

# BLOCK CHAIN: GAME CHANGING TECHNOLOGY

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## ABSTRACT

We all live in the Era of 4.0 web where disruptive technology like 3D printing self-driven cars virtual reality big data internet of things rules the world. Disruptive technologies are those technologies which replace the existing system or modify the major part of the existing system. The simple example of Disruptive Technology, computer replace typewriter, mobile phone replaced the pager and human beings replaced by robots. We have some techniques that will bring countless changes in people's lives for the coming decades, it is not social media or no big data or artificial intelligence, nor is its robotics. Here we are going to discuss, the one technology that change the entire concept of Digital Transaction, and in other words, we can call it the technology of digital currency. Talking about that is the name of the technology BLOCKCHAIN. When was the last time you bought a brand name item? Like a pair of sunglasses? Or a luxury watch? How could you tell that it was the real thing, and not a knockoff? Or let's say you wanted to make an investment in a multimillion-dollar work of art like a painting? Or sculpture? How could you guarantee that that work of art was actually done by the artist they claim? Or that it wasn't stolen? Having accurate information and a way to verify the sources of things when you're dealing in a situation of a transaction of value is essential. You need to have reliable systems that you can trust, which are tamper-proof. But in a world where we're dealing with Internet fraud, you're dealing with malware, you're dealing with hacks of major institutions like banks or organizations or Internet service providers are getting cyber hacked. How can you trust the quality and integrity of the information that you're getting? The answer is in a technology called Blockchain, and Blockchain can provide a single source of truth that's verifiable, tamper-proof and unchangeable.

Keywords: Blockchain, How Blockchain work, application of Blockchain

**INTRODUCTION:** The major goal of this research paper is to explain the concept of Blockchain how does Blockchain work and what are the various applications of Blockchain in simple words we can say that Blockchain is the technology behind the Bitcoin and cryptocurrency system in other words we can say that Blockchain is the backbone of the Bitcoin currency and also play a major role in many other domains like the internet of things education system banking system and various industries.

So what actually Blockchain is, Blockchain is basically Distributed Data System of record of all the transaction and digital events that are executed and shared by the some participant parties each of the transactions public ledgers are verified by the majority of participants in the system once the information has been it never be erased the Blockchain system contains the various machines to verify the transaction.

*A Blockchain is a database that is shared over the network of computers once the record has been added to the block it is very difficult to change or delete and to ensure the integrity of the data over the network the participant make constant check.*

## FUNDAMENTALS TERMS OF BLOCKCHAIN

This section describes the fundamental terms behind the block a Blockchain comprise of three different components

1. Record: Record can be any information or any data
2. Block: block is basically a combination of record
3. Chain: chain that links together all the blocks.

The Blockchain can be either public or private depend on the scope of it's a public Blockchain enable the permissions Read and write to all the users but in some cases public Bitcoins that limit the assess either read or write but in case of private Bitcoin the permissions are limited Either read or write it depends upon the trust of participants. The major advantage of BIT Blockchain technology is that it is decentralized it means there is no single party that is authorized for any transaction. There is no single device that store all the data, All the data are on the network that spot the Blockchain so there is no subject of approval of any single authority any specific rule that will be provided by the centralize authority.

For a new transaction to be added on the existing chain it has been validated by all the participant and validation and verification process that passed participants must apply the specific algorithm. Another word we can say that the newly repaired block is communicated to all the participants of the node with its unique has to value.

#### ADVANTAGES OF BLOCKCHAIN

- **Reliability:** Because of the nature of decentralization it is not maintained by any particular authority all the data is on an openly distributed ledger and maintained by the causes of nodes show failure in a single node does not mean that it affects the whole network so we can say that the Blockchain is more reliable than centralized data storage system
- **Trust:** Due to the decentralization of network the trust factor is more than other Central I network all the data and lasers are shared among the network and they are tempered proof
- **Security** as we know that Blockchain use the concept of Hash Function which is based on mathematical calculations and it is not easily modified by the hackers and another third party.
- **Efficiency** all the data run through the predefined procedure, therefore, the Bitcoin Technology easily but also improve the efficiency of the work. Blockchain Technology good speed the Clearing and settlements of a financial transaction by reducing the involvement of numbers of intermediates.

#### APPLICATION OF BLOCKCHAIN

When we talk about Blockchain becoming think that where we use the concept of Blockchain or another we can say that what are the various fields where we use the concept of the Blockchain.

**GOVERNMENT:**The government had a number of public and private record that the store in the centralized database and that centralized database is not secure a comet always expressed an interest in Blockchain technology to store this type of public and private records in a decentralized database system show that their record should we secure

**MEDICAL :**Medical records patients are more sensitive like their other private records and all the records are stored in a central database of the hospital sometime hackers store their records and ask for money to not destroy the record so that hospital scan store their record in Blockchain type decentralized database so that no one can hack the record

**ENTERPRISES:** COMPANY like Microsoft and Google provide the services of Blockchain in their Technology so that users can store their data in distributed pleasure

**NATIONAL SECURITY:** AS we know that we live in world of internet 4.0 where most of our sensitive data in form of digitals like data of CCTV and other sensors that are stored in the server using the Blockchain we easily migrate the risk of data breaches.

**PAYMENT:** Cryptocurrency like Bitcoin used to calculate the mobile payments across the world there is another Technology called ripple is used to enable the mobile payment.

**Music:** The ledger and provide transparent transmission of artist royalties and real time distributions to all involved with the labels. Players would be paid with digital currency according to the specified terms of the contract.

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