# An introduction to blockchains

Marc Piano, associate at Bedell Cristin, explains the basic concept behind blockchains

**Blockchains are commonly perceived to be complex and difficult to understand. While the technology involves a blend of several elements of computer science, the concept behind it is fairly simple.**

This article provides a gentle introduction to the most important parts of blockchain technology.

### What is a blockchain?

Using the example of a bank, transactions between individuals are processed through a central authority (i.e. the bank), which holds and updates a central ledger relating to those transactions. Both parties trust the central authority and rely on the records of the transaction in that central ledger as 'the truth'.

A blockchain removes that central authority. Instead, parties transact directly with each other and the record book is not controlled and updated by any single source. Instead, anyone can hold a copy of the ledger and take part in updating and maintaining it. This is known as 'decentralisation'.

A blockchain, then, is effectively a shared spreadsheet, recording transfers of anything of value. Some are private and others public.

### What is decentralisation?

Each blockchain operates by different rules and is intended for different uses. These rules are accepted by the consensus of developers, contributors and users, and can change if enough people agree, but no single central authority can impose changes.

Unlike a traditional ledger, a blockchain is not stored on a central server. Instead, it is stored and synchronised across many computers at the same time. This means that if a blockchain is deleted from one computer, it is not lost forever and can be restored from the copies held on the other computers.

Decentralisation also means that people using a blockchain do not need to know or trust the other parties they are dealing with. Instead, trust is built into the way the blockchain itself operates, as everyone involved has no choice but to play by the same rules if they want to use or help maintain a blockchain – this is known as 'trustless consensus'.

### How does a blockchain work?

A blockchain is comprised of a chain of blocks. Each block contains a number of recent transactions, which build on and are consistent with and verified by reference to previous blocks.

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Recording transactions within a block, and verifying and adding the blocks themselves to the chain, involves cryptography and other rules to ensure that the blockchain is secure and not easily hacked.

Blocks are added by computers running special software, and these blocks are separately confirmed by other users of this software so that incorrect information is not added.

Once blocks are added to the chain and confirmed, transactions are generally 'immutable', meaning that they cannot be amended. Some uses of blockchains require you to download special software in order to transact, while others allow parties to transact directly with each other through web-based interfaces without needing to download the blockchain itself, widening accessibility.

### Why are people so excited about blockchains?

Blockchain offers a new method for people to interact with each other directly in a way that is trustworthy and reliable.

Private blockchains and distributed ledgers in particular are attracting significant interest and investment. The technology can offer instant settlement between parties without an intermediary.

### What is next?

As use of blockchain technology increases it will simply become a backbone for transactions rather than a novel technology in itself and the underlying platform will be irrelevant to users who engage with others on it.

Recently, startups have raised significant capital using blockchain technology to develop products and services intended to make different transactions between parties faster and cheaper.

Blockchain technology itself is evolving too, to allow more complex operations to run on blockchains, interaction between blockchains and to address security and speed issues.

Blockchain technology has huge potential but the fact that it is an early stage technology and is largely unregulated means that you should carefully research and cautiously approach any potential involvement with blockchains.