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BLOCKCHAIN TECHNOLOGY APPLICATION IN BANKING SYSTEM-AN EMPIRICAL STUDY

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ABSTRACT

Blockchain technology has been gaining significant attention in the banking sector due to its potential to transform the industry by enhancing security, efficiency, and transparency. The Blockchain is a technology that will allow transactions simply, safely, effectively, and also safely. In layman's terms, Block- chain is a data structure that stores transactional records while also ensuring security, efficiency, transparency and decentralization. In a Blockchain, data is stored which is tamper-proof and cannot be changed as it uses encryption and digital signatures on every transaction on a blockchain, which proves the authenticity of the block- chain. To change a record on a blockchain, one needs to change several records, and one needs to change the distributed ledger. It's quite impossible to change the data which has already been entered into a Blockchain. This is a very promising technology. It's already in a lot of places. It can also solve any problem in the banking sector. This technology became famous after introducing the first cryptocurrency, which is known as bitcoin. The Blockchain has evolved to address various challenges in the Banking sector. This paper will demonstrate transacting over a secure, blockchain-based network and therefore eliminate the need for intermediary entities. The purpose of this paper is to provide a review of the application and opportunities of the Blockchain for a secure banking system and then the working method of the Blockchain technology has been introduced with analysis. The use of blockchain technology for secure banking has been discussed. The main achievement of this paper is to demonstrate how the Blockchain works and how it can be useful in the secure banking industry.

Keywords: Blockchain, Banking, Immutable Record, Distributed Ledger, Application

1. INTRODUCTION

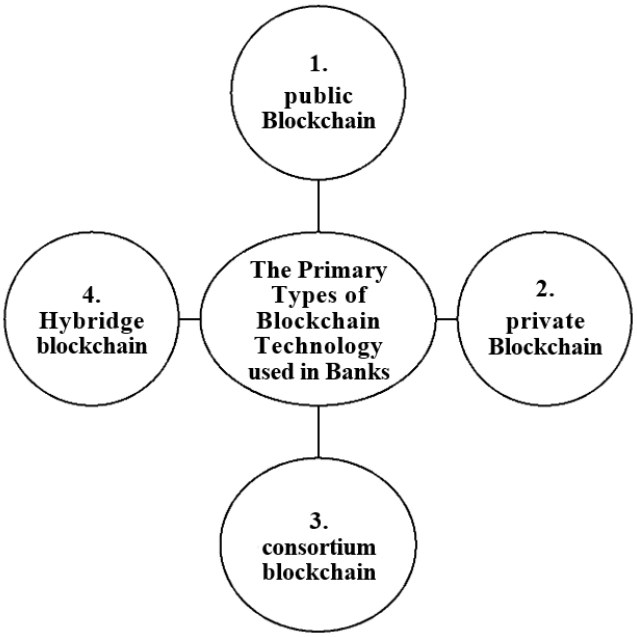
A Blockchain is a technology that allows digital data to be stored in a public, shared database. It is essentially a series of immutable blocks. Blockchain has the potential to change the banking process to a secure and efficient process which will be a completely transparent procedure compared to traditional regular processes. This technology is well known as the crypto- currency (Bitcoin)'s backbone technology. In almost every sector, people are working so that they can use this amazing technology to solve their problems.

In recent years, it has been observed that there are many data breaches happening in the banking system. Hackers are stealing vast amounts of money from banks because of the security issue of

the banking system. Also, the banking system is improving very slowly. Even in the 21st century, it takes a lot of time, sometimes days, to make transactions. The purpose of this paper is to analyze the Blockchain system and find its use cases in the banking system. It will demonstrate why the implementation of the Blockchain can make the banking system more secure and make transactions faster. The significance of the paper is to help the decision-makers of the

banking sector and government to make them understand blockchain technology and its potentiality in the banking sector.

2. TYPES OF BLOCKCHAIN TECHNOLOGY USED IN BANKING BUSINESS



1) Public (open) Blockchains: are the decentralized and open for anyone to join with base assets. They allow all participants to verify transactions and maintain the ledger, which enhances transparency and security. The principal motivation behind the open blockchain is to eliminate the middlemen and work with distributed exchanges. The cases where public blockchain uses in banking business include-

- **Cryptocurrency Transactions:** it Facilitating peer-to-peer transactions without intermediaries. The base assets of public blockchains is Bitcoin, Ethereum, and other digital forms of money, which are straightforwardly accessible to anybody. Every exchange is confirmed by the organization before it is recorded.
- **Fundraising:** It Enabling Initial Coin Offerings (ICOs) for startups.

2) Private Blockchain: are restricted to a specific group of participants, providing greater control over who can access the network. i.e. a permission-based sort. implying that members need consent from focal position to play out the assignment. It is completely de-centralized and constrained by the delegate. Every exchange is confirmed by power before it is recorded. Private blockchain is quicker and less expensive compare with public blockchain. It is generally reasonable for corporate business and administration models. It can possibly expand the proficiency and lessening the activity costs. This type of technology used by banks for internal operations for faster transactions and enhanced privacy. The Key applications include-

- Internal Record Keeping- Managing sensitive financial data securely.
- Identity Verification-Streamlining KYC (Know Your Customer) processes.

3) Consortium Blockchain: are governed by a group of organizations rather than a single entity. This type is particularly useful for collaborative projects among banks, allowing them to share data securely while maintaining control over their information. Key Applications include-

- **Trade Finance:** Facilitating secure and efficient trade transactions among multiple banks.
- **Syndicated Lending:** Allowing banks to share customer data for better credit assessments.

4) Hybrid Blockchain: It combine elements of both public and private blockchains, allowing for flexibility in how data is shared and accessed. This type is suitable for banks that require both transparency and privacy. The Key Use cases include-

- **Cross-Border Payments:** It Enabling secure and efficient international transactions while maintaining compliance with regulations.
- **Smart Contracts:** Automating agreements and transactions based on predefined conditions.

3. REVIEW OF LITERATURE

1Melanie Swan (2015) explains that the "blockchain is a decentralized public ledger that can be used for the registration, inventory, and the transfer of all assets in finances, property as well as in intangible assets such as votes, software, health data, and idea"

1 Melanie Swan (2015) "blockchain is a decentralized public ledger"

further. He considered the theoretical, philosophical, and societal impact of cryptocurrencies and blockchain technologies.

2Svein Ølnes (2015) studied the "potential use of the blockchain technology to enable governments to utilize the secure, open, distributed and inexpensive database technology". It was emphasized that Bitcoin could be a promising technology for validating many types of persistent documents in the public sector.

3 Yli-Huumo J, Ko D, Choi S, Park S, Smolander K (2016) studied the current research, drawbacks and the future perspective of blockchain technology from the technical point of view. The statistics shows that 80-percent of the research is only on Bitcoin as compared to other blockchain applications. Most of the studies are focusing on benefits of blockchain technology. However, many of the Blockchain scalability related challenges have been left unstudied.

4 J. Leon Zhao, Shaokun Fan and Jiaqi Yan (2016) gave an overview of blockchain technology research and development. The study showed that the widespread use of Bitcoin in the financial and business sector will open new ways for business innovations and research.

5The Institute for Development and Research in Banking Technology (IDRBT), established by the Reserve bank of India (2017) has conducted extensive research to explore the applicability of blockchain technology in Indian Banking and Financial Industry. The paper explains all the aspects of blockchain like concepts, advantages, applications, challenges and future of blockchain technology in Indian Banking Sector. The Benefits of Blockchain is an emerging technology which can radically change the banking and financial sector, providing ample opportunities for growth and innovation, capable of reducing risk and cost.

CONFLICT OF INTERESTS

None.

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Melanie Swan (2015) "blockchain is a decentralized public ledger"
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