To Overcome Financial Frauds in Banking Industry through block chain technology

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Abstract- In today's climate, the abstract banking industry is a must. The banking sector is prone to fraud and cyber-attacks in today's climate. Because today's banking system is dependent on centralised databases, an attacker may easily breach any of them, exposing all of the bank's clients' data and information. Block chain technology provides a novel way to store and transmit value inside a network by removing the need for a central middleman. Everything is decentralised via Distributed Ledger Technology, and each user is responsible for their own data. As a vital financial middleman, the banking industry offers a wide range of potential uses for block chain technology. Because each node in the chain validates block chain transactions, the transactions will become increasingly safe, making the whole banking system quicker and more secure.

Keywords- Banking, security, transaction, block chain, hash, and decentralised ledger technology are some of the terms used in this article (DLT).

INTRODUCTION

In its guidelines on frauds, the Reserve Bank of India defines "fraud" as "a deliberate act of omission or commission by any person, carried out in the course of a banking transaction or in the books of accounts maintained manually or under computer system in banks, resulting in wrongful gain to any person for a temporary period or otherwise, with or without any monetary loss to the bank."

Banking fraud is described as the employment of a range of fraudulent actions to obtain money, assets, or other property owned by any person or organisation, or to gain money from a depositor. Financial fraud is also not new to the Indian banking sector, since it has been recorded frequently in recent years. These scams occur as a result of the high cost of doing business, as well as the regularity and complexity of the structure.

In the previous eleven years, India's biggest public sector banks (PSBs) have lost approximately Rs. 1,41,489.6 crore to different banking frauds, while leading private sector banks have lost about Rs. 20,523 crore. As a result of the RBI's various efforts, the number of banking fraud cases has reduced, but the amount of money stolen has increased in recent years.

According to a new research, Indian banks have been under-reporting thefts. According to the Reserve Bank of India, overall fraud cases have increased by 28% to 8,707 in 2019-20 from 6,799 in 2018-19. In terms of recorded frauds, state-run banks' relative portion of the entire fraud amount reported in 2019-2020 was more than their relative share of the credit.

RESEARCH METHODOLOGY

Bank fraud is commonly utilised to get cash, assistance, or other resources claimed or held by a financial institution, or to obtain cash from a financial institution, or to obtain cash from a financial professional by impersonating a bank or other monetary organisation. Bank fraud is a crime that must be prosecuted. In contrast to bank robbery, the term bank fraud refers to situations in which a strategy is used. Secondary data collection has been included in the current empirical investigation. Secondary data was gathered from journals, research papers, research articles, Wikipedia, and different bank websites' reports.

Frauds of many kinds
1. **Fraud in the accounting field**
2. **Fraudulent bill discounting**
3. **Fraudulent demand draughts**
4. **Kitting of cheques**
5. **Documents that are forged or false**
6. **Fraudulent use of credit cards**
7. **Identity Theft**
8. **Fraudulent money laundering**
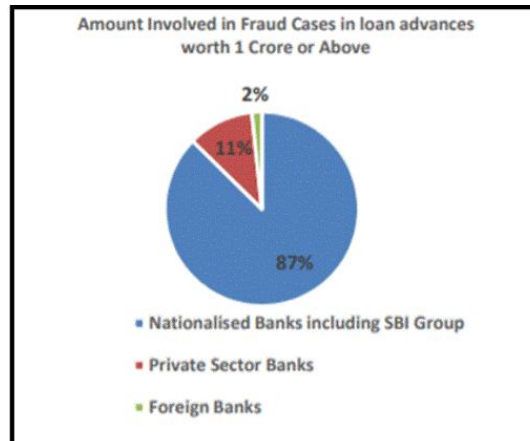
Some of the examples of bank related fraud are:

• Any individual offers false information about their financial position, such as pay and other resources, and obtains an advance for an amount that exceeds their qualified points of confinement with the aim of non-reimbursement.

• Due to the tirelessness of chiefs/promoters, pre-endorse studies, and distinguishing proof of defective/fragmented applications and negative /criminal records in customer history, a man takes a credit using an invented name, and there is an absence of a solid system relating to spot confirmations of address.

• Counterfeit documentation is used to withdraw cash from an excessive overdraft account.

• A person may produce a variety of papers, such as bills filed, export guarantee sheets, and component specialist orders/numbers.

The country has been devastated by a series of massive bank scams.

Scam at PNB

In 2018, the state-run lender PNB stunned India's banking sector by announcing that it had been robbed of Rs 11,400 crore by billionaire jeweller Nirav Modi, Mehul Choksi, owner of Gitanjali Gems, and his family and business partner at PNB's Brady House Branch in Mumbai. Following the scandal, PNB employees, including general managers, were fired for their suspected involvement in the country's biggest financial fraud.

The case of the SBI scam

A bank scam involving Kanishka Gold Pvt Ltd, a jewellery firm, has put the State Bank of India in the spotlight (KGPL). The KGPL has been accused of defrauding a consortium of 14 banks, led by the SBI, for a total of Rs 824.15 crore. Kanishka Gold has been charged by the Enforcement Directorate (ED) and the Central Bureau of Investigation (CBI).

Case of Canara Bank Fraud

The promoters of the Abhijeet Group, a mining company, were arrested on June 13, 2017 for failing to repay debts worth Rs 11,000-15,000 crore to 20 banks and financial institutions using 132 shell companies. Jas Infrastructure, a vehicle formed by the Abhijeet group, was granted a contract for the design, procurement, and building of a power plant in Bihar by its parent business Abhijeet Projects, and Canara Bank and Vijaya Bank were given loans worth Rs 790 crore.

Maharashtra State Bank

The CBI arrested the former head of Maharashtra Bank's Pune Zone on July 20, 2017, for violating laws related authorising amounts in a Rs 836-crore scam. On the basis of falsified papers, the head granted credit to a logistics firm and offered loans to 2,808 drivers for the purchase of genuine goods.

Technology based on the block chain

Blockchain is a system that is based on a virtual digitised decentralised network containing "blocks" of information. Any information you provide to the network (for example, a transaction) is shared across all machines. However, if another user in this network adds his information and makes a new block after yours, you will be unable to change it. You may, however, edit your block from all machines on the network at the same time and make equivalent changes. As a consequence, Blockchain is one of the most efficient data storage and organisation methods available.

Each piece of data is added to the blockchain by linking one block to the next in chronological order, similar to how a spreadsheet row follows another. Blockchain is an immutable ledger, which means that once anything is entered, it

cannot be modified or withdrawn. This ledger maintains track of data that might include everything from transaction details to personal information.
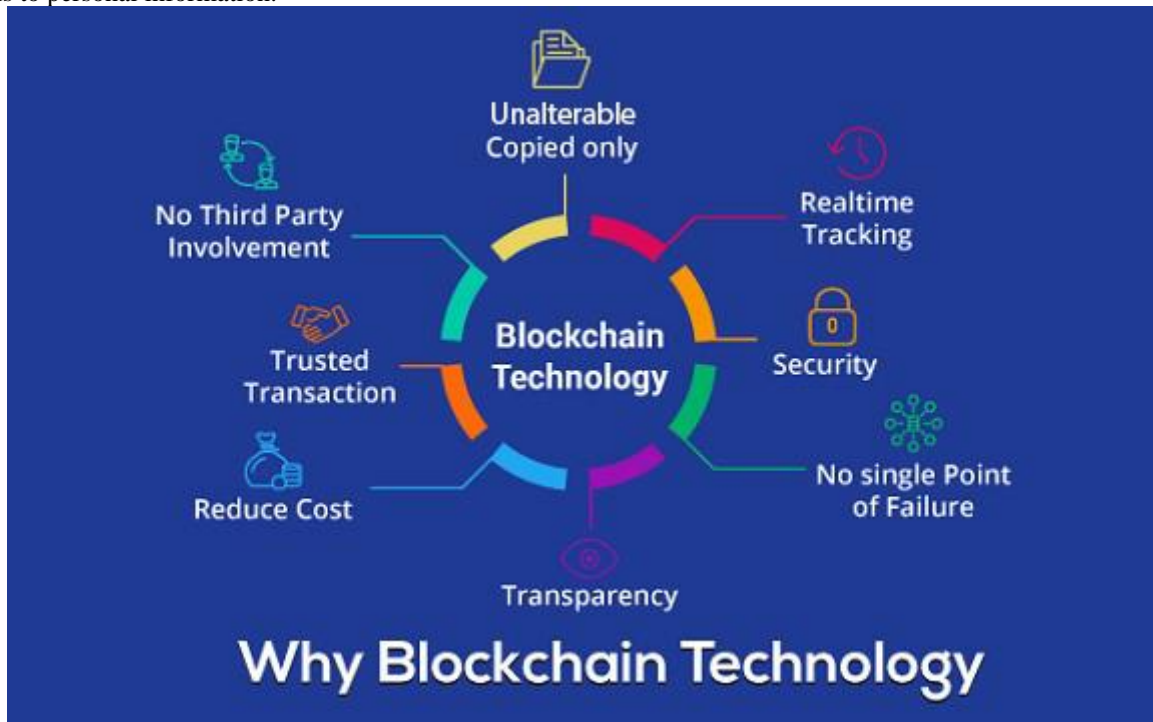
Block Chain Platforms

A blockchain is made up of three technologies:

private key cryptography,

A decentralised network, and

A financial incentive to maintain the network.

When a transaction on a blockchain is finished, it is distributed to a decentralised network of nodes in the order that the transactions were completed. Each transaction is sent to every node on the network thanks to the network's algorithm. The blockchain network is made up of tens of thousands of nodes. When the majority of nodes agree that all recent transactions are unique, the transactions are cryptographically sealed and a block is formed. This new block is connected to previously generated blocks to form a chain of approved time transactions, preserving a verified record of each transaction completed.

1. Cryptographic keys (Private key cryptography)

On the blockchain, each user has a set of private and public cryptographic keys. This produces a very valuable digital signature, as well as making user ownership easier.

2. Safety and security on Blockchain (A decentralized network)

The decentralised network of blockchain ensures safety and security. Thousands of blockchains are accessible on the network, which is made up of thousands of nodes that agree on transaction legitimacy. This guarantees that transactions are recorded fairly and are not vulnerable to hacker attacks.

3. Mining (An incentive to service the network)

Blockchain compensates participating nodes to establish a consensus-building process. Blockchain deliberately awards one node with a set payout every time a new block is submitted to the chain. Mining is the term for this procedure. Blockchain is a decentralised database of fixed records known as blocks that is protected by encryption.
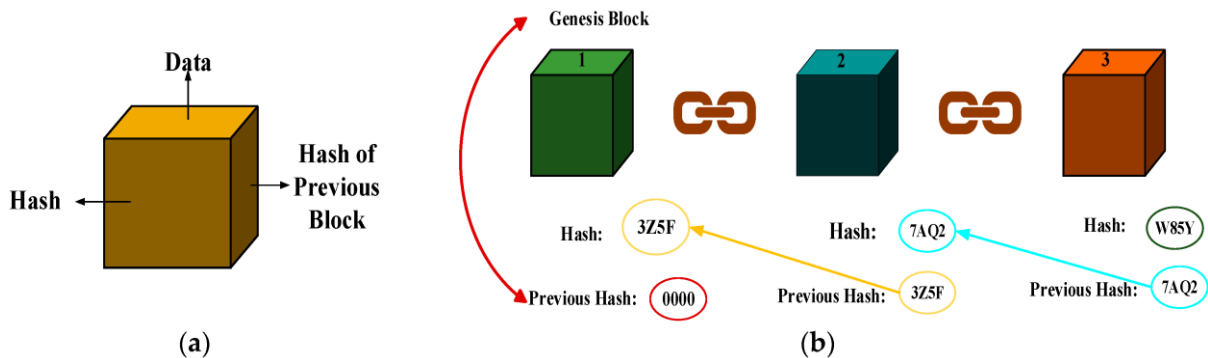
Block chain

A block is a type of record book that stores transaction data.

The four details that make up a block are as follows:

a) Previous block hash: It stores the previous block's hash value.

b) Transaction Data: Transaction data contains information on several transactions.

c) Nonce: A nonce is a random number that is used to change the hash value.

d) Hash: A hash is an alphanumeric value that identifies a block.

(a)   (b)

Block chain and banking industry

People have been attempting to reduce the uncertainty of various organisations since the dawn of time by making better-informed decisions. One such innovation was the banking system, which reshaped the informal economy's outlines, and blockchain is likely to be another. The method was discovered by a group of academics in 1991 and was originally meant to date digital documents so that they would not be comparable. However, the concept remained relatively unnoticed until Satoshi Nakamoto utilised it to develop the digital crypto-currency Bitcoin in 2008. And there has been a worldwide upheaval in order to investigate its possible prospects. Blockchain is a decentralised infrastructure made up of linked data blocks with references to previous blocks. A peer-to-peer network is a decentralised and distributed system that stores a register of assets and transactions, comparable to a public ledger. People all across the globe keep their own copies of records for each blockchain transaction. These copies contain information about each transaction, which aids in system validation. Through an unforgivable network, blockchain establishes a shared reality among non-trusted entities. The system is held together by cryptography, a sort of technology that ensures data is not counterfeited.

A representation of the bitcoin blockchain

A Representation of the Bitcoin Blockchain
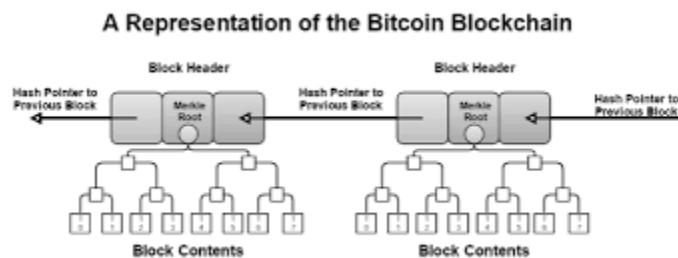
The adumbration of the system, as intricate and perplexing as it may appear, is difficult. A blockchain block comprises of data, the current block's hash, and the preceding block's hash. The kind of data in a block varies according on the network to which it belongs. For example, in a bitcoin network, this data includes the sender's and receiver's identity as well as the amount being transacted. The hash of every block may be thought of as a unique fingerprint for that block. Any modifications to the block are reflected in the hash. As a result, every change to the hash produces a difference in the blocks after it, allowing the changes to be identified. So, if someone wants to execute a nefarious transaction, he'll have to tamper with all of the blocks in the blockchain, redo their proofs of work, and gain control of more than half of the peer-to-peer network, and only then will his behaviour be considered legal. As a result, having such a system in place provides increased security and essentially eliminates the potential of forgery. Furthermore, decentralisation reduces the likelihood of the system collapsing completely. Because there is no middleman, the charge for subsequent transactions is also reduced considerably. However, because nothing is ever completely one-sided, the Blockchain system, like any other, has flaws. On the one side, blockchain's decentralisation is often regarded as its most valuable asset, but it is also widely regarded as its most significant disadvantage, contributing to increased system volatility. Other drawbacks include longer transaction times and extraneous procedures.
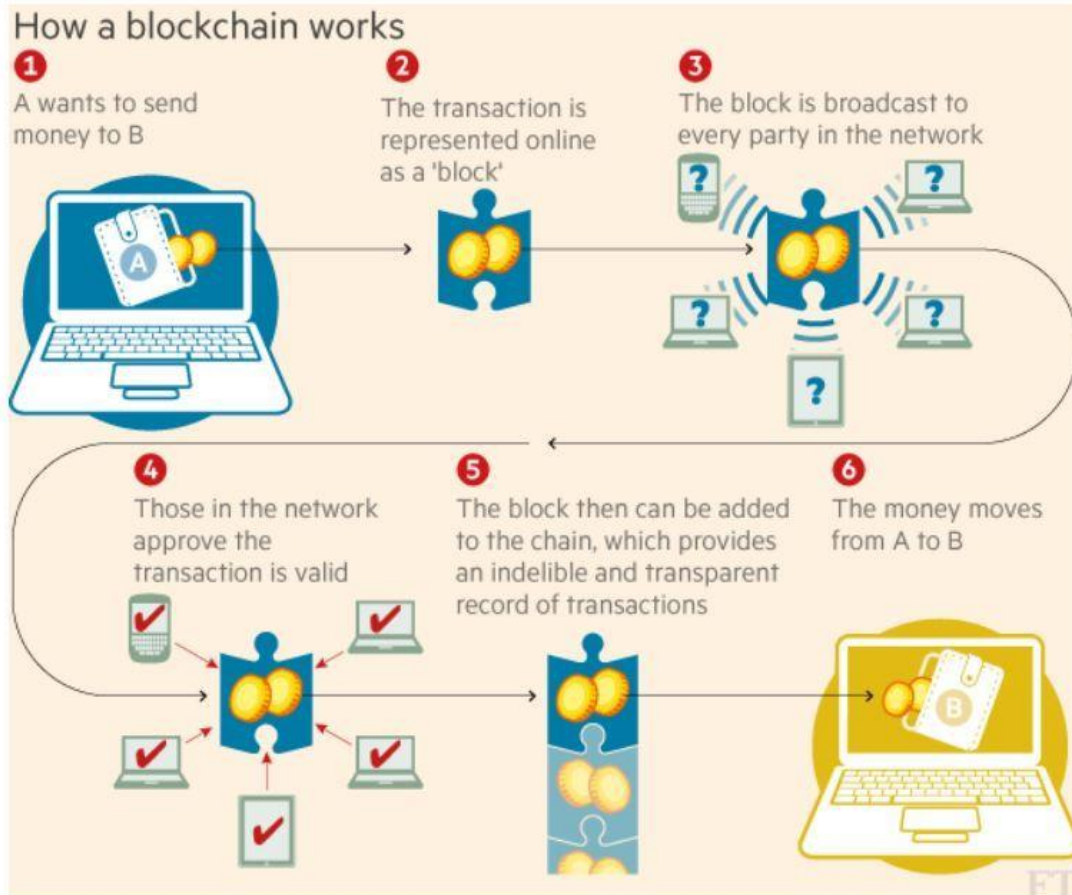
Image: Financial Times

Block Chain's Benefits in the Banking Industry

1. Discretion

The open-source framework of this technology is one of the reasons why your company should adopt it. It demonstrates that other network users can read the information and validate (or deny) it. The most important aspect of being open source is that it cannot store logged data without the participation of the majority of Blockchain network users.

2. Decentralization of power

The lack of a central data centre is the next most important blockchain argument. Instead of maintaining a large data centre, you store your data on a decentralised network where any user may read, review, and (un)authorize any of your actions.

3. Transaction settlements that are faster

Blockchain-based transactions are faster because blockchain technology is available 24 hours a day, seven days a week. When dealing with traditional banks, it's not uncommon for transactions to take several days to finalise. This is due to banking software standards as well as the fact that financial institutions are only open during business hours, five days a week. Financial institutions are also located in different time zones throughout the world, causing processing times to be delayed, but this isn't about blockchain.

4. Networks owned by users

This advantage is mostly due to the network's decentralisation. Rather of delegating data processing to a third party, stakeholders decided to take control of each other and determine what to do next. For example, the difficulty to reach an 80 percent consensus on the upgrade connected to the bitcoin block is due to the fact that it was required to build a plug into multiple currencies more than four months ago (bitcoin and bitcoin in cash).

5. Transaction expenses are lower

As you may recall, blockchain enables you to conduct transactions without the assistance of a third party, such as a bank or a central server. Because the intermediate is not there, you do not need to maintain it, allowing you to eliminate a significant offset.

Blockchain Technology's Limitations

1. More expensive: In a company based on the concept of Supply and Demand, nodes seek larger incentives for completing Transactions.

2. Smaller ledger: It is unable to obtain a complete copy of the Blockchain, which might affect immutability, consensus, and other aspects.

3. Bitcoin transaction: fees have grown considerably after being promoted as "nearly free" for the first few years.

4. Danger of mistake: As long as there is a human component involved, there is always a risk of error. If a blockchain is used as a database, all incoming data must be of extremely high quality. Human intervention, on the other hand, can rapidly correct the problem.

5. Wasteful: Every node that operates the blockchain is responsible for maintaining blockchain consensus. This minimises downtime and assures that data stored on the blockchain remains unaltered permanently. All of this, however, is for naught because each node must repeat a job in order to achieve a consensus.

IMPROVEMENTS IN THE FUTURE

1. Scalability: Blockchains are not as scalable as their centralised counterparts. The more individuals or nodes that join the network, the greater the risk of it collapsing.

2. Computer systems' capacity to share information and value is referred to as interoperability.

3. Data Immutability: A blockchain is meant to be immutable, which means that once data is entered, it will never change.

4. Integration: Creates a permanent record of transactions that may be used to improve security, among other things.

CONCLUSION

As banks encounter fraud across a wide variety of goods and services, managing and decreasing fraud is an inextricable aspect of their operations. Frauds may cost a lot of money in terms of disrupting the operation of markets, financial institutions, and the payment system. Stopping fraud, monitoring it, investigating it, and reporting it should all be handled by a separate section inside a bank. According to the findings of the study, bank fraud has a significant impact on banks and their market value. To summarise, Blockchain technology has a lot of promise for increasing the quality of service while also boosting the confidentiality and integrity of data. Many of these issues would be solved by a decentralised ledger that tracks and validates deals, and the asset management industry's operational risk would be much reduced. Starting with their very first use of cryptocurrencies, the technology has garnered great appeal even in its early phases. It will alter the way we live today once the technology is adopted as one's own and embraced on a worldwide scale. While some sectors have already begun to integrate blockchain into their operations, many others are still figuring out the best ways to get started.

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