# Necessity and Implementation of BlockChain Technology

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**Abstract**

Transactions between individuals have always been a part and parcel of human society for the division of labour made people interdependent. The medium of transaction has also been evolving along with the evolution of society and human consciousness from barter system to commodity money to fiat currency and now to digital currency or cryptocurrency. But since evolution is a form of error correction, the problem of double spending in digital currency was solved by a distributed ledger system called Blockchain. Since 2008 onwards the blockchain technology has been separated from bitcoins to be injected to many other problems related especially to banking transactions. Blockchain technology enables the creation of decentralized currencies, smart contracts and intelligent assets that can be controlled over the Internet.

**Keywords:** Digital Currency, Crypto Currency, Ledger, Bitcoins, BlockChain, Transactions.

## Introduction

There felt a need for this technological revolution because of the involvement of third party verifier and record keeper in transactions between two parties. Though the involvement of third party reduced the risk of double spending in relative terms but the fact that third party can itself manipulate the record led to the concept of a distributed ledger that was to be available to all for verification of the transactions. It is thus a decentralized system against the current centralized one. Thus, "blockchain is a public ledger of all Bitcoin transactions that have ever been executed." It is constantly growing as completed blocks are added to it with a new set of recordings. The Blockchain has complete information about the addresses and their balances right from the genesis block to the most recently completed block. The blockchain based transaction is more quick, safe, secure and cheap than with traditional systems. This is because Blockchain use a distributed network that lacks a centralized vulnerable point that is always at the risk of cyber attacks. It also lacks a central point of failure. Public-key cryptography is also used to make sure the data is incorruptible.

## Historical evolution of Blockchain

The first Blockchain was the brainchild of Satoshi Nakamoto who used it in the foundation of the digital currency bitcoin, where it serves as the public ledger for all transactions against the centralized ledger. The blockchain at the core of bitcoin made it the first digital currency to solve the "double spending problem" without requiring a third party as a trusted administrator. Presently the network of Blockchain is secured by proof of work in which the individual or group with the largest computing power makes the decisions. They are called miners and have to solve complex algorithms to provide this security on the incentive of cryptocurrency payments. Recently Blockchain scaling has arrived to make the transactions faster and hence cheap.

## Need of Block Chain Technology:

Now every computer needs not to process every transaction. A scaled Blockchain accelerates the process, by figuring out how many computers are necessary to validate each transaction. These fast, cheap, safe and secure transactions consume less energy and prevent the duplication of efforts and that is why now even commercial banks and central banks are focusing on Blockchain benefits. In India, ICICI became the first bank to adopt this technology in 2016.

## Why banks are turning toward Blockchain but not Bitcoin?

## What promises blockchain holds for India?

## Cheap and secure transactions

Bitcoins aren't fiat currencies i.e. they are not backed by central banks and thus highly unregulated and risky. They are difficult to track and are not universally acceptable. However, blockchain is a sub-structure that can be separated from bitcoins and can be placed under many other super-structures like B2B, G2G and G2B transactions thereby reducing the transaction and maintenance costs present in traditional system. In India, in the current system every banking entity maintains a core banking solution portal (CBS portal) as a centralized digital ledger that is highly vulnerable to cyber attacks and hence socio-political crisis based on

economic crisis. India is presently in the race of going "cashless and paperless" but susceptibility to cyber attacks is very high owing to its digital illiteracy and infancy as is evident from the recent attacks on Hitachi's ATMs, Legion group claims and Ransomware. Moreover, the cross country transactions can become more fast and cheap and the savings can then be spent on social welfare or cyber- security.

## Observation:

The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2016 was awarded jointly to Oliver Hart and Bengt Holmstrom for their contributions to "contract theory". Business today run on contracts and it can be made more equitable and profitable by making the contracts smart. The financial crisis of 2007-08 had many causes including bad contracts among other.

Blockchain hold the promise of making contracts smarter by giving authority to an efficient computer distributed network. These are legally binding programmable digitized contracts on the blockchain. What developers do is to implement legal contracts as variables and statements that can release funds using the bitcoin network as a third party executor rather than trusting a single central authority. Smart contracts can also make the service delivery mechanism of government efficient thereby reducing wastages and maximizing outcomes.

## Future Scope:

There are many constraints in making the whole electoral process online owing to our digital gap but the major one so far is the issue of security and anonymity. Using the blockchain, a voter can check that her vote was successfully transmitted while remaining anonymous. In 2014, Liberal Alliance, a political party in Denmark, became the first organization to use blockchain to vote. With India's voter turnout still shockingly low, distributed digital voting may represent a way to enfranchise non-participants.

Most of these applications are still underdeveloped and the future potential of the blockchain applications is still unraveling. The next couples of years will be all about experimenting and applying to all aspects of society. The bottom line is, Blockchain is here to stay and is transforming how our society functions.

## Conclusion:

Blockchain technology runs the Bitcoin cryptocurrency. It is a decentralized environment for transactions, where all the transactions are recorded to a public ledger, visible to everyone. The goal of Blockchain is to provide anonymity, security, privacy, and transparency to all its users. However, these attributes set up a lot of technical challenges and limitations that need to be addressed. The blockchain also enables the development of new systems with more democratic or participatory decision-making, and decentralized organizations that can operate over a network of computers without any human intervention. These applications have lead many to compare the blockchain to the Internet, with accompanying predictions that this technology will shift the balance of power away from centralized authorities in the field of communications, business. With the use of this technology all the Banking transactions can become more fast and cheap and the savings can then be spent on social welfare or cyber- security.

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