

# What is blockchain?

Let's talk about the shared ledger technology poised to revolutionize the way the world works.

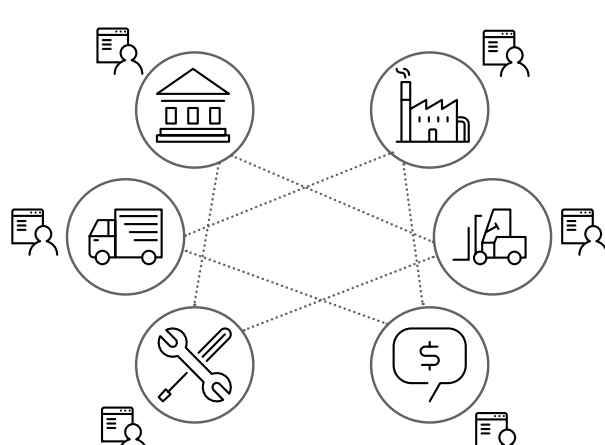
## Why do we need blockchain?

Business transactions take place every second of every day — orders, payments, account tracking and much more. Often, each participant has his or her own ledger — and, thus, a version of the truth that may differ from other participants.

These multiple ledgers can be a recipe for error, fraud and inefficiency. But because members on a blockchain share a common view of the truth, it's now possible to see all details of a transaction end-to-end, reducing those vulnerabilities.

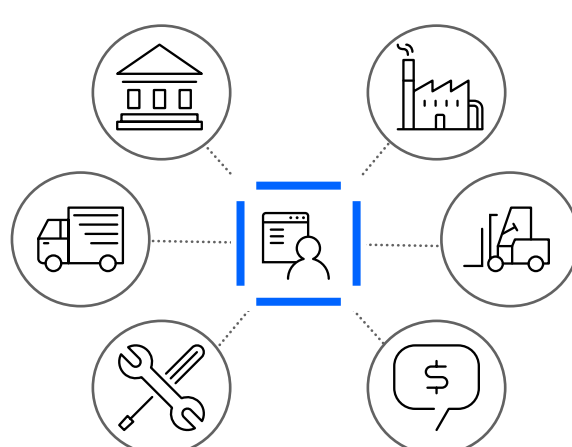
## Ordinary transactions are complex

- Each participant has his own, separate ledger — increasing the possibility of human error or fraud
- Reliance on intermediaries for validation creates inefficiencies
- Can become a paper-laden process, resulting in frequent delays and potential losses for all stakeholders



## Blockchain reduces that complexity

- Single, shared, tamper-evident ledger — once recorded, transactions cannot be altered
- All parties must give consensus before a new transaction is added to the network
- Eliminates or reduces paper processes, speeding up transaction times and increasing efficiencies



## Building a blockchain



As each transaction occurs, it's put into a block

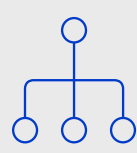


Each block is connected to the one before and after it



Transactions are blocked together, creating an irreversible chain: a blockchain

## Blockchain benefits are critical to enterprises



**It's distributed**  
Blockchain works as a shared system of record among participants on a business network, eliminating the need to reconcile disparate ledgers.

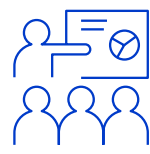


**It's permissioned**  
Each member of the network has access rights so that confidential information is shared on a need-to-know basis.

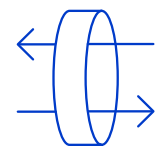


**It's secure**  
Consensus is required from all network members, and all validated transactions are permanently recorded. No one, not even a system administrator, can delete a transaction.

## Blockchain is creating extraordinary opportunities for businesses to come together in new ways



**Create new value**  
Exploit new business models and eliminate inefficiencies



**Optimize ecosystems**  
Streamline business processes and the exchange of value along your ecosystem



**Reduce risk**  
Replace uncertainty with transparency through a trusted decentralized ledger

## Let's see how it works in one industry

Tracking diamonds from mine to final customer is complex. Smuggling, fraud, counterfeit diamonds and unethically-mined stones pose real challenges. With blockchain, it's possible to:



Keep a record of high-resolution photos for each diamond at every touchpoint along its journey



Track real-time records of every payment transaction



Hold certificates of authenticity



Maintain product details like cut, clarity, color, carat and diamond serial numbers.

## Blockchain can help enterprises across many industries:

- Free up capital
- Lower transaction cost
- Speed processes
- Provide security and trust



Want to know more? Visit [ibm.com/blockchain](http://ibm.com/blockchain)

