Introduction to Blockchain

HISTORY

1991-2008

The **first blockchain** is created by Stuart Haber and Scott Stornetta.

2008

The book, 'Bitcoin: A Peer-to-Peer Electronic Cash System', is the first to describe blockchain technology structure. It is written by Satoshi Nakamoto (possibly a pseudonym) with the goal of creating a peer-to-peer electronic cash system that was not reliant on a network of banks. "Blocks" and "chains" are described by Nakamoto as a way to organize and secure records. By remaining mathematically correct and unchanged, entries that are made into a shared database stay secure.

2013

$1 Billion is surpassed on Bitcoin marketplace.

Ethereum whitepaper released by Vitalik Buterin.

2014

Crowdsale funds Ethereum Blockchain.

R3, the blockchain technology company, evolves from a consortium of over 40 legacy financial companies, and becomes an enterprise for the implementation of blockchain technology.

2017

Block.one unveils **EOS** as a new blockchain protocol decentralized applications deployment.

2020 and beyond

Through the integration of AI and the IoT, true blockchain or 'blockchain complete' has the potential to evolve into an industry and economy changing technology. By applying AI, blockchain can be extended to be used by machines to exchange assets including real estate and money. Full scalability of blockchain is expected by 2023.

BUILDING BLOCKS

CRYPTOGRAPHY

The encryption of data so it is only known to the intended parties.

HASH

Hashes are used to ensure blockchain records are not corrupted. Similar to symmetric encryption, but instead of having a key that unlocks the data, with a hash, the data itself creates a fixed-length key via a one-way mathematical proof-of-work.

LEDGERS

Records of economic transactions are kept in ledgers. Blockchain technology secures the evidence of exchange, whilst the consensus algorithm enforces the rules of transfer.

THE PUBLIC WITNESS

Someone who attests a fact or event. The nodes on a blockchain network witness information and provide security through the recording of data which can be used to check accuracy and truthfulness after the fact .

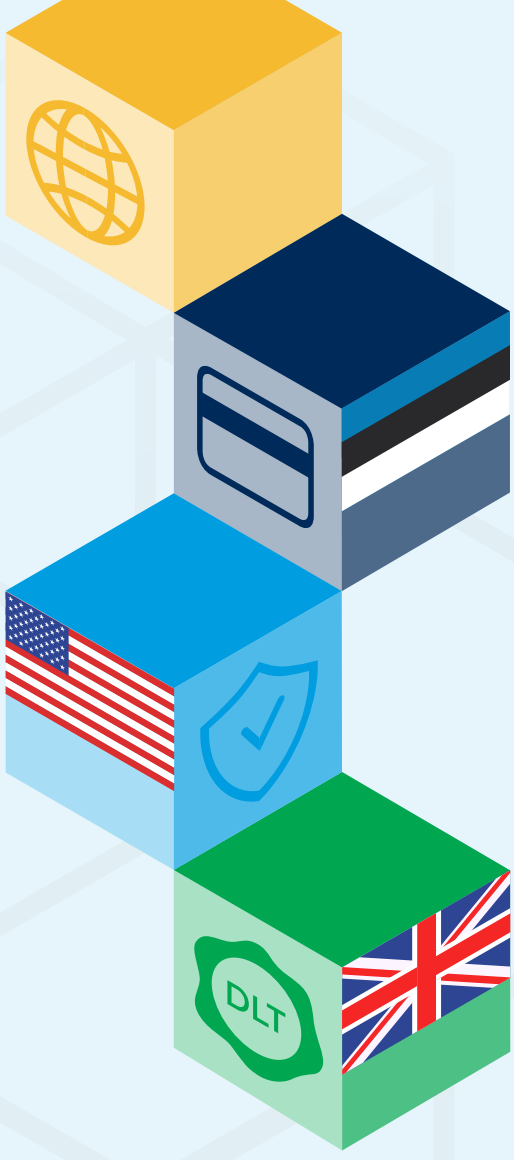
BLOCKCHAIN AND SOCIETY

General

A number of countries have realized that there are many opportunities offered by data with providence and (virtually) trustless transactions. Expensive and time consuming bureaucratic practices can be streamlined through the application of blockchain technology. Progressive public servants are starting to realize this fact.

The United States

In the USA, the Department of Homeland Security is investigating how to use blockchain technology to secure data feeds created by IoT devices. This even applies to the U.S. border – one initiative is combining blockchain with IoT infrastructure in an effort to protect it. The DHS is eliminating the ability of criminals to spoof or modify information collected by sensors and cameras. This is done by cryptographically signing data they send and writing it to a blockchain.



Estonia

In Estonia the Government realized that blockchain technology would enable them to boost transparency and reduce issues with corruption. Through the launch of digital ID cards they have offered e-citizenship as a service so that residents can make use of online services. For those who operate a business online and through the European Union, the digital identity is a very valuable asset.

The United Kingdom

The UK government published the "Distributed Ledger Technology: Beyond Block Chain" report, which confirmed that corruption, errors, and fraud could be reduced through use of distributed ledger technology. In the report, it was claimed that the relationship of citizens and their government would change as DLT would bring more transparency and trust. The use of blockchain technology has been approved for a number of government applications (local authorities, land registry, food commission, and more).

SOURCES:

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