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| Number | Definition of Blockchain | Authors |
|  | The blockchain is a system based on cryptographic proof instead of trust people, to trusting math. Blockchains are databases that contain all the transactions ever executed in a Blockchain network, They are permanent, distributed ledger, resistant to tampering and carried by all nodes of the system. Networks are open, and there is no need to trust to interact. The electronic transactions are verified by nodes of networks through cryptographic algorithms without a third party. Every transaction is protected by a mathematihcal mechanism called proof of work. | (Nakamoto, 2008)  (Atzori, 2015) |
|  | Blockchains are a new form of discentralized information technology that could have critical future developments across disciples and industries. It is the future of integrating digital societies. One of the benefits of blockchains is the ability to verify and authenticate both users and information in real-time. | (Swan, 2015) |
| 1 | “The main idea of blockchain is a distributed database comprising records of transactions that are shared among participating parties. Every one of these transactions are verified by the consensus of a majority of the participants in the system, making fraudulent transactions unable to pass collective verification. Once a record is created and verified by the blockchain, it can never be altered.in theory | Zhao, J. L., Fan, S., & Yan, J. (2016). |
| 2 | “Blockchain is a decentralized ledger network. Every time a transaction is completed, it forms a “block,” and each new transaction is connected to the previous block to form a “chain”—hence the term “blockchain. The appeal of blockchain lies in its transparency and security. The blocks are chronological and immutable, meaning that every transaction is traceable and cannot be altered. Because it is decentralized (meaning it is it' not controlled by a single main authority but rather by the users), blockchain also cuts out the middleman when it comes to financing, by eliminating the need for a third party (i.e., banks or governments) to process and store payments.” | Casey, M. J., & Wong, P. (2017, March 13) |
| 3 | ” The blockchain is a distributed ledger technology in the form of a distributed transactional database, secured by cryptography, and governed by a consensus mechanism. A blockchain is essentially a record of digital events. However, it is not ‘‘just a record,’’ since it can also contain so-called smart contracts, which are programs stored on the blockchain that run as implemented without any risk of downtime, censorship, or fraud.” | (Buterin 2014) |
| 4 | **“**A blockchain ledger allows participants to add blocks of information after each party runs algorithms to evaluate a proposed transaction. If the parties agree that the transaction looks valid -- identifying information matches the blockchain's history and follows the rules created by the participants -- then it will be approved, time-stamped and added to the chain. The data, encrypted and unchangeable, is always up-to-date on all participants' systems.” | Kim S. Nash, 2018 |
| 5 | **“**A key property of blockchain technology, which distinguishes it from traditional database technology, is that it is publicly verifiable, supported by integrity and transparency of the system. In other words, it would be practically impossible to change an entry in the database, because it would require changing all of the data that comes before, on every single node.” | Guatemala: Could Blockchain Help The Recognition Of International Arbitration Awards?  May 2018 |
| 6 | “Blockchain, in layman's terms is a technical solution to the gathering of multiple third-party confirmations of events and facts surrounding a particular transaction that can provide the key transaction parties with the assurance that their counterpart's performance of the contract has occurred and that the transaction has  completed. What might have been achieved in former days by making a dozen phone calls or participating in a dozen meetings and exchanging multiple pieces of paper could be achieved by a dozen secure and authenticated electronic record "blocks" being "chained" together to provide incontrovertible proof of contractual performance.” | Robert Parson 2018 |
| 7 | “As a refresher, a blockchain is decentralized, secure, digital ledgers that can be used to record many different types of information. First developed as the architecture behind the popular cryptocurrency Bitcoin, it allows for real-time transfers and a dramatic reduction in transfer fees.” | Martin Rogers July 2017 |
| 8 | “A blockchain can be viewed as a data structure which makes it possible to create a tamper-proof digital ledger of transactions and share them. Cryptography allows anyone access to add to the ledger securely. There is no central authority or a middleman such as a bank or financial institution.6 It is impossible or challenging challenging to change or remove data blocks recorded on the ledger. Due to these features, blockchain can arguably make it possible to reduce or eliminate integrity violations such as fraud and corruption, and reduce transaction costs.” | Nir Kshetri 2017 |
| 9 | “Blockchain is built on the Bitcoin protocol, the first peer-to-peer (P2P) electronic case systems that allow payments to be sent online from one entity to another without the intervention of a financial institution (Nakamoto [2008](https://link.springer.com/article/10.1186/s40854-016-0039-4" \l "CR22" \o "View reference)). As a result, trust is established not by powerful intermediaries, such as banks, governments, and technology companies, but through mass collaboration and clever code on the Blockchain (Tapscott and Tapscott [2016](https://link.springer.com/article/10.1186/s40854-016-0039-4" \l "CR32" \o "View reference)). The blockchain is a transaction database shared by anyone participating in the system. cryptocurrency is the most known application of Blockchain technology, transactions records are stored as data blocks, which are chained together cryptographically. It is open to any node in the system, and everyone can enter new entries. However, new blocks cannot be added without the proof-of-work and agreement by the other nodes participating in the system. At this moment At this moment At this moment At this moment, blockchain guarantees the accuracy of the information it stores. The blockchain is immutable; therefore, once a block is modified, it will also regenerate every subsequent block (Khan [2015](https://link.springer.com/article/10.1186/s40854-016-0039-4" \l "CR13" \o "View reference)).” | * Yuanfeng Cai * Dan Zhu   2016 |
| 10 | “A blockchain or Blockchain is a distributed database that maintains a continuously growing list of data records that are hardened against tampering and revision, even by operators of the data store's nodes. One can view a Blockchain as a public ledger of all transactions that have ever been executed. It is constantly growing as completed blocks are added to previous blocks forming a chain. Importantly, blocks are added to the Blockchain in a linear, chronological order. Each miner gets a copy of the Blockchain when joining the Bitcoin network. The Blockchain they receive has complete and accurate information about the addresses and their balances right from the genesis block to the most recently completed block.” | Kurt Fanning   David P. Centers  2016 |

Atzori, M. (2015). Blockchain technology and decentralized governance: Is the state still necessary?

Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system.

Swan, M. (2015). *Blockchain thinking: The brain as a dac (decentralized autonomous organization).* Paper presented at the Texas Bitcoin Conference.