

Blockchain applications in FinTech

By Alex Wan

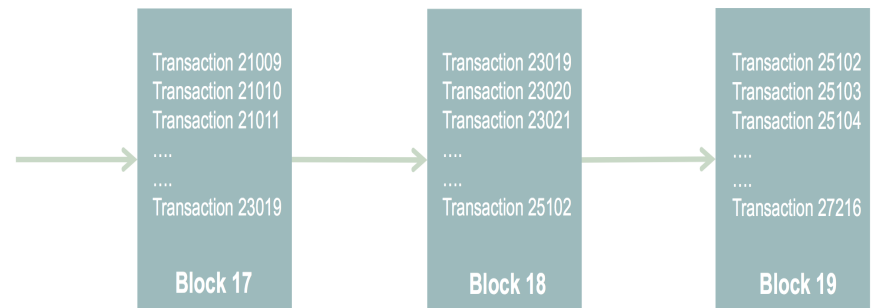
What are Blockchains?

Blockchains are an emerging technology pattern that can radically improve banking, supply-chain and other transaction networks, giving them new opportunities for innovation and growth while reducing cost and risk.

Economic transactions on a distributed ledger can be programmed to record virtually anything of value: identities, wills, a deeds, title, licenses, intellectual properties, and also almost any type of financial instrument.

Secure and trusted record keeping

By design, no one party can modify, delete, or even append any record to the ledger without the consensus, making the system useful for ensuring the **immutability of transactions, contracts, and other legal documents.**



Blockchain

Transaction

Inputs from network participants that describe changes in asset control, or insertion of contracts and/or related legal documents.

Block

Among other things, a block contains a list of validated transactions defined around the time frame when the block was created.

Blockchain

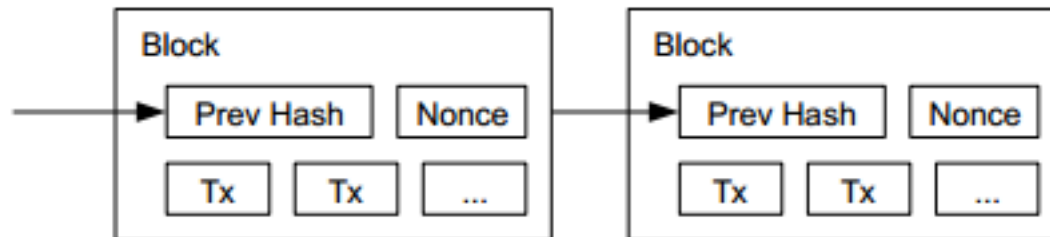
A **record repository** of ordered collection of blocks. It records the **history** of asset control and state changes, as well as creation of contracts and legal documents.

“How seriously should we take this? I would take it as seriously as we should have taken the concept of the Internet in the 1990s.”

—Blythe Masters, DAH <http://bit.ly/1JENgb4>

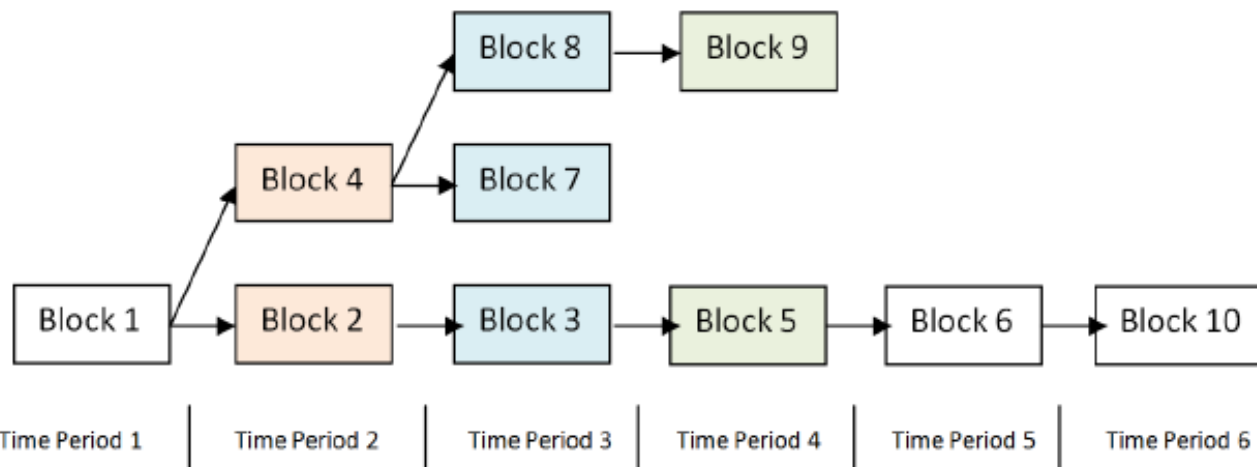
The Public Ledger

- ▶ Every *viable* transaction is stored in a public ledger
- ▶ Transactions are placed in blocks, which are linked by SHA256 hashes.
- ▶ <https://blockchain.info>



Consensus

- ▶ The block chain is best represented with a tree.
- ▶ The longest path represents the accepted chain.
- ▶ A participant choosing to extend an existing path in the block chain indicates a vote towards a consensus on that specific path. The longer the path, the greater the required amount of computation.



How Blockchain Works- Graphical

How a blockchain works

