



## **A Study of Bitcoin and its impact towards the traditional banking system**

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### **Abstract**

Now-a-days, the world is focusing on digital transformation in all sectors especially in service sector. Through the digital transformation is forcing all the sectors to rethink what their customers value and how to meet their needs and wants. In the financial sector, customers are the King and they introduce various technologies for saving the time, energy and cost of their customers. As of now, so many banks took digital/green banking initiatives in order to protect our environment from global warming. For this initiative they introduced using Online banking instead of branch banking, paying bills online instead of mailing them, open up CDs and money market accounts at online banks etc.

On this digitalized era all sectors and corporates are converting to digitalize then only they can survive in the digital world. In order to uplift the Country's progress and standard of living mainly depends upon the adoption of various technologies. Cryptocurrency's i.e. Bitcoin & Blockchain are some of the upward trend in latest technology.

Over a period of time so many changes are made in our country's monetary system. The scenario of our traditional banking system is like that firstly we used Barter system for exchanging goods or services, after that fiat money introduced as a medium of exchange and now we all transformed to a digital money i.e. e-cash issued by the Government but

cryptocurrency's created by the Computers. Cryptocurrency is actually a digital currency and it works through a blockchain technology. Bitcoin is the first decentralised cryptocurrency created in 2009 by an unknown person used the name "Satoshi Nakamoto". Since then, so many cryptocurrencies have been created i.e. Ethereum, Ripple, Cardano, Litecoin etc.

This paper tries to depicts the concept of Cryptocurrency i.e. Bitcoins and how its work on Block chain. And also tries to find out how bitcoin differs from traditional banking system and fiat money/paper currency and examine its impact towards the traditional banking system.

Keywords: Bitcoin, Blockchain Technology, Traditional Banking System, Fiat Money.

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## **Introduction:**

Now-a-days, Digitalization is the buzzword in every sector. Through this digitalization the world has been focusing on economic progress and increase the standard of living. Digital transformation is the combination of computerized technology into all the parts of business, leads to change all of its operations and deliver better service to their customers. Today, people are spending money online, which has shifted business emphasis to digital sources of revenue and digital channels. The growth of the digital economy has made people more familiar with digital products and services, which has driven companies to seek new competitive advantages in the digital place.

So many technologies are adopting in service sectors mainly in banking sector. In the Bank, the customers are the king. The main aim of this is to provide better service to their customers and save their time energy, time etc. Blockchain & Bitcoin i.e. Cryptocurrency are the some of the most trending keywords of today's technology. This paper tries to analyse the concept of Cryptocurrency i.e. Bitcoins and how its work on Blockchain. And also tries to find out how bitcoin differs from traditional banking system and fiat money/paper currency and examine its impact towards the traditional banking system.

## **Objectives of the study**

- To study the concept of Cryptocurrency i.e. Bitcoins and how it works through a Blockchain.
- Bitcoins impact towards the traditional banking system.
- How bitcoin differs from traditional banking system and fiat money/paper currency.

## **Literature Review:**

Kunjadic, Goran & Jovic, Zoran. (2016) found that use of bitcoin poses new challenges to the banking system, and open up many dilemmas. This paper brings a short overview of the complexity of the bitcoin system that the cryptocurrency brings banking as well as

Technological challenges. The author's also analysed the current crypto mechanism and point out to its shortcomings.

Recent studies outlined by Ankalkoti, Prashant &, Santhosh. (2017) suggest that Bitcoin mining practice is used in blockchain to confirm and secure bitcoin transactions. Miners possess with diverse computational powers to solve a mathematical difficulty, bring a proof of work, extend their solution and attain agreement among the Bitcoin network nodes with it. The authors concluded that the mining process helps to earn revenue and also help to secure the network. Reviewing the result of this relative study, concludes that the Bitcoin mainly works on the Blockchain is a digitalized, decentralized, public ledger without needing consent form any authority and get rewards in Bitcoins for it.

Abdirahman Gulled, Jakaria Hossain (2018) analyse the various Bitcoin challenges to the financial institutions and to assess the future planning structure for traditional financial institutions to compete with digital currency. In this case study they concluded that the Bitcoin transaction system has bought some benefits for the society by the way of lower transaction cost and faster transactions rates and at the same time so many challenges like price fluctuations, hacker attacks, and security breaches etc. but they believe that these challenges will be resolved over time.

### **Methodology adopted for the study:**

The study is both an investigative and descriptive in nature. Secondary data from various published sources are used for the study.

### **Concept of Bitcoin and Blockchain Technology**

Cryptocurrency i.e. Bitcoin is actually a digital currency, alternative currency, virtual currency that is not backed by any country's central bank or government and it works through a blockchain. Bitcoin is the first decentralised cryptocurrency created in 2009 by an unknown person used the name "Satoshi Nakamoto". Since then, so many cryptocurrencies have been created i.e. Ethereum, Litecoin, and Ripple etc. Bitcoin released date 9<sup>th</sup> January 2009. It uses cryptography to control its creation and management. Bitcoin enables the digital transactions between two parties without the need of an intermediary. The identity of the sender and the beneficiary remains encrypted especially to prevent authorised access.

Bitcoin is created and held electronically in a peer to peer open ledger called the Blockchain. "A Blockchain is a digitalized, decentralized, public ledger of all cryptocurrency transactions. The most recent transactions (Frequently growing as "completed" blocks) are recorded and added to it in chronological order, it allow market participants to keep track of digital currency transactions without central recordkeeping. A computer connected to the network i.e. node gets a copy of the blockchain, which is downloaded automatically."

Block chain could not exist without Hashing, Proof-of-work, and P2P Network & Digital Signature. Digital signature provides a way to ensure that all transactions are made by

the rightful owners. Creative usage of Hashing & Proof-of-work mechanism helps to secure Block chain.

Blockchain are built from mainly 3 Technologies i.e. Private Key Cryptography, P2P Network, Program (the protocol). Block chain uses *private key cryptography* or *seed*, its help the owner to sign transactions, with a mathematical proof and also secure recognition and hash functions to make the block chain unchangeable. Private Key Cryptography consist 2 different keys i.e. Public Key & Private Key. *P2P Network* helps in maintaining the uniformity of the distributed ledger. *Program i.e. the protocol* based on the Block chain requirements. All transactions are transmit to the network and usually begin to be established within 10-20 minutes, this process is called *Mining*.

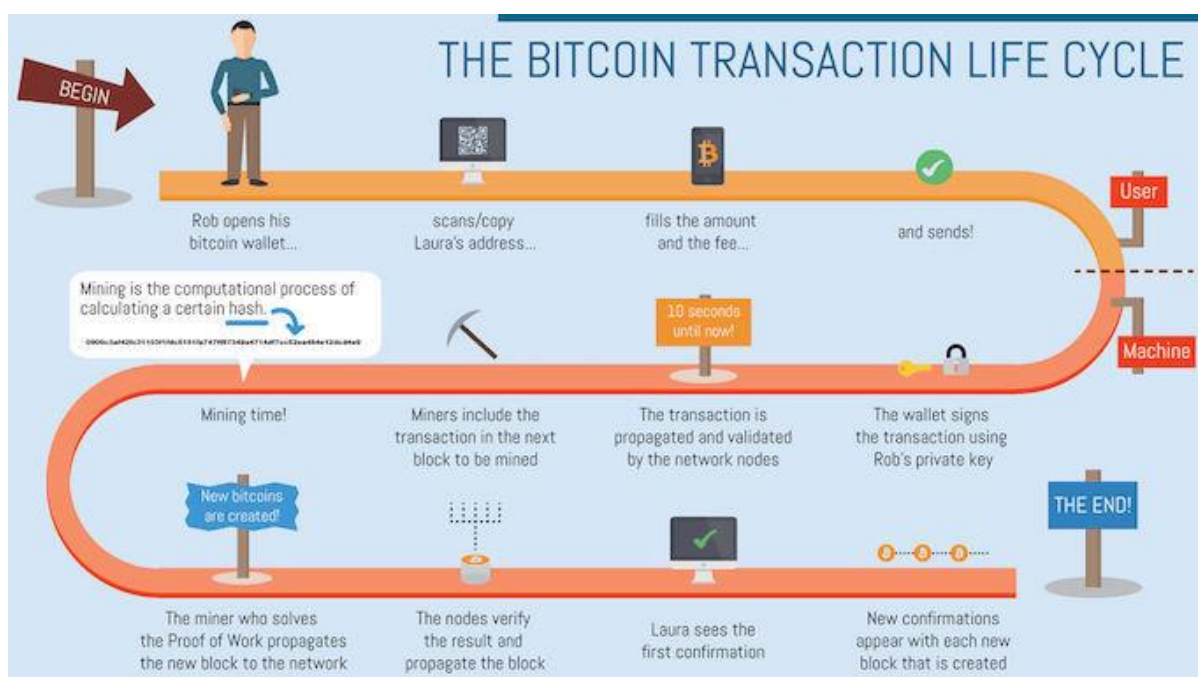
## 5 Concepts of BlockChain Technology:

- **Blockchain:** Block consists of digital signature, time stamp, and relevant information and then it is broadcast to all nodes in the network. The chain is frequently growing and every completed block is added to the public ledger. Each Block contains (a) *Data*.i.e.the details of sender, receiver and the amount of Bitcoin transactions (b) *Hash of the Block* means that the unique finger prints of the previous code. Hashing provides a way for everyone on the blockchain that the world state is one in the same and (c) *Hash of the previous block* is used for every new block that comes afterwards.
- **Decentralised consensus:** Consensus means a generally accepted agreement or opinion or decision among a group of people without the need of a centralised authority. When a new block is created, each node verifies the block to make sure that it has been stamped with. After checked out, each node adds this block to the blockchain and it is send to everyone in the network. All the nodes created are called Consensus.
- **Smart Contracts:** It is a simple code or agreement or programme allows trusted transactions and agreements to be carried out without the need for a central authority.
- **Proof of work/stake:** It is mathematical solution attached to the block ensures that the block is valid. This expensive computation is called Mining.
- **Trusted Advanced Computing:** The integration of all the different concepts mentioned above that they are permitting computers to trust one another at a deep level.

## Life Cycle of Bitcoin Transaction

As a new user, you have to install a Bitcoin Wallet either on your computer or mobile phone, it will generate your Bitcoin address and this can disclose to your friends so that they can send or receive Bitcoin transaction easy as sending an email, except that Bitcoin address should be used only once.

1. Someone requisite a transaction via something called a wallet.
2. The transaction is transmit to all the connected computers in the specific blockchain network i.e. P2P network (nodes).
3. All the computers in the network ratify the transactions against some accuracy rules that are created in the network of specific blockchain. This rectifying process is done by the Miners.
4. Validated transactions are deposited in a block and are secured with a lock (hash).
5. This block becomes part of the blockchain when other computers in the network ratifyif the seal on the block is correct.
6. Now the transaction is part of the blockchain and cannot be modify at any cost. The transaction is complete.



## Impacts of Bitcoin & Blockchain towards the Banking Industry

- **Payments:** By the implementation of a decentralized ledger of payment i.e. Bitcoin, blockchain technology promote faster payments at lower fees than traditional banks.
- **Clearance and Settlement Systems:** In clearing and settlement systems, the banks of the payer and beneficiary exchange information regarding monetary transfers; the result of this exchange is payments between the banks. The main disadvantage is that the service cost is more. Distributed ledgers helps to decrease operational costs.

- **Fundraising:** The conventional model of platform for raising fund by the banks is known as “Initial Public Offerings or IPO. But on the blockchain, there is no need of platform to raise money. Anyone is free to raise money from anyone at any time with a new model of financing that unbundles access to capital.
- **Securities:** By Security Token Offerings of various traditional securities such as stocks, bonds etc. will transform the traditional finance world and placing them on public blockchain could create more efficient, interoperable capital markets.
- **Loans and Credits:** In the traditional bank, there is a need of gatekeepers for sanctioning the loan and credit. By the use of blockchain technology can make it more reliable to withdraw cash at lowest rate of interest.
- **Trade Finance:** Blockchain technology can create more transparency, security, and trust among trade parties globally.
- **Power to the Dark Web:** It is defined as “the portion of the internet that is intentionally hidden from search engines, as by encryption, uses masked IP addresses, and it is accessible only with a special web browser. In the Bitcoin transactions, the identity of the sender and the beneficiary remains hidden so they can make illegal transactions and the transactions across globe which will ultimately make greater the cybercrimes.
- **Speculative/Risky:** Bitcoin trading is same like trading in shares, so there is massive possibility for speculation. Bitcoin is not under any state regulations, so we can buy the products on the Internet that are illegal in some countries. Other threats that the Bitcoin transactions helps to carry out so many illegal activities like gambling, drugs etc. And also more money getting out of the countries without any restrictions. There is no insurance coverage to the Bitcoin users in case of any problem and fraudulent activities.
- **Politicization of money:** Bitcoin is a digital currency and it only exists electronically. It doesn't have a central issuing authority or regulatory body. As a result, new autonomous body have the economic power and the people have controlled their own money without the need of any central banks (directly or indirectly). The large assumption of Bitcoins can lead to the politicization of money.
- **Apprehension among the central banks:** Bitcoins are being issued without verifying the documents of buyer and there is not under any government regulations and also no guarantee or security. Its value is created by the human beings. There has been inference that Bitcoins can be used for money laundering outside the country.

- **Price volatility:** Bitcoin is issued without verifying any documents of participants, so all parties in the Bitcoin transactions are anonymous and not governed by Central Bank. Across the globe, the Bitcoins have same value. But, now-a-days its value is more because human beings created the value for this, and then there is a chance for price volatility.
- **The emergence of new markets:** Bitcoin is influencing ‘cashless’ planet and it opened gates for a new kind of market i.e. you have full control of your money, no need of intermediary or 3<sup>rd</sup> party i.e. Banker, helps to minimize transaction fee, it solved “double spend” problem through distributed network, existing institutions operate more efficiently, Bitcoin transactions are truly Peer-to-Peer, more people have access to Banking Services, an entire new financial infrastructure could exist.

### Cryptocurrency VS Fiat

No	Cryptocurrency	Fiat/Paper Currency
1	Created by the Computers	Issued by the Government
2	Limited supply and has a set of maximum	Unlimited supply and can be produced by the Government when necessary
3	A digital way of money exchange	A physical way of exchanging money
4	Presented by the private and public pieces of code	Form of coins or paper money
5	Decentralised and not controlled by an Entity or Government	Centralised and controlled by the law and banks
6	Its value is determined by supply and demand	Its value is determined by markets and regulations.

### Traditional Payment System VS Bitcoin

No	Traditional Payment System	Bitcoin
1.	Traditional Bank under the control of monetary authorities under certain rules and regulations.	It is controlled by the consensus of market participants and not under any monetary/central trust authorities.
2.	It is a paper based record of all transactions and operated manually without the help of digital technology.	It is public record of all transactions depend on a combination of cryptographic protection.
3.	It is fiat money or paper currency.	It is an absolutely online virtual/digital currency.

4	Banks records all the transaction in a centralized ledger which kept as private.	Bitcoin work on Blockchain technology and it records all the Bitcoin transaction in a decentralized ledger which is publicly accessible by the bitcoin users.
5	Banks keep all the personal information of its account holders that dramatically increase the chance of theft.	Cryptocurrency transactions hold no personal information that dramatically decreases the chance of theft.
6	It permits to transfer money from one person to another by opening a bank account. Thus bank act as an intermediary or 3 <sup>rd</sup> party.	Cryptocurrency like Bitcoin eliminates the need for a 3 <sup>rd</sup> party to make transactions.
7	The end result of traditional transaction is realistically slow and costly due to intermediary.	Bitcoin allows users to transfer money very fast and low cost over the public internet by computer software without relying on a trusted intermediary.

## **Findings & Conclusion**

Bitcoin and Blockchain Technology are the latest key trending word. Bitcoin is a digital currency and it only exists electronically. It doesn't work like mass money; it doesn't have a central issuing authority or regulatory body. Bitcoin is influencing 'cashless' planet which will be very difficult to adopt this technology for the under developed countries. Basically there is no organisation deciding when to make more Bitcoins, figuring out how many to produce, controlled by the consensus of market participants not by government or any other persons.

An UK Banking Report concludes that "cryptocurrencies definitely represent a threat to traditional banks, most especially if they ignore new consumer behaviours and preferences when it comes to how they transact and transfer money."

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