

Cryptocurrency: The Decentralized System of Financial Transactions

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Abstract:

This paper mainly focuses on the decentralized system of cryptocurrency and the rise of use of cryptocurrency in India. The study is all about Blockchain technology which is making cryptocurrency very secure and transparent. This paper includes advantages and limitations in using cryptocurrency. The record focuses on emergence of cryptocurrency and information about the top crypto coins used in the market. With the study we came to know that India stood at top in doing cryptocurrency transactions. Where china and USA are standing at 2nd and 3rd places respectively in 2024. Bitcoin is referred as the world's oldest cryptocurrency.

Introduction:

A cryptocurrency is a digital currency. It is used as a medium of exchange by using computerized network. This cryptocurrency system does not work under any authority, because it has its own strong cryptography which is highly secured computerized database.

These are not like traditional currencies. These currencies do not exist in physical form. Cryptocurrency run by using Blockchain which is called as distributed public ledger. Cryptocurrency uses encrypted software to verify its transactions.

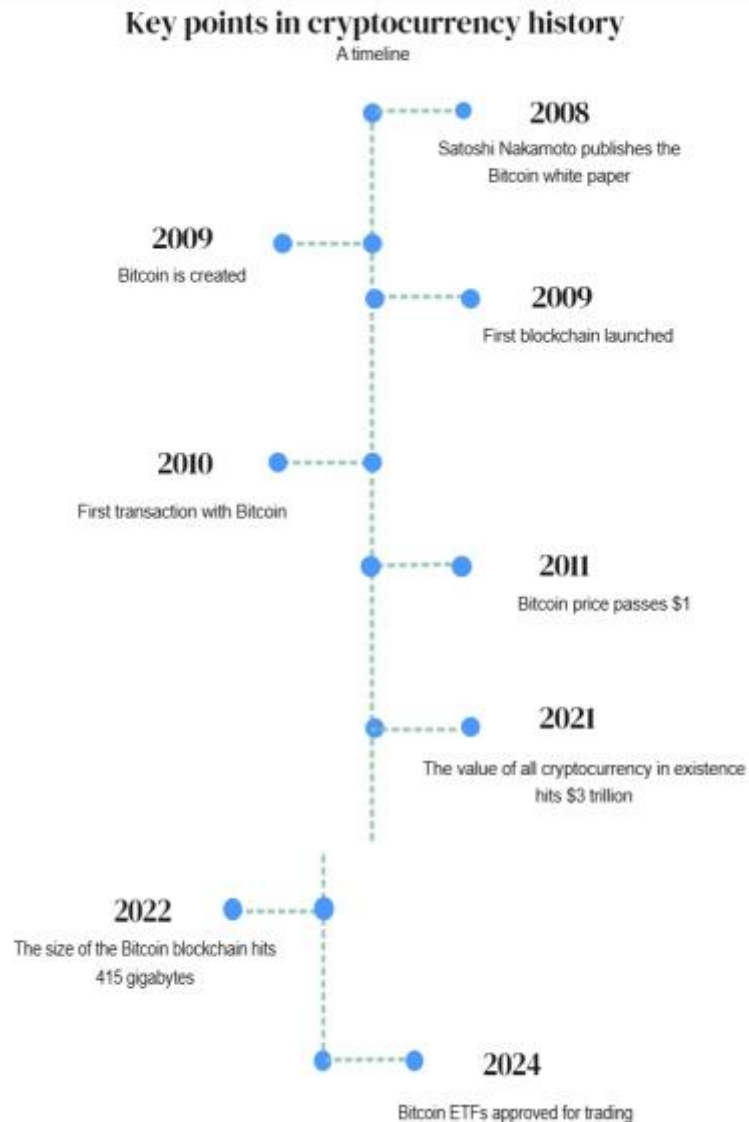
The first cryptocurrency is BITCOIN. It was released in 2009. At present, there are more than 25000 other cryptocurrencies in the market place. It uses decentralized systems to secure transactions. It follows peer to peer system, with which everyone can send or receive currency to or from anywhere respectively.

Emergence:

As we all know there was no such thing as “currency” during the stone age era but later on humans began to develop themselves is came up with barter system in which they would just exchange stuffs as a medium of currency. Later the human came up with modes of currency like bronze and copper coins, gold coins, silver coins and presently stainless steel and paper currency.

The next stage of currency is cryptocurrency. It is also a medium of exchange, not a real world cash, but can be used to perform real world or virtual transactions. It uses strong cryptography to secure transaction records, to control creation of additional coins and to verify the transactions.

Crypto market rise and fall



Objectives:

1. To know the decentralized system of cryptocurrency.
2. To understand the key points of crypto market
3. To know how cryptocurrency emerged in India
4. To know how Blockchain technology helpful for cryptography
5. To know advantages and limitations of cryptocurrency.
6. To know the level of demand of cryptocurrency in the world.

Cryptocurrency in India:

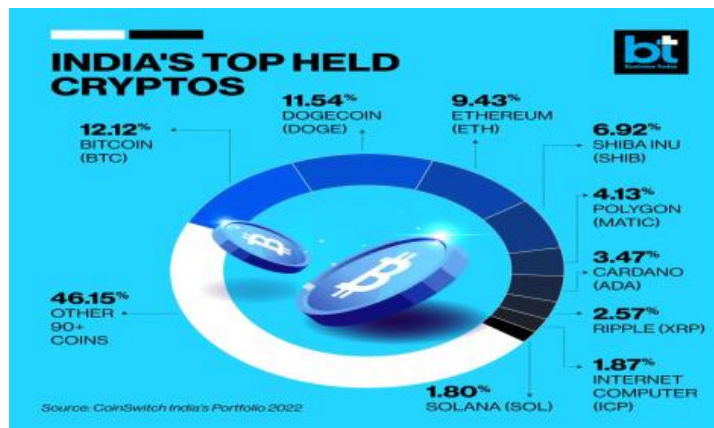
In 2010, the first sale of an item using bitcoin took place with someone swapping 10000 bitcoins for two pizzas. This attached a cash value to cryptocurrencies for the first time.

In India, use of virtual currency came into existence in the year 2013. The preference for making payments using cryptocurrency brought about by the demonetization in 2019. This led tech savvy customers to drive into virtual asset. Indian banks allowed transactions on cryptocurrency exchanges. This made RBI to release a circular in 2017 giving a warning and clarify that “virtual currencies are not a legal tender” was issued by the RBI and the finance ministry by the end of 2017.

In March 2018, central board of digital tax (CBDT) submitted draft scheme for banning virtual currencies to the finance ministry. After one month, restraining banks, NBFCs and payment system providers from dealing with virtual currency exchanges. With this effect, trading with cryptocurrency fell by 99%.

Ten years after NAKAMOTO’s paper, on 1st NOV 2018, Nischal Shetty, the founder of wazirx, started the #India wants crypto campaign for the regulation of crypto in India. With Nischal’s relentless tweets and support from public made to present crypto bill in budget session in February 2019.

In March 2020, Supreme Court of India left ban on cryptocurrency. The use of cryptocurrency trading came back on 29th January 2021, the Indian government announced that it will introduce a bill to create a sovereign digital currency and put a ban on private cryptocurrencies. In NOV 2021, the standing committee on finance, met the Blockchain and crypto asset council (BACC) and other cryptocurrency representatives and concluded that cryptocurrencies should not be banned but regulated.



Blockchain technology and how it works:

Ever wondered if there is an easier way to complete transactions without having wallets, bank balance, third party applications? But it is possible with Blockchain.

Example: there are four friends JACK, TED, SAM, and PHIL.

They went to a restaurant. Jack paid the bill. All of them decided to split the expense amount each other. On the next day Phil successfully sent his share of expense to jack. But Sam and Ted faced some technical issues while sending amount at bank. Due to which the transaction was failed. Many ways a bank transaction could fail due to

- Technical issues
- Account hacking
- Transfer limits
- High transfer charges..

To solve these problems the concept of cryptocurrency came into existence. The concept of cryptocurrencies are form of digital or virtual currency that run on a technology known as Blockchain technology.



- Cryptocurrencies are immune to counterfeiting.
- It doesn't require a central authority.
- Protected by strong and complex encrypted algorithms.

From the above example:

The number of bitcoins that four of them own are

Jack	5BTC
Phil	3BTC
Ted	3BTC
Sam	3BTC

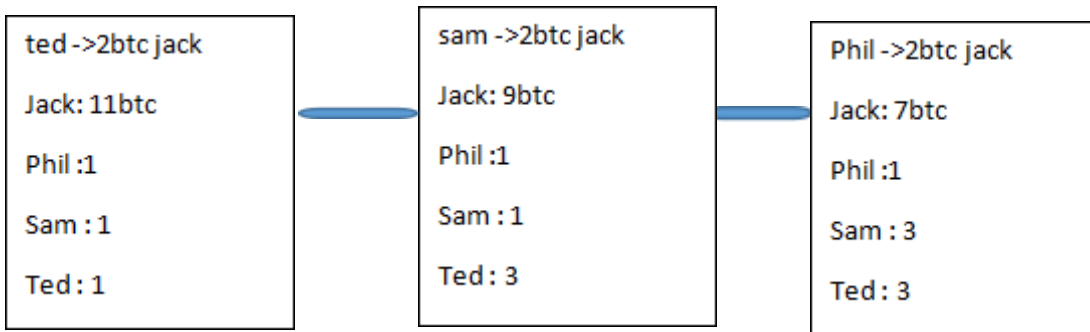
First Phil sent 2 bitcoins to Jack

Phil->2bc->jack

The above transaction details between them is permanently inscribed in the block.

Phil->2bc- >jack

This block also records the number of bitcoins each of the friends own. After Phil's transaction Jack has 7 bitcoins and Phil has 1 bitcoin, then Sam sent 2bitcoins to Jack, and after Ted sent 2bitcoins to jack. In the Blockchain the information regarding the balance bitcoins and sent bitcoins are incripted.



The chain of records are called ledger. And this ledger shared among all members, this is called public distributed ledger. A hacker will not be able to alter the data in the Blockchain because:

Each user has a copy of the ledger.

The data within the blocks are encrypted by complex algorithms.

All of this is made possible with the help of Blockchain technology.

Blockchain can be described as

- Collection of records
- The records are linked with each other
- These are strongly resistant to alteration.
- The data is protected using cryptography.

The Blockchain's main purpose is to enable secure, transparent and tamperproof transactions in a decentralized manner it's about creating trust in a trustless environment. On Jan. 3, 2009, the first Blockchain was launched with the first "block" called the genesis block.

Security: in a block, each transaction is executed and linked to the previous one. This chain of transactions is visible to everyone within the network but altering any transaction requires changing all subsequent transactions which is computationally impractical. This makes the Blockchain secure against fraud and tampering.

Transparency: every transaction on the Blockchain is visible to all participants in the network. This transparency ensures accountability and makes it nearly impossible for any participant to cheat the system.

Decentralization: unlike traditional database that are controlled by a single entity like a bank or government. A Blockchain is distributed across multiple nodes or computers. This decentralization means that no single entity has complete control over the entire chain making it resistant to censorship and single points of failure in essence in main purpose of Blockchain is to provide a secure and transparent way for parties who may not necessarily trust each other to agree on the state of a database without needing a trusted intermediary whether it is transferring cryptocurrencies enable bitcoin. Blockchain's purpose is to enable secure transparent and efficient transactions.

The Fastest Growing Cryptocurrencies: Cryptocurrency market involves bitcoin (BTC), alt coins like Ethereum(ETH), Solana(SOL), Cardano(ADA), Polygon(MATIC) are showing continuous growth and potentiality in technology. Investments into these coins make investors prime opportunity in 2024.

Bitcoin: bitcoin is the first cryptocurrency and still more popular than other types of cryptocurrency. It was found in 2009. It was developed by SATHOSHI NAKAMOTO. It is also considered as "digital gold". It is mainly used as digital store of value and medium of exchange. As everybody knows, bitcoin is the most well known and widely accepted digital asset. Bitcoin is also popularly known as a store of value and digital gold. It occupies largest market capitalization.

Altcoins: Altcoins are alternative coins to bitcoins. These coins are also having similar features like, peer-to-peer transactions, using Blockchain technology, making financial transactions etc.

1. **Litecoin:** this currency is almost similar to bitcoin. But it is getting innovations in cryptocurrency faster than other types. it had overcome with the drawback of bitcoin which is slower transactions. Litecoin is famous for faster transactions.
2. **Ethereum:** it was developed in 2015. It also uses blockchain technology for its currency. It is the next best cryptocurrency after bitcoin. Its main focus on smart contracts and decentralized applications. It is the second largest cryptocurrency by market capitalization. The Ethereum 2.0 with a proof of stake (PoS) has given a transition. With the new version of Ethereum 2.0, it has become more scalable, sustainable and energy efficient. It had not changed its place in smart contract space.

3. Solana(SOL)-known for fast transactions

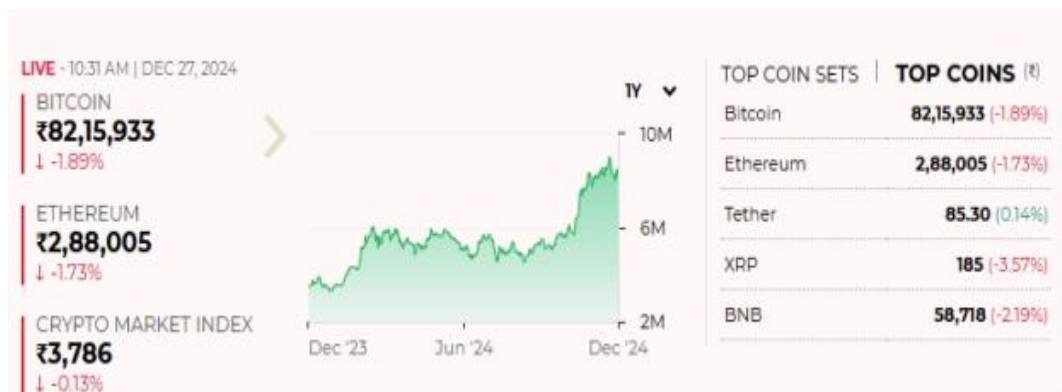
Solana process upto 65000 transactions per second (TPS). This feature made Solana as a strong competitor among developers who are seeking faster and cost efficient transactions.

4. Cardano(ADA): well known for research driven blockchain.

Cardano follow unique approach to blockchain development. It focuses mainly on creating a secure scalable platforms for decentralized applications. With its unique feature, it has become a competitor to Ethereum. It has strong development team, long term vision and continuous growing eco-system.

5. Polygon(MATIC)

To solve Ethereum's scalability issues, Polygon (MATIC network) has been emerged with Ethereum layer2 scaling solutions. Polygon has reduced transaction fee and increased throughput. It has a growing eco system and it has become one of the top alt coin in 2024.



Advantages:

- Decentralization:** It can be operated without any central or government control, which provides financial autonomy.
- Security:** Secured transactions can be done with the help of Blockchain technology and also cryptography. It acts as resistance to fraud and hacking.
- Trust and accountability:** All transactions in cryptocurrency are traceable. Because they are transparent and cannot be reversed or changed.
- Free access:** Whoever has internet access, it allows anyone to participate in global economy. There is no need of a bank account.
- Ownership and control:** Users are having ownership of their funds. So they can manage and control all the transactions without depending on third parties.
- Faster transactions:** Despite of locations and time zones, cryptocurrency transactions can be done within minutes.

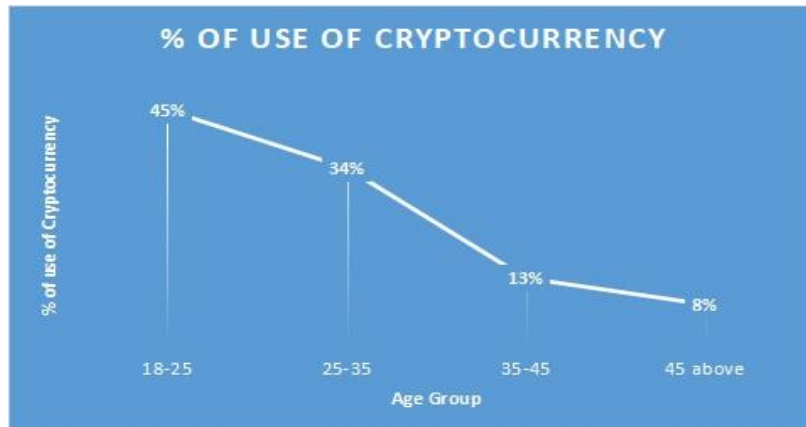
Dis-advantages:

- Unpredictable:** Cryptocurrency prices are unpredictable. The prices are highly volatile which makes it more difficult for investors and users to predict the changes.
- Time taking or delay in processing:** Many blockchains face challenges while processing high transactions which leads to delay and high fees.
- Complex process:** Using and understanding cryptocurrency requires knowledge of both theoretical and technical. A person without technical knowledge will not be able to use cryptocurrency.

4. **Limited practice:** Cryptocurrency use is limited. It may not or cannot be used world wide which is a barrier for daily transactions.
5. **Risk and uncertain:** As there is no government regulation, it is uncertain for business and investors and involves risk because of volatile price.
6. **Irreversible transactions:** In cryptocurrency transactions, once transactions are completed, they cannot be cancelled or reversed even it is sent to wrong address.

According To 2022 Report By Coinswitch, Cryptocurrency Users In India:

Age group	% of use of Cryptocurrency
18-25	45%
25-35	34%
35-45	13%
45 above	8%

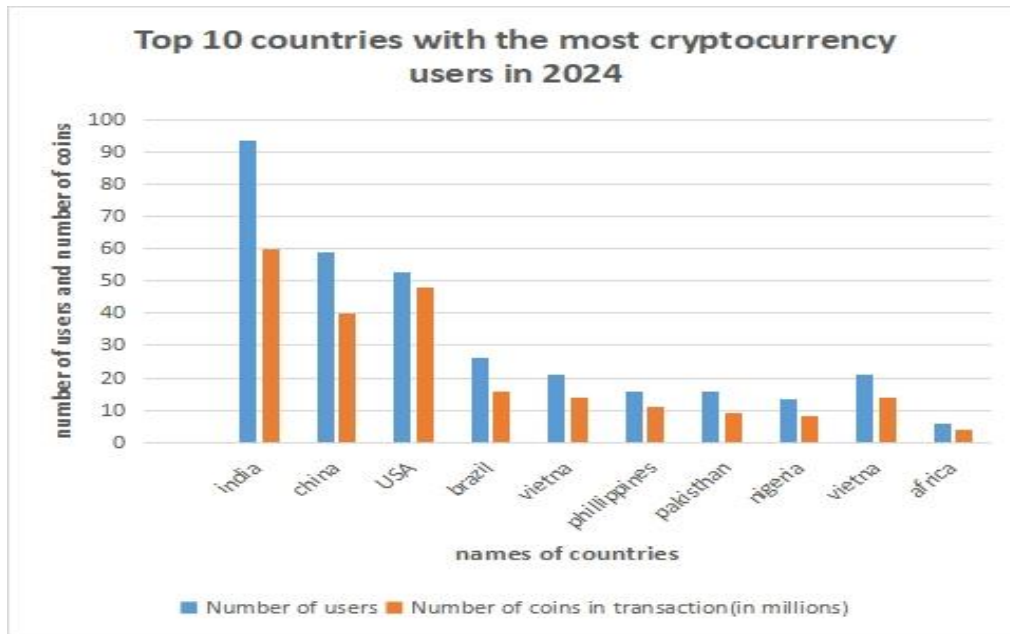


Interpretation: with the above graph, we can conclude that the people who are falling under 18-25 age group are taking huge part in using cryptocurrency in India. And least percentage of participation is from 45 and above age group. This is happening based on the awareness on using technology and risk taking factors.

Top 10 Countries With The Most Cryptocurrency Users:

Sl no	Country name	Number of users (in millions)	Number of coins in transaction(in millions)
1	India	93.50	60
2	China	59	40
3	USA	52.9	48
4	Brazil	26	16
5	Vietna	20.9	14
6	Phillippines	15.8	11
7	Pakistan	15.9	9
8	Nigeria	13.3	8
9	Vietna	20.9	14

10	Africa	6	4
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Interpretation: till 2013, India was being with least interest in using cryptocurrency. But the rise of using cryptocurrency has been emerged when the ban on using cryptocurrency is left. In 2024, India stood at first place in using cryptocurrency in the world.

Conclusion:

The world of cryptocurrencies is very dynamic. Prices can go up or down in a matter of seconds. Thus, having reliable answers to such questions is crucial for investors.

RBI mentioned that cryptocurrencies are not a currency because every modern currency needs to be issued by the central banks or government. Further, the value of fiat currencies is anchored by monetary policy and their status a legal tender, however the value of cryptocurrencies rests solely on the speculation and expectations of high returns that are not well anchored so it will have a de-stabilizing effect on the economy of a country.

-Nirmala Sitaraman, Central finance minister of India.

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