

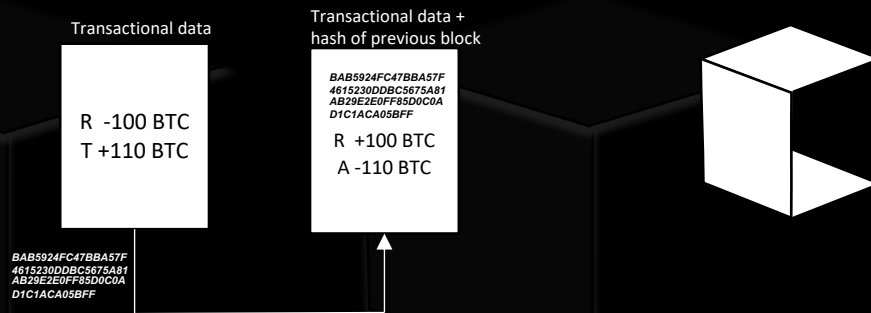
The background of the slide is a repeating pattern of dark gray, three-dimensional cubes. Each cube is rendered with a slight perspective, showing its top, front-left, and front-right faces. The cubes are arranged in a regular grid across the entire slide. The lighting is subtle, with the top face of each cube appearing slightly lighter than the other faces, giving them a three-dimensional appearance. The overall aesthetic is clean, modern, and technical.

# The Decentralized Chain

...a novel technology

# The Genesis

A Blockchain is a decentralized database, made up of blocks and these blocks are the data structure of the Blockchain. A block contains the digital information of transactional data. This data is encrypted using certain encryption algorithms to maintain the security of the chain.



Decentralization and Security are the two fundamental ideas

Measures in place that prevent adversaries from validating fraudulent transactions.

Security

The Dilemma

Decentralization

No single entity controls the network. Anyone is able to join the network and participate as a block-validating node

Three metrics that don't get along

Scalability

Be it any number of transactions a Blockchain is able to handle without slowing down or becoming too costly

# The Technology

...all about Nodes and Consensus

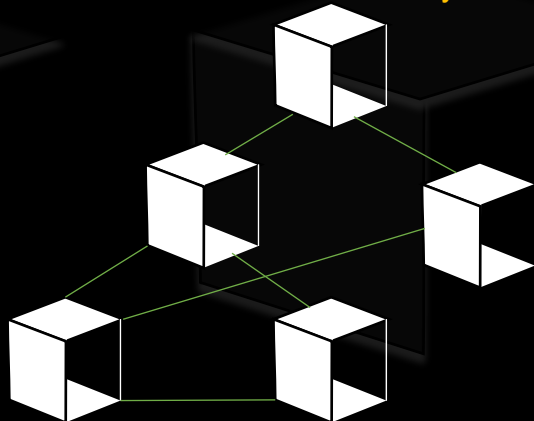
Blockchain exists on nodes

## Nodes

A place where the data is stored, spread and persisted. This is the base of a Blockchain. The node further consists of blocks and these blocks are connected using a signature. These blocks are stored on a node which acts like a small server to the entire Blockchain.

## Consensus

Is a mechanism which builds and maintains the agreement (connection) between all the nodes. To maintain the security adding and deleting.



The first block mined is called GENESIS

## A few Consensus Mechanisms

These mechanisms define the security of the network by proving certain mathematical calculations.

These mechanism are also judged by their cost, scalability, robustness, and the time taken for a transaction.

1. Proof-of-Stake- It involves the allocation of responsibility to a node in maintaining the public ledger [1] to a participant node against the a certain proportion currency tokens held by them.
2. Proof-of-Work- It requires a participant node to prove that the work done and submitted by them qualifies them to receive the right to add new transactions to the Blockchain.

Apart from the mentioned above there are many mechanisms in the Blockchain space with different properties: Proof-of-Activity, Proof-of-Capacity, Proof-of-Burn, Proof-of-History, and Proof-of-Elapsed Time.

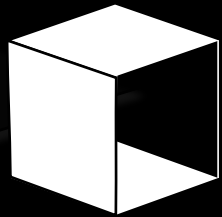
[1] Public Ledger - The public ledger is used as a record-keeping system that maintains participants' identities in secure and anonymous way

# Mining the Bitcoin

...the working

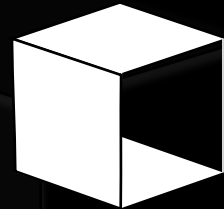
## 1. Transaction data

Each block on the Blockchain stores 1MB of data



## 2. Signature is created

A hash is generated out of the transactional data



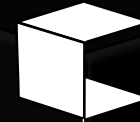
Tom -100 BTC  
Sam +100 BTC

BAB5924FC47BBA57F4  
615230DDBC5675A81AB  
29E2E0FF85D0C0AD1C1  
ACA05BFF

## 3. Chaining the blocks

A signature of 'Block 1' is added to the data of the 'Block 2'

Block 1 (Unique Data)



The unique string generated → x32

Block 2 Unique Data + x32



The unique string generated → 9Bz

## 4. Signature Qualification

A signature doesn't always qualify. Every block has a unique hash bound to it with the other block and its data without which the block will not be accepted into the chain

Block 1 Unique Data



The unique string generated → x32

Block 2 Unique Data + x32



The unique string generated → x32

Not allowed as hash is not unique

## 5. Making a block immutable

A malicious miner has to crack the signature of all the blocks in order to alter one block and it is only possible if they have substantial computing resources.



Safe Block



Attacker



Safe Block

## 6. Determination of Rules

For the block to be a part of the Blockchain, it has to follow certain rules that have been established by the Blockchain organization. However, since it is a decentralized network, it doesn't have to be controlled.



## 7. Crypto currency

Blockchain came into existence to record transactions of BitCoin, the world's first crypto currency. All major crypto currencies have Blockchain for recording transactions. If someone buys a BitCoin, it is recorded in a BitCoin Blockchain.

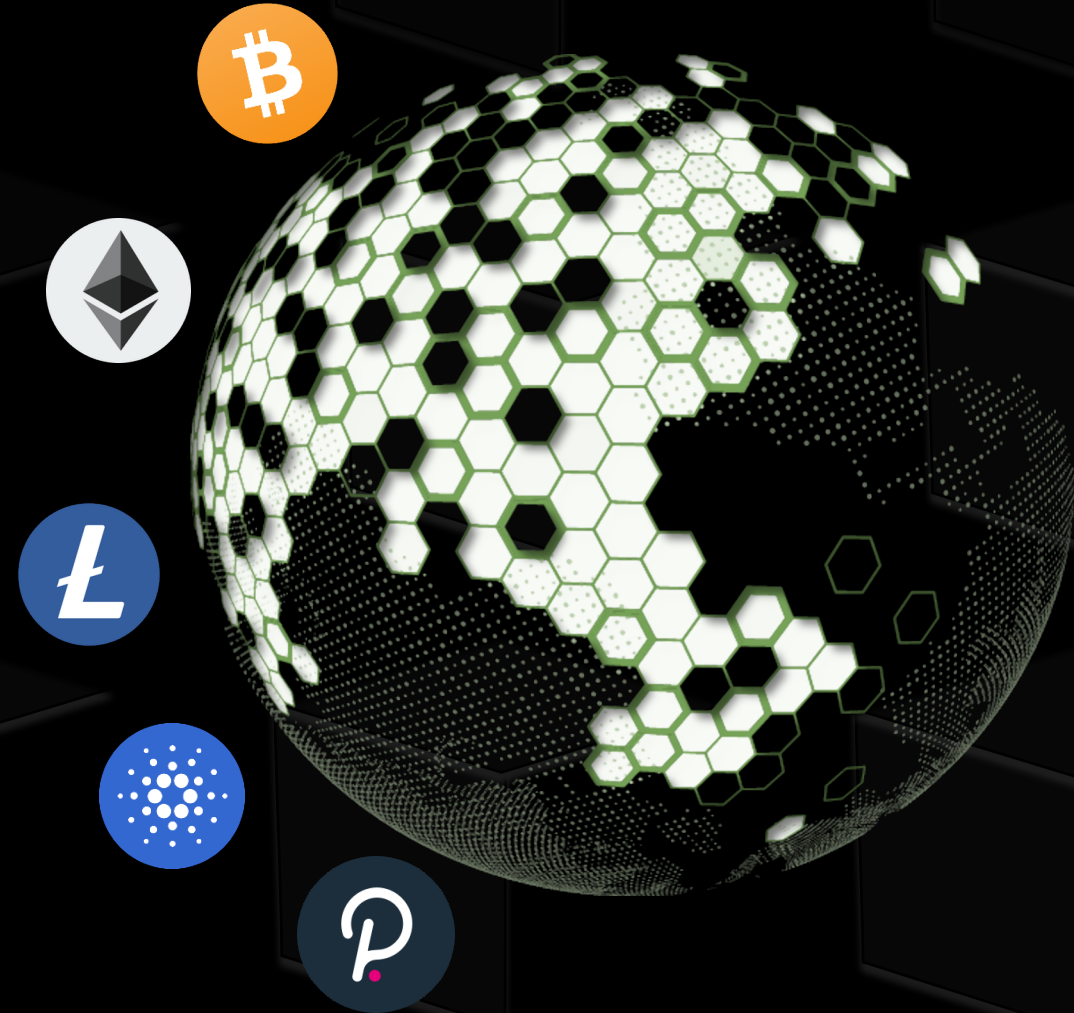


# Players

...industry cap of Blockchain

The global blockchain technology market size was valued at \$5.92 billion in 2021 and is expected to grow at a compound annual growth rate of 85.9% from 2022 - 2030. The market growth can be attributed to the increasing venture capital funding in Blockchain technology companies.

1. Bitcoin
2. Ethereum
3. Litecoin
4. Cordano
5. Polkadot



# World of Blockchain

...the implemented use cases

Because of the novel technology and the assured security Blockchain is widely used in varied fields viz., Healthcare, Education, Entertainment, etc.

## Use Case in Education

The Central Board of Secondary Education (CBSE) has introduced Blockchain technology as this will serve as a single source truthful data for verification for students going for higher education or employment.



## Use Case in Entertainment

Blockchain is proving to be a perfect solution for enabling more accurate royalty payments in the form of smart contracts that meet predetermined conditions, such as releasing payments to the right recipient every time their tune is played.



## Use Case in Healthcare

Given rising cases of ransomware attacks and rising concerns about medical privacy in general, Blockchain might seem like a perfect solution for the healthcare industry.

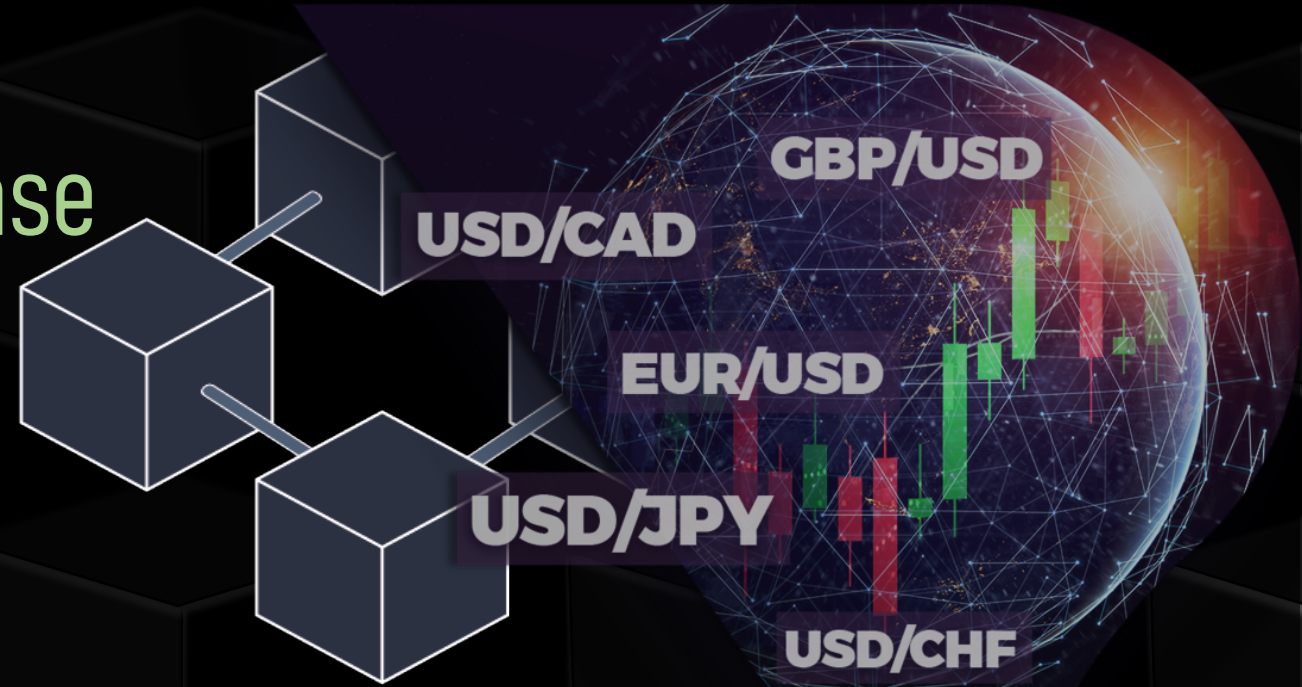


# BlockForex a FinTech Usecase

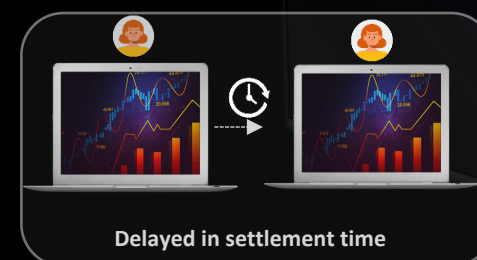
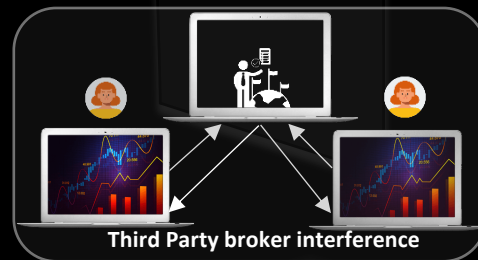
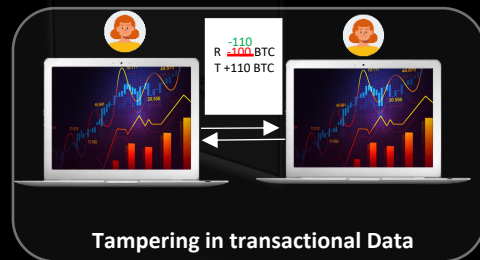
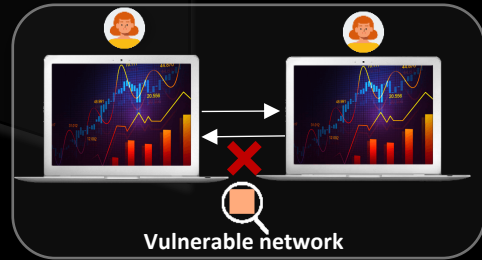
...a research

## Bringing Forex Market onto Blockchain

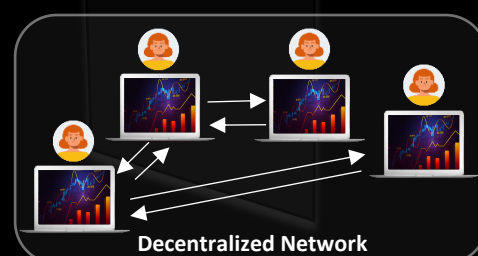
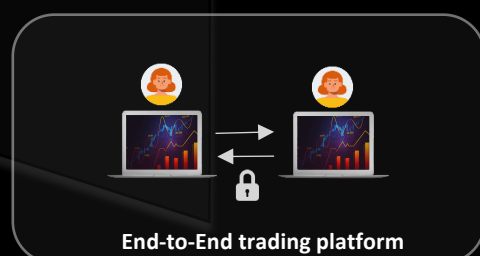
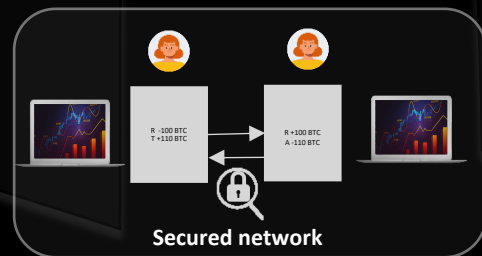
A research project on bringing the forex market onto the Blockchain for a smooth and clear forex trading experience.



### Causes in the current trading platform



### Introduction of Blockchain Technology will assure



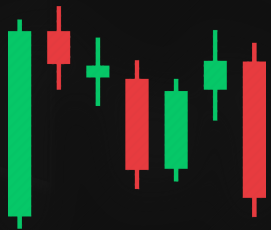
# Blockchain of the Forex

...introduction of the technology

## Work of Blockchain

### The Order Management System

#### Module 1



Select and analyze your Foreign Currency Pair

#### Module 2



Either Buy or Sell the selected Foreign Currency Pair

Transactional data of each trade will be stored in a blockchain to make it decentralised, secure, ensure smooth scalability.

This will also ensure that the forex markets are immune to price manipulation and make the overall forex trading experience fair, smoother and faster

#### Module 3



Accounting and General ledger



# References

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- Blockchain Technology Market Size, Share & Trends Analysis Report By Type (Private Cloud, Public Cloud), By Application (Digital Identity, Payments), By Enterprise Size, By Component, By End Use, And Segment Forecasts, 2022 – 2030, by Grand View Research, February 2022
- How Blockchain Technology is set to redefine the Forex industry, by International Business Magazine, 28<sup>th</sup> February 2020.
- Is Healthcare Ready for Blockchain?, Jared Kaltwasser, by MHE publication, 8<sup>th</sup> February 2022
- Top 5 blockchain use cases in media and entertainment, publish by Protokol, 2022.