

Applying Blockchain to Real Estate Transactions

Over time, the question is not can blockchain be applied to real estate transactions, but when.

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chain could have a substantial impact across many industries and applications, not least of which is real estate.

Put simply, blockchain is a system for organizing and storing data in chronological order, akin to a ledger book. The uniqueness of blockchain, however, owes to its open, distributed platform. As our colleague Bob Bowman noted in April 2018, blockchain involves discrete 'blocks' of data, each with its own time and date stamp. When there is a proposed change to the blockchain, the strand of data is circulated to and verified on numerous nodes, rather than verification on one centralized server, hence the decentralized and distributed nature of the technology. Cryptographic algorithms are used to verify the accuracy of changes to a blockchain and are sometimes described as solving cryptographic puzzles. Although someone must solve the cryptographic puzzles necessary to verify the accuracy of proposed changes to a blockchain, each dataset can only yield one output result, such that, once solved, there is no

Much of the discussion to this point involving the blockchain, also known as distributed ledger technology, has centered on the enormous potential it holds for financial services, especially in terms of payment schemes and the disintermediation of financial transactions; however, block-

need for secondary verification. The combination of distributed ledger technology and cryptography results in a highly accurate and current ledger.

Currently, a governmental entity—in the U.S., usually a county—maintains the records for all real estate located within its jurisdiction. As a consequence of having the county maintain the real estate records, (i) there exists the prospect of human recording error; (ii) access to real estate records is

more limited because the records are not centralized (i.e., maintained in numerous counties) and not all counties maintain the same access protocols to the real estate records; and (iii) there is a time lag between recording a document with a county and such document showing up in a search of the real estate records.

Blockchain could be the technology that overturns this antiquated state of affairs. Real estate transactions seem especially well suited to being recorded in a ledger, and the cryptologic verification mechanism would remove an element of friction and risk from transactions. The key would be to identify with specificity the various interests in real estate such that cryptographic algorithms may be developed to verify changes to these various interests. There are many different types of interests in real property, including ownership



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interests, mortgages, state and federal tax liens, and easements. The algorithm necessary to verify changes to a blockchain resulting from a real estate transaction would need to, among other things, (i) identify each type of real estate interest impacted by such transaction, including differentiating between interests that run with the land and those that do not run with the land; (ii) identify each entity with an interest that is impacted by such transaction; and (iii) confirm that each entity required to agree has in fact agreed to a proposed change in the blockchain caused by such real estate transaction. As an example, with respect to a purchase of real estate, the buyer and seller must consent to the ownership change, but an entity with an easement that runs with the land would not be required to consent.

A few benefits of using blockchain include (i) eliminating the need for original signatures to recorded documents; (ii) lowering the costs and fees associated with recording interests in real property; (iii) reducing or eliminating recording errors; (iv) making more accessible the real estate records because the real property records may be centralized and would be entirely digital; (v) eliminating the time lag between recording a document and searching the real estate records because all changes to the real property records are reflected in real time; and (vi) reducing the cost of, and premiums for, title insurance, because the real estate records will be more accessible, accurate and current.

There are a number of challenges to developing blockchain for real estate; some are mere speed bumps on the road to progress, while others might significantly delay blockchain's implementation. First, as with any nascent technology, there will need to be capital investment to spur development. The amount of available capital might wax and wane according to the vicissitudes of the markets, but we can rest assured that, to the extent developers understand and adapt to markets, there is not likely to be a paucity of funding for high-value projects.

Another challenge rests with the vested interests of the current system for the recording of

real estate transactions. To the extent any new blockchain technology diminishes the role of local governments—and presumably, their ability to levy recording fees and other similar fees and charges—one imagines those governments will attempt to retain those streams of revenue. To what degree would they obstruct blockchain implementation? It is hard to tell, but an encouraging precedent can be seen with the rise of ride-hailing companies. In dozens of cities Uber, Lyft and others succeeded in subverting decades of regulations favorable to incumbent taxi-cab companies that were slow to innovate. They were able to do so because the technology and business model they used raised the profile of the issue before the public, made an undeniable case for their commercial superiority and utility, and highlighted how out of touch and sclerotic the taxi-cab industry had become. Perhaps blockchain will be able to count on a similar dynamic within the real estate context.

Aside from the foregoing, many of the remaining challenges are operational in scope. They include evolving and updating cybersecurity protocols to maintain the integrity of the ledger; developing industry standards that collect and structure datasets; developing a robust system capable of handling the full variety of transactions, including nonconsensual transfers of real property interests (e.g. foreclosure); and establishing the supporting mechanisms required for full disintermediation, such as smart contracts.

None of these challenges are insurmountable, although, as with any disruptive technology, blockchain may take longer to implement if vested interests in the current system balk at the new technology. But new interests will evolve and assert themselves in support of blockchain. We are confident that over time the question is not can blockchain be applied to real estate transactions, but when.

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