

Blockchain: Looking beyond crypto—an idealist's view

PwC's Digital Services





PwC views blockchain as potentially the most transformative technology innovation since the coming of the internet.

PwC's purpose – 'To build trust in society and solve important problems' – is founded in our heritage of creating trust in markets.

Blockchain goes to the core of the role of trust in markets.

What you'll find inside:

- 01** Blockchain Building Blocks
- 02** Blockchain Capabilities
- 03** So What About Potential Futures

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01

Blockchain Building Blocks

A close-up photograph of a man's torso and arm. He is wearing a light blue dress shirt and a dark grey suit jacket. He is adjusting a bright yellow tie. His left arm is visible, featuring a large, intricate black tattoo on the forearm and a brown leather watch with a white face. The background is dark and out of focus.

There was no new technology developed for
Bitcoin, just a smart way of assembling existing
ones

The technical fundamentals

Distributed ledger

Replicate and share files across a network leveraging peer-to-peer protocols

Consensus mechanism

To agree to a state of the ledger at a specific point in time

P2P protocols

To broadcast messages being created directly amongst peers without intermediaries

Public key cryptography

Enabling authentication and digital signing of transactions

Hashing

One way function
To link data of arbitrary size to data of fixed size

Merkle roots

To verify a set of transactions



Distributed Networking



Cryptography

“

A purely **peer-to-peer** version of **electronic cash** would allow online payments to be sent directly from one party to another without going through a financial institution

Satoshi Nakamoto
Bitcoin inventor



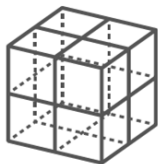
Problem & opportunity

Blockchains are not scalable by design, so how will we scale?

02

Blockchain Features

6 essential blockchain features



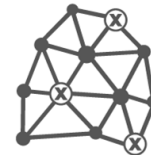
Transaction Accountability

On a blockchain, every single settlement requires authentication. It is then stored securely, so accountability is an inherent feature of the system.



Immutable History

On a blockchain, every transaction should be stored indefinitely. No settled transaction can be modified as a blockchain only allows for appending. This increases trust because you can guarantee the integrity of the data stored on a tamper-proof ledger.



Decentralization of Trust

Because on a blockchain transactions are verified and validated by numerous parties there is no more central authority, thus providing no central control and by that more trust to its participants.

6 essential blockchain features



Tokenization

Because transactions on a blockchain are identified by a unique value it is a convenient platform to issue tokens which are easily identifiable items that allow you to represent rights to an underlying asset



P2p Transactions

Blockchains being Peer to Peer Networks they enable two or more parties to transact securely directly without the need for any prior trust relationship.



Smart Contracts

Every transaction is digitized and assets flow can be programmed which allows for automation to occur when certain conditions are met.

03

So What About Potential Futures

Predictions are dangerous and often fail

- Prediction is a tricky business
- We cannot predict black swan events
- People screw up predictions is because they mistake their opinion for reality
- It goes against everything they understand about the world
- People tend to look at current state of technology and project them in the future

Numerous (millions) different distributed ledgers with cryptographic proofs

Local economies

- Private economies (rewards, points, ...)
- Privately shared ledger (physically regulated financial markets, ...)
 - “Healthchain”, “Autochain”, Corda, Hyperledger, ...

1 public blockchain majority of the value

- Network effect
- Public base allow for permissioning layers above
- Security is paramount
- Inclusive

Collective ideas are more powerful than technologies

Decentralization of power and governance

Individual sovereignty

- Individual's freedom
- Freedom of choice
- Freedom of speech
- ...

With shortened feedback loops, neutral or positive living

Giving back to society through impact investing, charity and non-profit

Six applications predictions

Machine 2 Machine Transaction

- API economy
- Attention economy

Government Cryptocurrencies

- Governments are going to fight back
- Central authority is the status quo

Decentralization of Marketplaces

- Decentralized exchanges
- Decentralized file storage

Byte Size Consumption and Ownership

- Granular measurements
- Time based
- Byte based
- Experience based
- Shared economy

Self Sovereign Identity

- Certifications
- Ownership belongs to identified entity
- Users must have access to their own data
- Identity information and services must be transportable
- The rights of users must be protected.

Autonomous Agents

- Computers are active participants in the economy
- Self driving vehicles
- Manufacturing lines
- 3D printers

Social and behavioral changes

Targeted Helicopter Money

- Basic income will become obvious
- Better allocation of unemployment or disability support

Back to Close Community Support

- Circle of Trust
- Key management
- Reputation
- Sustainability

Confusion of Reality and Virtual Reality

- Started today
- Virtual reality interactions will have a impact in the real reality
- Imagination has no limit
- Re-targeting
- Shopper Marketing
- Media effectiveness

Decentralized Autonomous Organizations

- Cyber-incorporated companies
- Machines active participants in the economy
- Bounty based code improvements

Provably “Fair” Systems Replace Governments

- Auditable fair law through code
- Transparent governance mechanism
- Accountability of different actors

Machines Own Most of the Wealth

- Today's wealth is greatly transacted digitally
- DAOs
- AI will provide more efficiency to machines
- Iterative improvements based on KPIs

Thank you!

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Questions & Answers

