



Blockchain demystified

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WHAT IS BLOCKCHAIN?



WHAT IS BLOCKCHAIN?

1. Distributed ledger?
2. Smart contract?
3. Bitcoin?
4. Cryptocurrency?
5. Digital Wallet?
6. DAO?
7. Ethereum?
8. Hyperledger?



WHAT IS BLOCKCHAIN?

1. A Blockchain – originally block chain – is a distributed database that maintains a continuously growing list of ordered records called blocks. Each block contains a timestamp and a link to a previous block. By design, Blockchains are inherently resistant to modification of the data — once recorded, the data in a block cannot be altered retroactively. Blockchains are "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. The ledger itself can also be programmed to trigger transactions automatically."

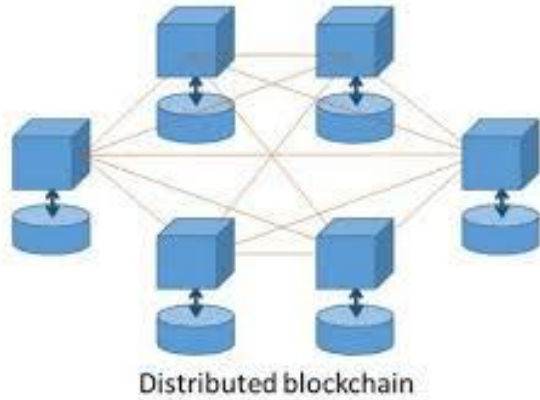
<https://en.wikipedia.org/wiki/Blockchain>

WHAT IS BLOCKCHAIN?



Still not convinced???

WHAT IS BLOCKCHAIN?



**All are applications
of Blockchain**

**Blockchain = underlying
technology**

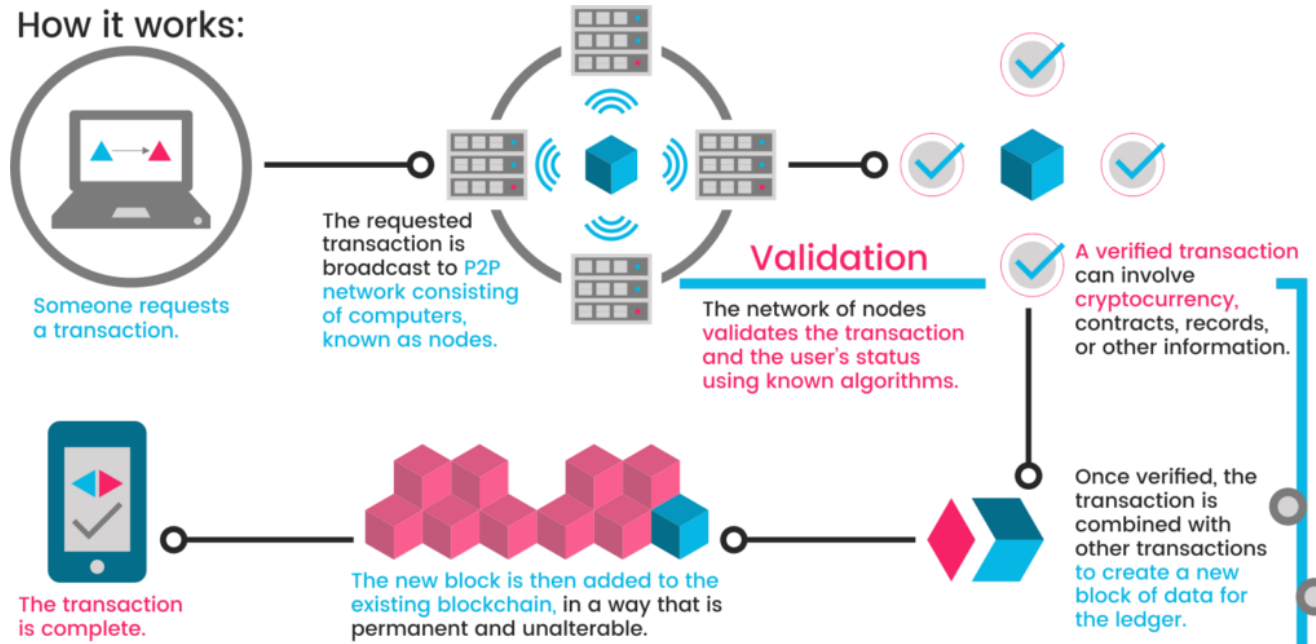


HOW BLOCKCHAIN WORKS?

1. Distributed Database
2. Peer-to-Peer Transmission
3. Transparency with Pseudonymity
4. Irreversibility of Records
5. Computational Logic

<https://hbr.org/2017/03/how-blockchain-is-changing-finance>

How it works:



Cryptocurrency

Cryptocurrency is a medium of exchange, created and stored electronically in the blockchain, using encryption techniques to control the creation of monetary units and to verify the transfer of funds. Bitcoin is the best known example.

Has no intrinsic value in that it is not redeemable for another commodity, such as gold.

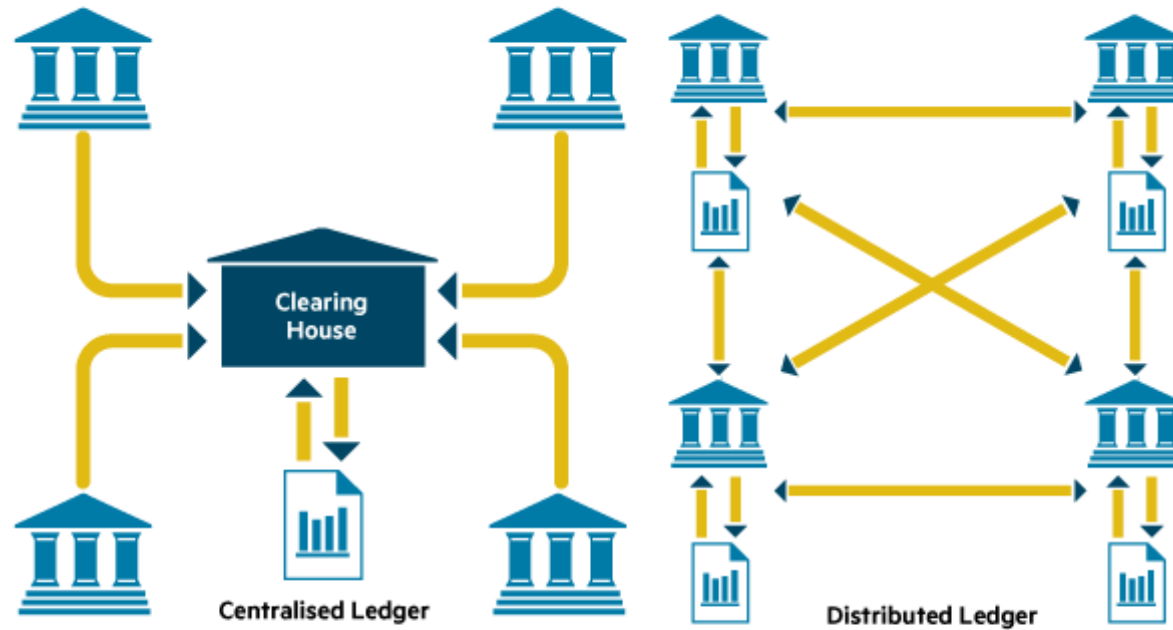
Has no physical form and exists only in the network.

Its supply is not determined by a central bank and the network is completely decentralized.

WHAT IS A DISTRIBUTED LEDGER?

Embedding distributed ledger technology

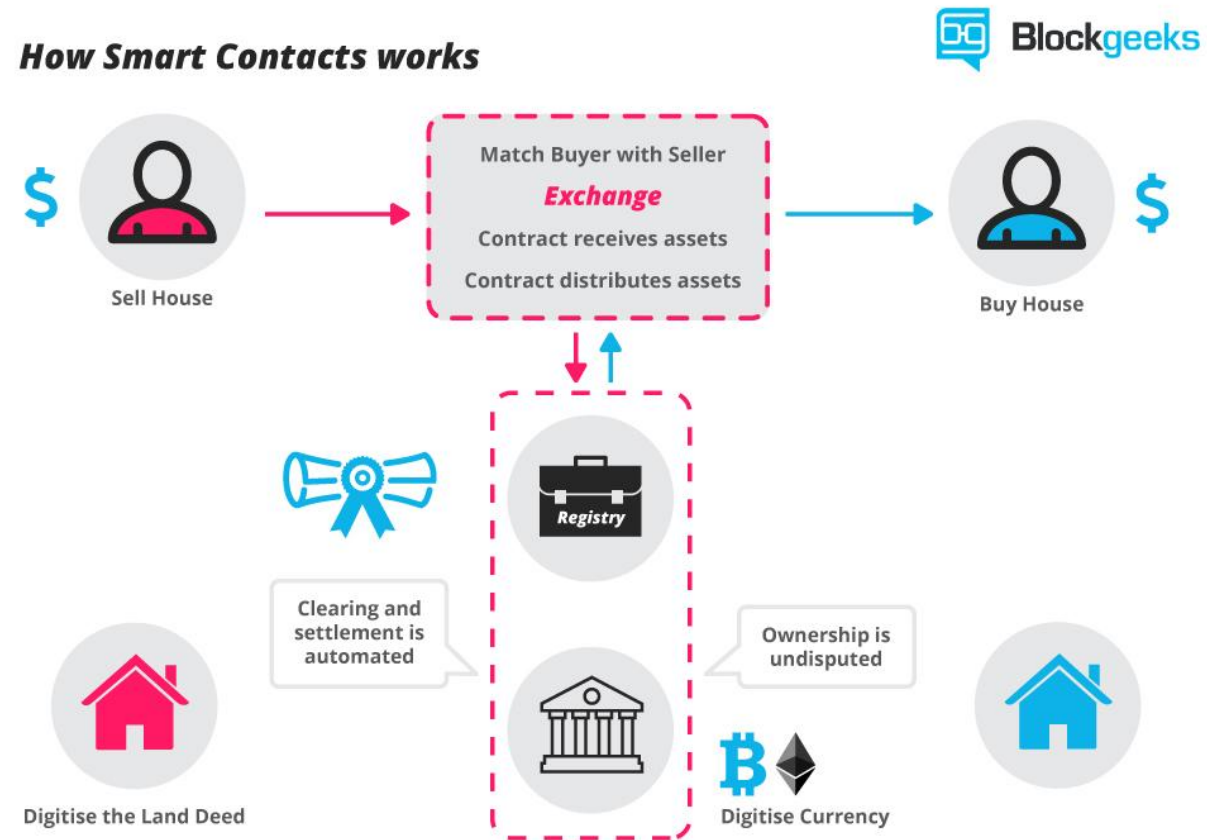
A distributed ledger is a network that records ownership through a shared registry



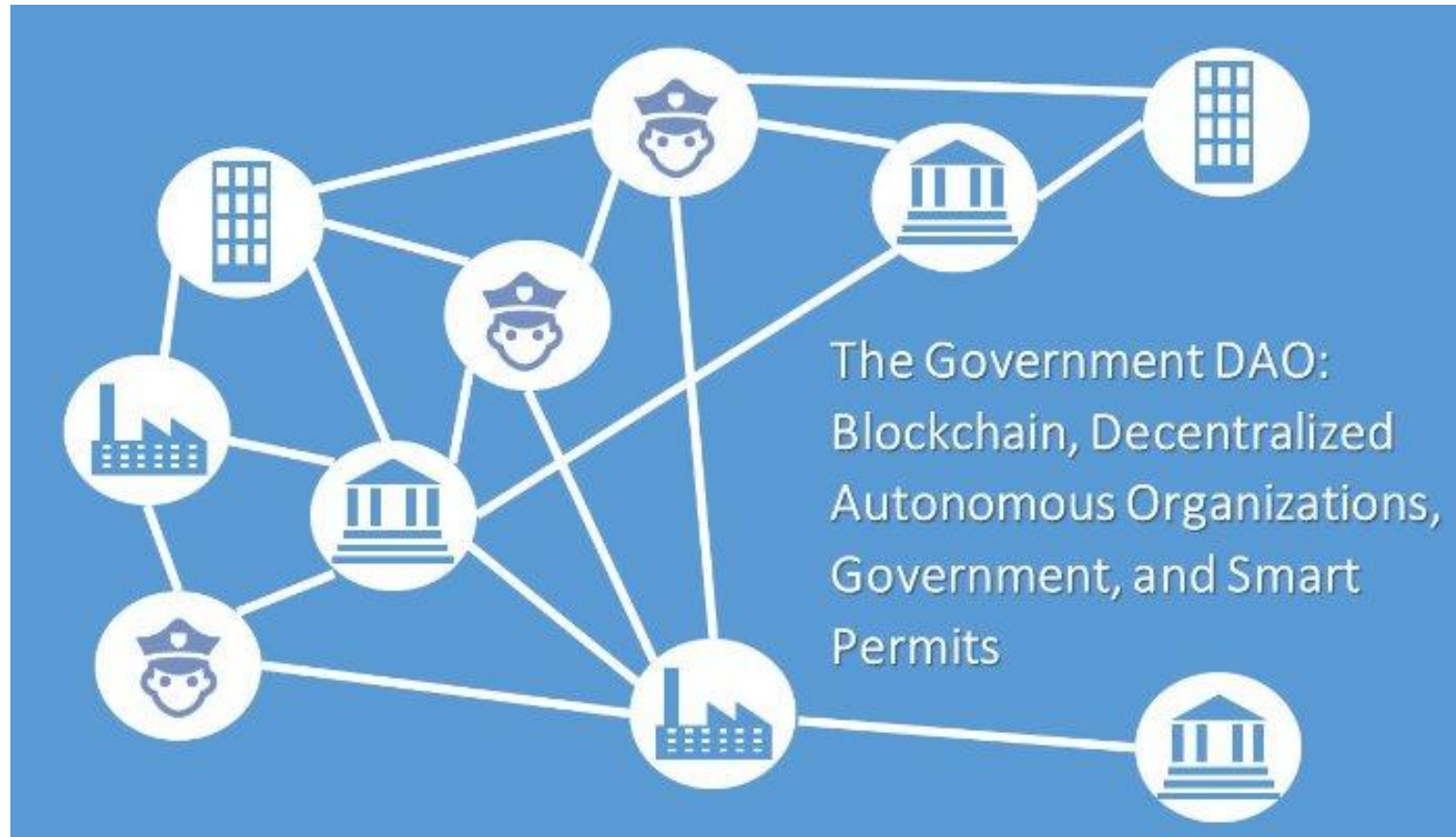
In contrast to today's networks, distributed ledgers eliminate the need for central authorities to certify ownership and clear transactions. They can be open, verifying anonymous actors in the network, or they can be closed and require actors in the network to be already identified. The best known existing use for the distributed ledger is the cryptocurrency Bitcoin

FT graphic. Source: Santander InnoVentures, Oliver Wyman & Anthemis Partners

WHAT IS A SMART CONTRACT?



WHAT IS DAO?



ON TO A BRIGHT FUTURE...



NOT SO FAST DOROTHY....



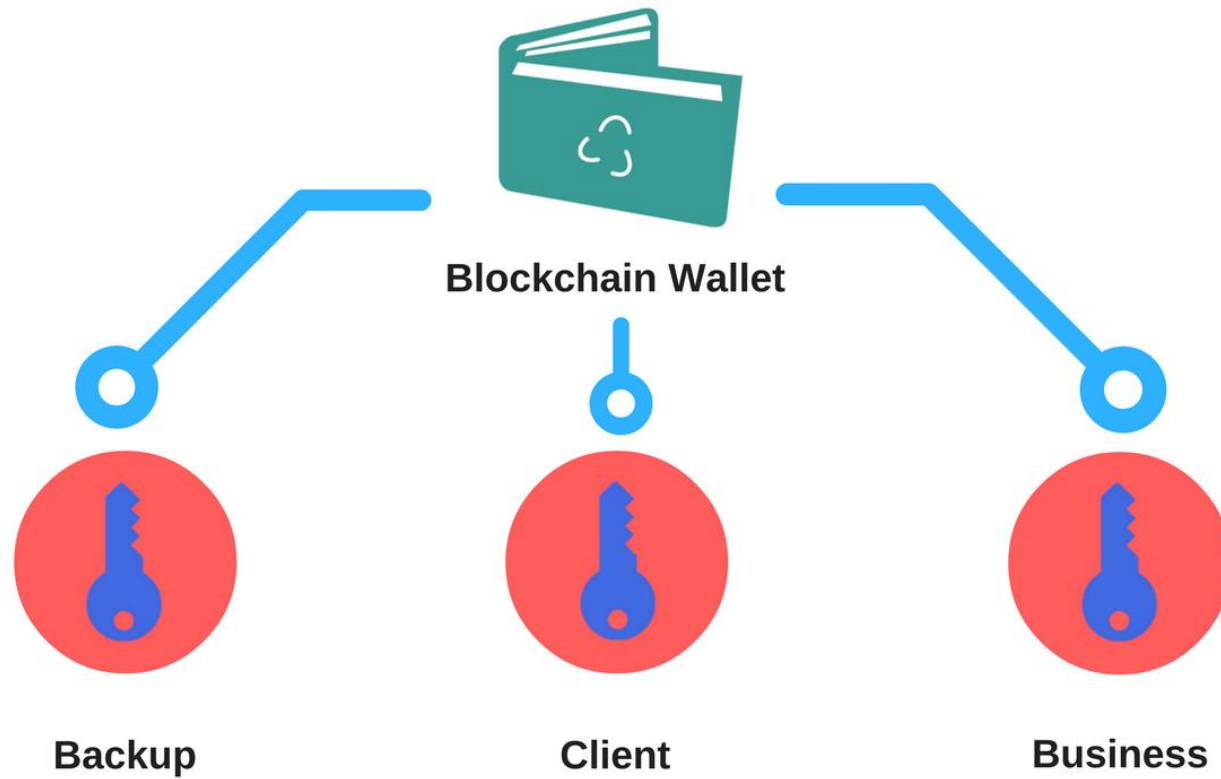
BLOCKCHAIN IS GREAT BUT...

1. **SECURITY** – not all Blockchains are created equal (Especially not Bitcoin!)
2. **COMPLIANCE** – have you heard of mining? (Do you think mining in China is GDPR compliant?)
3. **BLOCK SIZE** - transactions are irreversible so all transactions are stored (For example Bitcoin Blockchain size is 98 GB as of January 2017 and still growing)
4. **PRIVATE KEY** – if you lose your private key, all your crypto coins are lost (A Bitcoin wallet needs a private key stored on your computer - if your computer is hacked and you lose your key, you lose all your bitcoins)
5. **NO ARBITRAGE** – in the real world if there is a problem with a contract or a bank loses your money there is a way to claim it back.

HOW COMPLIANT IS THIS MINING FARM?



WHEN A KEY IS GONE, IT'S GONE...



AND ALL IS LOST...



OF COURSE NOT!



HOW TO FIX BLOCKCHAIN?

1. **SECURITY** – private Blockchain is yours and you have 100% control over security
2. **COMPLIANCE** – there is no reason you should use a public Blockchain, you can dictate to your developers where computations will happen.
3. **BLOCK SIZE** - answer is the cloud! Many cloud providers like Oracle, IBM, Microsoft, Amazon AWS offer BaaS (Blockchain as a Service)
4. **PRIVATE KEY** – it's all about architecture - you can build a private Blockchain where you act as a central point.
5. **NO ARBITRAGE** – again it's all about architecture – instruct your architect to ensure that arbitrage is part of the design.

BLOCKCHAIN REVOLUTION IS JUST STARTING...

2015

Exploration & Investment

- Initial capability & use case assessments
- Early adoption likely for internal reconciliation

2016-2017

Early Adoption

- Leading-edge banks see the value of blockchain and begin deployments for asset classes that are bilaterally traded and/or have no central clearing authority
- Regulatory certainty drives adoption for external uses
- Regulatory authorities realize the benefits of blockchain for auditing and compliance, and rule-making begins

2018-2024

Growth

- Banks begin to see the benefits accorded to early adopters and – combined with regulatory guidance and certainty – the network effect takes hold
- New service providers and models emerge
- Deployments go viral across numerous asset classes
- New products and services are created; incumbent processes and services are discarded

2025

Maturity

- Blockchain adoption is considered mainstream and integral to the capital markets ecosystem

Source: Accenture Research

AND WILL NOT STOP ANYTIME SOON

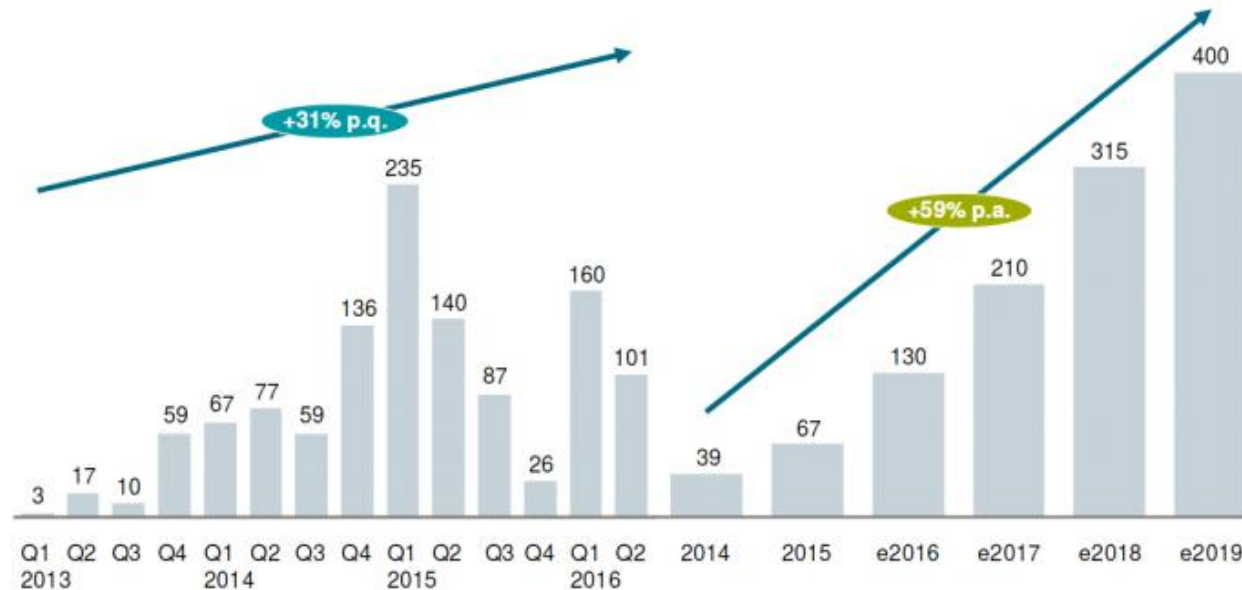
4 Investment in blockchain has already started to gain momentum and is expected to grow at a very high pace in the near future

Venture capital is pouring in, developers are excited and industry players are taking note...

...And the banking industry is expected to spend ~\$400MM on distributed ledger technology by 2019

Investments in blockchain-related startups
(USD MM)

Estimated capital market spending, 2014-2019e
(USD MM)



Thank you



Silicon Wharf helps companies design, architect and deliver enterprise grade Blockchain and Fintech solutions in the Cloud.

www.siliconwharfconsulting.com