

Blockchain – Pros & Cons

What industries can benefit from blockchain? How Exactly?

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Abstract - Blockchain has received ample amount of attention recently. Blockchain, the base of the Bitcoins, is the chain of blocks that contains information. A blockchain continuously growing list is a of recordB called blocks which are linked to each other & secured using cryptography. Blockchain Technology allows for the secure management of public ledger or database where database transactions are verified & are securely stored on network. Blockchain technology is supposed to be a revolution, the biggest revolution, after the last big technological revolution, which was Internet, & many experts say that the blockchain technology is a bigger revolution than the Internet or similar impact.

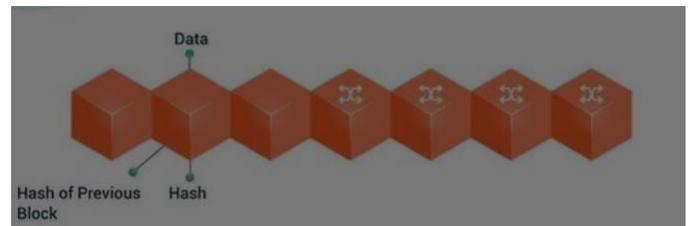
Blockchain will impact the international. e-commerce or any kind of business transaction, which is going to happen in the future, will be directly or indirectly relate to the blockchain environment. The concept of Blockchain was suggested Somewhere in 2008 & 2009 when the first major application of Blockchain technology was suggested which was Bitcoin. Satoshi Nakamoto was the first person who was able to successfully during the commercial use of Blockchain Technology, in the form of the cryptocurrency, which he named as Bitcoin.^[1] And today we know that bitcoin is a phenomenally successful cryptocurrency, digital currency, which many of the big organizations, and governments, and countries have started accepting.

Key Words: Blockchain, transactions, Satoshi Nakamoto, Bitcoin, cryptocurrency, digital currency.

1.INTRODUCTION

Third party organization control & centralize the currency transactions between people or companies. The bank or credit card provider is always required as a middleman while making digital payment or currency transfer. This process. is also required in other domains or platforms such as software, shopping, music, etc. Including this, there is also a fee or change that is caused by the bank or credit card system to the person. So, basically, three parties are involved in most of the transactions rather than two parties. The third party is often an outsider & can be dangerous. So to solve this issue, Blockchain Technology has been developed. Blockchain Technology was developed with the goal to make the transactions decentralized & no third party included to control transactions or data.

Blockchain is a decentralized ledger of all transactions across a peer - to - peer network. To create digital currency Blockchain Technology was created. This Technology was created so that people are not dependent on banks or other third-party systems or providers to do the transactions. It stores all transactions. chronologically. Now what does that mean in simple or plan language. A chain or link of a transaction blocks is a Blockchain. In Blockchain, a subset of transactions is contained by each Block. Computers or miners are used to validate all the blocks of the blockchain. The validation is done by solving a mathematical problem. So what happens when a block is validated? The blocks after validation and completion are added or attached to the blockchain or previous block. And this process is repeated again & again for all the blocks.



1.1 Why blockchain is now decentralized?

A blockchain is a peer – to – peer network like it is based on it. So, this means that blockchain consists of billions to trillions of computers. And since the blockchain are now on most of the or every computer, it is transparent or publicly available for everyone. So, this means that third parties cannot control it. As it is a decentralized system, all the blockchain information is now publicly available. Does the word decentralized ring a bell? The word Decentralized literally means that process is distributed and away from the center. So, this means that all the information is stored in whole world and globe and there are no specific third party or third authorities to control it. So Blockchain is a persistent transparent public append-only ledger. It is a mechanism of creating consensus between distributed parties. The people do not need to trust each other but trust the blockchain system.

1.2 When was Blockchain invented?

The blockchain technology was first defined by Stuart Haber & W. Scott Stornetta, in 1991. They were researchers. These two researchers wanted to implement a system where no one can tamper with the document timestamps.

But almost after two decades later, Satoshi Nakamoto implemented Bitcoin & launched it in January 2008.

The Bitcoin in Blockchain had its first Real-world application. Bitcoin is a protocol that is built on Blockchain. 'Satoshi Nakamoto' referred to the Bitcoin as 'new electric cash system that's fully peer-to-peer, with no trusted third party.'

1.3 Example on Real-World Application of Blockchain

In 2017, UN was highly disturbed at the leakage of relief funding & high cost of money transfer to the refugees & migrants affected by bloody way in Syria. They tried blockchain technology as the prepaid credit card system they used earlier costed the UN's world Food Program (WFP) which had setup supermarkets in the refugee camps in Jordan, millions of dollars due to transaction fees & forging partnerships with the local Banks.

After the use of the Blockchain Technology, most famous for being the technology behind immensely successful Bitcoin as an international virtual currency, UN's WFP could save huge money & reduce fraud & leakage of the funds. In the case of Blockchains, the refugee's account would be credited with some money & they could go WFP engaged Supermarkets & with an iris Scanner they could redeem their credits for food & supplies - all without opening their wallets.

1.4 History of Blockchain

Table -1: The table below the History of the Blockchain.

Year	What was invented	Who invented
Year - 1995	Merkle Tree cryptographic chain of blocks - First known Blockchain Forerunner.	Stuart Haber & W. Scott Stornetta
Year - 1998	B-Money - First ever cryptocurrency which has similarities to modern-day Bitcoin.	Wai - Dai
Year - 2005	Reusable Proofs of Work - Combination of pros of b-money with Hashcash.	Hal Finney
Year 2009	Bitcoin - First large-scale cryptocurrency which defines the architecture of blockchain.	Satoshi Nakamoto

Year 2015	Ethereum - Ethereum also known as Blockchain 2.0. as it allows more applications other than cryptocurrency	Vitalik Buterin
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2. PROS & CONS of BLOCKCHAIN

2.1 Pros

2.1.1 Disintermediation: - Blockchain enables a database to be directly shared without central administrator. Blockchain Transaction have their own proof of validity & authorization to enforce the constraints.

2.1.2 Process Integrity: - Users can trust that the transactions will be executed exactly as per the protocol commands, removing the need for a trusted third party

2.1.3 High Quality: - Blockchain data is complete, consistent, timely, accurate and widely available.

2.1.4 Durability, reliability, & longevity: - Due to decentralized networks, blockchains do not have a centralized point of failure and are better at to be able to understand malicious attacks.

2.1.5 Empowered Users: - Users are in a control of all their information & transactions.

2.1.6 Transparency & Immutability: - Changes to public Blockchains are publicly viewable by all parties, creating transparency. All transactions are ideally immutable, meaning they cannot be altered or deleted.

2.1.7 Ecosystem Simplification: - With all transactions being added to a single public Ledger, it reduces the clutter & complications of multiple ledgers.

2.1.8 Faster Transactions: - Interbank transactions can potentially take days for final settlement. Blockchain transactions can reduce transaction times to minutes or seconds & are processed 24/7.

2.1.9 Lower Transaction Costs: - By eliminating the third part, intermediaries & overhead costs for exchanging assets, Blockchain has the potential to greatly reduce the transaction fees.

So, increased transparency, accurate tracking, permanent ledger, cost reduction, etc are also some of the advantages of blockchain.

2.2 Cons

2.2.1 Performance: - Because of the nature of blockchain, they will always be slower than centralized databases when a transaction is being processed. A Blockchain has to do all the same things that a regular database does but it carries three additional burden as well: -

2.2.1.1 Redundancy: - Whereas in centralized, databases transactions once (or twice), in a blockchain they must be processed independently by every node in the network.

2.2.1.2 Signature Verification: - Every blockchain transaction must be digitally signed using a public-private cryptography scheme. This is necessary because transaction rubber gates between nodes in peer-to-peer fashion.

2.2.1.3 Consensus Mechanisms: - In a distributed database such as Blockchain, effort must be expended in ensuring that nodes in the network reach consensus.

2.2.2 Integration concerns: - Blockchain applications offer solutions that require significant changes to, or complete of, existing systems, in order to make the switch, companies must strategize the transition.

2.2.3 Uncertain regulatory status: - Modern currencies have been created and regulated by national governments, blockchain faces a hurdle in widespread adoption by preexisting financial institutions if its government regulation status becomes unsettles (or becomes negative).

2.2.4 Large energy consumption: - The Bitcoin Blockchain network's miners are attempting for 450 thousand trillion solutions per second to validate transactions, using substantial amounts of computer power.

2.2.5 Cultural Adoption: - Blockchain represents a complete shift to a decentralized network which requires the involvement of its users and operators.

2.2.6 Control, Security & Privacy: - While solutions exist, including private or permissioned blockchains & strong encryption, there are still cyber security concerns that need to be addressed before the general public will entrust their personal data to a blockchain solution.

2.2.7 Cost: - Blockchain offers tremendous savings in transaction cost and time, but the high initial capital cost can be limiting.

2.2.8 Nascent Technology: - Resolving challenges such as transaction speed, the verification process, and the data limits will be crucial in making block chains widely applicable.

3.SWOT Analysis: -

SWOT analysis or SWOT matrix is short form for: -

S – strengths

W - weakness

O - opportunities

T - threats

SWOT is there structural planning method that evaluates those 4 elements of an Association, project, Commerce endeavor, etc.

1) Strengths: -

- 100% transparent
- Auditable trail
- Decentralized approach • Cost efficient.
- Robustness (No SPOF)
- Speed

2) Weakness: -

- Ownership challenge
- Scalability
- Security against cyber criminals
- Storage
- Technology maturity

3) Opportunities: -

- Programmable automation
- Faster payment transfer
- Increased quality of products & services
- KYC database
- Opportunities in IOT

4) Threats: -

- Disappearance of existing bank jobs
- More government control-national
 - cryptocurrencies for example
- Huge Regulatory impact
- Hype
- Privacy & Security

4. Uses of Blockchain: -

4.1 Reduce of total cost of ownership: - Blocked stacks offer a robust and verifiable alternative too traditional proprietary of the cost^[2].

4.2 Manage system-of-record sharing: - Blockchain technology makes it possible to give various parties example clients, custodians and the regulators, etc. access to their own live copies of shared system of records.

4.3 Clear and Settle transaction faster: - Blockchain technology can facilitate the transition from overnight batch processing to intraday clearing and settlement.

4.4 Create Self-Describing electronic transactions: -

Smart contracts can use blockchain programming language to create context-aware transactions from complete arbitration.

5. Benefits of adopting Blockchain Technology: -

5.1 Efficiency: - With blockchain technology transactions are done directly between 2 parties without any involvement of a 3rd party so transactions can take place quickly and efficiently.

5.2 auditability: - Each transaction detail is recorded subsequently and provides auditability for the asset in between the 2 parties. It is especially beneficial for businesses in which the data source is needed in order to authenticate the assets.

5.3 security: - With blockchain technology, each transaction is recorded and verified in the network through complex cryptography. The information authenticity is assured through complex mathematical algorithms.

5.4 Traceability: - With a block chain, tracking Gorge in a supply chain is pretty easy, as well as advantages. Information related to the tracking goods can be easily communicated to and from the next contact point.

5.5 Transparency: - Transparency is one of the major benefits of blockchain technology to small, medium and large businesses, as a lack of financial and commercial transparency might result in bad business relations and/ or Commerce delays.

6. 5 Potential future uses of Blockchain: -

6.1 Music, Books & Movies: - The RIAA could sign each digital copy of a single song to or single purchaser. The same public Ledger method that keeps one person from spending the other person’s digital currency could also keep them from playing or duplicating another person’s song.

6.2 Contract Execution: - In simple terms, consider ordering dinner instead of the restaurant having to worry about a dine-and-dash, waiter can confirm each order quick stop as soon as the plate heads to table the checking account will transfer the money.

6.3 Real Estate: - One of the most basic uses of blockchain is to keep a public Ledger of transactions. This can help keep an easy access records of property titles.

6.4 Reducing Identity: - Reducing of asking for information that can be copied, like a Social Security number, computers would ask for access to that digital identity record.

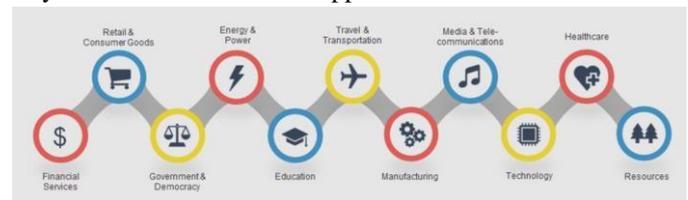
6.5 Governance: - Blockchain advocate believe that blockchain IDs could help the taxers with taxation and voting, though others believe that involving blockchain in voting could be dangerous.

7. Industries that can benefit from Blockchain: -

Blockchain era has the capacity to up-end the manner in which each Enterprise manages its fact, now no longer best economic services.

Imagine being capable of song shipments via your deliver chain with ease, right all the way down to the person bundle or maybe factor level. Or, executing a settlement with a seller without the want for a middleman auditor. Blockchain may even assist confirm substances and meals sourcing to make sure fitness and moral requirements are maintained.

Though maximum who’re acquainted the era equate it to Bitcoin, possibilities around different verticals in efficaciously storming transaction, purchase & provider facts in a transparent, unchangeable ledger online, any courting that relies upon third celebration maintenance, or those who require more than one fact reassets to satisfy purchaser expectancies for cohesive experiences, may be advanced via way of means of blockchain applications.^[3]



Top 8 industries that can benefit from Blockchain are: -

1. Banking & Finance: -

Security: Its allotted consensus primarily based totally structure removes unmarried factors of failure and decreases the want for statistics intermediaries including switch agents, messaging gadget operators and inefficient monopolistic utilities.

Transparency: It employs mutualized standards, protocols, and shared processes, performing as a unmarried shared supply of fact for community participants Trust: Its obvious and immutable ledger makes it clean for exceptional events in a enterprise community to collaborate, control statistics, and attain agreements

Programmability: It helps the advent and execution of clever contracts— tamper evidence, deterministic software program that automates enterprise logic – growing multiplied consider and performance

Privacy: It gives market-main gear for granular statistics privateness throughout each layer of the software program stack, permitting selective sharing of statistics in enterprise networks. This dramatically improves transparency, consider and performance even as retaining privateness and confidentiality.

High-Performance: It’s personal and hybrid networks are engineered to preserve masses of

transactions in keeping with 2d and periodic surges in community activity.

Scalability: It helps interoperability among personal and public chains, presenting every agency answer the worldwide attain, extremely good resilience, and excessive integrity of the main net.

2. **Legal:** - Blockchain can keep a track of contracts, parties, terms, transfer of ownership and delivery of goods or goods or services of 'smart contracts' stored on the blockchain, without the need for legal intervention.
3. **Supply chain:** - Transparency can be gained for shipment tracking, deliveries and progress among other suppliers and in these no inherent trust exists, by utilizing a distributed Ledger companies within a supply chain.
4. **Government:** - Blockchain offers promise as a science to store private similarity news, criminal experience or circumstances and "E-place of birth", "E-citizenship", approved by biometrics.
5. **Energy:** - Decentralized electricity switch and distribution are feasible thru micro - transactions of facts dispatched to blockchain, validated and redispersed to the grid at the same time as securing fee to the submitter.
6. **Food:** - Using blockchain to save meals deliver chain information gives improved traceability of product origin, batching, process, expiration, garage temperature, shipping, etc.
7. **Retail:** - Secure P2P marketplaces can tune P2P retail transactions, with product information, shipment and payments of lading enter at the blockchain, and bills made through Bitcoin.
8. **Healthcare and travel:** - Electronic scientific facts saved in a blockchain, accessed and up--to date thru biometrics, permit for the democratization of affected person information and alleviate the loads of shifting facts amongst providers.
Passengers keep their Journal ID or trip ID at the blockchain to be used in Lieu of journey documents, identity cards, loyalty, application IDs and fee details.

8.How can industries benefit from Blockchain?

Blockchain arrangements are not just restricted to the trading of digital currencies. There are various advantages that this innovation can present to organizations in a wide range of businesses, through its dispersed and decentralized nature:

8.1 Greater Transparency: -

Blockchain's most noteworthy trademark originates from the way that its exchange record for public delivers is available to review. In monetary frameworks and organizations, this adds

an uncommon layer of responsibility, considering every area of the business mindful to act with respectability towards the organization's development, its local area and clients.

8.2 Increased Efficiency: -

Because of its decentralized nature, Blockchain eliminates the requirement for agents in numerous cycles for fields like instalments and land. In contrast with customary monetary administrations, blockchain works with quicker exchanges by permitting P2P cross-line moves with an advanced cash. Property the executives' measures are made more proficient with a brought together arrangement of proprietorship records, and savvy gets that would robotize inhabitant landowner arrangements.

8.3 Better Security: -

Blockchain is undeniably safer than other record keeping frameworks in light of the fact that each new exchange is scrambled and connected to the past exchange. Blockchain, as the name recommends, is shaped by an organization of PCs meeting up to affirm a 'block', this square is then added to a record, which frames a 'chain'. Blockchain is framed by a confounded line of numerical numbers and is difficult to be changed once shaped. This unchanging and upright nature of blockchain makes it protected from adulterated data and hacks. It's decentralized nature additionally gives it a one-of-a-kind nature of being 'trustless' – implying that gatherings needn't bother with trust to execute securely.

8.4 Improved Traceability: -

With the blockchain record, each time a trade of merchandise is recorded on a Blockchain, a review trail is available to follow where the products came from. This can not just assistance improve security and forestall misrepresentation in return related organizations; however, it can likewise help confirm the validness of the exchanged resources. In ventures like medication, it very well may be utilized to follow the inventory network from maker to distributor, or in the craftsmanship business to give a certain evidence of proprietorship.

9.Blockchain-as-a-Service: -

The issue that numerous organizations face, in any case, is that blockchain is complex to coordinate, and come up short on a specialized group that is knowledgeable in this field. BaaS or Blockchain-as-a-Service organizations permit clients to incorporate Blockchain innovation into their organizations effectively, without interruption to their everyday measures. One such organization that distinguished the requirement for BaaS is Broctagon Fintech Group.

With a worldwide presence across 7 nations, Broctagon gives head fintech arrangements including multi-resource liquidity, financier innovation arrangements, and undertaking

blockchain advancement. Organizations are additionally uneasy about blockchain incorporation, particularly about putting huge amounts of assets into advancement for an innovation that is as yet considered 'troublesome'. Starter units like Blockchain-in-a-Box permits present day organizations to make a proof-of-idea to affirm blockchain's suitability and plausibility for their business prior to leaving on a full turn of events. Financial backers are almost certain going to fund an undertaking they can see, instead of simply a reasonable thought. With its Blockchain-in-a-Box starter pack, organizations can make a completely unmistakable stage to hang out in their market and gain certainty for their undertakings.

Blockchain has the potential for some, utilization cases, relevant to a large number of enterprises, and BaaS works with that development from 'troublesome' into 'standard'.

10. CONCLUSIONS

Blockchain is a method of storing data in such a way that it is difficult or impossible to alter, hack, or trick it.

Blockchain innovation is progressive. It will simplify life and more secure, changing the manner in which individual data is put away and how exchanges for great and administrations are made. Blockchain innovation makes a perpetual and permanent record of each exchange. This invulnerable advanced record makes misrepresentation, hacking, information burglary, and data misfortune inconceivable. The innovation will influence each industry on the planet, including producing, retail, transportation, medical services, and land Companies as Google, IBM, Microsoft, American Express, Walmart, Nestle, Chase, Intel, Hitachi, and Dole are altogether attempting to turn out to be early adopters of blockchain. Almost \$400 trillion across different businesses is set to be changed by blockchain. Blockchains like Bitcoin and Ethereum are increasingly increasing as new blocks are added to the chain, which has significant implications.

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BIOGRAPHIES

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