

## Blockchain technology: It's not just about cryptocurrency



Micah E. Marcus | Friday, June 29, 2018

While the majority of international attention has focused on cryptocurrencies and the associated rise in value of these assets, distributed ledger networks (each a “blockchain”), the technology responsible for and supporting the development of cryptocurrencies, has matured, leading to an influx of new applications across a wide variety of industries. Consequently, a thorough understanding of these new applications is needed to fully capitalize on the available blockchain business opportunities.

Simply put, blockchain technology allows a series of interconnected computers to reach agreement on shared data. The original blockchain network, the Bitcoin network, allows its users to agree on the owner of each bitcoin – the token generated by running the Bitcoin network. Essentially, if a holder of a bitcoin wants to transfer ownership of that token to another individual or entity, the network participants solve cryptographic puzzles to verify the proposed seller actually owns and has the right to transfer the bitcoin in question. The transfer is recorded on the blockchain once the verification is complete. This process relies on the network’s distributed ledger. The movement of each Bitcoin is saved into this ledger, which all network participants can see, and any additions to the ledger must be verified cryptographically. In this situation, the agreed upon information is the ownership of each bitcoin only. As a result, the value of the bitcoin comes from its scarcity, as the Bitcoin network will only generate a set number of bitcoin.

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Following the initial proof of concept of blockchain technology via the Bitcoin network, developers began to build custom code running entirely new distributed ledgers and networks. Unlike the original Bitcoin blockchain, which only recorded the movement of each bitcoin, these new networks allow users to record more complex information onto the blockchain. The blockchain for the Ethereum network, the best known of these new blockchain networks, logs the results generated by running a separate computer program. When a computer program is run by a user on the Ethereum network, the results are instantly appended to the Ethereum blockchain along with the information generated by any other computer programs then running on the network. This process effectively creates a singular giant computer — the Ethereum Virtual Machine — which everyone can use to run applications and to independently verify the integrity of any computation made on the machine. By stacking independent applications on top of the Ethereum blockchain, the type of information that can be recorded to the Ethereum network is limitless, allowing blockchain technology to extend beyond digital currencies and into real-world applications in pre-existing, stable industries.

For example, health care companies have begun to explore using the blockchain to secure the storage and transfer of medical information. One could imagine a system whereby access to medical records is provided via a blockchain network. Such a setup would allow a health care company to maintain a repository of information and documentation that would be simultaneously available throughout the world and unalterable without permission from the network. As a result, this type of repository would not rely on password-based systems prone to hacking and user error. Instead, the network would download a person's passcode (which could take the form of a fingerprint) and convert it into encrypted data that would be stored on the blockchain and required to access the underlying information. To share the information, the holder would initiate a transfer of this passcode on the blockchain, which would then contain a record of the transference to the third party who would have their own unique passcode as access to the system. The record on the blockchain cannot be altered, meaning no hacker could obtain illicit access to this information by posing as the recipient.

Alternatively, banks and other financial institutions are investing in the blockchain to serve as a secure means of money transfer. Such a plan calls for the financial institution to establish its own blockchain network (either independently or running on an alternative public network, such as Ethereum) and issue its own token. An individual wishing to send money would purchase the token in exchange for local currency and send the token to the recipient via the blockchain. The recipient could then exchange the token with the financial institution in exchange for local currency. Such a process would sidestep costly clearinghouse transactions, decreasing the expense of moving value between currencies and across international borders while maintaining the security of the current financial structure.

Likewise, information storage companies have begun to use the blockchain as a cloud storage repository. Traditionally, cloud-based computing stores information in centralized repositories. The information is stored off the user's network (hence the cloud), but the cloud storage provider still retains the cloud data on its servers alone. Using blockchain, however, the cloud is reformatted to run on a distributed ledger, meaning the data stored to the cloud is on every computer in the network as opposed to one location. This decentralization means an unauthorized user would have to simultaneously hack every network member to bypass the blockchain security protocol, thereby making such an attack all but impossible — a huge stride forward given the increasing frequency of ransomware, phishing and other cybersecurity attacks.

Of course, these applications are just the tip of the iceberg as it relates to how blockchain is changing the

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nature in which we do business, and, along those lines, the legal issues companies will face in adapting to this new technology. Accordingly, McDonald Hopkins continually researches these emerging products as they come to market and maintains a cutting-edge understanding of the underlying technology. As a result, the firm is well placed to help you confront any blockchain-related issues facing your business, and to advise on how best to implement this new technology into your existing business operations. To learn more about how McDonald Hopkins can help your business leverage this new technology to take advantage of these opportunities in the future, please contact one of our attorneys.

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