Introduction to Blockchain

Changing the African Narrative

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Who We Are

Changing the African narrative

Startup studio in Nairobi on a mission to ensure young talented Africans can participate in the digital transformation of Africa as **creators** and **owners**

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What We Do?

We are a non-profit organization and we:

Develop Innovation leaders

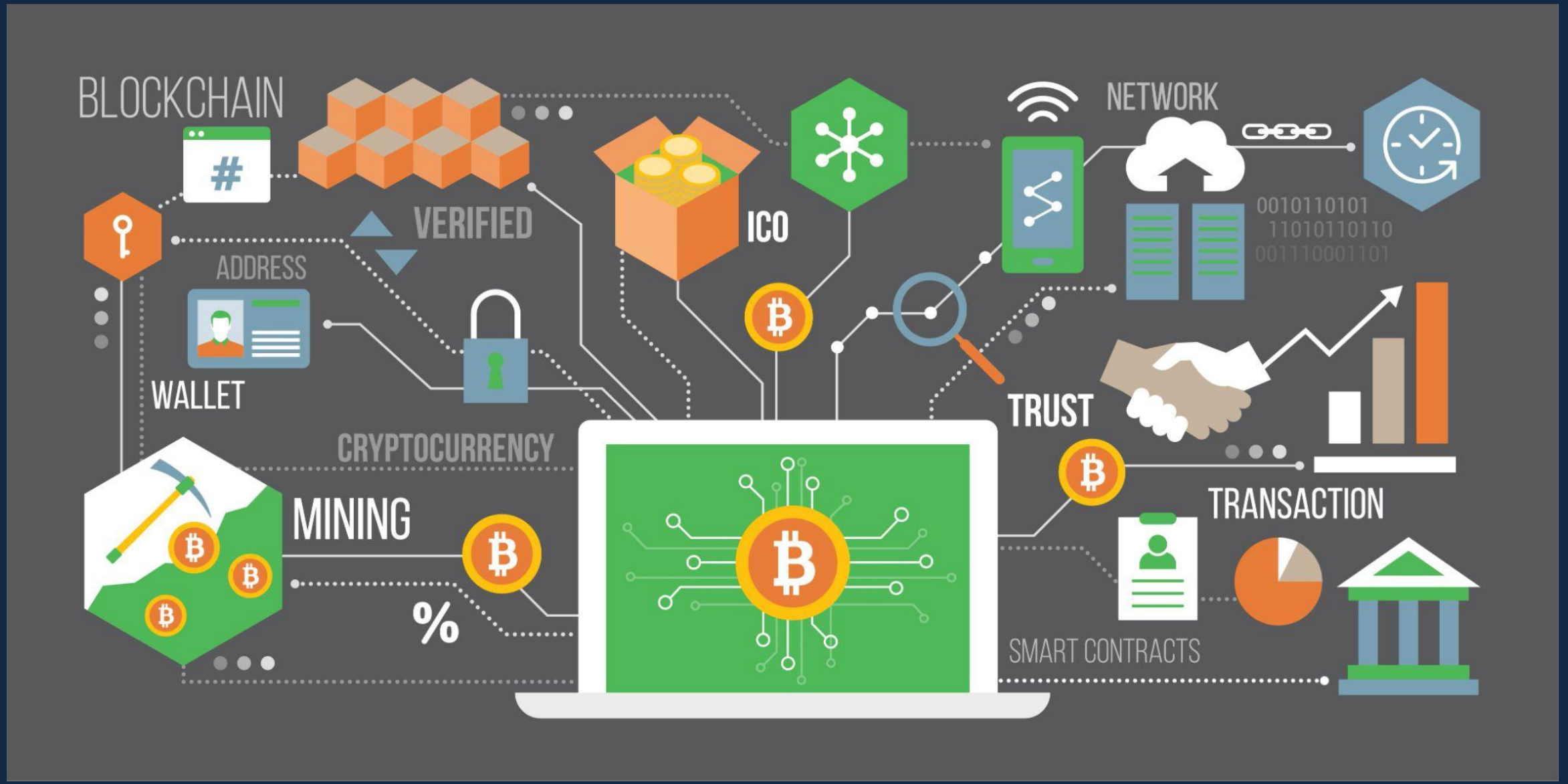
51 fellows

Launch startups

8 Projects

Build community

3200+ attendees


BLOCKCHAIN
NETWORK
VERIFIED
ICO
ADDRESS
WALLET
CRYPTOCURRENCY
MINING
%
TRUST
TRANSACTION
SMART CONTRACTS
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[redacted] Blockchain? 🤔

What comes to mind when you hear blockchain?

- Bitcoin
- Scam
- Next evolution of the internet
- Bank killer?

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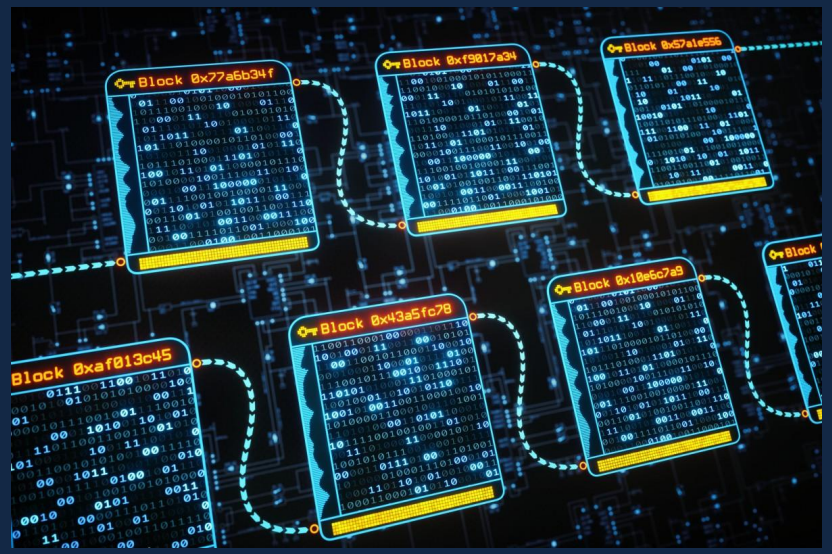
Technical definition

The blockchain (or **distributed ledger technology**) is a shared ledger where transactions are stored and secured on multiple computers using cryptography and consensus mechanisms.



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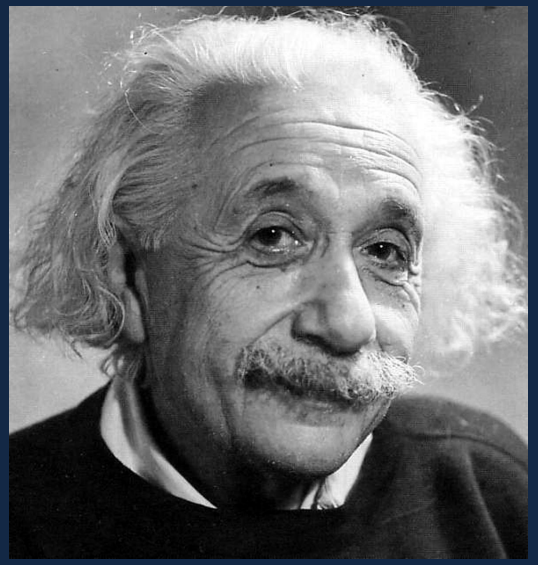
The **Goal**



“If you can't explain it to a six year old, you don't understand it yourself.”

- Albert Einstein

Reduce Jargon

Be simple

Start from the problem

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Value transfer today

Medium of exchange

Central authority

1. Cash

2. Credit cards

3. Mobile money

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M-Pesa

Steps to deposit:

- Deposit at 1000shs at an agent.
- The agent sends a message to Safaricom to confirm the deposit.
- Safaricom credits your account with 1000shs.
- You receive a confirmation message.

Steps to send money:

- You send a request to the Safaricom servers to send 500shs to Alice.
- The server receives the requests and deducts 500shs from your account.
- 500 shs is added to Alice's account.
- A confirmation message is sent to both you and Alice.

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Why **M-Pesa**

The keyword here is **trust**

We trust that they will:

1. **No corruption**
2. **No failures**
3. Always **available**
4. **Secure**

M-Pesa is a great

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Problem **with central authorities**

Examples are:

1. Zimbabwe
2. Banks during the financial crisis in 2008
3. Ministry of Lands

   .etc

Drawbacks:

1. Central point of failure
2. Vulnerable to corruption and mismanagement
3. High cost of infrastructure and maintenance
4. Limited by legislation and jurisdiction

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Solution

Have a system that:

1. Removes the need for central authorities
2. Low-risk of failure
3. Resistant to change
4. Low-cost of setup and maintenance
5. Can be used anywhere in the world

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Blockchain in 100 words

You (a "**node**") have a file of transactions on your computer (a "**ledger**"). Two government accountants (let's call them "**miners**") have the **same file** on theirs (so it's "**distributed**"). As you make a transaction, your computer sends an e-mail to each accountant to inform them.

Each accountant rushes to be the first to check whether you can afford it (and be paid their salary "**Bitcoins**"). The first to check and validate hits "REPLY ALL", attaching their logic for verifying the transaction ("**proof of work**"). If the other accountant agrees, everyone updates their file...

This concept is enabled by "**Blockchain**" technology.

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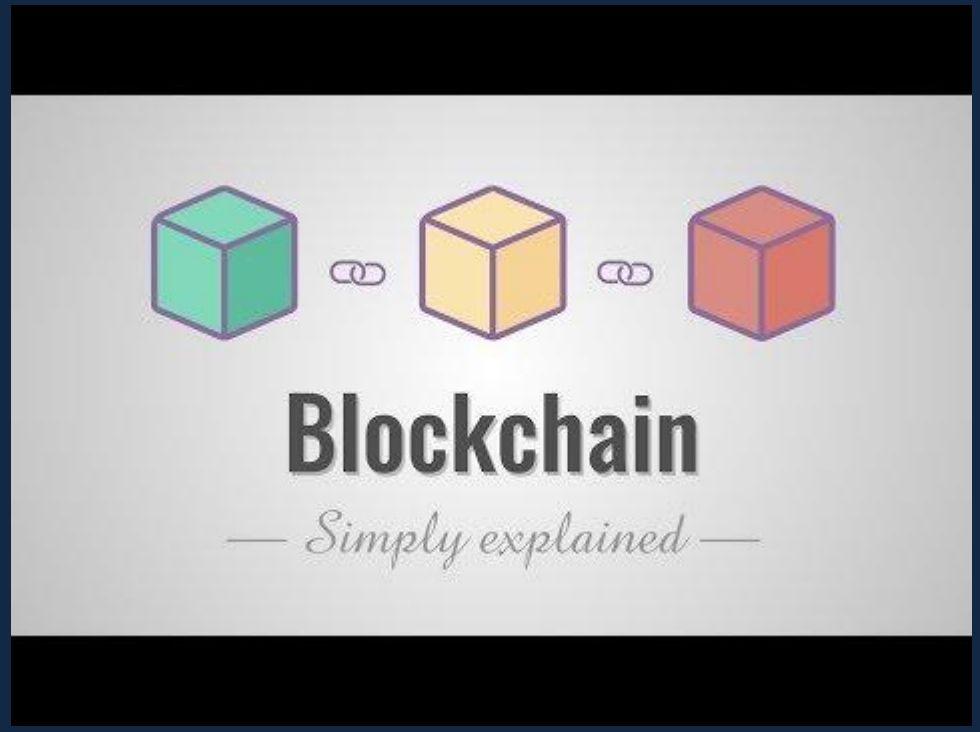
How it works

Watch this video for a basic understanding



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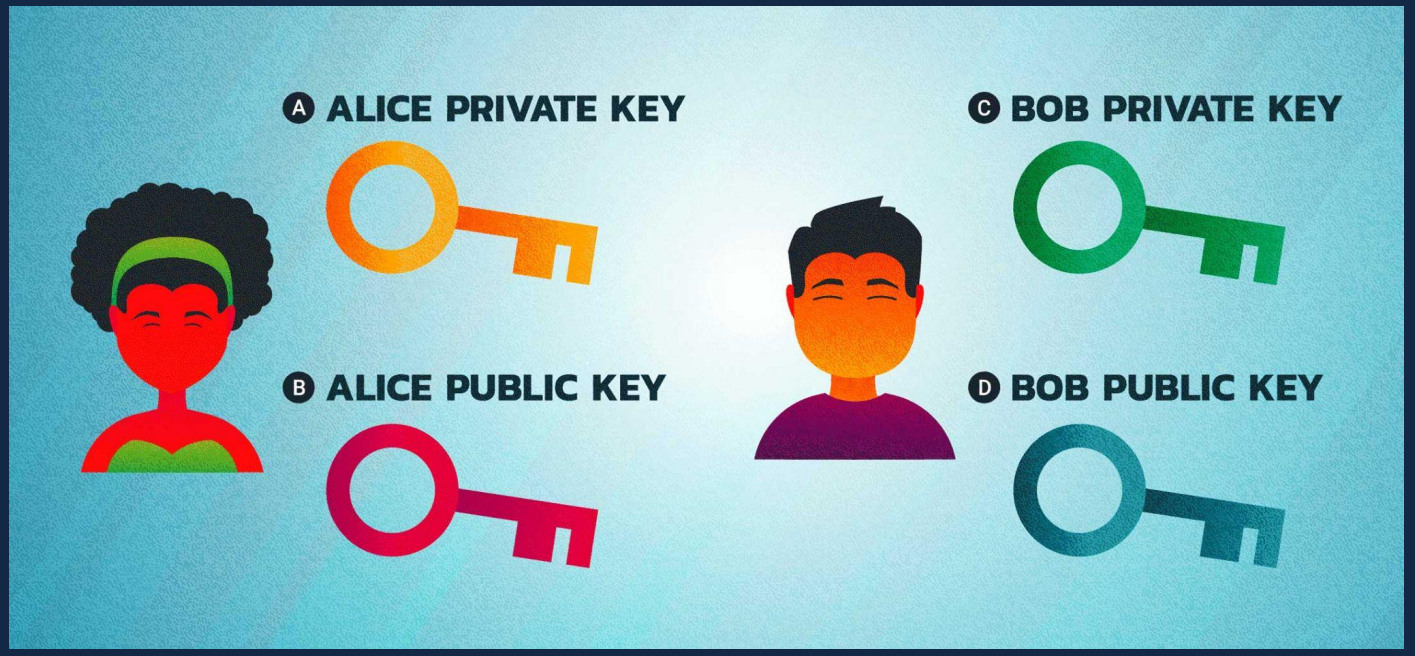
Digital Signatures

- Public private cryptography



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Ledger

- List of history transactions of exchange of value
- Stored in blocks

A	pays	B	15	bitcoins
B	pays	C	10	bitcoins
A	pays	C	15	Bitcoins

Note: The ledger is the value

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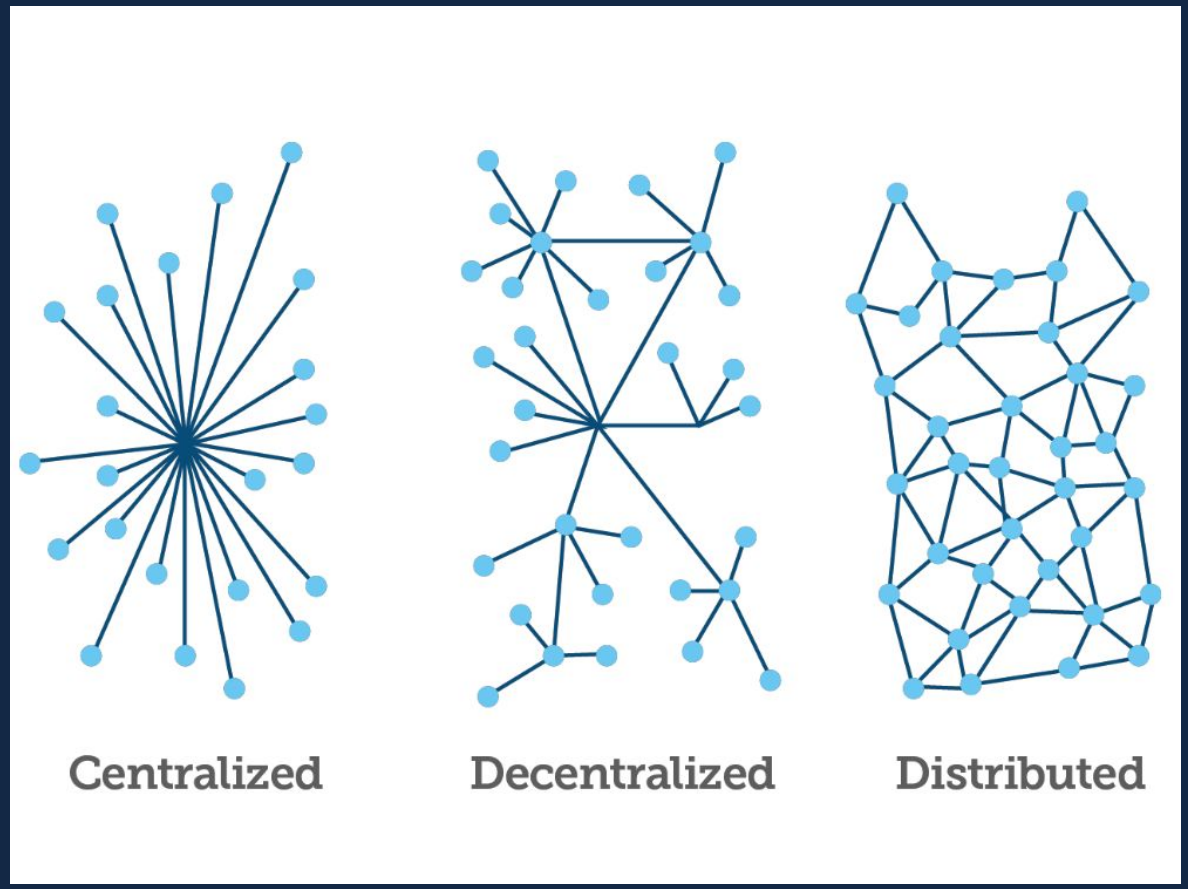
Distributed

- Peer to Peer network of computers that use consensus to maintain the ledger



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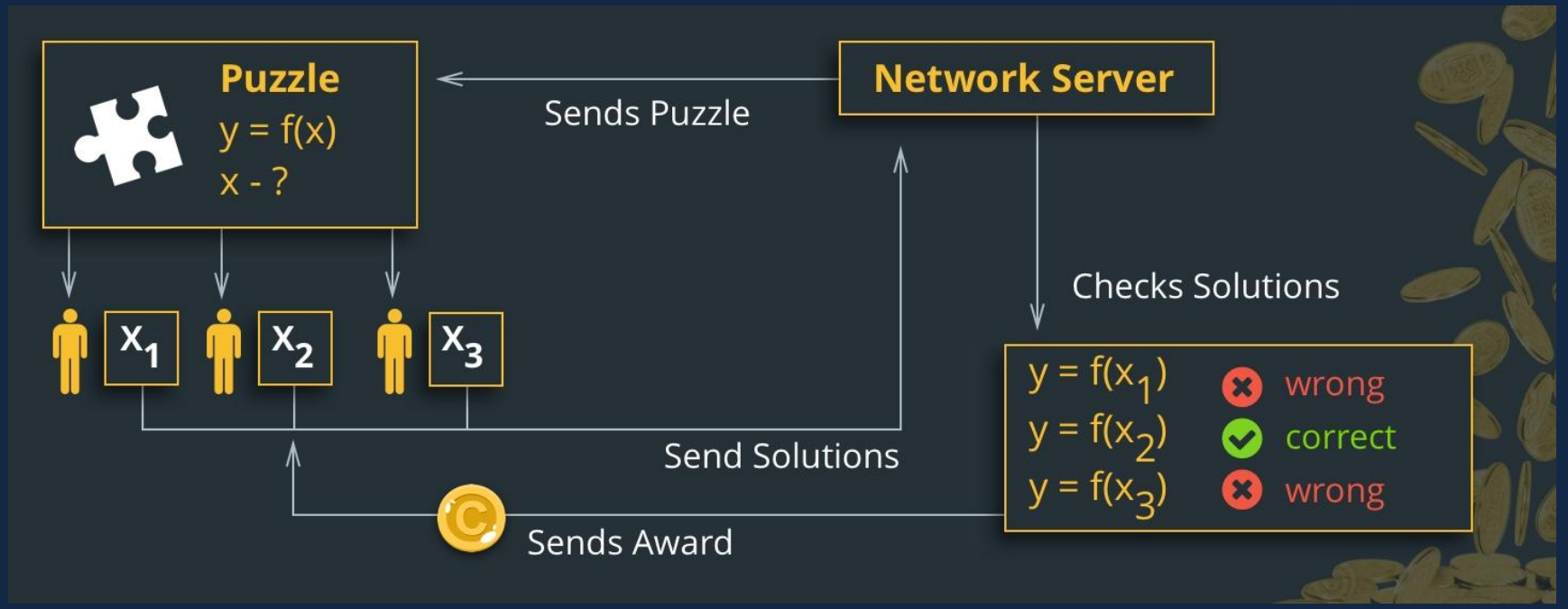
Proof of work

- Difficult puzzle used to validate new blocks
- The computer that solves the puzzle is rewarded with coins by the network



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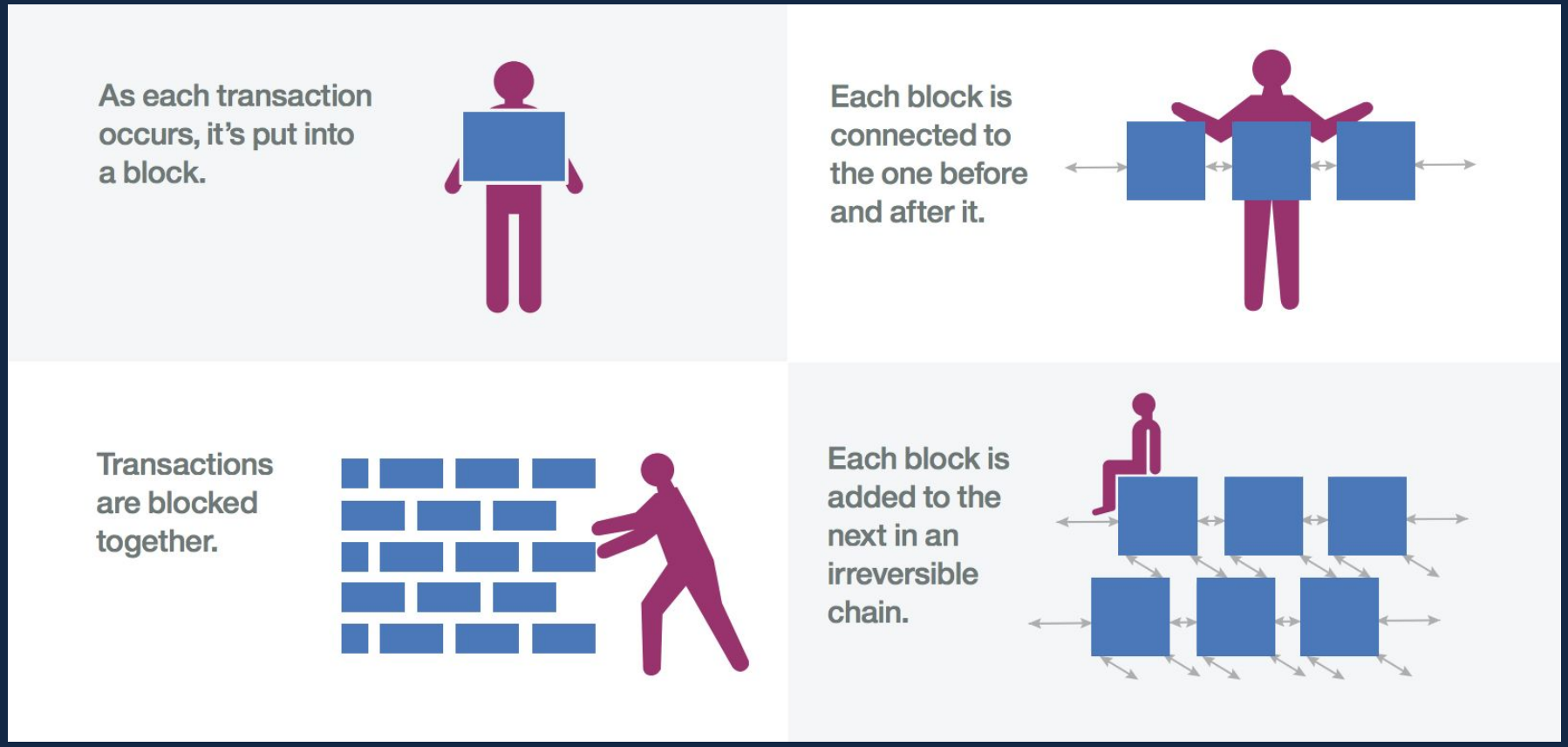
Blockchain

- Immutable, distributed ledger



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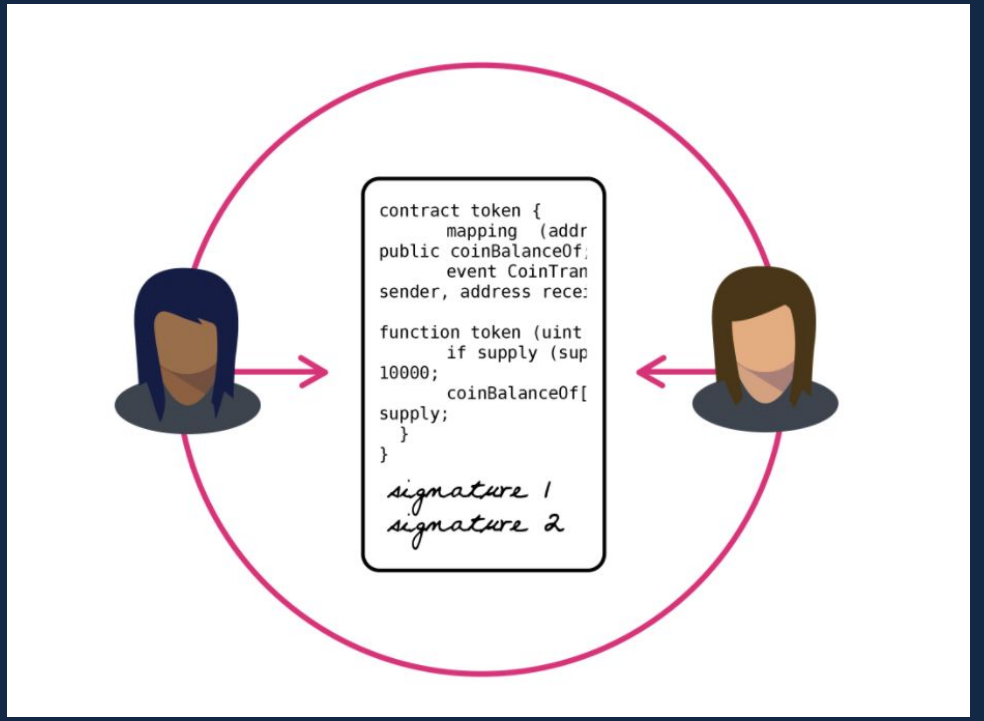
Smart Contracts

- Adds programmability to the blockchain
- Automated agreements



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Benefits

- Reduced costs of infrastructure
- Reduced transaction fees
- Minimal chances of failure due to distribution
- Anyone with an internet connection and join and transact
- Less trust in people and more trust in the system to execute correctly
- Increased difficulty to conduct unauthorised changes

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Steps to Break the Blockchain

- Change the hashes of all subsequent blocks
- Redo the Proof of Work
- Take control of more than 50% of the nodes on the network

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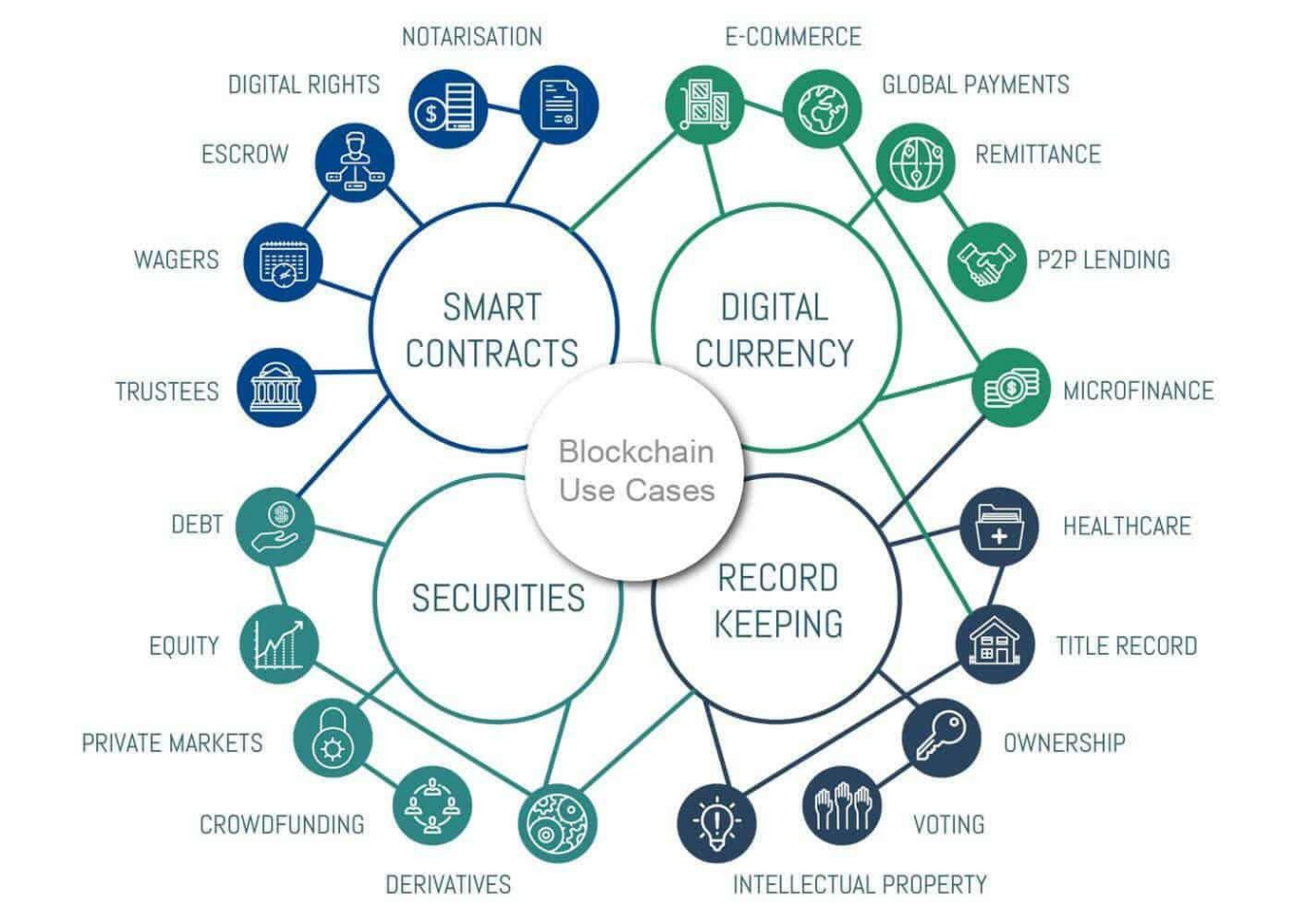
Other Use Cases



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Practical time

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Join Us

- Slack
- Telegram

We will breakdown the blockchain ecosystem and learn together:

- Learning sessions
- Experts talks
- Coding challenges for blockchain

Thank you!

Contact us:
mathenge@impactafrica.network
+254.741.188.942

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