



اَبُو سَيِّدِي تَيْكُو لُو كِي مَارَا  
UNIVERSITI  
TEKNOLOGI  
MARA

Perpustakaan  
Tengku Anis  
Cawangan Kelantan  
Kampus Machang

# BLOCKCHAIN TECHNOLOGY



# TOPICS COVERED

- WHAT IS BLOCKCHAIN TECHNOLOGY?
- THE IMPORTANCE OF BLOCKCHAIN
- HOW IT WORKS?
- BENEFITS OF BLOCKCHAIN TECHNOLOGY
- DISADVANTAGES OF BLOCKCHAIN TECHNOLOGY
- BLOCKCHAIN SECURITY RISKS
- CONCLUSION



## WHAT IS BLOCKCHAIN TECHNOLOGY?

Blockchain is a shared, immutable ledger that aids the process of recording transactions and tracking assets in a business network. An asset might be material (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding) (intellectual property, patents, copyrights, branding). Virtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved.

**The importance of blockchain:** Information is the lifeblood of business. The faster and

more accurate it is received, the better. Because it delivers immediate, shareable, and entirely transparent information kept on an immutable ledger that can only be viewed by permissioned network users, blockchain is excellent for delivering that information. A blockchain network can track orders, payments, accounts, production and much more. You can see all details of a transaction end to end because members share a single view of the truth, giving you greater confidence as well as new efficiencies and opportunities.



## HOW BLOCKCHAIN WORKS

Each transaction is recorded as a "block" of data as it occurs

These transactions depict the movement of a tangible (a product) or intangible asset (intellectual). The data block can store any information you want, including who, what, when, where, how much, and even the condition of a shipment, such as the temperature.

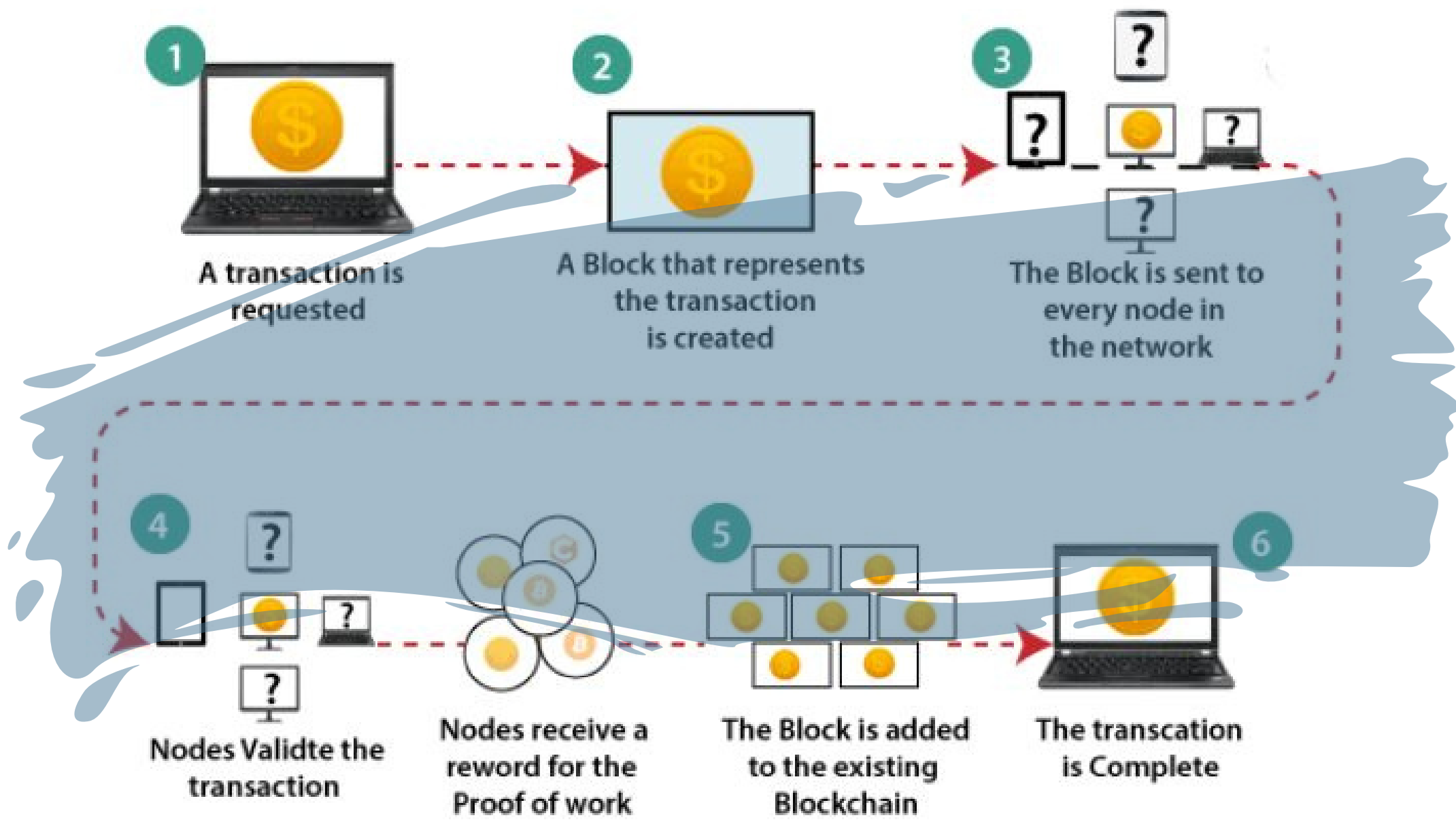
Each block is linked to the ones that came before it and those that came after it

As an asset transfers from one location to another or ownership changes hands, these blocks form a data chain. The blocks confirm the exact time and sequence of transactions, and they are securely linked together to prevent any block from being changed or inserted between two other blocks.

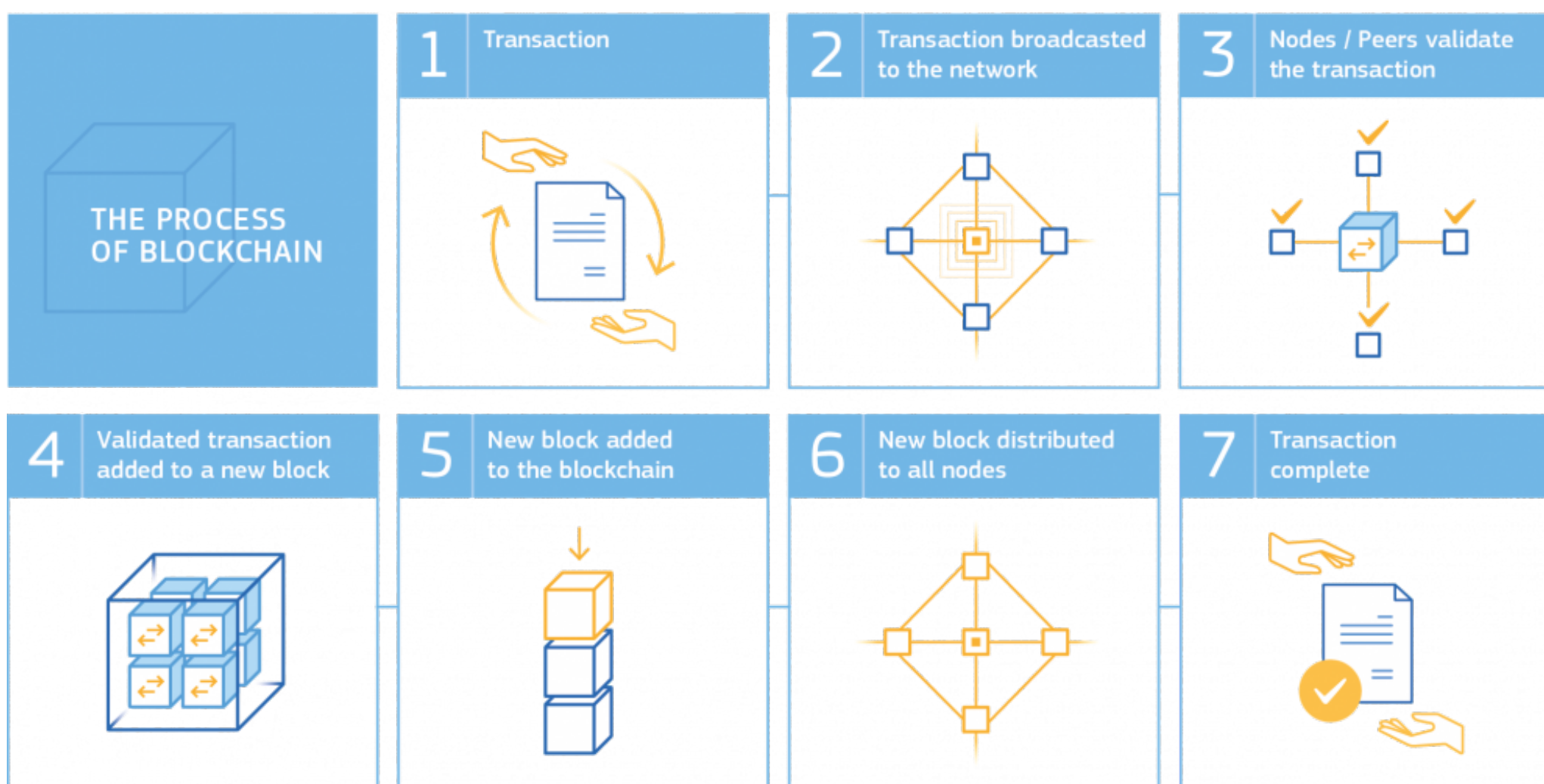
In an irreversible chain, transactions are blocked together: a distributed ledger technology

Each successive block reinforces the prior block's verification, and hence the entire blockchain. The blockchain becomes tamper-evident as a result, giving the key strength of immutability. This eliminates the risk of tampering by a hostile actor, and creates a trusted record of transactions for you and other network users.

# How Blockchain Works



## THE PROCESS OF BLOCKCHAIN



## BENEFITS OF BLOCKCHAIN TECHNOLOGY



### Greater trust

As a member of a members-only network, you can trust that you will receive accurate and timely data from blockchain, and that your confidential blockchain records will be shared only with network members to whom you have specifically authorised access.



### Greater security

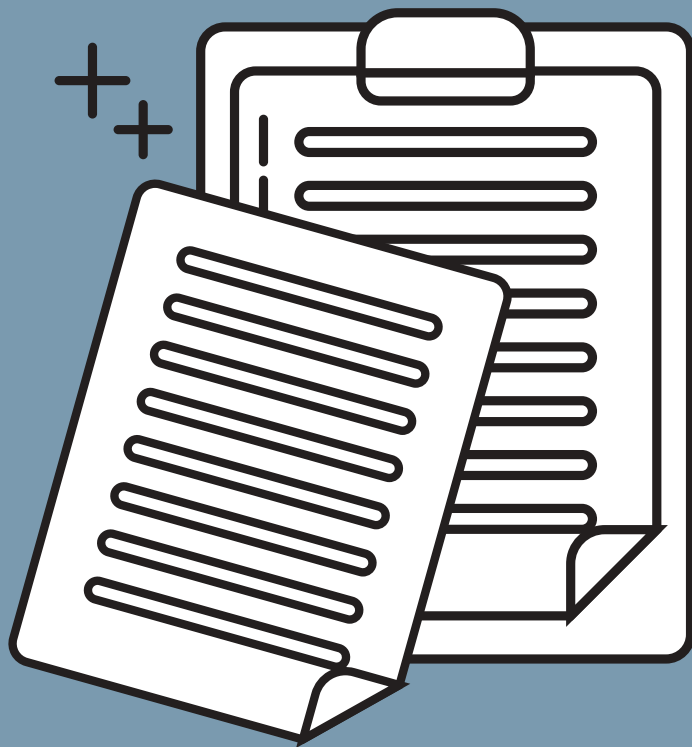
All network participants must agree on data accuracy, and all confirmed transactions are immutable because they are permanently recorded. A transaction cannot be deleted by anyone, not even the system administrator.



### More efficiencies

Time-consuming record reconciliations are eliminated with a distributed ledger shared across network participants. A collection of rules called a smart contract can be placed on the blockchain and implemented automatically to speed up transactions.

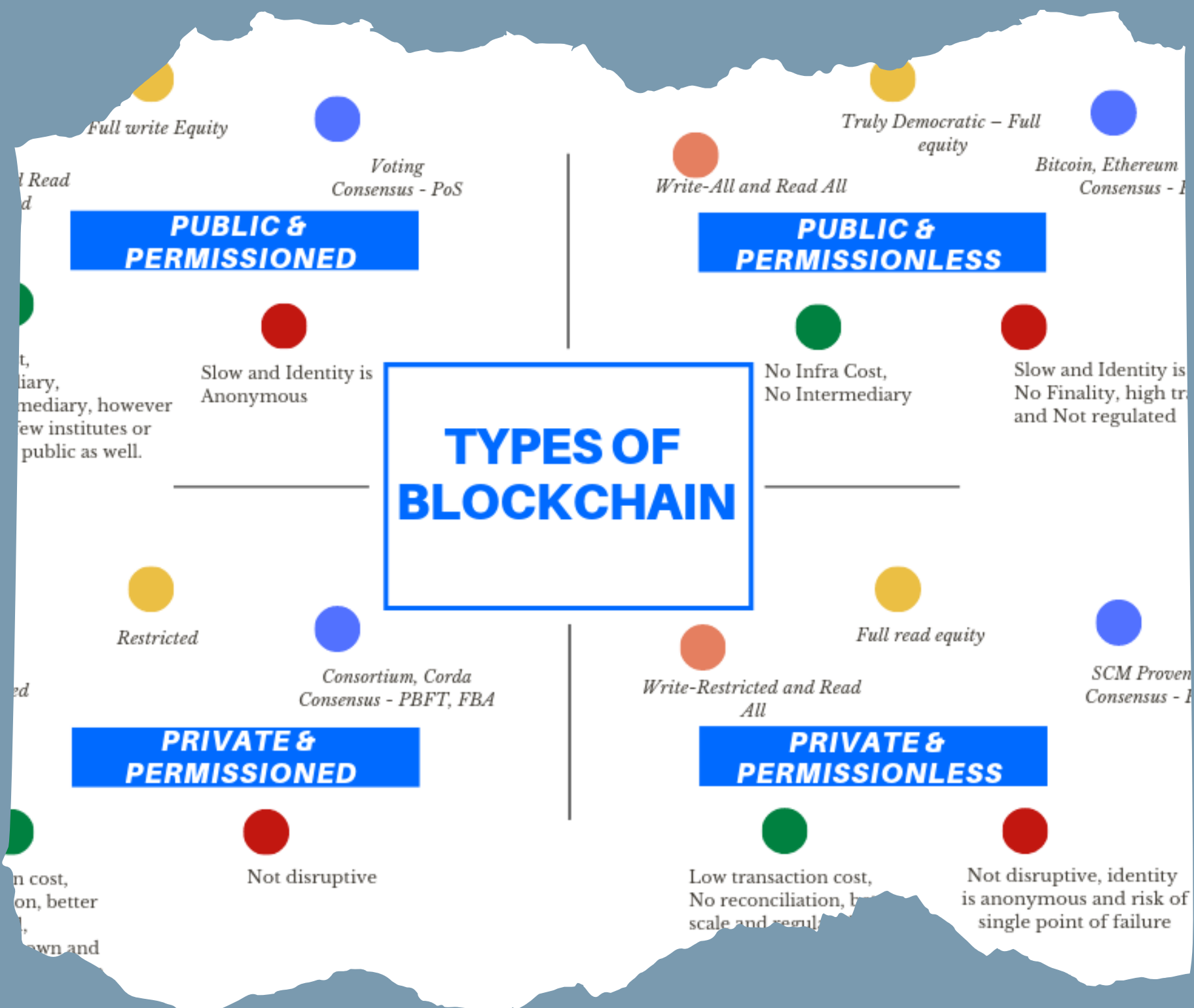
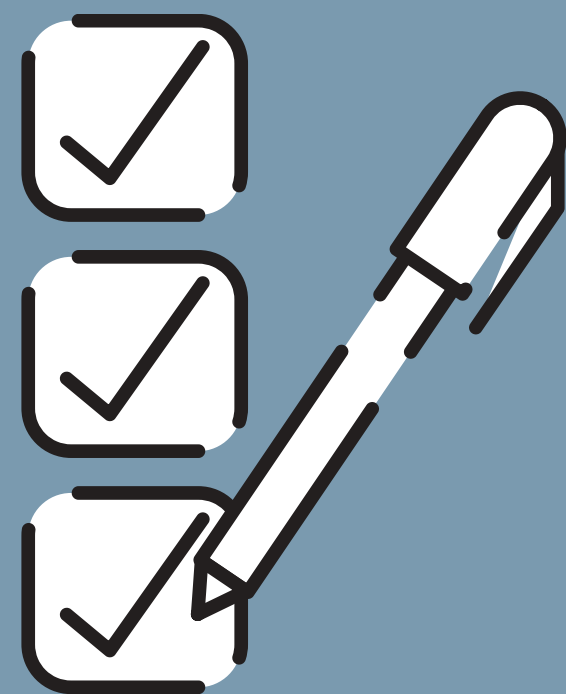
# Key Elements of Blockchain



- Distributed ledger technology
- Immutable records
- Smart contracts

# Types of Blockchain Networks

- Public blockchain networks
- Private blockchain networks
- Permissioned blockchain networks
- Consortium networks







## DISADVANTAGES OF BLOCKCHAIN TECHNOLOGY

### A Distributed Computing System is not the same as a Blockchain.

A blockchain is a network that runs on nodes. The blockchain's quality is determined by the nodes' quality. The blockchain of Bitcoin, for example, is robust and encourages nodes to join the network. A blockchain network that does not incentivize nodes, on the other hand, cannot be said to be the same.

This means it isn't a distributed computing system in which the network isn't reliant on the nodes' participation and activity. A distributed computing system, on the

other hand, strives to ensure that transactions are verified according to rules, that transactions are recorded, and that each transaction has a transactional history. These acts are all similar to those of blockchain, although there are a few differences.

Each of these actions is analogous to blockchain, but none of them have the same level of synergy, mutual help, or paralleling.

While blockchain is clearly a distributed network, it lacks the characteristics that make a distributed computing system so advantageous to businesses.



**Some blockchain solutions use excessive amounts of energy.**

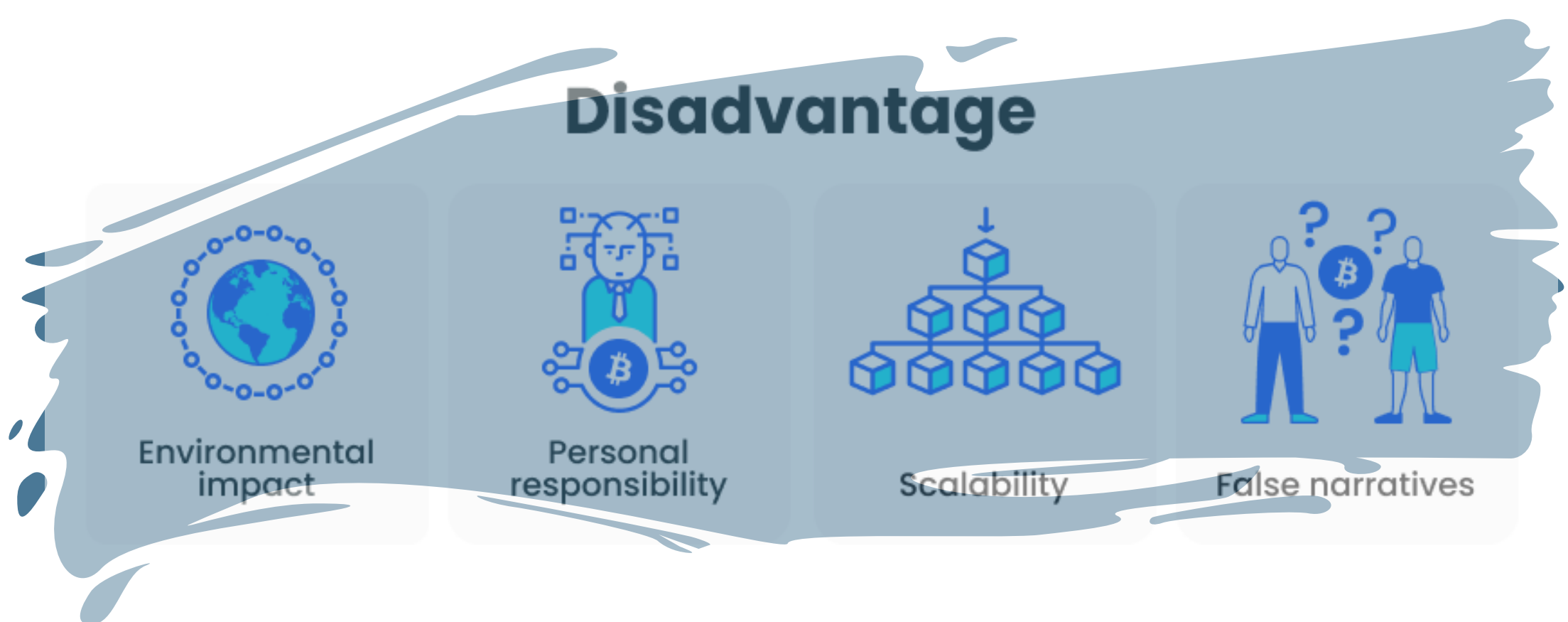
Bitcoin was the first to use blockchain technology. It employs the Proof-of-Work consensus algorithm, which entrusts the hard work to the miners. The miners are rewarded for solving difficult mathematical tasks. The significant energy consumption renders these complicated mathematical problems unsuitable for real-world applications.

The miners must solve problems every time the ledger is updated with a new transaction, which requires a lot of energy. Not all blockchain solutions, however, work in the same way. Other consensus algorithms have successfully

handles the problem. Permissioned or private networks, for example, do not have these issues because the number of nodes in the network is limited. They also use efficient consensus procedures to obtain consensus because there is no need for global consensus.

However, when it comes to the most prominent blockchain network, Bitcoin, there is still a problem that needs to be addressed.

To summarise, permissioned networks are energy efficient, whereas public networks might take a significant amount of energy to remain active.



## BLOCKCHAIN SECURITY RISKS

### Lack of security vulnerability coverage

In security vulnerability databases, enterprise blockchain software has limited to no coverage. This means that most consumers will be unaware of security upgrades unless they specifically watch vendor release notes.

### Lack of code scanning and security testing

Because the sector is so new, the current crop of blockchain and smart contract code-scanning tools isn't very mature. To make matters worse, many smart contracts are implemented without undergoing a security audit. This is beginning to change, but multiple security incidents have taught people the value of auditing code and establishing fresh secret keys before deploying it.

### Operational risks

Assume you have a secure blockchain as well as properly-formed smart contracts with no security issues. The blockchain and smart contract code must still be run on something, preferably something that is well connected and dependable. If you go with the cloud or third-party hosting, make sure they're both secure.

# C O N C L U S I O N

Blockchain is a game-changing technology. It will make life easier and safer by altering how personal information is maintained and how goods and services are purchased. Every transaction is recorded in an immutable and permanent manner using blockchain technology. Fraud, hacking, data theft, and information loss are all impossible with this unbreakable digital ledger. Manufacturing, retail, transportation, healthcare, and real estate are just a few of the industries that will be affected by technology. Google, IBM, Microsoft, American Express, Walmart, Nestle, Chase, Intel, Hitachi, and Dole are all pursuing blockchain adoption as early as possible. Blockchain has the potential to revolutionise about \$400 trillion across numerous industries.



# R E F E R E N C E S

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