands and thousands of computers across the globe, as opposed to a network controlled by one central authority. A decentralized network offers increased security and less opportunity for manipulation and hacking because each participant in the network has a copy of the entire blockchain.

Cryptocurrency is a form of digital currency that uses cryptography to control the creation and transfer of digital "coins." Bitcoin and other cryptocurrencies are powered by the blockchain network, and each transaction is logged on the decentralized public digital ledger. The identities of the owners of the cryptocurrency accounts remain anonymous on the public ledger. Account owners are given digital keys that must be used to make any transactions in their accounts. For cryptocurrencies the blockchain network serves as a means to exchange currency, as a record keeper, and as an investment storage vehicle.

Aside from powering cryptocurrencies, blockchain technology may be extremely useful in a wide variety of fields and across many industries, including, but not limited to, real estate, banking, financial securities, health care, logistics and asset tracking, intellectual property, and contracts. Any property, tangible or intangible, that can be tracked, modified, and exchanged has the potential to one day being listed on a blockchain ledger.

Applying blockchain technology to the future of estate planning, an individual, in theory, could transfer digital property to a person in a will, contract, or other type of beneficiary designation through the decentralized network, in a way that guarantees the transfer will be safe and secure, and publicly recorded on the digital ledger (even if listed anonymously). Challenges to the legitimacy of the transfer, especially the chronology of the transfer, would be extremely difficult, if not impossible. It is important for attorneys to understand how blockchain works as it may soon be relevant to a client's estate plan or an estate administration process. Yet, the first and largest

effect this technology may have on the practice of trust and estates law is how documents are stored and managed on blockchain ledgers.

Document Ledgers

Shared ledgers (more accurately described as "distributed ledgers") may one day offer a better solution for trust and estate attorneys (and their clients) to monitor the creation, modification, and revocation of estate planning documents. To better illustrate, consider the following scenarios.

The Unorganized Testator

Following the death of an individual, his next of kin may not be able to determine who drafted or retained his planning documents. If the decedent's files are unorganized, a search for his will can be a daunting and time-consuming task. In extreme examples an executor may find different versions of executed wills scattered in different locations in the decedent's home or may find no will but the reference to a will in the decedent's other writings. Such problems cloud the probate process with uncertainty about whether his final wishes are truly being honored.
How blockchain can help:

- At the time the will was drafted, the drafting attorney could store important information (date of execution, identity of executor, location of documents, and so on) on a public blockchain ledger. If the decedent modified these documents before his death, the ledger also could be updated (by the original attorney, a successor drafter, or the testator). Alternatively, if the will is drafted and stored digitally (which is a complex subject unto itself), any changes to the document could automatically be sent to the ledger without further attorney or client action.
- At the decedent's death, the next of kin, executor, or probate attorney could examine the ledger to determine what documents were drafted for the decedent and confirm with a high level of certainty whether all relevant documents have been located. Although a document ledger could be created without using modern technology, the most important difference between a blockchain ledger and a low-tech version is that the blockchain ledger offers a higher level of permanency, accuracy, and security than other tracking methods available today.
- Blockchain developers will need to overcome many issues to make blockchain a realistic solution for recording and storing critical estate planning documents. Critics rightfully will have many objections to this oversimplified scenario. Some of the potential problems are identified and discussed below. As far-fetched an idea as a distributed ledger solution to document identification may seem, keep in mind that 20 years ago few people would have believed that in 2018 you would be able to have a carton of milk shipped to you overnight by simply telling a cylindrical object perched on your counter, "Alexa, I'm out of milk."

The Emergency Room Visitor

Many doctors ask their patients if they can provide a copy of their health-care directive and living will for their records. Unfortunately, medical facilities don't always have the most up-to-date and accurate information. If a directive is changed, it is unlikely to be updated in the doctor's or hospital's file in a timely manner. Situations can become confusing and complex, especially if there are disputes among multiple individuals claiming to be the correct agent and important decisions need to be made quickly.
How blockchain can help:

- Doctors could access the patient's ledger to determine whether the health-care directive on file with their office is the most recent version of the document and, if it is not, require that the updated version be provided before any individual claiming to be the patient's agent is permitted to receive confidential information or make medical decisions.

The Revoked Power of Attorney

As estate planning attorneys are aware, naming another individual as agent under a durable general power of attorney (POA) is a very powerful action that should only be made with great care and consideration. Unfortunately, no matter how much thought is given to naming the "right" agent, sometimes principals change their minds, perhaps after a divorce, a falling out of friends, or on being informed by an agent that he or she no longer wishes or is able to serve in that capacity. All states provide clear guidelines on how a power of attorney can be revoked—sometimes by operation of law (for example, following a divorce between the principal and agent), by a writing, or even in some states by oral notification. Regardless of the method of revocation, third parties relying on the original document may not be aware that the POA was revoked until the principal alerts them; thus, providing a window of opportunity for the former agent to gain unauthorized access to the principal's assets. Often several safeguards are in place to prevent any inappropriate or illegal actions on behalf of the agent; for example, the original POA may require third parties to verify the document's accuracy before each transaction initiated by the agent or the third party may have its own similar policy in place. Unfortunately, even safeguards can fail, especially if the principal forgets to notify all third parties that relied on the original document of its revocation, or if the agent used the POA to open accounts, move assets, or take out loans without the principal's knowledge. The risk of dealing with a bad actor misusing a POA is significantly higher when dealing with elderly or incapacitated

principals.
How blockchain can help:

- A blockchain ledger could be used to show whether a POA is still valid or has been revoked or modified. The POA could specifically require every party that relies on that POA to check the ledger before any transaction involving the agent is permitted. This would greatly reduce liabilities for third-party institutions by providing heightened confidence that the POA on file is still in effect and that the agent has the power to act. For parties that have already taken steps to confirm the agent's authority, a POA ledger would reduce the time it takes to verify this information. A POA ledger would also make the revocation process more efficient for the principal. Rather than revoking the POA and then notifying all necessary parties, the principal could simply update the ledger and instantly and simultaneously provide notice to all.

Roadblocks and Uncertainties

Publicly Distributed Ledger

Some skeptics of blockchain technology correctly point out that despite major advancements in blockchain's accessibility and use, none of the proposed solutions to the problems identified above are feasible in today's planning environment. Even though blockchain technology exists, it is not yet used in this manner because a distributed public ledger for trust and estates documents has not yet been created (at least that the authors are aware of at this time). Even if a law firm or financial institution were to create a distributed ledger for its own use, unless the general public is also given access, its utility would be limited. In the above example of the disorganized testator, the blockchain ledger is only useful if it can be accessed by all parties involved—the original drafting attorney, any subsequent attorney that drafts a codicil or a new will, the testator, the executor, the next of kin, and the probate office may all require access to the ledger either to verify information, or in the case of the attorneys (and possibly the testator) to update the ledger to show a replacement, revocation, or modification to the original will. If all the relevant players don't have access to a central ledger, the process and purpose fail. A ledger that only a few parties have access to would be the equivalent of an Internet where each Internet provider has its own platform, and web sites not on that platform aren't accessible to users who subscribe to different providers.

The problem of accessibility raises the question of who will lead the effort to build a public ledger? Entrepreneurs and small startups may try to provide a solution by building a public ledger, monetized in some manner, such as by a subscription fee or a onetime cost (perhaps, in the form of an initial coin offering or ICO—another blockchain related topic best left for future discussion). The universal accessibility and longevity of a ledger created and managed by a company would be constantly questioned. Many issues can arise in this situation without a clear mechanism for recourse, such as a provider becoming bankrupt, multiple competing ledgers containing various information, and accessibility issues such as when one provider refuses to allow access to the other's information or limits or prevents access by certain parties.

It is also possible that the charge to build a ledger could be led by state or county governments or an alliance between many governments. Such a ledger has the potential to improve probate efficiency, reduce staff requirements, and lower the likelihood that an estate will be contested over document disputes. State and local governments could help implement this system by working directly with legislators who could require that in the future most, if not all planning documents are valid only if identified on a ledger. This scenario creates a classic chicken and egg problem of what should come first—no probate office or legislative body can require or encourage the use of a ledger until one is built and is proven to be reliable, and no government agency is motivated to build such a ledger with taxpayer dollars unless the benefits of the ledger are proven to outweigh the cost of its implementation and maintenance. Unless multiple government bodies act together, the result could be far from a decentralized public ledger—some states or counties may require ledgers while others merely allow it or possibly ignore or prohibit it altogether. It is unclear how to resolve this problem without the private sector's assistance.

Luckily, there does appear to be a solution that addresses the question of who is in the best position to build a distributed ledger: blockchain consortiums. Because blockchain is a technology that requires collaboration to be effective, companies—both allies and competitors—have begun working together in consortia. In their August 16, 2017, article, written for Deloitte University Press, *Banding Together for Blockchain*, https://www2.deloitte.com/content/dam/insights/us/articles/3769_Signals-for-Strategists_Aug2017/DUP_Banding-together-for-blockchain-consortia.pdf, Peter Gratzke, David Schatsky, and Eric Piscini report:

> A growing number of companies that are seeking to develop and deploy business solutions based on blockchain technology are pursuing their goals as part of a consortium, which is a group of companies that join together, typically to set standards to enable the development of new infrastructures. Distributed ledgers are business-to-business workflow tools, which entails that blockchain practically demands collaboration—to set standards, develop infrastructure, and execute transactions. And these consortia are the mechanism through which blockchain-interested

companies, regulators, and governments are collaborating. Some consortia—most notably in financial services—seem on track to succeed.

Thus, the solution for a distributed ledger is unlikely to come from one or two entrepreneurs working independently, but instead will probably be developed by a large group of interested parties including law firms, financial institutions, web developers, and state and local governments. Whether such a group is formed depends on a large number of factors, including if any of the potential members are financially motivated enough to try to build the ledger.

Balancing Public and Private Information

Determining who will build a trust and estates distributed ledger is only one of many potential hurdles to overcome before blockchain can be useful in estate planning and probate matters. Another major hurdle is how to design a system that protects identities and personal information while still permitting multiple parties to view and update the ledger as needed. Referring back to the issue of the unorganized testator, what happens if the testator elects to go to a new law firm to have his documents updated or replaced? One solution is to link all planning documents to the individual, perhaps through a Social Security number or other identifier. Thus, if the testator ever has his will replaced, on his death the probate office should be able to search for this identifier to determine which is the valid will. There is much uncertainty about how to design a system that will be secure enough to allow easy access to modify the ledger by authorized users while preventing incidents of fraud—one of the largest reasons for trying to develop a secure ledger. This technology also raises a host of additional questions that currently have no clear answer, a handful of these issues are as follows:

- Should only attorneys be permitted to access the ledger, or should individuals or other non-attorney providers be permitted to provide updates? If authorized recipients of this type of information are defined in future statutes, will there be exceptions and the ability by the creator of the documents to limit or expand the class of authorized users?
- Who should be able to see information on the ledger?
- Will the ledger require a shared password or known identifier to keep important information private? How can that key information be stored securely?
- How can such a system work with documents that are not on the distributed ledger?
- How will disputes in connection with the ledger be resolved?
- Can blockchain be used to help personal representatives and the attorneys representing them quickly and easily identify the decedent's assets?
- Can blockchain make the probate process more efficient by allowing for the automatic transfer of the decedent's assets on death (similar to a transfer on death account)?
- Will artificial intelligence (AI) be used in conjunction with blockchain to help manage various stages of estate planning and administration?

Conclusion

The discussion of using a public distributed ledger to identify and monitor trust and estates documents is only just beginning. Attorneys and other advisors who are in the twilight of their careers may leave the world of trust and estates without ever directly working with blockchain or the tools it is bound to inspire across the industry. The speed of advancements in technology unlocks the possibility that blockchain could become the cornerstone of an efficient, organized, and secure document management system in a short timespan. It is important for the entire planning community to continue to monitor and stay educated on blockchain and other relevant technological advancements, because the scope and depth of the subject far surpasses what this column sets out to address. It is equally important for the community at large to participate collectively in the conversation on how to resolve the many issues such technology presents, because one day such technology may be an essential tool for the modern-day practitioner. ■