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The Big Revolution: Future Potential Of Blockchain Technology

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Abstract

Blockchain is the continuation of humanity's connection with technology. If we think back to a more ancient era, trade was done in a very informal manner. Often the result of one's desire to get what they wanted was with violence. Society as a whole then started becoming more formalized and grew in complexity. Institutions like banks and governments established currency, policy, and regulation. Eventually, we had access to these... **Read More**

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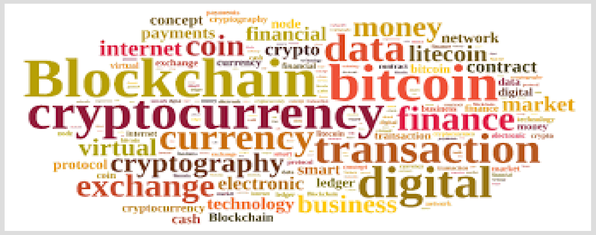
ABSTRACT

Blockchain is the continuation of humanity's connection with technology. If we think back to a more ancient era, trade was done in a very informal manner. Often the result of one's desire to get what they wanted was with violence. Society as a whole then started becoming more formalized and grew in complexity. Institutions like banks and governments established currency, policy, and regulation. Eventually, we had access to these same institutions on the internet and the list grew exponentially. Marketplaces like Amazon and eBay made trade much easier for the common man to use and it kept lowering uncertainties of exchanges.

We now use the Wikipedia and Google for access to near infinite amounts of information. People used encyclopedias to find the information they needed before the internet was born. However, the encyclopedias were centralized and therefore was prone to inaccuracy, but the internet is decentralized.

No one would have predicted we would have ubiquitous giants like Google or Amazon after the internet was born when we had originally thought sending emails was all it could be used for. Similarly, blockchain technology is being declared the next age of the internet.

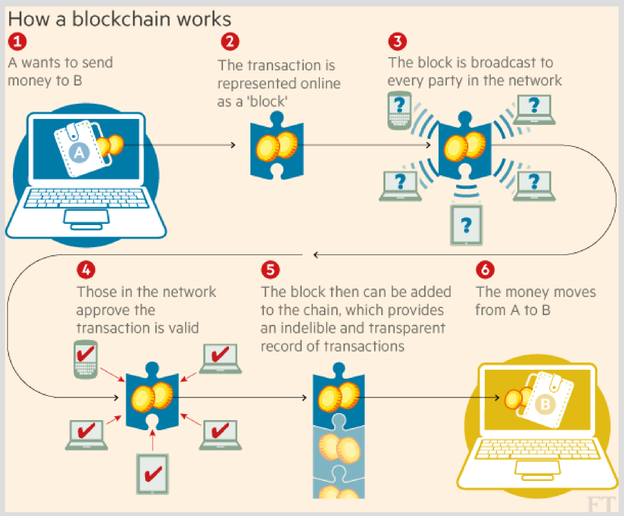
INTRODUCTION



Blockchain is a distributed financial ledger which keeps track of your assets and transactions. It is updated with new blocks of transactions after being verified by miners all around the world. It's the underlying technology behind cryptocurrencies like Bitcoin and Ethereum, but its uses go far beyond that.

Blockchain technology is secured and linked through cryptography and is hard to tamper with. Each transaction is digitally signed to ensure its authenticity, so the ledger itself and the existing transactions within it are assumed to be of high integrity. It is linked and replicated on every computer that uses the network. It's not an application or a company, but it is more like Wikipedia in that it keeps getting updated in a way where we can track the changes and create our own Wikis.

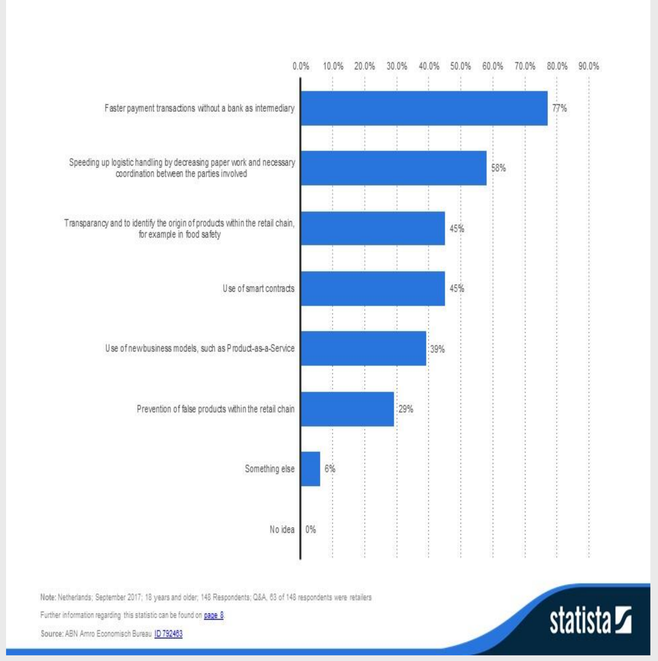
HOW IT WORKS



If a majority of the nodes come to a consensus that the history and signature is valid, the new block of transactions is accepted into the ledger and a new block is added to the chain of transactions.

POSSIBLE APPLICATION

- **Networking & Internet of Things**
  Remote systems can be automated using blockchain to eliminate the need for central locations to handle communication.
- **Decentralization**
  Generate transactions through peer to peer networks lowering the use of intermediaries. The distributed consensus model allows blockchain to runs as a distributed ledger without the need for some central, unifying authority validating the data.
- **Data Management & Smart Contracts**
  Data can be verified in a robust way using a new way of managing trust via smart contracts.
- **Logistics & Supply Chain**
  Goods can be tracked to their origin to verify authenticity and/or the fair trade status of products.
- **Financial Markets**
  Transactions are conducted in a way that eliminates the need for exchanges and reduce transaction costs.
- **Double Spending Problem**
  You can't have two digital copies of the same asset because the blockchain verifies itself automatically.



Which problem could the use of blockchain potentially solve for within the retail chain?*

THE DOWNSIDES

- **Wasteful**
  Each node repeats a task to reach consensus by using a lot of electricity, computer power, and time to obtain results.
- **Speed**
  It needs signature verification, need to be processed by every node in the network.
- **Uncertainty in Regulation**
  Blockchain and Bitcoin face a hurdle in widespread adoption by pre-existing financial institutions and so its government regulation status remains unsettled.
- **Control, Security, and Privacy**
  There are still cyber security concerns that need to be addressed before the general public will entrust their personal data to a blockchain solution. People can also use the anonymity of blockchain to their advantage for illegal activities.

CONCLUSIONS

If this technology evolves, we wouldn't need to be dealing with intermediaries, fraud, or counterfeit products. Transparency, authentication, and auditing would be established by the blockchain itself. We can create a decentralized database with the same efficiency of a ubiquitous company without actually creating a central authority.

Although it is a new concept in its infancy, humans are fantastic at exploring new ideas and coming up with new ways to make their lives easier. Society needs to be prepared for a world where distributed autonomous institutions play a significant role and Blockchain technology can serve as an infrastructure in the background. It's not just an economic evolution; it's an innovation in Computer Science.

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