

Blockchain

How bitcoin technology can revolutionize finance

Interest in the technology is booming

Leading banks are investing heavily in blockchain, the technology behind bitcoin. The value of bitcoin itself has plummeted by 75% since 2014, a fall triggered by the bankruptcy of the MtGox trading platform, which handled 70% of bitcoin transactions. Still, the enthusiasm about the underlying blockchain platform has remained and has even increased, particularly in the finance industry. One important example is SEB and Nordea joining DLG, Distributed Ledger Group, an international organization devoted to creating a standard for the technology in the financial services industry. This article explores why the interest in blockchain is currently booming.

Blockchain - the basics

Bitcoin and its blockchain technology were first mentioned in 2008 in a paper published by Satoshi Nakamoto, whose real identity is unknown to this day. January 2009 saw the creation of the first Bitcoins and thus the first block in the chain. Today, the chain contains 383,000 blocks. A new block is added roughly every 10 minutes. What is a block? A Lego tower being built by two kids serves as an appropriate analogy. When a new tile is added to the tower, the builders must first agree on colour, size and shape. Consensus is reached with a combination of persuasion and brute force. Once in place, the selected Lego tile is put on top of the existing ones to increase the height of the tower.



In the blockchain world, a block is like a Lego tile, one that holds up to 1 MB of data about thousands of Bitcoin transactions created through Bitcoin wallets downloaded by users. Thousands of computers, grouped in a network of nodes or "miners", receive an exact copy of the chain. In order to add new blocks to the chain, they first have to reach a consensus on what that block should look like. Once a consensus is reached, the block is accepted and added to all copies of the chain. The chain cannot be altered unless a majority (51%) of the thousands of miners agree. This creates a robustness that differs vastly from the Lego tower, which can easily be torn down by one rebellious toddler.

For an in-depth explanation of the complex logic behind the blockchain technology, check out the Bitcoin videos on [khanacademy.org](https://www.khanacademy.org). The rest of this article will explore the pros and cons of the technology and focus on its potential value for banks.

Blockchain - The Pros

The blockchain technology introduces the possibility of distributing databases while safeguarding security. The main reason security remains high is that the consensus logic denies any single node to update the blockchain and hence the information of confirmed transactions. For anyone to hack the blockchain, a so-called 51% attack is required. This means that the hacker needs to control 51% of the computers in the network and manipulate them in the interval between the creation of two blocks. To this date, no one has successfully executed such an attack. However, with computing power increasingly being moved into data centres (like KNC miner in Sweden) this type of hack could become more likely in the future.

Blockchain - The challenge

The blockchain technology is currently experiencing what the community calls a "constitutional crisis". The crisis comes down to one technical detail: the size of the blocks. With the current 1 MB block size limit, the bitcoin network can process only up to seven transactions per second. To accommodate for future growth, the block size needs to increase and the community needs to agree on how. This year, two conferences, in Montreal in September and in Hong Kong in December, addressed the issue. The most favoured option is known as Bitcoin XT, which allows for the block size to grow to 8 MB, followed by a 40% increase every two years. Due to its limited bandwidth, the Chinese mining community (which constitutes more than 50% of the world's Bitcoin mining capacity) is the main force opposed to raising the block size. If a consensus cannot be reached, the blockchain technology used for Bitcoins will reach its "capacity cliff" in 2016. This will result in an influx of transactions too high for the network to process, leading to long waiting times for users and even the risk of lost transactions.

What's in it for the banks

Today, banks are struggling with internal ledgers built decades ago. Syncing them between banks can take several days. The blockchain technology is attractive because it could provide an efficient solution to settle transactions between banks without involving a third party intermediary. According to Santander, blockchain could save the industry up to SEK 180 billion per year. To reach the full potential of the technology, banks need a better standard than the one currently used by Bitcoin. They must also be in control of the technology to remove dependencies and the risk of any more "constitutional crises" in the Bitcoin community. To address this, 30 international banks have joined forces under the leadership of the R3 group. The aim is to set a future blockchain standard and "settlement coin" for the banking sector. This industry body is called the Distributed Ledger Group. Nordea and SEB are its Nordic representatives.

Truly disruptive for transactions

A low transaction cost and a consensus-oriented "truth" in terms of distributed ledgers makes the blockchain technology extremely promising for banks. Time will tell if the R3 CEV project will succeed in solving the challenges the Bitcoin blockchains are facing. If an agreement on a settlement coin can be reached, the technology has the potential to change the world of payments and transactions and at the same time be part of the solution for the much needed replacement of aging internal ledgers.

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