What is FinTech?

Technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of services.

**Enabling technologies**

- Artificial intelligence
- Big Data
- Machine Learning
- Distributed computing
- Cloud
- Cryptography
- Distributed Ledgers Technology (DLT)
**Distributed ledgers** use independent computers (referred to as nodes) to record, share and synchronize transactions in their respective electronic ledgers (instead of keeping data centralized as in a traditional ledger).

**Distributed ledgers**

- Distributed ledger
- Consensus on data

- Appended only
- Distributed
- Decentralized
- Cryptographic verification and authentication
- Resilience increases with node counts

**Traditional networks**

- Centralized databases
- Internal/External reconciliation is required
- No restrictions changing data
- There is a single point of failure
- Single point of control
- Many gateways and middlemen
- Actions completed on behalf of others
- Backup is required
Blockchain is one type of distributed ledger.

Blockchain organizes data into blocks, which are chained together in an append only mode.

Every block created after the first block contains the hash of the previous block data.

Blocks store information validated by nodes that are cryptographically secured.
DIFFERENT TYPES OF BLOCKCHAIN

PUBLIC
No central authority

HYBRID
Controlled by permissionless process

PRIVATE
Controlled by one authority

CONSORTIUM
Controlled by a group
CRYPTOCURRENCY: a digital or virtual currency secured by cryptography and based on a network that is decentralized.
Every user has a **private and a public key**

Public key generated by applying a cryptographic method called “**hash function**” to the private key

When a user wants to send some of their bitcoins to another user, they will use their private key to **sign the transaction**.

The signing of the transaction creates **an identifier** for the transaction **without revealing the private key**.
Everyone in the network can authenticate the veracity of a transaction

Transaction is sent to the network

It is placed with other transactions in a block

If all transactions in this block are authentic, then that block will be added to the blockchain

Who does the authentication?
# Cryptocurrencies vs Tokens

<table>
<thead>
<tr>
<th>Cryptocurrencies</th>
<th>Tokens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital representation of money</td>
<td>They can represent any asset that is fungible and negotiable</td>
</tr>
<tr>
<td>Units of account</td>
<td>Have broader functions than currency/coins</td>
</tr>
<tr>
<td>Store of value</td>
<td>Do not have their own blockchain</td>
</tr>
<tr>
<td>Means of payment</td>
<td>Operate on other cryptocurrencies’ blockchains</td>
</tr>
<tr>
<td>Operate on its own blockchain</td>
<td></td>
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<tr>
<td>Can be mined</td>
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The tokenization of assets is the process of issuing security tokens (a type of blockchain token) representing real digital tradable assets.

It is an extended use case of blockchain technology that enables the purchase, sale and exchange of digital assets on the distributed ledger.
New terminology

- Security Token Offering (STO)
- To tokenize an asset
- Smart contracts
- Token standard
SMART CONTRACTS

**IMPORTANT:**
They offer transparency, accuracy and efficiency by making contractual terms and historical data publicly available.

- Digital tokens backed by underlying assets
- They are controlled and executed using a smart contract
- Contract terms and conditions put into lines of code
- Smart contracts are self-enforcing and self-executing
- Once conditions are fulfilled, tokens can be delivered to investors directly
It is a new method of financing for start-ups in which new digital coins are issued

It is a fundraising tool.

A company creates a new cryptocurrency through the existing platforms and goes for the ICO.

Retail investors can buy the newly created coins / digital tokens and pay for them with other cryptos or fiat currency.
ISSUANCE AND DISTRIBUTION OF NEWLY ISSUED SHARES TO INVESTORS THROUGH INVESTMENT BANKS WHICH ARE THE UNDERWRITERS

IPOs are available only to companies with an established financial performance

Expensive process

Investor buys part of the company itself (the shares)

CREATION OF A NEW DIGITAL CURRENCY ON A BLOCKCHAIN: NO INTERMEDIARIES

ICOs easily available to every kind of startup (MVP) – Crowdfunding 2.0

Not expensive

Investor may buy a utility token or a security token

SOUNDS SIMILAR TO AN IPO?
UTILITY TOKENS

- can buy access to a company’s product or service
- main purpose is to be utilized, with investment a secondary use
- are not regulated
SECURITY TOKENS

Can buy a stake in the company itself

Main purpose is investment, with utility as a secondary purpose

are regulated
Decentralised finance does not confer all decision-making power to a small board.
Decentralized Autonomous Organizations (DAOs) distribute some of the power to token holders.

**On-Chain Governance**: The process of directing a project’s future via decentralised voting measures

What are they used for?

• To make decisions collectively
• To influence decisions
• To propose changes