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
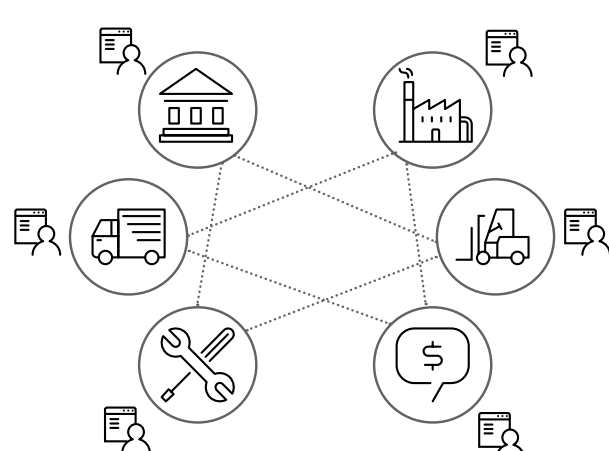
Blockchain reduces that complexity

• 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
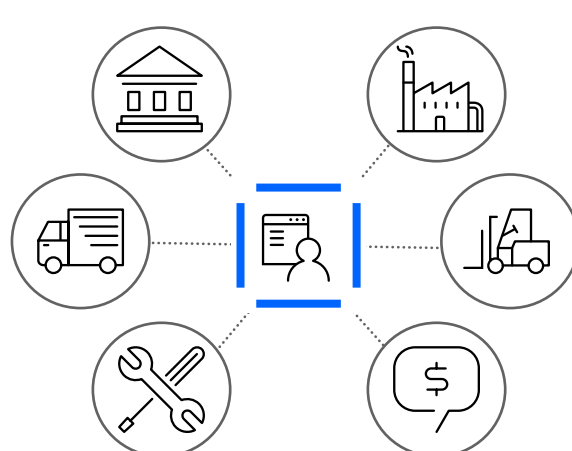
Building a blockchain

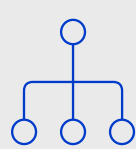**As each transaction occurs, it's put into a block**

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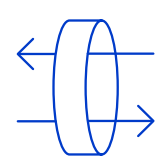
It's secure
Consensus is required from all network members, and all validated transactions are permanently recorded. No one, not even a system administrator, can delete a transaction.

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**