International Journal of Scientific Research in Science and Technology
Print ISSN: 2395-6011 | Online ISSN: 2395-602X (www.ijsrst.com)
doi : https://doi.org/10.32628/IJSRST

Blockchain in Banking Sector

Nishant Shivaji Bangar, Wagh Gajanan Rajaram, Rashmi Ashtagi
Department of Computer Engineering, Zeal College of Engineering and Research, Pune, Maharashtra, India

Article Info
Volume9, Issue 1
Page Number: 427-431

Publication Issue
January-February-2022

Article History
Accepted : 15 Feb 2022
Published :25 Feb 2022

ABSTRACT
The Blockchain is an encrypted database that stores information statistics, or in different words, it is a virtual ledger of any transactions, contracts - that needs to be independently recorded. One of the key capabilities of Blockchain is that this virtual ledger is out there throughout several masses and heaps of computer and isn't always sure to be stored in a single place. Blockchain has already commenced disrupting the financial offerings area, and it's far this technology which underpins the virtual currency- bitcoin transaction. The aim is to conduct research on the effect of blockchain technology on the financial sector. There is no doubt that the world is curious to see how this promising technology will influence or shape the future of banking. Blockchain enhances safety in data storage and transmutation, avails a decentralized and transparent network infrastructure and significantly reduces the costs in operations. These remarkable attributes make blockchain a very promising and in-demand solution even in an industry as restricted as the banking sector

Keywords:- blockchain, DLT, decentralization, virtual ledger

I. INTRODUCTION

A Blockchain is a digital,immovable, dispersed ledger that sequentially records transactions in real time. Blockchain technologyhas the potential to completely reform the universal financial industry by offering the numerous opportunities of how people transact with money and values [1]. The essential for each subsequent transaction to be combined to the ledger is the respective consent of the network participants normally called nodes, thereby creating a continuedsystem of control with respect to manipulation, errors, and data quality, control, direction [1] . Blockchain is a chain of blocks – each is being a storehouse that stores information referring to a transaction and links to the earlier block in the same transaction. These connected blocks form a sequential chain providing a pathway of the basic transaction. Generic copies of all information are shared on the Blockchain. Participants separately validate information without a consolidate authority. In fact, if one node fails, the remaining nodes continue to act or operate, with ensuring no disruptions. A transaction on Blockchain can be accomplished only if all the parties on the network collectively approve it. However, consensus-based rules can be edited to suit multiple situations. Blocks constructed are cryptographically fixed in the chain. This means that it become absurd to delete, edit or copy already created blocks and then put it on network, after that creating the true digital assets and assuring a high level of durability and trust. Moreover,

the decentralized storage in a Blockchain is known to be very failure-contrary [1].

Even in the event of the deficiency of a huge number of network participants, the Blockchain still remains accessible, eradicate the single point of failure. Data stored in a Blockchain is enduring

Types of block chain: - 1.Public Blockchain Public blockchain are open-source. Anyone can participate in this blockchain, means anyone can participate in the transaction aided by the Blockchain, every participant can see what blocks are getting added and therefore anyone can participate in the consensus process i.e. the process of what blocks get added to the chain and what the current state is simply[2].

2. Hybrid blockchain By actually occupying a unique place within the blockchain ecosystem in that it is a hybrid blockchain, which means that it combines the public blockchain privacy benefits that gives businesses significant flexibility to choose what data they want to make public and transparent and what data they want keep private.

3. Permissioned or closed-loop Blockchain The distinction in an acknowledged blockchain as compare to the publicblockchain is that the right to certify the transaction is provided to only very little preselected nodes. The right for reading the blockchain may be public, or may restricted to the participants. 4. PrivateBlockchain Private blockchain simply says, write permissions are restricted to one organisation. Major applications include database management, auditing i.e. specific area of single entity. To provide the right to read or validate to public is not needed here [2].

II. RELATED WORK

Some existing surveys discuss literature in the area of application of blockchain as financial technology (FinTech) for the banking business. However, none of those surveys focus solely on peer-reviewed publications about utilisation of DLT by banks. Firstly, the work of Rio reviewed stages of acceptance of DLT by central banks between 2016 and 2017 for their various systems and functions. The review was based on grey literature, i.e., on a central banks own available publications, reports and press releases. The subset of utilised countries were those that belonged to the Organisation for Economic Co-operation and Development (OECD) and to the G20 organizations, including the Bank for International Settlement (BIS) and the European CentralBank (ECB), but excluded European Union (UE) and countries outside the OECD. The work concluded that, despite all central banks used in the study expressing interest in DLT, not one had an operational DLT-based system .

The reasons for the current unavailability of live blockchain applications were due to issues with: Speed, cost of processing, security, transparency and privacy, legal settlement finality scalability, network effects and immature technology

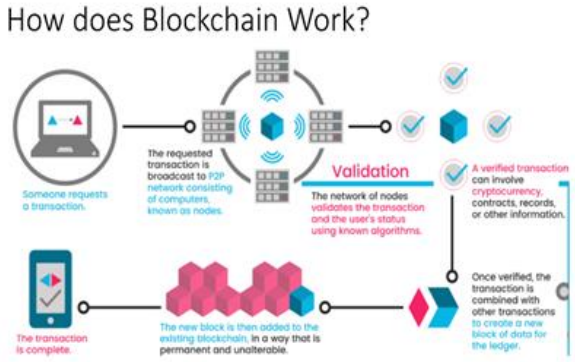
III. LITERATURE SURVEY

Blockchain technology is a new technology which is based on numerical and economic assumptions for managing a database between numerous members without the demand of any central authority. It is an assured distributed database, tamper evident, wherein the efficacy of a transaction can be verified by parties in the transaction. Each group of these transactions is assigned to as a block. A Block records some or all of the current transactions and goes into a blockchain as a permanent record once it is ended. The benefit of Blockchain is that financial transactions no longer need any central authority and are instantly validated, cleared and settled. Blockchain technology emerge to be an innovation which ensures a major change for capital markets and other financial services. The blockchain is going to disturb the banking industry in coming years. The World Economic Forum predicted that by the end of 2017, most of the banks would start projects related to the blockchain. In the past few years, Fintech start-ups functioning on Blockchain has got the venture capital funding of

more than 1.4 Billion During the same period, more than 2500 patents have been registered and over 90 Central Banks are currently emerged in discussions on blockchain globally. Moreover, the current statistics show that 69-percent banks are examining with blockchain. The above statistics justify the evolution of the technology whose first figures were defined at the time of global financial crisis or subprime crisis in 2008.

IV. WORKING OF BLOCKCHAIN

Blockchain is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system. A blockchain is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain [3]Each block in the chain contains a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participants ledger. The decentralised [2] database managed by multiple participants is known as Distributed Ledger Technology (DLT). Blockchain is a type of DLT in which transactions are recorded with an immutable cryptographic signature called a hash. This means if one block in one chain was changed, it would be immediately apparent it had been tampered with. If hackers wanted to corrupt a blockchain system,[2] they would have to change every block in the chain, across all of the distributed versions of the chain. Blockchains such as Bitcoin and Ethereum are constantly and continually growing as blocks are being added to the chain, which significantly adds to the security of the ledger. A blockchain is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain. Each block in the chain contains a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participants ledger



V. KEY FEATURES OF THE BLOCKCHAIN

Near real-time updates: Based on formation policies, the information on the blockchain nodes are renovate in close to real-time. The transactions can begloballylegalizingoncetheyarepartofthechain.

Chronological and time-stamped: Blockchain as the name depicts is a chain of blocks each [5] being a repository that stores information connecting to transactions and also link to the previous block. These connected blocks form a chronological chain providing a stream of the underlying transactions. Moreover, the blockchain can be construct to also keep information about transaction chains, that could establish either (I) the source of inputs, or (ii) the linking between numerous hops in a business process beyond entities. Distributed ledger: Identical transcript of the information is shared on the blockchain. Participants independently approve the information without a centralized authority. Even if one node be ruined, remaining nodes continue to operate, assuring no/low disruption to business. Furthermore, the decentralized storage in a blockchain is known to be failure-opposing.[5] Even in the event of failure of a large number ofnetwork participants, the blockchain remains accessible, eliminating the single point of failure.

VI. ADVANTAGES OF BLOCKCHAIN IN BANKING SECTOR

Faster transactions These are another top advantage of utilizing Blockchain in banking. Utilizing blockchain technology, exchanges can be made inside the space of seconds, which is quicker than most customary financial strategies. As banks can keep away from agents by utilizing the Blockchain, clients can make exchanges at a faster speed. This will bring about clients and banks ready to finish and handle more exchanges. [9]

Improved security and Fraud Reduction Banks can have better secure exchange data utilizing the assistance of shared records. In the event that blockchain innovation is utilized in banking, exchanges will be quick and the possibility of somebody catching exchange data or redirecting installments will be decreased fundamentally.

Cost reduction This is one of the advantages of the Blockchain for banks Most banks are investigating and exploring the use of Blockchain. It was found that Blockchain can reduce up to 70

Digital currencies With the utilization of advanced monetary standards, banks can profit with Blockchain. With digital currency, banks will actually want to more effectively clear and settle monetary exchanges quicker and all the more safely.

Improved information quality Any sort of information can be put away in current blockchain innovation and furthermore permits it to be gotten to adhering to predefined rules and guidelines.[9]

VII. APPLICATIONS

Blockchain in banking as digital identity verification

Banks wouldnt be able to carry out online financial transactions without identity verification. However, the verification process consists of many different steps that consumers dont like [9] But With blockchain, consumers and companies will benefit from accelerated verification processes. Thats because blockchain will make it possible to reuse identity verification for other services securely.

Blockchain in banking for accounting and auditing

The blockchain technology will simplify compliance and streamline the traditional double-entry bookkeeping systems. Instead of keeping separate records based on transaction receipts, businesses can add transactions directly into a joint register. All the entries in the register will be distributed [9].

VIII. CONCLUSION

Blockchains could revolutionize the underlying technology of the payment clearing and credit information systems in banks, thus upgrading and transforming them. Blockchain applications also promote the formation of multi-center, weakly intermediated scenarios, which will enhance the efficiency of the banking industry This unique technology offers the banking industry many unique opportunities. But certain challenges must be overcome for noticeable impacts to occur in the banking sector. In summary, blockchain can impact and revolutionize the banking sector. The only thing needed is its right application and use.

IX. FUTURE WORK

- Banking executives believe that blockchain will have to fulfill several conditions before becoming a mainstream technology in banking. The investment will come with significant returns. Once fully adopted, blockchain is expected to enable banking institutions to process payments faster and more accurately, all the while reducing transaction processing costs. All in all, blockchain-enabled banking applications will deliver a better customer experience and help traditional banking institutions to compete with fintech startups.
- Once a number of banks have adopted blockchain, the market competition will pressure

all banks to pass on the initial profit made back to individuals.

- Blockchain technology can be utilised towards much more than just digital currencies such as Bitcoin or developing new financial technologies. This smart contract can be used for other areas, such as documents provenance, ownership rights, digital or physical assets or to stop fraud. In the diamond industry for instance, the digital ledger for diamond identification and transaction verification has enabled to bring more transparency in a once very opaque diamond market

X. REFERENCES

[1]. Natalia Dashkevich, Steve Counsell , and Giuseppe Destefanis, Blockchain Application for Central Banks IEEE Access.

[2]. A. Judmayer, N. Stifter, K. Krombholz, and E. Weippl, Blocks and chains: Introduction to bitcoin, cryptocurrencies, and their consensus mechanisms, Synth. Lectures Inf. Secur., Privacy, Trust, vol. 9, no. 1, pp. 1123, Jun. 2017.

[3]. E. Ducas and A. Wilner, The security and financial implications of blockchain technologies: Regulating emerging technologies in canada, Int. J., Canadas J. Global Policy Anal., vol. 72, no. 4, pp. 538562, Dec. 2017.

[4]. S. I. Ben Dhaou and I. K. Rohman, Everything and its opposite: Socioeconomic implications of blockchain technology: Case of monetary policy, in Proc. 11th Int. Conf. Theory Pract. Electron. Governance, New York, NY, USA, 2018, pp. 631639, doi: 10.1145/3209415. 3209502.

[5]. G. Hileman and M. Rauchs, 2017 global blockchain benchmarking study, Cambridge Centre Alternative Finance, Univ. Cambridge, Cambridge, U.K., Tech. Rep., 2017.

[6]. S. Nakamoto, Bitcoin white paper, Bitcoin.org, White Paper, 2008. [Online]. Available: https://bitcoin.org/bitcoin.pdf

[7]. K. Petersen, R. Feldt, S. Mujtaba, and M. Mattsson, Systematic mapping studies in software engineering, Ease, vol. 8, pp. 6877, Jun. 2008.

[8]. K. Petersen, S. Vakkalanka, and L. Kuzniarz, Guidelines for conducting systematic mapping studies in software engineering: An update, Inf. Softw. Technol., vol. 64, pp. 118, Aug. 2015.

[9]. C. A. Del Ro, Use of distributed ledger technology by central banks: A review, Enfoque UTE, vol. 8, no. 5, pp. 113, Dec. 2017

[10]. J. K. T. Lutz, Coexistence of cryptocurrencies and central bank issued fiat CurrenciesA systematic literature review, FiDL Work. Paper 2, 2018, pp. 138 [11] A. V. Thakor, Fintech and banking: What do we know? J. Financial Intermediation, vol. 2019, Art. no. 100833, Oct. 2019