ACREL News & Notes
September 2018

# Blockchain and Real Estate

# How is this Technology and Crypto Currencies Being Employed in Real Estate Transactions?

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There has been a great deal of interest in and "hype" about blockchain technology, Bitcoin and various crypto currencies. As a result, it is difficult to decipher what one needs to know about the relevancy of this technology for real estate practices. Blockchain is an extension of the internet technology you use every day. It has many applications which can and are being employed today and these will increase over time.

Blockchain is a digital ledger of records that are linked, secured and shared across many computer networks. Think of it as a software platform or technological infrastructure as well as a protocol. This database, or ledger, contains a historic record of every transaction and is easily auditable. Like on all ledgers, the Blockchain infrastructure provides a method/place of recording a chronological list of cryptographically-signed transactions within the network or "distributed ledger" and the nodes (each node being one of the computers in the distributed network), then validates and time stamps the transaction using a consensus mechanism. Instead of some central authority such as a company corporate secretary in a stock transfer or a recorder's office in a real estate context verifying or accepting the transfer documents, each node (or a specified number of them) verify that the proposed transferor is shown in the "block" as the party owning the asset and that the transferee has been recorded in the block as now being the owner. In essence, they are validating that the debit has been made on the one side and the credit on the other. This transaction is able to be viewed by each node and all parties which have the public "key" which is akin to a username. In order to be able to execute on a transaction, one must have a private key which is akin to a password to allow that level of access.

To break it down into steps:

1. Seller wants to send money or a digital asset (shown on the blockchain ledger) to the buyer.
2. The transaction is represented online as a "block".
3. The block is broadcast to all the nodes.
4. Those in the network (or a specified number agreed by the parties) approve the transaction will be valid, i.e., that they have researched the accounts of both seller and buyer and that the transfer is appropriately reflected.
5. The block (transaction) is added to the chain providing an indelible and transparent record of the transaction.
6. The money or digital asset moves from seller to buyer and the conveyance of that asset is simultaneous with notice to the world that buyer now owns the asset.

This basic technology then can employ additional software or applications to assist in the transaction. The Ethereum platform enabled parties to use their integrated smart contracts to satisfy the conditions precedent to completing the transaction. These smart contracts are computer code, which programming executes transactions in accordance with pre-defined terms (think self-executing escrows.) They are event-driven programs that run on a replicated, shared ledger and which can take custody over assets on that ledger. In a real estate transfer, there will be several of these, e.g., one for deed transfer, one for title insurance, one for the financing, etc.

An example of the use of this mechanism is the highly reported transaction completed by Propy, a San Francisco based company. The transaction was the sale of an apartment in Ukraine with a purchase price of $60,000. The transaction was accomplished through the Ethereum network and the purchase price was paid using the digital currency "ether" issued by Ethereum and "PRO" tokens, issued by Propy, for the registration fees. The registration of the title transfer was registered on the Blockchain and a paper confirmatory deed which contained the Blockchain address of the digital transaction was accepted and registered in the local land registry as a result of new regulations adopted in Ukraine. What is important to note is that the transaction was actually made on the Blockchain and that the government of Ukraine recognized it and gave notice in the land records through the use of the confirmation deed. It is of course the hope that governments will recognize Blockchain contracts and transfers. Initially the Blockchain registry mirrors the official land records but the vision is for jurisdictions to adopt the digital registry as the official ledger of the record for property transfers. In addition, the transaction employed use of a crypto currency and tokens, but there has generally been scant use of these in real estate transactions. We do not know of any title insurance companies who have approved their use in their escrow transactions.

What are the challenges to making this happen?

- **Getting existing records digitized**.
  - In developed countries, vast numbers of records are not stored digitally will be a hurdle to be overcome and will be an expensive endeavor.
- **Getting political will to adopt this technology**.
  - Governments are looking at it. The Cook County Recorder's Office in Illinois did a pilot program study and produced a report on its findings on May 30, 2017 – essentially, they said they could take some steps to get ready for employing the technology in the future. South Burlington, Vermont has a pilot program underway with Propy.

- **Adoption of the digital registries as official**.
  - In less developed nations, or ones with autocratic control and highly-centralized government ownership of land, instituting digital registries and sanctioning them as the official registries will be easier. In essence, they will be able to leap frog old technologies and systems much as they did with communication systems.
  - In developed countries such as the United States, we will need legislatures and municipalities to buy in on protocols even after records are digitized. We have approximately 3600 recorder's offices in the United States.
- **Ensuring private keys are not lost**.
  - Safe systems for securing private keys and to make them accessible to heirs and lenders so that they are not "lost" will be required before residential transfers will be practical.
- **Regulatory requirements**.
  - Regulations need to be settled as to how transactions will be treated. As an example, there is a SEC/CFTC working group trying to sort out whether ether's issuance in 2014 was a security or a commodity.

While there is much in flux related to widespread adoption of this technology, it is a natural extension of our digital, internet world. Even a few years ago, we did not envision our now constant communication and access to information, or our sharing economy, now we think nothing of it. Stay tuned as this technology and its adaptations progress.