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THE ROLE OF BLOCK CHAIN TECHNOLOGY IN ENHANCING DIGITAL BANKING SECURITY WITH SPECIAL REFERENCE TO COIMBATORE CITY

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Abstract - The digital banking sector has experienced rapid growth, bringing with it a range of security challenges. This paper explores the potential of block chain technology to enhance digital banking security, with a specific focus on Coimbatore. Block chain's decentralized and immutable ledger system offers promising solutions to many of the vulnerabilities inherent in traditional banking systems. Through a detailed examination of current digital banking practices in Coimbatore, this study identifies the key security threats and evaluates how block chain technology can mitigate these risks. This research aims to contribute to the broader understanding of block chain applications in banking and provide actionable insights for financial institutions in Coimbatore.
Keywords-Block chain Technology, Digital Banking Security, Financial Technology

INTRODUCTION

Digital banking is a service that allows customers to access banking services through the internet or mobile devices, without visiting a bank branch. It can include online banking, mobile banking, and other services. The importance of digital transformation in banking can also be realized from the growth of Online Banking during the COVID-19 pandemic. With stringent lockdowns across the country, Online Banking enabled consumers to manage their day-to-day banking activities from the safe confines of their homes.

Block chain is a method of recording information that makes it impossible or difficult for the system to be changed, hacked, or manipulated. A block chain is a distributed ledger that duplicates and distributes transactions across the network of computers participating in the block chain. Block chain technology is a structure that stores transactional records, also known as the block, of the public in several databases, known as the "chain," in a network connected through peer-to-peer nodes. Typically, this storage is referred to as a 'digital ledger.'Every transaction in this ledger is authorized by the digital signature of the owner, which authenticates the transaction and safeguards it from tampering. Hence, the information the digital ledger contains is highly secure.

OBJECTIVE OF THE STUDY

- To Assess how blockchain technology improves the security of digital banking transactions in Coimbatore.
- To Measure the level of awareness and understanding of block chain among digital banking customers in Coimbatore.
- To Explore the challenges faced by banks in implementing block chain technology and potential opportunities for improvement.

STATEMENT OF THE PROBLEM

This study aims to investigate the potential of block chain technology as a solution to enhance security in digital banking systems. Specifically, it will explore how block chain can address current security challenges, improve customer confidence, and assess its implementation in the local banking sector.

SCOPE OF THE STUDY

The scope of the study is to Identifying specific security challenges faced by digital banks in Coimbatore, such as fraud, data breaches, and transaction errors. And analyzing the level of awareness and perception of block chain among customers and its influence on their banking choices.

RESEARCH METHODOLOGY

The data gathered is Primary and Secondary data, which is qualitative data, which was further analysed in order to draw conclusions and suggestions. The Primary data was gathered through a survey on the role of Block chain technology in enhancing digital banking securities with special reference to Coimbatore. A questionnaire was drafted for the survey and random sampling was done. The secondary data collection was done through internet which includes web, e-magazines, research papers, e-books etc.

SAMPLE SIZE:
It comprises of150 people
POPULATION:
My survey is among both men and women at the age group of [25-60].
LOCATION: Coimbatore

LIMITATION OF THE STUDY

- The sample size for surveys or interviews are very limited.
- The study focuses exclusively on Coimbatore only.
- Time was also very limited

REVIEW OF LITERATURE

- **Satoshi Nakamoto (2008)** in his white paper proposed "a peer-to-peer version of electronic cash which would allow online payments to be sent directly from one party to anotherwithout going through a financial institution or third party". This emerged as a foundation for the most popular blockchain application i.e. bitcoin.
- **Melanie 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". He considered the theoretical, philosophical, and societal impact of cryptocurrencies and blockchain technologies.
- **SveinØlnes (2015)** studied the "potential use of the blockchain technology to enable governments to utilize the secure, open, distributed and inexpensive database technology". It was emphasised that Bitcoin could be a promising technology for validating many types of persistent documents in the public sector.
- **Yli-Huumo J, Ko D, Choi S, Park S, Smolander K (2016)** extracted 41 primary papers from scientific databases and studied the current research, drawbacks and the future perspective of block chain 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 focussing on benefits of blockchain technology. However, many of the Blockchain scalability related challenges have been left unstudied.

- **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.The Institute for Development and Research in Banking Technology (IDRBT), established by the Reserve bank of India (2017) has conducted an extensive research to explore the. applicability of Block chain technology in Indian Banking and Financial Industry.

DATA ANALYSIS AND INTERPRETATION

Percentage Analysis

1. Age wise classification of the respondents

Age	**No of Respondents**	**Percentage**
20-30	60	40
31-40	50	33
40-50	30	20
Above 50	10	07
Total	150	100

Interpretation:

From the above table, it is interpreted that 40% of respondents are of age group 20-30, 33% of them belong to age group 31-40 and 20% belong to the age group 40-50 and 7% belong to age group more then 50.

Inference:

Majority 40%of the respondents of my questionnaire belong to the age group 20-30.

2. Educational level classification of the respondents

Option	**No of Respondents**	**Percentage**
School	30	20
Diploma	30	20
Degree	80	53
Uneducated	10	7
Total	150	100

Interpretation:

that 20% of respondents are of schools category and 20% of them belong to diploma category and 53% of respondents are degree category and 7% of respondents belong to uneducated.

Inference:

Majority 53% of the respondents of my questionnaire are belongs to Degree .

3. Occupation of the respondent.

Options	**No of Respondents**	**Percentage**
Employees	50	33
Business	60	40
Others	40	27
Total	150	100

Interpretation:
From the above table, it can be interpreted that out of the option given 33% of respondents are employers, 60% of respondents are business person, 40% of the respondents are doing other works.

Inference:
Majority 40% of respondents are Business.

4. Digital Banking Services using Mode

Option	**No of Respondents**	**Percentage**
Day to Day	120	80
Weekly once	12	8
Monthly Once	10	7
Yearly once	8	5
Total	150	100

Interpretation:
From the above table, it can be interpreted that out of the option given 80% of respondents are agreed Day to day, 8% of respondents are agreed weekly once, 7% of the respondents are are agreed Monthly once and 5%of the respondents agreed Yearly once.

Inference:
Majority 80% of respondents are agreed Day to day they have used digital banking.

5. Familiar with block chain technology.

Option	**No of Respondents**	**Percentage**
Yes	100	67
No	50	33
Total	150	100

Interpretation:
From the above table, it is interpreted that 67% respondents are familiar block chain technology and 12% of respondents are not familiar with block chain technology.

Inference:
Majority 67% of the respondent tell ‘yes’.

6.How did you know about block chain?

Option	**No of Respondents**	**Percentage**
Newspaper	50	33
Social media	90	60
Friends	10	7
Total	150	100

Interpretation:
From the above table, it can be interpreted that out of the option given 33% of respondents are told Newspaper, 60% of respondents told social media, 7% of the respondents are told friends.

Inference:
Majority 60% of respondents are told Social media

7.Have you ever experience a security issue while using digital banking?

Option	No of Respondents	Percentage
Yes	130	87
No	20	13
Total	150	100

Interpretation:

From the above table, it is interpreted that 87% respondents are agreed Yes and 13% of respondents are not agreed.

Inference:

Majority 87% of the respondent agreed 'Yes'.

8.Security Measures

Option	No of Respondents	Percentage
Password	80	53
Text alerts	15	10
Authentication	30	20
Encryption	25	17
Total	150	100

Interpretation:

From the above table, it can be interpreted that out of the option given 53% of respondents are agreed Password, 10% of respondents are agreed Text alerts, 20% of the respondents are agreed Authentication and 25% of the respondents agreed Encryption.

Inference:

Majority 53% of respondents are agreed Password.

9.Do you believe that block chain can enhance the security of digital banking?

Option	No of Respondents	Percentage
Yes	90	60
No	60	40
Total	150	100

Interpretation:

From the above table, it is interpreted that 60% respondents are agreed Yes and 40% of respondents are not agreed.

Inference:

Majority 60% of the respondent agreed 'Yes'.

10.Specific Benefits

Option	No of Respondents	Percentage
Faster Transactions	90	60
Accountability	20	13
Transparency	30	20
Fraud reduction	10	7
Total	150	100

Interpretation:

From the above table, it can be interpreted that out of the option given60 % of respondents are agreed Faster Transactions, 13% of respondents are agreed Accountability, 20% of the respondents are are agreed Transparency and 7%of the respondents agreed Fraud reduction.

Inference:
Majority 53% of respondents are agreed Faster Transaction.
11.The implementation of block chain in banking

Option	**No of Respondents**	**Percentage**
Regulatory Compliance	30	20
Implementation Costs	30	20
Data Privacy	90	60
Total	150	100

Interpretation:
From the above table, it can be interpreted that out of the option given 20 % of respondents are agreed Regulatory Compliance, 20 % of respondents are agreed Implementation Costs, 60% of the respondents are are agreed Data Privacy.
Inference:
Majority 60% of respondents are agreed Data Privacy.
12.A Bank that uses block chain technology for Security.

Option	**No of Respondents**	**Percentage**
Yes	90	60
No	60	40
Total	150	100

Interpretation:
From the above table, it is interpreted that 60% respondents are agreed Yes and 40% of respondents are not agreed.

Inference:
Majority 60% of the respondent agreed ‘Yes’.
13.Awareness of block chain technology in banking.

Option	**No of Respondents**	**Percentage**
Yes	100	67
No	50	33
Total	150	100

Interpretation:
From the above table, it is interpreted that 67% respondents are agreed Yes and 33% of respondents are not agreed.
Inference:
Majority 67% of the respondent agreed ‘Yes’.
14.The current regulatory framework is adequate for block chain adoption in banking

Option	**No of Respondents**	**Percentage**
Yes	80	53
No	70	47
Total	150	100

Interpretation:
From the above table, it is interpreted that 53% respondents are agreed Yes and 47% of respondents are not agreed.

Inference:
Majority 53% of the respondent agreed 'Yes'.

Findings:

- Majority 40% of the respondents of my questionnaire belong to the age group 20-30.
- Majority 53% of the respondents of my questionnaire are belongs to Degree .
- Majority 40% of respondents are Business.
- Majority 80% of respondents are agreed Day to day they have used digital banking.
- Majority 67% of the respondents are familiar with block chain technology.
- Majority 60% of respondents are told Social media.
- Majority 87% of the respondent agreed a security issue while using digital banking.
- Majority 53% of respondents are agreed Password.
- Majority 60% of the respondent agreed block chain can enhance the security of digital banking.
- Majority 53% of respondents are agreed Faster Transaction.
- Majority 60% of respondents are agreed Data Privacy.
- Majority 60% of the respondent agreed a Bank that uses block chain technology for Security.
- Majority 67% of the respondent agreed they aware the block chain technology in banking.
- Majority 53% of the respondent agreedthe current regulatory framework is adequate for block chain adoption in banking

Suggestion
There are many benefits associated with block chain technology inspiteof Block chain in banking can bolster bank security in a number of ways. Firstly, the technology can be used to develop robust know-your-customer (KYC) solutions, as the cryptographic protection it offers guarantees that the identities of all members of a block chain network are verified.

Conclusion
This study highlights the transformative potential of block chain technology in enhancing digital banking security. By examining the current security landscape in Coimbatore and evaluating block chain's role, it is evident that block chain can significantly improve data integrity, fraud prevention, and transaction transparency.

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