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Block Chain Technology In Indian Banking Sector

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Abstract

The block chain is going to bring a major transformation in the banking sector. It has the potential to disrupt the traditional business models and make the existing system obsolete. A secured, distributed database of client information should be developed and shared by different banks which will help in resection time, effort and cost in interbank transaction in a bid evolve towards the cashless society. Block chain has the potential to transform multiple industries and make processes more democratic, secure, transparent and efficient. Multiple use cases are also getting explored across industries as everyone has started realizing the disruptive potential of this technology.

Key Words: Banking sector, Block Chain.

1. Introduction

Banking and technology are very closely associated and innovations have changed banking drastically over the period of time. The digital innovations in the banking sector started with the introduction of money that replaced the barter system and then the gradual replacement of wax seal with the digital signatures. One such disruptive innovation which is changing the banking sector globally is Block Chain Technology (BCT). BCT is a new technology which is based on mathematical, cryptographic and economic principles for maintaining a database between various participants without the requirements of any third party or central authority. BCT has the potential to disrupt the financial business applications as it provides permanent and temper proof recording of transactions.. It is secured distributed database, tamper evident, wherein the validity of a transaction can be verified by parties in the transaction. Each group of these transactions is referred to as a "Block". A block records some or all of the recent transactions and goes into a block chain as a permanent record once completed. Block chain is a digital distributed ledger which has all the information related to the transaction. All these transaction is time-stamped and hence is easily trackable. Moreover, all the data is encrypted, and thus it becomes difficult for

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anyone to change it or alter it. Since this information is distributed to all the nodes in the system, it becomes unalterable and immutable. "The idea of having such an organization to remove any communication hurdle among the different banks. A block chain network can only thrive the entire ecosystem is working in synergy through a single network", said Abhijeet Singh, head of business technology at ICICI Bank.

2. Review of Literature

1. Stefan Seebacher and Ronny Schuritz, (May 2017), international conference on Exploring Service science, Italy. Block chain technology as an enabler of service systems: A structured literature review
2. Prof: Reena Agarwal, (March 2017), White paper-Gerogetown University. Chamber of Digital Commerce. Block chain & Financial inclusion
3. Zibin Zheng, Shaoan Xie, Hongning Dai, Xiangping Chen and Huaimin Wang (2017), An overview of Blockchain Technology: Architecture,consensus and future trends.
4. Alharby,M, & Van Moorsel,A. (2017), Block chain based smart contracts
5. Swan,M. (2015) explains that the "Block chain is a decentralized public ledger that can be used for the registration, inventory and the transfer of all assets in finance, property as well as intangible assets such as votes, software, health data and idea".

3. Objectives of the Study

1. This paper targets the following objectives
2. To communicate an overview about the next generation innovation, Block chain Technology with its advantages and scopes of the technology.
3. The application of BCT in the Indian Banking Sector
4. Functionality of BCT in various Indian banks like ICICI, SBI,YES BANK, AXIS bank etc

4. Research Methodology

The paper searches the various dimensions attached to the concept of Block chain technology. This paper is a descriptive study, where examples are cited based on the references from some secondary material available such as journals, books etc:.

5. Limitations of the Study

1. The time period for carrying out the research was short as a result of which many facts have been left unexplored.
2. Block chain Technology is a new emerging trend using by few banks only. The availability of the reliable data is too few.

How Block Chain Works?

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- As the name suggests, it consists of number of blocks strung together. In order for a block to be added to the block chain, however the four things must be happen in the block chain transaction.
- A transaction must occur. After searching different offers, comparison, a person make a purchase on online
- That transaction should be verified. After placing an offer, that offer must be verified. The network of computers rushes to check that your transaction happened in the way you said it did. That is date of purchase, item name and its specification etc:
- The transaction must be stored in a block. After the transaction verified as accurate, it gets the green light. The transaction amount, digital signature of the both the parties are stored in the block.
- The block must be given a hash. Once all of the block's transactions have been verified, it must be given a unique, identifying code called a hash. The block is also given the hash of the most recent block added to the block chain. Once hashed, the block can be added to the block chain.

Benefits of Block chain

Block chain is an emerging technology which can radically change the banking and financial sector, providing lots of opportunities for the growth and innovation, capable of reducing risk and cost.

a. **Reduced Transaction cost:** BCT provides an opportunity to various intermediaries and participant in markets to access the dematerialized and stored information at any time. It saves the cost per client by way of reconciliation of total cost. Block chain applied in cross border transactions and which help the users to avail best exchange rate from foreign transactions due to near real time processing of transaction.
b. **High operating efficiency:** BCT improves the velocity of processing transaction as it reduces the time lagging of decision making across the organization with the minimum level intervention of human being.
c. **Minimize errors, frauds etc**: With the help of BCT transaction, institution and intermediaries can avoid various frauds and errors visible in their transactions. Fast settlement is possible by way of BCT and in case of any unforeseen situations like war, flood etc: at any location, the remaining participants and parties in block chain can approve such transaction.
d. **Reliability and transparency:** Block chain keeps all the transactions occurred through this system in a sequential and very transparent manner and it can be accessible and retrievable at any time by the parties involved in Block chain transactions. Origin of the transaction, parties involved with their all needed evidence are keeping properly. It will enhance the reliability and credibility of the block chain transactions.
e. **Eliminate Intermediaries:** In Block chain transaction, crypto currency is replaced the intermediaries as the custodian of trust of business transaction. It will avoid the cost of brokerage fee, commission etc: payable to the intermediaries.
f. **Simultaneous access:** Combining shared database and cryptography, block chain technology allows multiple parties to have simultaneous access to a constantly updated digital ledger that cannot altered.

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Functionable Area of BCT In Banking Sector

Banks are continuously exploring new ways to perform transactions quicker for an enhanced customer service. While ensuring cost efficiency in its operation and assuring transparency to customers and regulators. For this, BCT potentially provides a solution for banks as it inherently helps eliminate intermediaries, maintain immutable log of transaction and also facilitates real-time execution of transactions. Following are the main functionable area of BCT in banking sector.

a. **Fraud deduction:** Block chain is being recognized as the new technology that would reduce fraud in the financial world where 45% of the financial intermediaries like stock exchange money transfer services are prone to finance crimes routinely. This technology would get rid of some of the current crimes committed online today against our financial institutions.
b. **Know your Customer:** Financial institutions spend huge amount per year to keep up with KYC and customer due diligence regulations. These regulations targeted to facilitate reduce money laundering activities by having various requirements for business to verify and identify their clients. BCT would allow an organization to access the verification details of clients by another organization with minimum cost.
c. **Smart contracts:** Block chain facilitates smart contracts as they facilitate storage of any kind of digital information, including computer code that can be executed once two or more intermediaries enter their keys. Contracts could be created and financial transactions executed when this code is programmed, according to then set criteria.
d. **Clearing and settlement:** With the help of BCT transaction, Fast settlement is possible. While the current settlement system handles a large volume of activity. Currently most transactions are required to settle within two days of the transaction date (T+2). The primary goal of the original Bitcoin Block chain was not to improve the speed and efficiency of the transactions, but rather to create a payment system that was completely decentralized, removing intermediaries entirely.
e. **Trade Platforms:** With the help of BCT, there would momentous changes in our trading platforms with the risk of operational errors and fraud reduced. NASDAQ and the Australian Securities Exchange are some of the entities looking at Block chain solutions to cut costs and improve efficiencies.
f. **Trade finance:** By replacing the cumbersome, paper-heavy bills of lading process in the trade finance industry, Block chain technology can create more transparency, security and trust among the trade parties globally. Charley Cooper, Managing Director of R3, Says" Trade finance is an obvious area for block chain technology. It is so old it's done with fax machines and you need a physical stamp on a piece of paper".
g. **Loans and Credit:** By removing the need for gatekeepers in the loan and credit industry, block chain technology can make it more secure to borrow money and provide lower interest rates.
h. **Monitoring of consortium accounts:** One of the biggest application of BCT is to prevent the diversion of funds. The end use of funds is not tracked by the lender as the borrower makes various transactions in moving funds from one bank to another. BCT helps in monitoring the end use of the funds of the borrower funded by the consortium

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banks. It will lead to avoid the situation of emergence of Non-Performing Assets (NPA) as the banks can have a penetratable eye on the end user of fund and final use of fund.

BCT in leading Indian banks

A: **ICICI:** ICICI Bank is the second largest bank in India in terms of assets and market capitalization announced that it has successfully executed transactions in international trade finance and remittance using block chain technology in partnership with Emirates NBD, a leading banking group in the Middle East. ICICI Bank is the first bank in the country and among the first few globally to exchange and authenticate remittance transaction messages as well as original international trade documents related to purchase order, invoice, shipping & insurance, among others, electronically on block chain in real time. ICICI Bank executed these pilot transactions via its block chain network with Emirates NBD on a custom-made block chain application, co-created with EdgeVerve Systems, a wholly owned subsidiary of Infosys. The block chain application co-created by ICICI Bank replicates the paper-intensive international trade finance process as an electronic decentralized ledger that gives all the participating entities including banks the ability to access a single source of information. It allowed each participant to check online the status of the application, transfer of title and transmission of original trade documents through a secure network, while preserving client and commercial confidentiality with the convenience of accurate and quick transactions eliminating manual intervention, co. The list includes the introduction of Software Robotics to power banking operations, the country's first NFC enabled contactless debit and credit cards, 'Pockets', India's first digital bank on mobile phone and largest wallet by a bank, fully automated and round-the-clock 'Touch Banking' branches, Tab Banking, banking on social media (Facebook and Twitter), and 'i Mobile Smart Keys' – Asia's first payment service using a smart phone keyboard.

B: YES BANK: India's fourth largest private sector bank, as an issuing and paying agent , facilitating the issuance of Commercial paper of INR 100 Crores using BCT for Vedantha Limited , a natural resources conglomerate. This is the first time in Asia that a CP has been digitally issued by using BCT. By way of using BCT in issue of CP, bank has witnessed the following advantages;

- ✓ Reduction in Turn Around Time (TAT) for issuance and redemption
- ✓ Immutable digital records of the entire transaction documents there by reducing operational risk
- ✓ Real -Time Visibility of the CP issuance and redemption
- ✓ Common network for all participants in the CP issuance and redemption process.

C: SBI: India's largest lender State Bank of India applied block chain enabled smart contracts in the year 2017. Block chain enabled KYC also adopted by SBI. These applications are part of Block chain, a community of 27 banks (22 Indian banks and 5 Middle -East banks), which have joined hands to explore and build block chain solutions for banking. SBI will go in for full-fledged deployment of Block chain in its transaction, remittance and trade finance

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operations in FY 2019. The move is SBI also applied block chain technology from the FY 2019 and expect to curtail the cost of transactions around 40%-50%.

D: AXIS BANK: Axis bank, India's third largest private bank has launched instant international payment service by using Ripple's enterprises under BCT solution. The bank has launched a service for its retail customers in India to receive payments from RAK Bank in UAE and for its corporate customers in India to receive payments from Standard Chartered bank in Singapore.

6. Conclusion

Across the globe, the banking industry is investing resources in exploring the impact of block chain technology in their business. The block chain is going to being a major transformation in the banking sector. A secured, distributed database of client information should be developed and shared by different banks which will help in reducing time, cost and effort. Block Chain has shown its potential for transforming traditional industry with its key characteristics, decentralization, persistency, anonymity and audibility. "By 2030, block chain can cease all traditional banking services, we are all striving for inclusion in finance right now, every with the govt: and public sector. As a bank that works in tandem with both, we would look at how Block chain technology is helping financial inclusion, which is the bigger goal in the country right now" **Sudin Baraokar- Innovation head of SBI**.

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