International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 09 | September - 2023 SJIF Rating: 8.176 ISSN: 2582-3930

How Blockchain is Used in Financial Services

Monika Murthy C

Student

MBA Department

PES University, Bangalore, Karnataka

Under The Guidance Of

Prof. Arvind L N

ABSTRACT

Blockchain technology has become a disruptive force in the financial services sector, by providing distributed, transparent, and secure transactions. The applications of Blockchain technology are discussed in the paper. The key characteristics of blockchain are highlighted along with how Bitcoin impacted it. The study examines a few particular blockchain-based financial services. These include making extremely small payments, transacting business internationally, and sending money directly to others. The study talks about the impact of blockchain digital contracts, trade finance, related to rules and regulations, and central bank management of digital currency. Although blockchain is useful, it also has some drawbacks, such as handling rules, maintaining security, and managing numerous transactions.

KEYWORDS: Blockchain Technology, Financial Services, Decentralization.

INTRODUCTION

Blockchain technology has changed the way financial services are provided by enhancing security, transparency, and efficiency. It is a decentralized distributed ledger technology that records transactions throughout various computers securely, openly, and irreversibly. It is comparable to a group of blocks, where each block represents a number of financial transactions. Using cryptographic hashes, these blocks are connected to create a stable record of all transactions.

Features of blockchain in financial services:

Decentralization: It runs on a decentralized network as opposed to conventional centralized systems, which are managed by a single entity.

Security Purpose: Blockchain employs sophisticated cryptographic methods for security purposes. It is impossible to change the data contained in a block after it has been added to the chain due to the intricate processes involved.

Transparency: All users of a blockchain can see the transactions that have been recorded there. This transparency guarantees accountability and deters fraud.

Immutability: Recorded transactions are unchangeable.

Smart contracts: Because the terms are automatically carried out when the conditions are met, there is no need for middlemen.

BACKGROUND

The idea of using blockchain technology as the foundation for Bitcoin, the first cryptocurrency, was first proposed by Satoshi Nakamoto in 2008. It was developed to enable peer-to-peer transactions without the use of middlemen like banks, much like the decentralized ledger (blockchain) used by Bitcoin.

LITERATURE REVIEW

1. "Blockchain Technology Applications for Financial Services" by Trivedi and Mehta (2022)": The potential uses of blockchain in financial services are thoroughly covered in this paper. The authors identify several crucial areas where blockchain can be applied to raise security, lower costs, and boost productivity. By reducing transaction costs and enabling micropayments, blockchain technology can be used to secure international trade. Bill discounting and invoice financing are two trade finance procedures that can be automated and made simpler using technology. It can be used to increase productivity in development and cut steps, as well as to make trading securities simpler and less expensive. The use of blockchain-based technology has made asset management simpler, productive, and fraud-free. The ability of blockchain technology to simplify and automate the borrowing process will allow for the availability of financing for borrowers.

2. "A review of Blockchain Technology applications for financial services" by Alzahrani and Chaudhary (2022)": This paper's main goal is to discuss specific applications of blockchain technology in the financial sector. They emphasize how Blockchain can revolutionize traditional financial systems and increase transaction security, transparency, and efficiency. The authors look into how these applications might affect current legal and financial frameworks as well as the overall economic environment.

3. "Blockchain in accounting research: current trends and emerging topics" by Tatiana, Mikko, and John(2021)": The paper offers a useful overview of the current condition of blockchain accounting research at the present time. New accounting systems that have a higher protection, accessible, and effective can be created using blockchain. It can change financial procedures like supply chain management, trade finance, and cross-border payments by improving efficiency and reducing associated costs. Its adoption might enhance risk management procedures in the financial sector and reduce fraud.

4. **"Blockchain in finance by Jayanth Ram Varma (2019)":** Blockchain is widely used for financial applications because of its unique features such as decentralization, transparency, and strong security features. It can change financial procedures like supply chain management, trade finance, and cross-border payments by improving efficiency and reducing associated costs. The implementation of it might enhance risk management procedures in the financial sector and reduce fraud.

5. **"The state of play of blockchain technology in the financial services sector: A systematic literature review by Omar Ali, and Yogesh Dwivedi(2020)":** The current state of blockchain technology in the financial services sector is thoroughly investigated in this article. It highlights the most important developments and trends in this area and analyses the benefits and drawbacks of implementing a blockchain. The article at the conclusion discusses potential future advancements in the field.

RESEARCH METHODOLOGY

For this research study, secondary data was collected by referring to journals, articles, and other research papers related to blockchain technology.

OBJECTIVES OF THE STUDY:

- To comprehend blockchain technology.
- To explore blockchain applications in the financial sector.
- To analyze risks and challenges in financial services.
- To understand the role of cryptocurrencies.
- To anticipate future trends and forecast developments.

BLOCKCHAIN IN THE FINANCIAL SECTOR

The transactions that will be recorded will be more secure and cannot be modified by using blockchain technology. It has the ability to change the financial sector by reducing procedures, lowering expenses, and improving the security of transactions.

It is used in many ways such as:

- Peer-to-peer (P2P) payments are made possible by blockchain, which eliminates the need for a bank or credit card company as a middleman in transactions between two parties. This leads to speeding up and reducing the cost of payments, that are included in international transactions.
- Cross-border payments, such as the requirement of numerous third parties, payments across borders are frequently complicated and expensive. The transactions can be simplified and carried out by using blockchain. Cross-border payments now carry a lower risk of fraud and money laundering because of blockchain technology.
- Blockchain can be utilized to encourage micropayments, which are small sums of money that are frequently insufficient in size to be managed efficiently by means of conventional payment methods. Micropayments are likely to be used to pay for things like per-use access to online services.

The specific areas in which Blockchain technology is being used:

- **Smart Contracts and Automation:** These contracts are self-executing and are controlled by code. When certain conditions are met, they automate certain actions. By eliminating the need for a middleman, this technology is particularly helpful in procedures like loan approvals, insurance claims, and supply chain financing.

- **Trade Finance and Supply Chain Management:** A secure ledger for entering all transactions within a supply chain is created using blockchain technology. Operations are more transparent and accountable when blockchain is used. This may result in improved teamwork and fewer disputes. Overall, blockchain improves these industry's effectiveness and security by streamlining processes, cutting down on fraud, enhancing tracking, and providing real-time information.
- **Regulatory Reporting and Auditing:** By offering a secure and auditable record of every transaction, blockchain can assist businesses in complying with regulations. This can help businesses save time and money while lowering their risk of fines and penalties. By enhancing auditability, lowering costs, increasing transparency, and increasing accuracy, blockchain can help businesses in accordance with regulations with greater ease and effectiveness.
- **Digital Identity and Authentication:** Secure digital identities can be created using blockchain technology. This is especially important in the current digital era because it is necessary to present identification documentation in order to access resources like financial services online. It can make transactions safer and simpler to interact in the digital world by offering a private, secure, and practical method of verifying one's identity.
- **Central Bank Digital Currencies:** Certain banks are looking into the possibility of creating own digital currencies using blockchain technology. This might completely alter how monetary policy is managed by central banks. CBDCs may contribute to a more prosperous and inclusive future for all people by increasing innovation, enhancing financial inclusion, and streamlining payments.

Risks and Challenges of Blockchain Technology in Financial Services

Regulatory uncertainty with compliance issues: The laws governing the use of blockchain technology and cryptocurrencies differ by geographic area. These regulatory structures can be difficult to understand and might need a lot of resources.

Security Concerns: In theory, fraudulent activity by organisations on a publicly accessible blockchain network could seize control of more than 50% of the network's processing power, giving them the ability to manage transactions.

Smart Contract Vulnerabilities: Even though this is unusual, it poses a potential risk. On the other hand, digital contract vulnerabilities are caused by coding errors made when creating smart contract language, which can give hackers access to weak points.

Privacy and Data Protection: Once an Immutable Ledger has been recorded on the decentralized ledger, it is extremely hard to change or erase. As a result, it may be challenging to fulfill obligations under data protection laws like the GDPR.

Scalability Issues: Public digital currencies like those used by Ethereum and Bitcoin have experienced problems due to the exchange speed.

Lack of governance: Distinct blockchain applications may not be able to communicate easily with one another. This can lead to disintegration and impede the implementation of blockchain in the insurance industry.

Technological complexity: Blockchain technology demands a high level of technical knowledge for implementation and maintenance. This can be a challenge for smaller banking organizations or those that have limited IT capabilities.

Market Volatility: Getting to know users, which includes clients and staff members, on how to use blockchain-based goods and services can be difficult.

Resistance to change: Because of concerns about disrupting traditional companies and systems, reputable banks may be hesitant about implementing blockchain technology.

Protocols' Long-Term Viability: Because of the swift pace of technological development, the most common blockchain protocol today may become outdated or be succeeded by a more recent, better-performing version in future generations.

The Environmental Concerns: The energy-intensive evidence of work consensus procedures used by Bitcoin has received criticism.

Counterparty Risk: While blockchain technology may decrease the risk of counterparty in some cases, it additionally introduced new types of risks associated with smart contract codes or codes that govern business transactions.

Supply chain vulnerabilities: There may be risks regarding the confidentiality of data input at different locations along the chain of custody for applications based on blockchain technology related specifically to supply chain financial services.

To successfully tackle these hazards and difficulties, a thorough strategy is required, that involves compliance with laws and regulations, strong security regulations continuous training, and an aptitude to adapt as technology evolves. Financial institutions that are thinking about implementing blockchain technology should conduct extensive preliminary research and consider collaborating with experienced blockchain vendors or experts.

ROLE OF CRYPTOCURRENCIES IN BLOCKCHAIN:

Cryptocurrencies have significance in blockchain technology as they are the native digital currency in many blockchain-based systems.

- Digital Currency and Medium of Exchange: Bitcoin and other digital currencies are virtual or digital money that use cryptographic methods to ensure the security of monetary transactions.
- Transactions with a lower dependence on trust: Digital currencies allow for transactions between individuals without the use of intermediaries such as banking institutions.
- Consensus Mechanism: The digital currencies are essential to the agreements that safely and securely confirm transactions on the blockchain. For the verification of operations and creating blocks that are fresh, various digital currency coins use distinguishable consensus methods, such as Documentation of Develop (which is utilized by Bitcoin) or the case of Proof of Stake to verify transactions.
- Incentive mechanism for Nodes: In the blockchain system, the miners or inspectors are rewarded with digital currencies for their computation attempts in confirming and maintaining financial transactions.
- Smart contacts and tokens: The majority of blockchain technology platforms, such as the digital currency Ethereum, encourage the development of smart contracts. These are autonomous agreements with terms composed directly into code. Cryptocurrencies are such are commonly used to pay for purchases and computational resources on the decentralized ledger, as well as for facilitating the execution of smart agreements with them.
- The creation of asset tokens includes Another procedure that makes it possible for virtual currencies to behave like physical assets tokenization. For example, a real estate investment or creative endeavor

can be represented as a virtual currency on the blockchain, allowing for restricted ownership and simpler transfer.

- Liquidity and Accessibility: Bitcoin and other digital currencies can be exchanged across different exchanges, giving virtual currency financial liquidity. This allows users to exchange digital currencies for other types of merchandise or conventional dollars.
- International Transactions and Remittances: Cryptocurrencies are allowing quick and cheap shipping transactions between nations. It is beneficial for money transfers as it allows individuals to send money to people who live in other nations without depending on traditional banking systems.
- Financial Inclusion: Bitcoin and other digital currencies can help individuals who are financially without a bank account or under-banked gain ownership of monetary services. To become involved in the world of cryptocurrency, all that is required is a link to the web and a wallet for digital currencies.
- Experimental applications and innovation: The growing popularity of Bitcoin has sparked a wave of distributed ledger creativity. It has resulted in the invention of new decentralized applications finance websites (DeFi), non-fungible currency (NFTs), and other technologies.
- Store of value and speculation: Certain cryptocurrencies, such as bitcoins, are frequently regarded as a preserve of value or "information gold."

CONCLUSION:

By improving privacy, openness, and productivity, blockchain technology, a decentralised record-keeping system, has fundamentally changed the way that financial services are provided. Advanced cryptographic methods are used in its decentralized network operation to guard against data alteration and ensure accountability. Research into blockchain accounting has produced new systems with improved security, usability, and efficiency. By lowering costs and enhancing risk management procedures, it can enhance financial processes like supply chain management, trade finance, and cross-border payments. Blockchain simplifies transactions, lowers costs, and eliminates middlemen in global trade. By offering a single, shared ledger of transactions, it also assists businesses in adhering to regulations.

REFERENCES:

- Javaid, M., Haleem, A., Singh, R. P., Suman, R., & Khan, S. (2022, July). A review of Blockchain Technology applications for financial services. *BenchCouncil Transactions on Benchmarks, Standards and Evaluations*, *2*(3), 100073. https://doi.org/10.1016/j.tbench.2022.100073
- Garanina, T., Ranta, M., & Dumay, J. (2022). Blockchain in accounting research: current trends and emerging topics. *Accounting, Auditing & Accountability Journal*, *35*(7), 1507-1533.
- Ali, O., Ally, M., Clutterbuck, & Dwivedi, Y. (2020, October). The state of play of blockchain technology in the financial services sector: A systematic literature review. *International Journal of Information Management*, *54*, 102199. https://doi.org/10.1016/j.ijinfomgt.2020.102199
- Varma, J. R. (2019, March). Blockchain in Finance. *Vikalpa: The Journal for Decision Makers*, *44*(1), 1–11. https://doi.org/10.1177/0256090919839897.
- **https://www.researchgate.net/publication/332260396_Blockchain_in_Finance**
- **https://consensys.net/blockchain-use-cases/finance/**
- **https://www.salesforce.com/eu/blog/2020/02/how-financial-services-are-implementing-blockchain-technology.html"**