

Revolutionizing the Banking Industry with Blockchain

Srijan Agrawal

B.Tech (Scholar)

Computer Science & Engineering,

Shri Shankaracharya Institute of Professional Management and Technology, Raipur

Chhattisgarh, India

srijan.agrawal@ssipmt.com

Gouri Seth

B.Tech (Scholar)

Computer Science & Engineering,

Shri Shankaracharya Institute of Professional Management and Technology, Raipur

Chhattisgarh, India

gouri.seth@ssipmt.com

Kaveri Kar

Assistant Professor

Computer Science & Engineering,

Shri Shankaracharya Institute of Professional Management and Technology, Raipur

Chhattisgarh, India

k.kar@ssipmt.com

Saumya Sonkar

B.Tech (Scholar)

Computer Science & Engineering,

Shri Shankaracharya Institute of Professional Management and Technology, Raipur

Chhattisgarh, India

saumya.sonkar@ssipmt.com

Article Info

Page Number: 9580 - 9587

Publication Issue:

Vol 71 No. 4 (2022)

Article History

Article Received: 15 September 2022

Revised: 25 October 2022

Accepted: 14 November 2022

Publication: 21 December 2022

Abstract: With the development of the Internet and economic and digital transformations, banks are experiencing new challenges and opportunities. Cryptocurrency combined with blockchain technology is a promising technology with applications in the banking sector. It can change the finance zone and mould the process more autonomous, unambiguous, safe, and effective. Blockchain is a technology that combines multiple technologies like scatter information processing, concurrence procedure, comprehensive communication and encipher scripting. The objective of this research is to develop a model and anatomy of blockchain architecture in order to understand the technology. Much fact-finding on Blockchain automation is being carried out. concurrence procedure which are analysed here. This project primarily discusses how the banking industry uses this platform and its benefits and limitations.

Keywords— Blockchain, Revolutionizing Banking Sector, Distributed Ledger, security, P2P network

1. Introduction

Banks today are constantly seeking new ways to complete transactions more quickly for improved user services while maintaining cost effectiveness. Blockchain technology combines various technologies such as distributed data storage, p2p transmission, and security algorithms to transform the banking industry and make it more autonomous, transparent, reliable, and efficient. By serving as a decentralised ledger, a blockchain efficiently records transactions between sender and receiver effectively. Regulatory and compliance issues abound in the finance industry, along with data breaches and redundant procedures that are highly risky. Aside from alleviating these problems, blockchain technology can be applied to financial services. Traditionally, financial systems have been opaque, relying heavily on intermediaries and databases for security. The result is that nobody will be able to figure out what's going on until the system has been hacked. In addition to the high level of security in storing and transmitting data, a blockchain network infrastructure operates openly and transparently, decentralization is enabled, and operations are low cost. As a result of blockchain implementation, unnecessary mediators can be abandoned and banks and customers can benefit from cheaper services! Blockchain will provide security and transparency for the finance industry. Financial institutions can reduce costs through blockchain technology as multi-tier centralized financial institutions invest a lot in purchasing, maintaining and securing central databases.

2. Literature Review

Review of work done on the proposed project:

Electronic money which can be sent directly from one person to another without going through banks would serve as a foundation for the popular blockchain applications.[1] Scattered state machines are designed to have the potential to order (times-tamped) all transactions in a trusted, rigid manner. [2] There have been many arguments arguing that blockchains can revolutionize numerous fields, including financial affairs, auditing, management, and law, leading to the development of three generations of blockchains which have emerged almost in parallel in an explosive manner around 2015. Though it may take some years for further generations of blockchain to gain traction and create real economic impacts, despite many experiments mushrooming. [3] Blockchain can be understood as a distributed ledger which are created by blocks accommodating transaction details chained to each other in chronological. A distributed ledger in which no single administrator issues blocks, but all participants in a Blockchain workgroup do. [4]

3. Methodology

A. Introduction to Blockchain Technology Framework -

Evidently a remarkable innovation, blockchain was developed by a person by the name Satoshi Nakamoto. At its core, a blockchain is a periodic listing of a petition of data that is kept by a network of PCs owned by different participants. All of these squares of information are verified using cryptographic standards. Blockchain does not incur exchange costs. (It actually costs the frame, not the replacement cost).

B. Blockchain Technology

Blockchains are just one type of allocated data set, not all common data sets use square or chain exchanges fundamentally. While the term "blockchain" is sometimes used more commonly in conversation as "transmitted records", blockchains can be used in many different ways to enable secure and substantive fulfilment of circulating contracts. is just one of the information structures in the most transparently tested method for reaching agreements is "Confirmation of Work Mining" on Bitcoin blockchains.

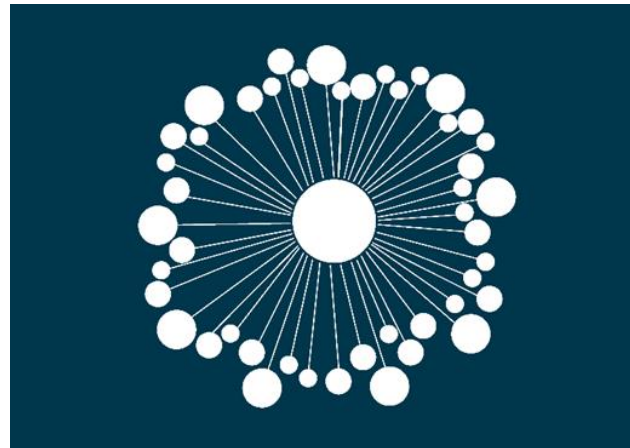


Fig.1. Types Of Blockchain

C. Types of Blockchain

Blockchains that are public are open for everyone to participate in. Data and transactions can be accessed by anyone, but the large number of unverified users that participate requires high levels of encryption and verification, making the network difficult to scale and very slow. In addition, public blockchains form a fully decentralized structure and pseudo-anonymous type of nature is maintained by participants of a blockchain network, making public blockchains suitable for banking sectors that need to be controlled by a centralized management system. Unlike public blockchains that offer pseudo-anonymity, private blockchains allow the identity of the subject. Transactions are processed quickly, the network is easy to scale, and can be changed at the user's discretion, making it suitable for financial services. For this reason, it has recently attracted attention from companies and financial institutions. When the owner creates and handles the blockchain, it comes under the category of private blockchain. This is suitable if the owner wants to handle the blockchain as a central system. For example, for transactional systems where real-time transactions matter, use a private blockchain to securely and cheaply store and verify transaction details after the transaction has taken place, must operate as a centralized system.

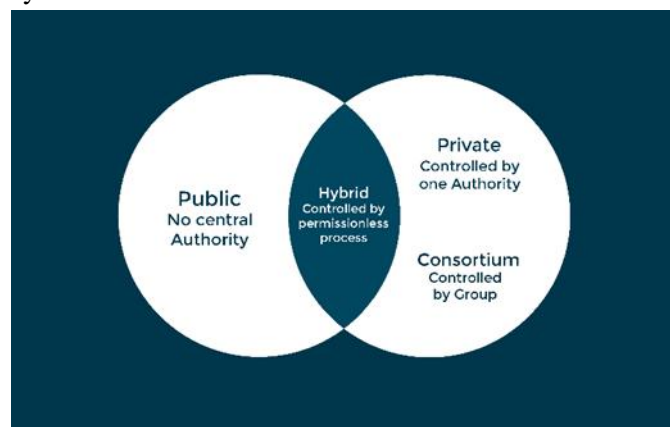


Fig 2. Distributed Ledger

The Consortium blockchain is an intermediary type between public and private blockchains. The default node of this blockchain is privileged, unlike private blockchains where the owner is privileged. Therefore, the consortium blockchain operates a decentralized structure, enhances security by limiting participants to participate, and solves the problems of limited transaction speed and network scalability that occurs in public blockchains.



Fig 3. Centralized Ledger

D. Relationship between Blockchain technology and Banking Sector

Blockchain is a distributed ledger technology designed in the form of network participants that store and validate transactional data. [1] Traditionally, the role of banking sector is determined by a ledger of records and maintained by specific sectors, regardless of whether ownership of assets is actually held. In demand deposits, the majority of currency in circulation today, banks hold balances of each client to approve and record deposits and withdrawals, central banks hold balances for each bank in their general ledger and process the transfer. As a result, management costs to prevent the system from losing credibility due to tampering and hacking have become an issue.

Blockchain eliminates the need for a third party, reducing commissions and management fees, and it makes it difficult to manipulate information arbitrarily because it is a shared property. Blockchain technology is considered most useful in international money transfer services, where customers have to pay high fees, because many institutions are involved in transactions, allowing transactions between individuals without intermediaries.

Due to the fact that accidental alteration or falsification of records is not possible, attempts are being made to use blockchain for financial asset transactions at financial sectors.

Transfer, inheritance, succession of property. By taking a ledger containing transaction details and distributing it over a P2P network instead of placing it on a central server of a particular organization, blockchain allows participants to record and manage it together which solves management costs and hacking problems. Therefore, we believe that existing business models of financial institutions can be revolutionized.

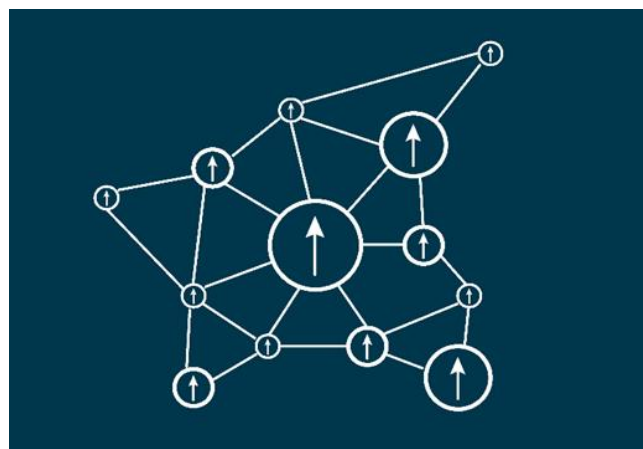


Fig 4. Decentralized Ledger

E. Blockchain is reshaping Banking Sector

In 2017, the cryptocurrency frenzy was in full swing. Bitcoin hits all-time highs in all reports. Initial Coin Offering's (ICOs) change the usual way of raising capital. Additionally, and probably blockchain innovation is starting to change the globe. According to reports, the budget of the entire world will profit the most from adopting this progressive disc technology. No matter if it's repayments, tenements, or consistency, blockchain's aspects of decentralisation, irreversibility, competence, In recent years, cost, stability, and viability have prompted a growing number of financial organizations to adopt the technology; the industry is therefore now predicted to face significant disruption.

A consistency company Capgemini, estimates that consumers could save up to \$20 billion in banking and insurance fees each year.

When importers and exporters from different regions of the globe need payment validations before they are able finish the trade financing transaction, it might be difficult to conduct international trade. By allowing all stakeholders to see records and paperwork as early as they are processed, blockchain expedites the process. Banks continue to invest resources in many companies and new ventures generating blockchain-based arrangements. Banking and money-related activities are legally equated with stock and credit protection. Indeed, even in the created nations much of this financial capacity is often accused of being problematic and impotent. State administrator protects his banking transactions privately on normal currency standards. [5]

F. Working

Overall, there are a number of areas where blockchain can assist in resolving a variety of issues now plaguing the finance sector. In fact, it possesses the power to completely change the finance sector.

- Know Your Client - Financial institutions like banks invest a lot of money in KYC. By requiring banks to carefully follow the processes to identify and verify their users, standards were established to avoid fear-mongering practices and criminal tax negligence.
- Clearing and Settlement - Banks spend a considerable amount of money. With the current setup, trying to keep track of disbursements and other precautions costs. Whenever blockchain is used, it moves towards lowering the cost. Disbursement instalments are one area where the Blockchain has the potential to effect significant change.
- Reduction in Fakes - This should serve as a crucial perspective in favour of the application of blockchain technology in the financial sector. By eliminating the middlemen, this will significantly reduce the possibility of fakes.
- Trading - There have been suggestions for the notion to be modernised or digitalized. Advancement on the blockchain technology will undoubtedly help in this direction. [6]

G. Advantages

- Cost Investment Funds and Productivity - Blockchain qualities are very attractive to banks managing increasing costs and to ensure consistency. Additionally, banks have to come to terms with increasing financial volatility. There are several consistency companies which offer services at cheap rates, must faster speeds, and with a simpler interface than banks.
- New Action Plan - Banks can use blockchain-based frameworks to bypass central offices and inheritance bases Banks could build on this framework to craft the perfect plan of action to disrupt the biological systems associated with money.
- Decentralization and Elimination of Intermediaries - DLT allows computerized value or tokens to be directly exchanged between two counterparties and keeps records decentralized, eliminating the need for intermediaries or central experts to manage records. disappears. This translates into lower costs, greater versatility, and faster advertising times.
- Simplicity and ease of auditing - All system personnel have complete copies of transmitted records. Changes must be made when the contract is signed and are continuously distributed throughout the

system. This component, coupled with the absence or limited involvement of central experts, could potentially reduce extortion and eliminate the cost of compromise. [7]

H. Challenges

Blockchain innovation has great potential, but there are other issues that can hinder the adoption rate of the innovation.

- Interoperability - This innovation lacks a global standard or competing blockchain frameworks. Blockchain is predicted to be perfected on the internet as a whole and integrated into current processes and procedures with improved interoperability. The managerial functionality can be attained if they are on the same blockchain. As the number of competing blockchain systems grows, the question of interoperability grows even more.
- Information about security - Blockchain innovations is inherently public among all members of the framework. Since blockchain information is public and can be viewed by anyone, there are various issues regarding the security of exchanges. Private blockchains are very secure, but pose interoperability issues with other blockchains.
- Encryption - A number of issues have been identified regarding the encryption of blockchain information. If the key is publicly disclosed, anyone can obtain the encrypted data, and it'll be challenging to recover the blockchain's opening key if it is lost. Framework alerts can accomplish the cryptography employed in blockchain technology because people may find better ways to control or abuse their data. [8]

4. Results and Discussions

Findings

- With the introduction of Bitcoin, blockchain technology had a miraculous impact on a number of industries.
- Decentralization, security, transparency, and scalability are all features that make up blockchain data structures.
- Digital security, mechanization of mechanical autonomous processes, and human-made consciousness will be the key developments by 2020 that will change the fate of banking.
- Over 50,000 blockchain conglomerates have emerged in the last two years.
- Bank is one of the most experienced and largest money intermediaries in India. Since moving forward, there have been some notable changes in how finance departments work.
- Blockchain innovation is another innovation that relies on numerical, cryptographic and financial criteria to maintain databases among different members without the need for outsiders or central experts.
- Blockchain will never again be limited to digital currencies like Bitcoin. It is an immutable record that adapts the reality of each exchange. [9]

Suggestions

- Blockchain is being used in the information profession to avoid data or record types being lost in the process of being created and stored.
- Blockchain technology can be fully utilized not only for small contracts but also for small business payments and remittances.
- Blockchain in the banking process is evident both small and large.
- Business Understanding Execution Tasks are securely managed, effectively verifiable, and completed under administratively acceptable conditions.

- Information professionals will benefit from the availability of blockchain technology in real-world applications and will be able to experiment and adapt more broadly to the technology's potential benefits. [9]

5. Conclusion

This case study offers some important perspectives into banking institutions' innovative proof - of - stake business models. The use of blockchain by financial organisations must first address a few problems. Blockchain technology is being embraced by financial organisations to enhance processing of information. The blockchain that runs on Bitcoin is now an open network where anybody can sign up and where everyone can take part in decision-making. It specifically highlights how setting risk controls and other measures requires several interactions with relevant parties, along with other financial institutions.

Second, collaborations have been formed with pertinent blockchain businesses since blockchain technology may be utilised by all financial institutions, not just one. Blockchain technology is being considered for integration into some central banks' financial systems, for instance. The Blockchain Consortium of Banks seeks to carry out research on blockchain-based client identification, electronic document verification, and other topics, as well as to identify potential future research fields. Instead of creating expansive, decentralised blockchain platforms to reinvent their present business models are concentrating on streamlining the operations of their current business models. The real foreign currency transaction service was not available since blockchain played no part at all in the forex transmission process.

Instead of using it to apply to the banking markets as a whole rather than to specific banking firms, this study proposes to explore the applicability of blockchain's decentralised structure for automation of business processes of banking institutions. The initiative that was put into action made a significant contribution to the finance department's understanding of blockchain technology. The blockchain is a financial programme that functions really well. It is very challenging to cover every aspect of such a broad subject in a limited amount of time. However, every effort is made to cover the majority of the most crucial encryption-related issues. Any data stored on the blockchain cannot be updated because it has already been changed.

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