



# What is a Blockchain?

## **Preamble**

After the blockchain has long since left the levels of the cryptocurrencies and there are first serious areas of application, it is worth illuminating the technological developments around the blockchain. Against the background of digitization I want to give an insight into the technology of the blockchain, so that the benefits can be evaluated and opportunities derived from it can be correctly classified.

This article is certainly not a comprehensive compendium, but rather an attempt to describe briefly and concisely what the blockchain is gaining in importance and how the current state of development is to be evaluated.

Before we get into the subject, we need to look at the definition of the blockchain.

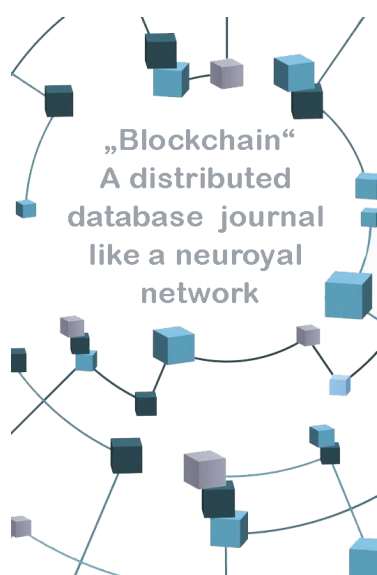
## Definition

The blockchain is a shared, unchangeable, decentralized accounting system (also called distributed ledger technology DLT) in a distributed database for recording the progress of transactions.

The term blockchain also describes the function very precisely, because each transaction process is recorded as a block and subsequent transactions are appended to the existing blocks.

The Blockchain supports a new generation of use cases to accelerate business processes while increasing trust and transparency. The areas of application range from payment transactions, conclusion of contracts, document transfer, distribution and service to economic and industrial processes.

## Does the blockchain stand for secure decentralized data storage?



Many people will know the term "blockchain" from the context of crypto currencies, especially bitcoin. Bitcoin is also the oldest existing original blockchain. Today's blockchains have little in common with this original form, as we find it at Bitcoin. Technology and safety standards have evolved too much here. As a result, however, the possible areas of application of the blockchains have also been considerably expanded.

## The basic idea of the Blockchain?

Basically, the blockchain serves to improve and verify transactions in distributed systems.

The basic idea of a blockchain is to enable a worldwide exchange of values (money, goods, services, etc.) without a superordinate supervisory authority, complicated verification procedures or fees. In short, it eliminates the trustee function in transactions, reduces costs, saves time and increases transparency at the same time.

### **How does the blockchain work?**

Simply put, the blockchain is a very large encrypted text file that contains all transactions. Technically, it is a log file in which all peer-to-peer connections are recorded. It always starts with the initial block. New blocks are created by a so-called consensus procedure and then attached to the block chain.

The data in a blockchain cannot easily be manipulated, as it would build on each other and destroy the integrity of the entire system if manipulated. This makes the possibility of malicious changes considerably more difficult. It is precisely this decentralised control mechanism that eliminates the need for a third body to confirm the integrity of transactions.

The functioning of the blockchain is explained in more detail in the presentation by Mr. Vilma Núñez, vimla@xmpp.honet.ch, which he introduced at the Chaos Communication Congress 2016. See here: [https://media.ccc.de/v/33c3-7824-einfuehrung\\_zu\\_blockchains](https://media.ccc.de/v/33c3-7824-einfuehrung_zu_blockchains)

His lecture gives you a deeper insight into the technology of the blockchain.

## **What can the blockchain do?**

When buying and selling e.g. real estate, including notaries, cities / municipalities, always with. The effort for the documentation of value transfers is expensive. The way in which contracts are concluded or copyrights are managed today could also change dramatically. Digital contracts could monitor themselves in the future. The technical term for this type of contract also already exists: "Smart Contracts". Established supervisory bodies are then no longer necessary. Business transactions take place every second of the day, such as orders, payments, account tracking and much more.

Often each participant keeps his own journal and manages his version of the truth, which can be different from other participants. Ordinary transactions are complex, each participant has their own separate account, which increases the likelihood of human error or fraud. Dependence on intermediaries leads to inefficiencies and can become a paper-loaded process. This often leads to delays and potential losses for all parties involved.

These intermediaries can be a recipe for error, fraud and inefficiency. However, because the members of a block chain have a common view of the truth, it is possible to see all the details of a transaction throughout and reduce these weak points.

Optimization potentials are conceivable in the following areas:

- the reduction of risks in financial transactions
- simplification of internal operating procedures
- efficient interaction between regulators and the financial institutions they supervise
- time savings in booking and processing financial transactions
- better use of a company's equity and liquid assets
- reducing the risk of fraud

## **The blockchain reduces complexity**

- A simple, common, tamper-proof journal secures once recorded transactions and these can no longer be changed.
- All parties are involved in consensus building before a new transaction is added to the network.
- Eliminates or reduces paper processes, accelerates transaction times and increases efficiency.

## **The advantages of the Blockchain are decisive for companies**

Blockchain works as a common system of records between participants in a corporate network, eliminating the need to synchronize different journals.

Every member of the network has access rights so that confidential information can be exchanged on a "need to know" basis. Nobody, not even a system administrator, can delete a transaction.

## **The Blockchain creates extraordinary opportunities for companies**

- Invites business partners to come together in new ways and enables the use of new business models and the elimination of inefficiencies.
- Invites you to optimize your business processes and exchange values along your ecosystem.
- Replaces uncertainty with transparency through a trustworthy decentralized journal.

Track your "diamonds" from the "mine" to the end customer and reduce and prevent fraud through plagiarism and smuggling.

Track the supply chain of your valuable products on their journey to the end user. Track all payment transactions in real time.

Blockchain will help companies in many sectors:

- to release capital
- minimize transaction costs
- accelerate processes
- to create security and trust

Progress in digitisation, currently also in the form of the blockchain, is helping to initiate a transfer of power and control through this technology.

Currently, centrally controlled systems such as Google, Facebook, Amazon, Paypal to name but a few still dominate.

In the future, the trend towards distributed systems will develop to protect users who increasingly want to regain control of their data.

The LPM Academy has developed introduction concepts for the topic of block chain to familiarize you with today's possibilities and to motivate you to start future projects..

## **Epilog**

The publication of a sponsor handbook for the introduction of Blockchain technology is imminent.