Kuwait Journal of Advanced Computer Technology
ISSN: 2984-7907
Vol 4 Issue 1 (2026)

Review on Financial Transactions using Blockchain Technology

Prashant Govardhan[1], Leena Patil[2]

[1](Ph. D. Scholar)

Computer Science and Engineering,

RTM Nagpur University,

Nagpur, Maharashtra, India

er.phgovardhan@gmail.com

[2](Ph. D. Guide and Head of Department)

Computer Science and Engineering

Priyadarshini College of Engineering,

RTM Nagpur University

Nagpur, Maharashtra, India

lhpatil10@gmail.com

Submitted: 03/12/2025 **Revised:** 16/12/2025 **Published:** 25/12/2025

***Abstract*—** Digitization helping every individual to get what they want in few steps. It only requires the awareness and technology that will help you. Growth in online financial transactions is remarkable which felicitate to need of end user. Recent discussions on digital currency and cryptocurrency all across globe makes online financial transaction hot topic to talk on. This makes us to learn and understand more about the concept of digital currency and cryptocurrency for financial transactions. There will be a pros and cons between traditional way of financial transaction with national currency and new way of financial transactions with cryptocurrency. The world always needs to accept the new technology to grow through drastic changes in the market. Permissioned Blockchain technology will be helpful for every application around the world. The role of cryptocurrency will be highly appreciable to accept it. As permissioned blockchain technology comes into picture, this will surely help us to stop problems arises due to lack of communication between financial institution and the end user.

Keywords—financial transaction, cryptocurrency, blockchain technology, tokenized, decentralized

1. INTRODUCTION

We are stepping towards digital world where we are trusting on technology more than human beings around us. Digitization helping every individual to get what they want in few steps. It only requires the awareness and technology that will help you with your work. Tremendous growth users make this more studying topic nowadays. Growth in online financial transaction is remarkable which felicitate to need of end user. This more unreliable and unacceptable among traditional users due to lack of knowledge. This is an opportunity to study and understand more about the concept of digital currency and cryptocurrency for financial transactions. Permissioned Blockchain technology is one of kind which will help. Use of permissioned blockchain technology to strengthen financial transactions which will be reliable and transparent. The role of digital currency and cryptocurrency will be highly appreciable to accept it. Permissioned blockchain technology will surely help us to stop problems arises due to lack of communication between financial institution and the end user.

1.1 Currency for us

Now Currency is nothing but paper and coins specially designed to have fluent financial transactions. Currency plays many roles like store of value, unit of account, standard of deferred payments. But most important role playing of currency is medium of exchange to facilitate financial transactions. Every country holds their own

currency and uses it for their domestic transactions. When there is need of International financial transaction, one need to convert his currency to depositor's nation currency to complete financial transaction.

1.2 Concept of Digital Currency

Digital currency works similar to traditional currencies all over the world. It doesn't have physical form like paper notes or coins published by government. Digital money is exchanged using credit cards, smart phones and internet banking. It is a value stored in the users account which can be used to perform financial transactions. Digital currency is becoming popular and acceptable among all generations.

1.3 Financial Transactions

We transfer money from one account to another account which is hold by individual. Money is also use for the buying and selling goods and services purposes. Previously every other transaction was physical by using flat currency made available by government. But nowadays online transactions took over physical one due to technology. We transfer money to someone's account while buying and accept money while selling something. This is maintaining by financial institutions with charging some amount of money. A financial institution always tries to give us most secure and reliable infrastructure for performing our financial transactions; still, most of financial institutions sometimes fails to provide quality of service. This may be happening due to lack of latest technology enhancement and acceptance.

2. LITERATURE SURVEY

2.1 Blockchain Technology

In a layman term, Blockchain is defined as the chain of digital blocks connected and associated with each other as an open distributed ledger. It started to use in different applications beyond currency and payments. Blockchain as a way to solve the long-existing problems of double spending of digital cash and processing of digital transactions in a decentralized way without the need of any trusted third party.[5]

Anyone can run the blockchain node with 100 percent transparency. But organizations require an entirely different type of blockchain, which can safeguard their terms and policies. It should incorporate only preapproved nodes. This type of blockchain is called permissioned blockchains. Permissioned blockchain requires every peer to execute every transaction, maintain a ledger and run consensus.[1]

The potential of blockchain is beyond financial applications. Through the Bitcoin application, the innovative technology was miraculously launched in the markets, influencing numerous industries. Bitcoin is nothing but a form of digital currency (cryptocurrency) that can be used for trading in place of fiat money, where the underlying infrastructure is called Blockchain. The Blockchain is an open ledger that provides decentralization, transparency, immutability, and confidentiality. Blockchain can be used in massive, beneficial applications such as healthcare, logistics, supply chain management, the Internet of Things (IoT), etc. Blockchain can be used in substantial valuable applications such as medicinal services, academics, banking marketing, and much more. Before permissionless blockchain, Permissionless blockchains are also known as public or decentralized blockchains. [1]

Cryptocurrency is an advanced digital currency that is gotten by cryptography, numerous digital currencies are decentralized organizations dependent on blockchain innovation an appropriated record authorized by a different organization of computers. And many present-day technologies are driving the transformative impact in the global financial system, in that impact cryptocurrency stands on first position in the list. Cryptocurrency offer several potential benefits, including better speed and efficiency in processing payments and transfers notably across borders and ultimately boosting financial inclusion.[2]

Owing to the incremental and diverse applications of cryptocurrencies and the continuous development of distributed system technology, blockchain has been broadly used in fintech, smart homes, public health, and intelligent transportation due to its properties of decentralization, collective maintenance, and immutability.[3]

Each transaction in the blockchain consists of transferring a virtual value from a virtual identity, i.e., a blockchain address or a set of addresses, to another. The sizes of transaction records are quickly expanding. The total transaction volumes of Bitcoin and Ethereum (the top two cryptocurrencies by market capitalization) have exceeded 500 million and 600 million, respectively, at the end of 2020. A complete trace of users' activities and behaviors has been faithfully recorded on the blockchain. Having begun to notice the richness of the blockchain database a few years ago, academia has since produced a large body of research regarding cryptocurrency transactions. [4]

Blockchain is a revolutionary technology that is making a great impact on modern society due to its transparency, decentralization, and security properties. Blockchain gained considerable attention due to its very first application of Cryptocurrencies e.g., Bitcoin. In the near future, Blockchain technology is determined to transform the way we live, interact, and perform businesses. Recently, academics, industrialists, and researchers are aggressively investigating different aspects of Blockchain as an emerging technology. The Blockchain evolution and architecture in cryptocurrencies is reviewed as well as architecture and research developments pertaining to Smart Contracts (Blockchain 2.0) and Blockchain-based applications or ecosystems in general (Blockchain 3.0) beyond financial transactions. [5]

With the development of blockchain and digital currencies, central banks all over the world are accelerating the process of Central Bank Digital Currency (CBDC) development. However, it is still controversial on adoption of blockchain in CBDC design. Bitcoin is the most successful cryptocurrency and is also considered by central banks in early blockchain based CBDC researches. Decentralization is a key feature of blockchain, which is contrary to traditional centralized management in central banks. So some people think that blockchain is not suitable for CBDC. Current cryptocurrencies like Bitcoin are lack of regulatory means and are prone to money laundering, extortion and other criminal activities. So public (permissionless) blockchain cannot meet requirements of financial systems in regulation, scalability, and efficiency and is not suitable for blockchain based CBDC. Compared with permissionless blockchain, permissioned blockchain is more suitable for CBDC. [6]

Towards the digital transformation age, information barter over the Internet and the storing of data on open networks has been widely increased. This also increases the importance of cryptography in computer science. Cryptography is designed to provide confidentiality and authenticity of a message. Generally; during the communication, encryption and decryption operations are performed for securing information through cryptographic key. Providing secure of this key is major concern, so key chose is essential. One should care that the keys are not estimated easily.[7]

With the development of blockchain technology, the research on digital currency is attracting more and more attention, especially Central Bank Digital Currency (CBDC), which plays an important role in national economic construction. However, compared with existing cryptocurrencies, CBDC needs a more controllable decentralization and more emphasized supervision. Therefore, the critical part of CBDC is the network architecture that saves computing resources, the technical scheme that is in line with economic ecology, and efficient consensus algorithms.[8]

Blockchain, and cryptocurrencies such as Bitcoin, Ethereum, and Litecoin, are innovative FinTech technologies that speedily invade the finance market and changing the strength of the world economy. However, there has been low acceptability of these technologies among consumers. There is a clear gap in-between that did not be considered until now and it's misunderstood for many platforms. findings indicate two powerful constructs (regulatory support and experience) that encourage customer's trust toward blockchain-based applications. The surveyed people agreed significantly feeling secure and they can trust the Blockchain-based applications when it is regulated and ensured by the local government. Also, at a certain level of experience, users feel trusted using blockchain-based applications, the increases in trust supported technology adoption. As such, governments and businesses can dedicate efforts to enhance customers' trust and ultimately promote better acceptance of blockchain technology and its applications.[9] Cryptocurrency (Bitcoin) is a fully decentralized digital currency based on blockchain technology. Although all transaction records are public, cryptocurrency payments are anonymous

unless the addresses and transactions can be matched to actual identities. This online anonymizing technology has considerable potential to increase convenience and improve social welfare. However, there is a negative side to the new technology when it is paired with another online anonymizing technology. On January 26, 2018, 58-billion-yen ($530 million) worth of a cryptocurrency, NEM, was fraudulently accessed, and was then stolen from the Coincheck Exchange, headquartered in Japan. This hacking incident is unprecedented not only because it was one of the world's largest cryptocurrency heists, but also because the stolen NEM was sold and money laundered on a crypto market. Three years later, the Metropolitan Police Department, Japan, announced that more than 30 people had been charged for allegedly exchanging NEM cryptocurrency, accounting for one third of the stolen value, for other cryptocurrencies. The hackers have not yet been arrested, and how the stolen NEM was money laundered has not yet been investigated.[10]

Since the inception, the market of cryptocurrencies has grown beyond the initial expectations, as witnessed by the thousands of tokenized assets available on the market, whose daily trades exceed dozens of USD billions. The pseudonymity features of cryptocurrencies have attracted the attention of cybercriminals, who exploit them to carry out potentially untraceable scams. The wide range of cryptocurrency-based scams observed over the last ten years has fostered the study on their effects, and the development of techniques to counter them. The research in this field is hampered by various factors. First, there exist only a few public data sources about cryptocurrency scams, and they often contain incomplete or misclassified data. Further, there is no standard taxonomy of scams, which leads to ambiguous and incoherent interpretations of their nature. Indeed, the unavailability of reliable datasets makes it difficult to train effective automatic classifiers that can detect and analyse scams.[11]

Blockchains intrinsically nurture decentralised digital transactions by eliminating intermediaries such as agents, brokers, or bankers. They provide a feasible approach to the challenge of reliability in decentralised environments by enabling different entities (e.g., individuals, organisations, machines, etc.) to communicate and interact with each other autonomously and safely, ultimately enabling the creation of distinct innovative business models and work processes across society and industry.[12]

3. FINDING AND DISCUSSION

We have traditional way of having financial transaction. Financial institution charges some amount of money to provide services to us. These charges are dependent on amount of money transfer. In traditional way, sender use to send money from his account to someone else account without his permission to deposit. This results into increase in crime due to permissioned less transaction system.

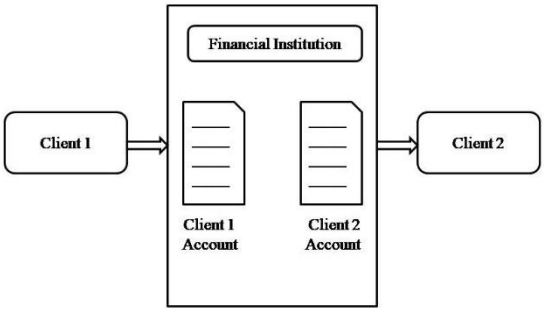

Figure 3.1: Diagram giving information of current financial transaction system for common financial institution

Transferring money from ones account to others account is nothing but maintain records in database.

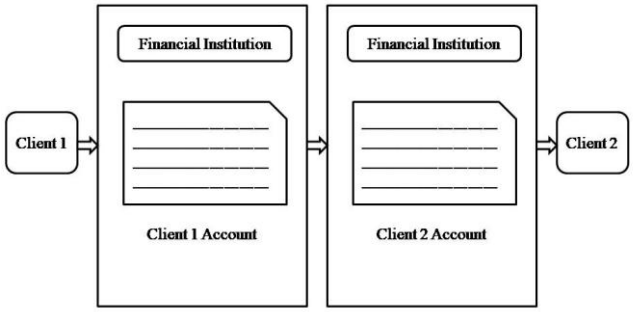

Figure 3.2: Diagram informing current financial transaction system for two different financial institution

If both sender and recipient having an account in same financial institution then it becomes easier than both users having an account in two different financial institution. When we are dealing with the two different financial institutions it requires synchronization between them. Both financial institutions may or may not use identical database or software to maintain financial transactions.

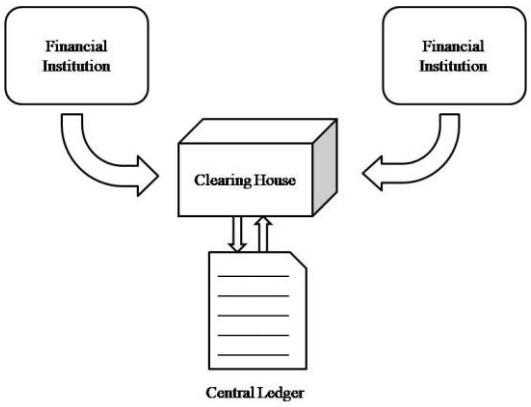

Figure 3.3: Role of Clearing House in Centralized Transaction System.

Role of clearing house in centralized transaction system is to maintain centralized ledger for accounts holds by users. A clearing house is mediator between sender and recipient. One has to clear transactions through clearing house. Like exchanging cheques drawn against one another.

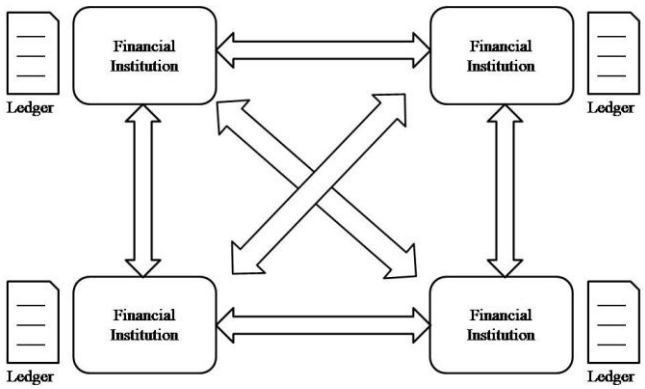

Figure 3.4: Distributed Ledger Transaction System.

Instead of clearing house maintaining central ledger for transactions if both financial institutions having mutual understanding and commitment towards executing and maintain transactions then distributed ledger maintain by each financial institution will be solution. In this case, each financial institution is bounded to maintain its own ledger. It has to be done with authentication and security majors. It will reduce charges as well as time to execute financial transactions. Still, we don't have security in terms of depositing money to someone's account.

Permissioned blockchain technology will help us to do so. Here transaction will be executed after taking permission from other person and this can be done with the help of smart contract between them.Work composites the use of permissioned blockchain with the help of digital signatures, timestamp and smart contract to make financial transactions more secure in the network.

4. CONCLUSION

World is changing so fast that we need adopt changes and get into the race of technology. This helps us to do our work easier. Traditional financial institutions are doing good at there places but we need to learn and understand new technology like blockchain to solve our problems. Problems that arise while using traditional dependent transaction system which is centralized. Here after studies one can find that decentralized system will also work fruitfully for us. This will help us to provide transparent financial transaction system for the society.

REFERENCES

[1] Swathi P. and M. Venkatesan, "Scalability improvement and analysis of permissioned-blockchain", The Korean Institute of Communications and Information Sciences (KICS), ICT Express 7 (2021), August 2021, pp. 283–289.

[2] Nandan Gowda and Chandramani Chakravorty, "Comparative study on cryptocurrency transaction and banking transaction", KeAi Communications Co. Ltd, Global Transitions Proceedings 2 (2021), August 2021, pp. 530–534.

[3] Yourong Chena, Hao Chen,Yang Zhang, Meng Hanc, Madhuri Siddulae and Zhipeng Cai, "A survey on blockchain systems: Attacks, defenses, and privacy preservation", High-Confidence Computing 2 (2022), November 2021, pp. 100048.

[4] Xiao Fan Liu, Xin-Jian Jiang, Si-Hao Liu and Chi Kong Tse, "Knowledge Discovery in Cryptocurrency Transactions: A Survey", IEEE Access, Volume 9, March 2021, pp. 37229-37254.

[5] Muhammad Nasir Mumtaz Bhutta, Amir A. Khwaja, Adnan Nadeem, Hafiz Farooq Ahmad, Muhammad Khurram Khan, Moataz A. Hanif, Houbing Song, Majed Alshamari, and Yue Cao, "A Survey on Blockchain Technology: Evolution, Architecture and Security", IEEE Access, Volume 9, April 2021, pp. 61048- 61073.

[6] Tao Zhang and Zhigang Huang, "Blockchain and Central Bank digital currency", The Korean Institute of Communications and Information Sciences, ICT Express, September 2021.

[7] Zumrut Muftuoglu,"Comparative Analysis of Crypto Systems Using Biometric Key", 8th International Congress of Information and Communication Technology (ICICT-2019, Procedia Computer Science 154 (2019), 2019, pp. 327–331.
[8] Jinnan Zhang, Rui Tian, Yanghua Cao, Xueguang Yuan, Zefeng Yu, Xin Yan, and Xia Zhang, "A Hybrid Model for Central Bank Digital Currency Based on Blockchain", IEEE Access, Volume 9, April 2021, pp. 53589-53601.
[9] Hayder Albayati, Kyoung Kim and Jae Jeung Rho, "Acceptance of Financial Transactions using Blockchain Technology and Cryptocurrency: A Customer Perspective Approach", Technology in Society (2020), June 2020, pp. 1-20.
[10] Yoichi Tsuchiya and Naoki Hiramoto, "How cryptocurrency is laundered: Case study of Coincheck hacking incident", Forensic Science International: Reports 4 (2021) 100241, October 2021, pp. 1-7.
[11] Massimo Bartoletti, Stefano Lande, Andrea Loddo, Livio Pompianu and Sergio Serusi "Cryptocurrency Scams: Analysis and Perspectives", IEEE Access, Volume 9, November 2021, pp. 148353-148373.
[12] Fátima Leal, Adriana E. Chis and Horacio González–Vélez, "Multi-service model for blockchain networks", Information Processing and Management 58 (2021) 102525, February 2021, pp. 1-11.