**What are the disadvantages of blockchain**

*Blockchain aficionados and developers will undoubtedly find a way to circumvent these obstacles in light of the technology’s enticing benefits.*

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Most blockchains are designed as decentralised databases that function as distributed digital ledgers. These blockchain ledgers store data in chronological blocks linked by cryptographic proofs. Blockchain has outgrown its infancy, and businesses have now been able to utilise it in its mature form – beyond its obvious applications for financial institutions. Numerous industries have benefited from the development of blockchain [technology](https://www.financialexpress.com/life/technology/), which enhances security in environments devoid of trust.

Every coin has two sides. For example, blockchains require more storage space and are less effective than traditional centralised databases. Even though blockchain technology has progressed remarkably since its inception, some challenges need resolutions before blockchain’s widespread adoption for daily transactions.

Scalability :

Contrary to their centralised counterparts, blockchains have limited scalability. If you have used the [Bitcoin](https://financialexpress.com/about/bitcoin/) network, you are most likely aware that the speed at which transactions are completed depends on the network congestion. In simple terms, the chances of slowing down are higher as more people or nodes join the network. For example, there is a significant difference between Bitcoin and VISA transaction speeds. Currently, Bitcoin transactions are limited to 4.6 per second. VISA, however, is capable of 1,700 transactions per second. The solution is to do transactions beyond the blockchain and only use blockchain technology to store and acquire data. There are also new ways to deal with scalability, such as using blockchain solutions with different architectural designs or permissioned networks.

Storage:

Blockchain databases are stored permanently on all network nodes, posing a storage problem. The amount of data that can be stored on a personal computer is limited, and as the volume of transactions rises, so does the size of the database. Blockchain ledgers have the potential to become extremely large over time. Currently, the Bitcoin blockchain requires approximately 200 GB of storage space. The size of blockchains seems to be growing faster than the size of hard drives, and the network could lose nodes if the ledger gets too big for users to download and store.

Security:

Blockchain offers greater security than other platforms. However, this does not imply that it is entirely safe. There are several ways in which the blockchain network can be compromised, some of which are listed below:

1. In a 51% attack, network control is possible if one entity controls 51% of network nodes. They can then make changes to the ledger and double-spend. It is possible on networks with controllable miners or nodes. 51% of attacks, therefore, are less likely to occur on private networks and more likely on public networks.

2. Another drawback with blockchain is double-spending. The blockchain network uses Proof-of-Stake, Proof-of-Work, and others to prevent double-spending. Double-spending is only possible on networks susceptible to a 51% attack.

3. During a DDoS attack, the nodes are flooded with requests for the same thing, which slows down or stops the network.

4. Blockchain’s cryptographic algorithm makes it insecure. Quantum algorithms or computing can crack cryptography. However, blockchain solutions now utilise cryptographic algorithms resistant to quantum computing.

Privacy:

Despite being anonymous and encrypted, all network nodes have access to data on a public blockchain. All users of the network can thus legitimately access this data. Similar to how websites typically utilise cookies and web trackers, transactional data is used to identify a person within a network. Unfortunately, this illustrates that blockchain technology is not entirely secure.

Power Use

Due to mining, blockchain&#39;s energy consumption is high. One of the factors that cause this is that as soon as a new node is created, it connects to every other node and builds a distributed, continuously updated ledger. Each blockchain solution works differently. Permissioned or private networks with fewer nodes do not have these issues. Since a universal agreement isn’t required, they use consensus-building techniques. However, the issue remains unresolved if you utilise Bitcoin, the most popular blockchain network. Simply put, permissioned networks use less energy than public networks.

Private Keys:

Individuals’ ability to act as their bank is essential for decentralising blockchain technology. However, this raises another issue. Private keys are needed to access resources or data stored in the blockchain. It is crucial to note details of the private key obtained during wallet creation. In addition, they must ensure that no one else has access to it. If a user loses the private key, they will no longer be able to access the wallet. Blockchain’s dependence on its users is a limitation. This is a disadvantage because not all users are technologically savvy, increasing the likelihood of errors.

Data Immutability

One of the main disadvantages of blockchain technology is the immutability of data. It benefits financial and supplies chain systems. Immutability can only exist if network nodes are fairly distributed. A blockchain network is vulnerable if one entity owns at least half the nodes. Another concern is that data once written, cannot be erased. If someone uses a blockchain-based digital platform, he can’t erase its record.

Cost and Implementation

Implementing blockchain technology incurs substantial up-front expenses. Even though most blockchain solutions are open-source, investing in them is relatively expensive. Hiring developers, managing a team that excels in various aspects of blockchain technology, paying for a blockchain solution, and so on are all expenses. Also, consider maintenance costs. Enterprise blockchain projects can cost well over a million dollars to implement. Therefore, companies that like the concept of Interoperability Another disadvantage of blockchain technology is its lack of interoperability. There are various blockchain network types, each of which operates differently and attempts to address the DLT issue in a particular manner. It results in interoperability issues in which these chains cannot effectively communicate. Interoperability remains a problem for both conventional and blockchain-based systems. Emerging blockchain technologies offer superior solutions compared to earlier blockchain technologies. For instance, Ethereum addressed the inefficiencies by switching to a more effective blockchain technology solution allowing automation through smart contracts. It also implemented Proof-of-Stake (PoS), which is slightly more efficient than Proof-of-Work (PoW). Despite its drawbacks, blockchain technology offers some distinctive benefits and is unquestionably here to stay. Blockchain aficionados and developers will undoubtedly find a way to circumvent these obstacles in light of the technology’s enticing benefits. We are still far from widespread adoption, but businesses and governments will actively experiment with new applications of blockchain technology over the coming years.