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A STUDY ON THE ROLE OF BLOCKCHAIN TECHNOLOGY IN THE BANKING SECTOR

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ABSTRACT

From barter system to digital payment/wallets banking system continuously upgrading themselves for the betterment of their efficiency and effectiveness. Banking and technology are relatively associated have changed over the period. The digital innovation started with the introduction of digital wallets that replaced money and money replaced the barter system and now digital payment technology will be replaced by Blockchain Technology (BCT). It may be widely applied in digital currency, KYC and trade finance, etc. Although the advantage of blockchain technology is very large but still with various limitations of security, awareness, and scalability which the author wants to address. It's simply a peer-to-peer version of electronic cash which allows online transactions directly from one party to another without going through financial intermediaries. This emerged concept take place of Blockchain Technology. Blockchain is a data management and decentralized technology which is based on encryption and decryption techniques. blockchain technology provides anonymity, data integrity, and security without any third-party authorization involvement. These remarkable capabilities make blockchain technology a very in-demand and promising solution in the Indian banking sector. This paper aims to provide an overview of blockchain technology with the benefits and challenges to the adaptation of this technology in the Indian Banking Sector. This paper gives insight into various advantages and challenges in the present scenario.

***KEYWORDS**: Blockchain, Banking Sector, Digital Banking, Core Banking, Information Technology.*

Introduction

Banking System is the oldest and biggest Intermediaries Financial System in India. Since the adaptation of the Industrial Policy of 1991 through Liberalization, Privatisation, several significant changes have occurred in the working of the Banking system. Banks in India have witnessed a radical change from 'traditional banking' to 'digital banking'. The purpose was to reduce the time gap between the transaction executions and improve customer service, Ledger keeping, and MIS reporting. Banks started their journey for Information Technology with the introduction of the Core Banking System(CBS).which provides banking Anywhere-Anytime. Bank adopted Cheque Traction System for clearing. The Banking systems also wide accept online banking, Mobile Banking, Debit Cards, Credit cards, Prepaid cards, etc. The Launch of various products under an umbrella scheme by the National Payment Corporation of India (NPCI) like Bharat Interface for money (BHIM) and United Payments Interface (UPI) are significant steps for innovation in the payment systems domain. Thus there is numerous progress in the digital revolution in the banking sector. Today the bank aims to provide fast, error-free, and quality service to its customers. Nowadays Blockchain is an essential technology with promising application scenarios in the Indian banking industry. The Blockchain is a distributed database of records of all transactions that have been executed and shared among participating parties. Each transaction is verified by the majority of the participants of the systems. it contains every single record of each transaction on their node. Blockchain uses cryptographic proof instead of third-party trust for two parties to execute transactions over the internet. Each transaction protects by a digital signature. Blockchain technology is a distributed ledger technology(DLT) suitable for decentralized and transactional data shared across on network. This technology allows a shared network without the need to establish online trust with any central entity/participant. All the transactions shared across, along with the unique timestamp are maintained as records and placed in Blocks. These blocks are further link with another block and a series of chains those are stick with themself, store data in the node of the network. Copy of each transaction along with hash is stored in the ledger across all participants of the network.

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This transition is also called “P2P transaction” or “peer-to-peer network” because in this process central entity/ middle party requirement is eliminated and the transaction is validated over the peer-to-peer network. Transactions are validated by the history of transactions stored at each node of the network and the consensus of the participant as shown in Figure 1.

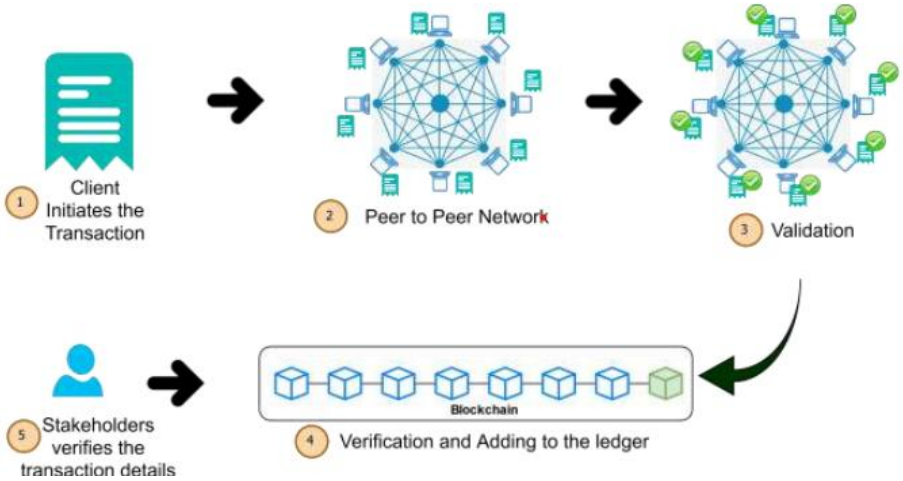

Figure 01: Blockchain Network and the Process of Adding New Transaction to Ledger

Source: https://www.meity.gov.in,National Strategy on blockchain

Blockchain technology is the combination of several techniques like P2p transactions, distributed data storage, encryption algorithms, and consensus mechanism.

Objective of the Study

This paper is completely based on secondary data. It just gives a simple overview of BlockChain Technology and its role in the Banking Sector. So following are the objectives of this paper-

- To provide an overview of the concept of Blockchain Technology.
- To provide an overview of blockchain technology with the benefits and challenges to the adaptation of this technology in the Indian Banking Sector.
- This paper insight into various advantages and challenges in the present.

Concept of Blockchain Technology

Blockchainuses a unique data structure where verification of data related to the transactional record is cryptographically secured against store and disturbance in blocks. Each block contains details of transactions, timestamp, the hash of the previous block. Here, Blocks are linked with each other nodes, leading to a blockchain. The link between blocks is also cryptographically secured and this is stored at every node in the network. This is shown in figure 2.

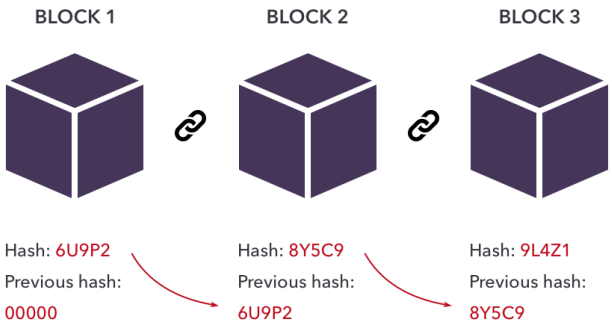

Figure 02 Linked Blocks

source: https://bytetobayt.com/makale=217

This makes it a unique solution of trust in the digital world in the respect of hacking, tempered, data storage failure. Anything of value can be traced and tracked on a blockchain network, reduce the cost and risk associated with them.

Advantage of Blockchain Facility in the Banking Sector

Today, the banking sector is the biggest service provider sector in India. The Availability of various quality services is the key to enhancing and growing the sector of the economy. With the stepping in of Information Technology in the banking sector, the working perspective has been changed the working style and efficiency of the bank.

Various customer-oriented products like internet banking, ATM services, electronic payment provider to customers. The internet banking facility enables to access and operate his bank account from anywhere with the different type of service they can use from internet banking like insurance, paying the electricity bill and tax. Playing multiple roles with various products, these institutions have helped promote, support, and monitor a range of activities.

Blockchain Technology and the Role of DTL in the Banking Industry

Blockchain technology provides a platform in which untrusted parties come to the transaction without using a middle man. Blockchain allows for the use of self-executing contracts based on the blockchain, which can automate the process to contract. Distributed Ledger Technology (DTL) can help to establish cooperation among the banking system and standards set by RBI. Blockchain technology and DTL having a large opportunity to develop a US$ 1.52 trillion baking industry by intermediating the key services the banks provide those are:-

- **Payment:** By establishing a blockchain technology payment process will be fast and secure on both nodes because this technology offers a secure and cheap way of sending a payment that minimizes the process of verification from a third party. Cryptocurrencies like Lakshmi, bitcoin, ether that anyone can use to send and receive money without the need for trusted parties to verify a transaction and give people access to fast, cheap, and borderless payment. The Indian government may launch the country's own digital currency based on blockchain technology called "LAKSHMI" or Cryptocurrency Lakshmi.
- **Clearance and Settlement Systems:** The centralized SWIFT (Society for Worldwide Interbank Financial Telecommunications) doesn't allow send the funds, it simply sends the payment orders. The actual money will proceed through a system of intermediaries. Each mediator adds cost to the transactional and creates cost burden as well as a potential point of failure, each taking between 15-20 minutes. But DLT could allow transactions to be settled directly and keep track of transactions through digital better than existing protocols like SWIFT. DTL ledgers can reduce costs and bring closer to real-time transactions between financial intermediaries.

Blockchain technology allows doing more than making this existing process more efficient and effective, as shown in figure 03.

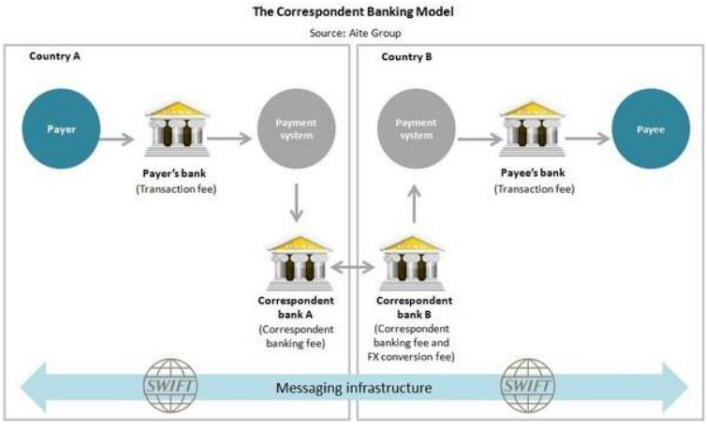

Figure 03: The Correspondent Banking Model.

Source:https://alitegroupinc.com , Alite Group

- **Loans and Credit:** Traditional banks provide a loan with the helo of a credit score system. Through a complex program in Blockchain technology, there is a lot of possibility of peer-to-peer loans that can make it easy to obtain a faster and more secure loan process.

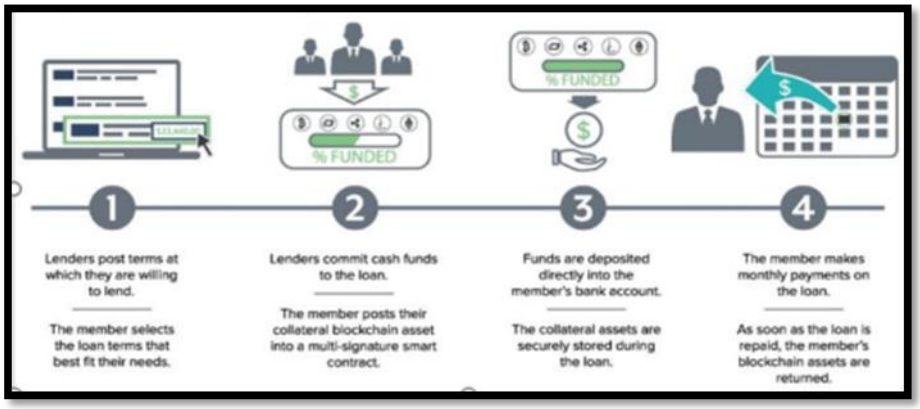

Figure 4: Loan through Blockchain.

Source:https://saltlending.com/

Blockchain technology-enabled lending offers a personal loan from a larger pool of people and would make the loan process cheaper, as shown in figure 04.

By removing the need for a mediator in the loan and credit industry and credit industry. Blockchain technology can make it more secure, faster to borrow, and cheaper.

- **Customer KYC and Fraud Prevention:** Apart from this day to day transaction processing payment and trading, a bank also Need to obtain customer's identity to verify the transaction. This process is called "Know your customer"(KYC). In blockchain technology can store KYC data in their block which is secure and easier to share information between financial intermediaries. Blockchain technology bind with digital information stored chain those are connected node by node. If there is any attempt of hacking or tempered all block are connected with themselves and this technique is useful for the prevention of cyber attack one of the leading cause of digital fraud.

challenges to the Adoption of Blockchain Technology

Overall the fact that Blockchain technology is very praising with future potential in banking industries, but still there are few challenges for adoption in the Indian banking system.

- **Technology based Challenges:** In any technology adaptation, few basic requirements are needed to be fulfilled like scalability, security, and privacy, Infrastructure, lack of skillset & awareness among user agencies. Some of the technological challenges for the large scale adaptation
  - Designing a centralized system that provides faster synchronization is important because if the decentralized architecture of blockchain means it will be slower than the central banking system (CBS).
  - In blockchain technology, all the data are calculated based on encryption-decryption and hashing at every node, while duplication of data on a node may create the performance issue many times.
  - Blockchain technology will be used to better if there are sufficient data storage capacity because in this technology all node is connected and data stored in this node cannot be modified. Sufficient data storage infrastructure demands heavy resources in terms of storage and processing this may become an issue if the blocks of the chain will grow.
  - India is having a unique geographical condition in this situation challenges related to deploying blockchain infrastructure across the country also need to be addressed because data storage infrastructure produces heavily greenhouse gases also.

- **Security based challenges**
  - **Privacy** – Blockchain data is stored on every node on the block in-network and if Blockchain technology will not be implemented then data privacy will not be the feature of blockchain
  - Lack of awareness about the nature of blockchain platforms is a major challenge. There several open-source blockchain platforms but still the performance is not well documented in many cases. This requires skilled manpower in multiple technologies to understand this method.

Swot Analysis

The SWOT analysis is a critical analysis to identify and apply blockchain to the right application which can benefit this technology and also show the threat and opportunity for the future and help to improve this technology for the betterment of uses. Figure 5 shows the a simple overview of SWOT Analysis of BCT in Banking Sectors.

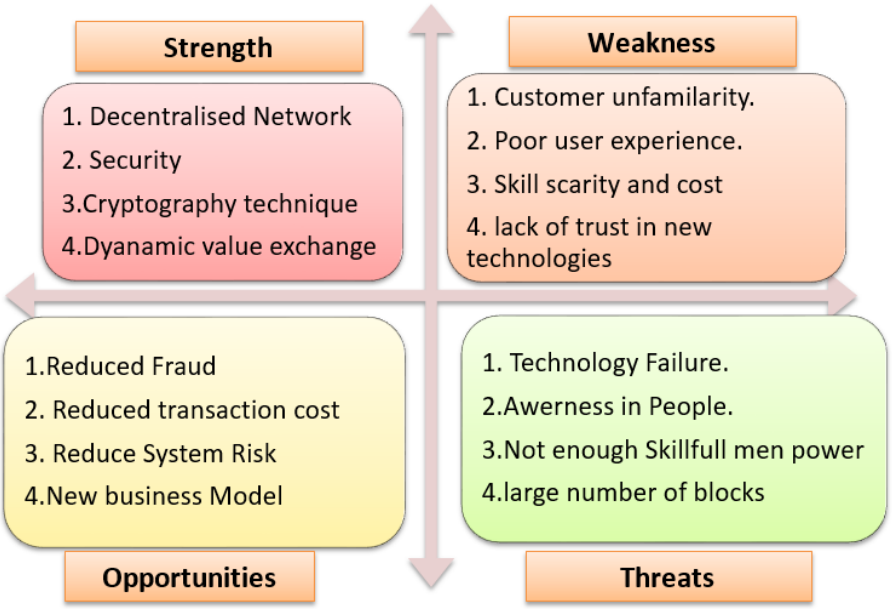

Figure 5: SWOT Analysis of BCT in Banking Sectors

Conclusion

The blockchain is on the path of transformation in the banking system. It can change from the traditional business model. A distributed and secured database of client information should be developed by the different banks which helps to reduce cost effort and time in interbank transactions. The adoption of blockchain has some challenges like security, privacy, and scalability which will surely get address over some time. Bank will also able to avoid any fraudulent transaction.

The result shows that blockchain technology is about to cause a big transformation. Besides all these advantages, blockchain has some limitations, because its core concept it's hard to implement and its time extensive, before adopting this technology, the bank should find the solution to all hinders such as technology, trust, and cost. In the years to come, blockchain will evolve as a collective force in transforming Indian Banking Sector by making banking transactions faster, cost-effective and secure. The author strongly recommends that is the right time for the adoption of blockchain in India.

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