Real Property Transfers Ripe for Blockchain Disruption

Laws in the U.S. Must Follow the Technology

by Mercedes Tunstall, Andrew Caplan, Nathalie Prescott, and Brittney Sandler[1]

As any first-year law student can tell you, real property law is one of the most antiquated areas in the U.S. legal system. Much of this law has been borrowed—in many instances with little change—from the common laws that our nation's forebearers carried across the pond with them from Seventeenth Century England.

Our system for recording and transferring ownership interests in real property is similarly mired in paper-based formality and bureaucracy indicative of a bygone era. Each time a person seeks to acquire real property, that person must order a search of local government records to determine if there are competing interests in the property's title history that could frustrate the acquirer's full use and enjoyment of the property. This process is costly and time consuming because it requires a person to identify, locate, and review myriad records—a process that is also subject to human error.

Imagine a future, however, where each piece of real property is essentially "tattooed" with its own incorruptible, digital signature that stores the title history associated with that property. Instead of searching through county land records each time a property is conveyed, we could retrieve this information in real (or near real) time from a digital platform to determine if there is clear title. Even better, imagine if we could transfer title to the real property directly on this same digital platform, without needing to wrangle with paper documents and wet stamps and signatures.

Blockchain technology has made that future a reality, and has the potential to change how real property titles are maintained and transferred. In addition to eliminating the need for title searches and paper-wrangling (and the accompanying potential for human error), a blockchain-based system could further streamline the recordation process by removing intermediaries, such as county recorders' offices and title insurance companies, and also create authoritative, cryptographically secure records that stand on their own.

Notwithstanding this potential, current real property transfer and recordation law in the United States is still largely written for paper-based systems, which impedes legal recognition of real property records that are transferred and stored on blockchain-based platforms. This article, after providing a brief

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refresher on the current system for real property recording in the United States and blockchain technology, discusses the types of legal requirements that would need to be modified in the U.S.—using New York State law as an example—to accommodate blockchain recordation and transfers of real property title. This article further surveys some of the projects and initiatives that are already underway to disrupt the status quo of real property recordation and transfers in the U.S. and abroad.

The Current System of Recording Real Property Interests

In its most basic form, our system of recording real property title was designed essentially to answer the following question: as between two different parties, "A" and "B," whose interest in a particular property prevails? Or, posed from B's point of view, "How do I know that the property I just received from A is really mine, and not someone else's?" The answer, unfortunately, can be quite complicated.

Although we often think of real property as being "owned" by one individual or entity, in actuality, it may be subject to a variety of simultaneous (and often competing) interests. For example, a mortgage lender attaches a lien to a piece of real property until the underlying debt is satisfied. In that case, although property owner A nominally "owns" the property—which we will call Greenacre—in order for A to convey clear title to B, A's mortgage debt on Greenacre must first be extinguished (today, this is usually achieved by applying the proceeds of Greenacre's sale to A's mortgage debt). This is the simplest of examples, but there are more nefarious situations that

may keep prospective property owners (or more likely, title insurers and first-year law students) up at night. What if, immediately before A conveys title to Greenacre to B, A also conveys title to Greenacre to "C"? Or, what if A never really had clear title to Greenacre in the first place, due to some defect or fraud?

To prevent issues like these from occurring, and to protect good faith purchasers when such issues do occur, common law countries like the United States have a highly formalized system, developed over centuries, of executing and filing paper instruments with centralized government actors (usually county recorders' offices) each time an event occurs that encumbers real property (e.g., a sale, mortgage, lien, or easement). Accordingly, each time a person seeks to purchase real property, that person (or, in today's world, a title insurance company that person hires) must scour local government records to try and identify any potential "clouds" (competing interests) on the title that could frustrate the purchaser's full use and enjoyment of the property. To protect against a latent or undis-covered cloud later rearing its angry head, property owners and mortgage lenders also typically obtain and pay for title insurance.

A Brief Refresher on Blockchain

Unlike the centralized system of government land records currently in effect (e.g., stored with one central administrator, such as a county recorder's office), a blockchain-based system is essentially a database that is stored across a network of many computers, institutions, and/or countries, so that each participant in the system simultaneously maintains

the ledger of all transactions on his or her own computer.[2] The blockchain itself, also known as a distributed ledger, is made up of multiple information "blocks," each reflecting a certain number of transactions that are stacked on top of each other to create a digital record of every transaction ever executed on that blockchain.

Drilling down a step further, each participant in this widely dispersed network is referred to as a "node." Blocks of information must be "verified" by a consensus of nodes before they become part of the official blockchain record (imagine a consensus of bystanders all recording that they saw the same event, rather than relying upon one central actor to record that the event happened). In practice, blocks are "verified" by nodes solving complex cryptographic equations that are baked into the underlying platform.

The elegance of this system is that once a block is verified it cannot be withdrawn or easily edited, which renders transactions recorded on a blockchain transparent and immutable. This concept harkens back to the "digital tattoo" concept we mentioned in the introduction. Because each block is cryptograph-ically linked to the blocks that came before it, a blockchain is virtually incorruptible. A hacker would need to access a majority of nodes in a very short time to successfully corrupt the entire blockchain, which is an extremely difficult task that requires an immense amount of computing power. Because of this, blockchains create secure, authoritative records without the need for a validating central administrator. This, in turn, has the potential to reduce the

friction and cost of transactions, such as transferring, and recording the transfer of, title to real property.

Legal Impediments to Executing and Recording Property Transfers on Blockchains

As noted above, real property title laws throughout the U.S. have developed over time using formalities that help central administrators combat fraud and protect property owners' interests through a paper-based system. Unfortunately, these laws requiring wet signatures and central administration present significant impediments to legal recognition of a system that instead uses distributed ledgers and open source technology. Take, for example, New York law:

"A conveyance of real property, within the state, . . . may be recorded *in the office of the clerk of the county where such real property is situated*, and . . . [e]very such conveyance not so recorded is void as against any [subsequent good faith purchaser]..."[3]

This recording requirement makes sense in a system where county recording officers serve as the authoritative, central repository for real property records. But if the real property records are no longer maintained "in the office of the clerk of the county where such real property is situated," but instead "exist" as blocks of data across a distributed network of participants in a blockchain-based system, New York's law would need to be amended to allow land records to be recorded on distributed ledgers, along the following lines:

A conveyance of real property, within the state . . . may be recorded ~~in the~~ ~~office of the clerk of the county where such real property is situated~~ <u>on or by means of one or more electronic networks or databases (including one or more distributed electronic networks or databases), provided that the records can be converted into clearly legible paper form within a reasonable time</u> . . . .[4]

Alternatively, a state law could specify the particular distributed ledger(s) upon which real estate records may be stored. The key point is that requiring that such records be stored in a particular physical location of a government office frustrates the efficacy of distributed ledger technology.

In addition to laws prescribing where title transfers must be recorded, laws governing the form and execution of real property titles ("deeds" in New York) also raise special challenges for blockchain-based recording systems. Pursuant to New York law, deeds must be in writing, signed by the grantor, and use words to demonstrate that title to property is being transferred.[5] Furthermore, by using statutory forms containing specific words and promises, a particular conveyance can be afforded heightened legal protections. For example, if a seller uses the form entitled "Deed With Full Covenants," the deed enjoys status as a general warranty deed, the most iron-clad form of property transfer for a buyer.[6] This type of deed comes with particular legal guarantees (e.g., the grantor is the lawful owner, the property is free of encumbrances) by virtue of using the statutory magic language.

New York law also specifies certain authentication protocols that deeds must use to be legally recorded.

For instance, the signatures on a deed (at least of the grantor) must be acknowledged by a recognized official, typically a notary public, who attaches a written certification,[7] and who must also "print, typewrite, or stamp . . . in black ink" certain information below his or her signature.[8] Official acknowledgements like this serve to authenticate the signatures on a deed, in turn allowing it to be introduced as evidence in court.[9] What is more, many title insurers require deeds to be acknowledged before agreeing to insure a person's property ownership.

It is clear that these types of formal requirements do not transfer seamlessly to a blockchain-based system of recordation, in which land titles would be memorialized via information coded onto interconnected digital blocks of encrypted information. Accordingly, merely changing the law to allow for real property title records to be *stored* on a blockchain-based system, but continuing to require legacy formalities such as wet signatures and notary stamps, would mean unnecessary duplication that frustrates the purpose of adopting a blockchain-based system in the first place, i.e. to streamline transactions by *removing* intermediaries, and to create authoritative, cryptographically-secure records that stand on their own.

In contrast, a more efficient and effective option would be to use the blockchain record, *itself*, to represent the authoritative real property record, and to effect conveyances directly on the blockchain. Under this construct, parcels of land could be tokenized (i.e., represented by an encrypted unit of measure), perhaps

using GPS coordinates, and coded onto a distributed ledger along with information like the identity of the current and past owner(s), and any liens or encumbrances attached to the land. The property could then be legally conveyed by transferring the property's tokenized "coin" to another person using a blockchain-based system, the same way Bitcoins are currently transferred among owners on the Bitcoin blockchain. This system would create a chain of digitally recorded history that is securely stored across multiple nodes instead of by one central actor. Authenticity could be established through the use of private keys to access and transfer the coin (digital deed) and by the date/time stamp automatically recorded on each transaction block. These digital representations would, of course, need to be reproducible in some human-readable, natural language format. The key, however, is that the definitive record *is* the tokenized recording on the blockchain itself.

To give life to this novel system of records, applicable real property laws, such as those of New York noted above, would need to be amended to recognize not only legacy records, but also tokenized records. Such changes are necessary to give participants in this system the confidence that their blockchain-based records are indeed the authoritative representation of their real property interests, and that the records will be given full evidentiary weight in a court of law, should a dispute over real property ever arise. Without such assurances, it may be difficult for many partic-ipants to embrace the idea of a blockchain-based real property recording system.

A Brief Survey of International Developments

Despite potential legal impediments, blockchain's potential in the real property recordation space (and for recordkeeping, generally) is more than conceptual.

Right here in the United States, Chicago's Cook County Recorder of Deeds and technology company Velox.re recently demonstrated that real property can be successfully transferred peer-to-peer and recorded on the public Bitcoin blockchain using blockchain-based "coins" as digital deeds.[10] Due to Illinois' legacy legal requirements, however, program participants must still adhere to the state's recording formalities and thus duplicate the information recorded on the blockchain by, for example, printing out a paper copy of the digital deed and delivering it to a county recorder's office for official recordation.[11] Similarly, the City of South Burlington, Vermont recently announced that it is launching a pilot to record real estate conveyances on a blockchain-based platform, but as is the case in New York and Illinois, Vermont real property law requires a number of formalities that could impede the full benefits of a blockchain-based system.[12] These initiatives in Illinois and Vermont illustrate the need to adapt the law to this rapidly-changing technology.

A few states in the U.S. have also started to move in the direction of legally recognizing blockchain-based records, outside of the specific context of real estate records. As of 2016, Delaware law permits corporations with wholly uncerti-cated stock to create and maintain

their official corporate records on a distributed ledger,[13] and Vermont law now presumes that blockchain-based records are authentic.[14] In 2017, Nevada enacted a law that recognizes blockchain data where a written record or signature is required.[15] And in March 2018, the governor of Tennessee signed into a law a bill that recognizes the legal authority of signatures, records, contracts, and certain other ownership rights that are secured and conducted through blockchains.[16] These types of laws are important to help usher in wide-scale commercial adoption of blockchain technology here in the United States.

Nevertheless, the U.S. has been slower to embrace blockchain disruption compared to other countries, especially as it relates to real property records. This may be because, according to the World Bank Group, roughly 70% of the world's population lives in a country without an official or transparent and accessible land title registry.[17] Unsurprisingly, countries with less-developed property systems view blockchain as a transparent, cost-effective way to develop or improve their land registry systems and to fight corruption therein. Furthermore, because many of these developing countries have little to no precedent as it relates to real property laws, they do not face the same legal impediments as common law countries like the U.S. when adopting this technology.

The Republic of Georgia, for example, recently became the first national government to launch a private blockchain as the government's official system for recording title to certain real property records.[18] There, the government executes the

conveyance between the parties and the public-facing Bitcoin blockchain is essentially superimposed over the government's private blockchain, so that the general public can view the property interests that are recorded on the private blockchain.[19]

Ghana is also reportedly eying a blockchain-based system as a way to develop a secure and transparent land registry system. (Anecdotally, in the current system, citizens frequently mark their homes with paint to let others know a particular property is spoken for).[20] Honduras also piloted a blockchain initiative (that has since stalled) to verify and record nearly 200 years' worth of land records in an effort to bring certainty and transparency to what many experts consider a corrupt system of property ownership.[21] Similarly, Ukraine recently announced that it will begin to use blockchain technology to manage its land registry in an effort to bring transparency and security to its property recordation system.[22]

It is not only developing countries that are eager to explore blockchain-based land registries, however. Sweden, a wealthy country with a well-developed property system, has been testing a way to record property transactions using blockchain technology since 2016.[23] That project is spearheaded by the country's central land registration authority, the government agency Lantmäteriet.[24] According to agency officials, Lantmäteriet was drawn to blockchain solutions as a way to (a) save Swedish taxpayers over $106 million per year by eliminating antiquated paperwork and (b) make their land titling system more efficient, transparent, and secure.[25] Using a private blockchain that is visible to all parties to a transaction—such as buyers, sellers, real-estate agents, and banks—each step in a land title exchange is verified and recorded, and the records are then summarized in an external public blockchain so that the general public can also view the property interests.[26] After two years of testing, Sweden is preparing to conduct their first transactions soon.[27]

It is notable that Sweden, like the United States, faces legal obstacles to full-scale adoption of blockchain-based land records—namely, a legal requirement for physical signatures on paper. Lantmäteriet has made proposals directly to the Swedish Ministry of Justice, which would oversee a change to that law, and a committee run by Sweden's Department of Finance is actively reviewing how to make such changes.[28] In the meantime, the agency is moving forward with what many consider to be the most advanced blockchain-based land registry system in the world to date,[29] and other developed countries are taking note—last year, Japan and Dubai also announced that they desire and intend to move their land registry records to a blockchain-based system.[30]

Concluding Thoughts

When we step back and consider the core goals of the U.S. real property recordation system—to assure owners that they are gaining clear title to a particular parcel of real property—the benefits of a blockchain-based system (e.g., reduced risk of fraud, automatically recorded history, cost and time savings, ease of use) are so glaring that transformation in this direction seems almost inevitable. With that said, while technology moves without speed limits, legal processes are necessarily slow and deliberate. This is especially true in the U.S., where property law is state/county-based. Unlike countries with a centralized land registry system, wherein one government actor may be able to champion a relatively quick move to blockchain-based land registries, the type of state-by-state legal overhaul that must occur to transform the U.S.' legacy real property system into a real-time, blockchain-based system that enjoys full legal recognition will necessarily require additional time and careful planning. As a starting point for that process, lawmakers, regulators, and market participants should begin thinking carefully about existing legal impediments that must be modified to accommodate blockchain-based recordation and transfers of real property interests.

Endnotes

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2   One twist, however, is that a blockchain can also be permission-based or "private," whereby a central authority, such as a government entity, sets up a blockchain and permissions others to participate on it as nodes.

3   N.Y. Real Prop. Law § 291 (RPL) (emphasis added).

4   This language closely reflects statutory language that was recently amended in Delaware to permit certain corporate records to be created and/or stored on a distributed ledger. *See* Del. Code Ann. tit. 8, § 224 ("Any records administered by or on behalf of the corporation in the regular course of its business, including its stock ledger, books of account, and minute books, may be kept on, or by means of, or be in the form of, any information storage device, method, or 1 or more electronic networks or databases (including 1 or more distributed electronic networks or databases), provided that the records so kept can be converted into clearly legible paper form within a reasonable time . . .").

5   RPL § 243; N.Y. Gen. Oblig. Law § 5-703 and § 15-301(5) (GOL); *See generally Cohen v. Cohen*, 188 A.D.2d 933, 176 N.Y.S.2d 893 (1919) (finding no deed or conveyance where a writing "failed in the requirements of a specific grantor, a specific grantee, a proper designation of the property, a recital of the consideration, and it contained no technical operative words").

6   *See* RPL § 258; RPL § 253; Terrence Dunn and Ira H. Goldfarb, *Deeds to Real Property*, New York City Bar, July 2017 (discussing commonly recognized types of deeds in New York), **http://www.nycbar.org/get-legal-help/article/real-property-law/deeds-real-property**/.

7   RPL § 291-92; RPL § 298; RPL § 303; RPL § 306; RPL § 308.

8   N.Y. Exec. Law § 137.

9   *See* RPL § 293; *Osborne v. Zornberg*, 16 A.D.3d 643, 644, 792 N.Y.S.2d 183, 184 (2005) ("A certificate of acknowledgment attached to an instrument such as a deed raises a presumption of due execution").

10   Ragnar Lifthrasir, *Permissionless Real Estate Title Transfers on the Bitcoin Blockchain in the USA! — Cook County Blockchain Pilot Program Report*, Medium (June 28, 2017), **https://medium.com/@RagnarLifthrasir/permissionless-real-estate-title-transfers-on-the-bitcoin-blockchain-in-the-usa-5d9c39139292**.

11   *Id*. (discussing how the pilot program accounts for these requirements by making the information available in a plain-language format that can be printed); *see also* 765 ILL. COMP. STAT. 5/28 ("Deeds, mortgages, powers of attorney, and other instruments relating to or affecting the title to real estate in this state, shall be recorded in the county in which such real estate is situated…").

12   Press Release, Propy, Inc., Propy, Inc. Launches Pilot to Record Real Estate Transfers on Blockchain in the City of South Burlington, VT (Jan. 22, 2018), **https://www.prnewswire.com/news-releases/propy-inc-launches-pilot-to-record-real-estate-transfers-on-blockchain-in-the-city-of-south-burlington-vt-300584407.html**. Like New York and Illinois, Vermont law, among other things, requires deeds to be "recorded at length in the clerk's office of the town in which such lands lie." VT. Stat. Ann. tit. 27, § 341(a).

13   S. 69, 149th Gen. Assemb., Reg. Sess. (Del. 2017).

14   VT. STAT. ANN. tit. 12, § 1913.

15   S. 398, 79th Gen. Assemb., Reg. Sess. (Nev. 2017); *see also* Nev. Rev. Stat. § 719.240-719.350.

16   See S. 1662, 110th Gen. Assemb., Reg. Sess. (Tenn. 2018).

17   Caroline Heider & April Connelly, *Why Land Administration Matters for Development*, World Bank Group (June 28, 2016), **http://ieg.worldbankgroup.org/blog/why-land-administration-matters-development**.

18   *See, e.g*., Laura Shin, *The First Government to Secure Land Titles on the Bitcoin Blockchain Expands Project*, FORBES, Feb. 7, 2017, **https://www.forbes.com/sites/laurashin/2017/02/07/the-first-government-to-secure-land-titles-on-the-bitcoin-blockchain-expands-project/#3540ff364dcd**.

19   *Id*.

20   *See, e.g*., Frederick Reese, *Land Registry: A Big Blockchain Use Case Explored*, Coindesk, Apr. 19, 2017, **https://www.coindesk.com/blockchain-land-registry-solution-seeking-problem/**.

21   *See, e.g*. Rina Chandran, *Modernizing Land Records in Honduras Can Help Stem Violence, Says Analyst*, Reuters, Aug. 11, 2017, **https://www.reuters.com/article/us-honduras-landrights-tech/modernizing-land-records-in-honduras-can-help-stem-violence-says-analyst-idUSKBN1AR151**.

22 *See, e.g.*, Volodymyr Verbyany, *Ukraine Turns to Blockchain to Boost Land Ownership Transparency*, Bloomberg Technology, Oct. 3, 2017, **https://www.bloomberg.com/news/articles/2017-10-03/ukraine-turns-to-blockchain-to-boost-land-ownership-transparency**.

23 *See generally* Giulio Prisco, *Swedish Mapping Authority Pioneering Blockchain-Based Real Estate Sales*, Nasdaq, Mar. 15, 2018, **https://www.nasdaq.com/article/swedish-mapping-authority-pioneering-blockchain-based-real-estate-sales-cm935347**.

24 *Id.*

25 *Id.*

26 *See, e.g.*, *Blockchain And Future House Purchases Third Phase to Be Completed in April 2018*, Chromaway, **https://chromaway.com/landregistry/** (last visited Apr.1, 2018) (discussing ChromaWay's involvement in Sweden's real estate blockchain project, the status of the project's phases, and how the project works).

27 *Id*.

28 *See, e.g.*, Jonathan Keane, *Why Sweden is Taking a Chance on Blockchain Land Registry*, Coindesk, Apr. 24, 2017, **https://www.coindesk.com/sweden-taking-chance-blockchain-land-registry/**.

29 *Id.*

30 *See* The Midas Guide, *Dubai Will Put Entire Land Registry on a Blockchain — 100% by 2020*, Medium, Oct. 11, 2017, **https://medium.com/@TheMidasGuide/dubai-will-put-entire-land-registry-on-a-blockchain-100-by-2020-18dca77f95e8** (discussing the announcements and intentions of Japan and Dubai).