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Future of Blockchain Technology: Its Impact, Challenges and Opportunities in Banking (Mumbai Sub-urban Region)

Merina Gheevarghese

Assistant Professor,
Sheth L.U.J. & Sir M.V. College of Arts,
Science, and Commerce, Andheri (East),
Mumbai (Maharashtra, India)

Rohini Jagadale

Assistant Professor,
Sheth L.U.J. & Sir M.V. College of Arts,
Science, and Commerce, Andheri (East),
Mumbai (Maharashtra, India)

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ABSTRACT:

Background: Blockchain' is one of the most anticipated Information Technology (IT) buzzwords and one of the most significant technological breakthroughs established in recent years. The purpose of the study is to analyze the potential impact, challenges, and opportunities of blockchain in the future in the field of banking. Decentralization, autonomy, integrity, immutability, verification, fault-tolerance, anonymity, auditability, and transparency are desired characteristics of blockchain technology. Any existing centralized transaction-based system with important information can be broken using blockchain technology.

Methods: A survey method was used to gather data for this study, utilizing a non-experimental quantitative research methodology.

Findings: Improved business efficiency, identifying new ways of automating business processes among partners, and stronger working relationships with partners were highlighted as key findings.

Interpretation: To guide future research on this subject and motivate bankers to benefit from new financial technologies applied to different bank business lines, we shed light on the new challenges faced by bankers and look into the potential impact and opportunities of blockchain in banking.

Keywords: Blockchain Technology, Banking

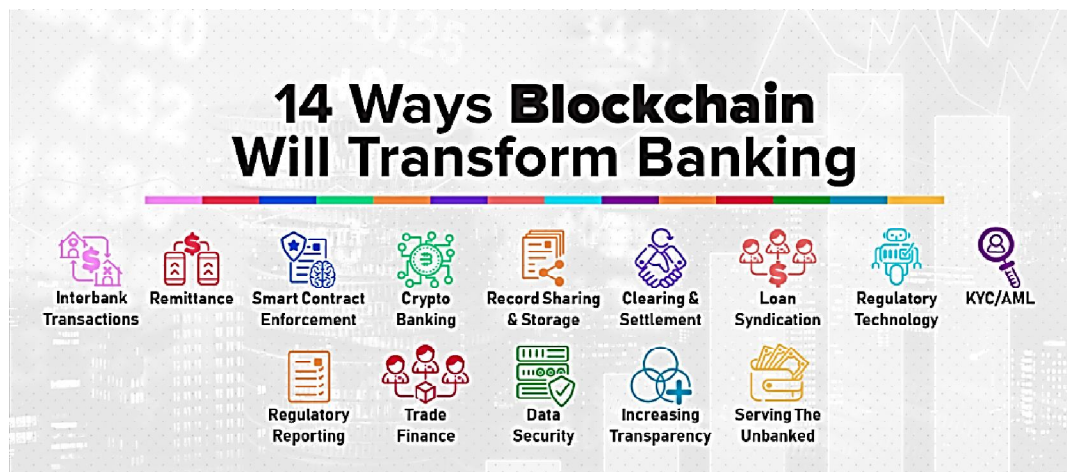
1 INTRODUCTION:

One of the innovations of the most recent decade that brought a lot of assurance was Blockchain technology. As a result, Blockchain technology has been one of the most widespread topics in recent years; it has already transformed people's lives in a few areas as a consequence of its best influence on countless commercial companies or enterprises, and what it will accomplish will

continue to have an impact in many areas. Blockchain is an information-recording technology that makes changing, hacking, or defrauding the system difficult or impossible. A blockchain is simply a network of computer systems that duplicates and distributes a digital record of all transactions across the network. Blockchain is the key to a decentralized society (Daniel Levis¹, 2021)

Hence our research focuses on the Future of blockchain technology and its potential impact, challenges, and opportunities to transform the banking industry. Banks and financial organizations are researching the potential benefits of implementing blockchain technology in several business sectors. Blockchain-based payment also provides a platform for banks and non-banks to facilitate cross-network transfers and payment services. In order to recognize incoming opportunities and related dangers in the future, all internal and external stakeholders of the companies must have a thorough understanding of the processes that may be transformed as a result. (Wonglimpiyarat, 2019) Furthermore, a thorough understanding of all the potential benefits and risks connected with blockchain is especially important in the case of financial intermediaries, whose existence and functioning are based on the trust of all stakeholders, including customers and investors. Due to the fact that money transfers no longer require centralized bank payment networks, blockchain technology has the potential to restructure the banking industry by eliminating banks' intermediate functions and associated overhead expenses. The algorithms, in turn, become an online middleman under the blockchain system, cutting infrastructure costs and transaction fees while improving payment security. A more secure, open, and dependable decentralized network is provided by blockchain technology. (Nicola Cucar, 2021)

Because historical information and imputed data cannot be changed in a blockchain process, prospective hackers will find it extremely difficult to alter the data. Furthermore, the decentralized structure of blockchain makes it more resistant to network-wide cyber-attacks or manipulation. In terms of information networking, we are aware of the present problem in banking with the lack of information on customers, which makes it impossible to monitor the creditworthiness of potential borrowers and offer credit. Business-to-business, business-to-consumer, consumer-to-consumer, and peer-to-peer digital currency transfers may all be made utilizing blockchain technology through decentralized networks. (Shehna C S, 2020) As a result, the ability to use blockchain methods to improve security in banks is a vital part of the future banking services model.



Source: <https://www.disruptordaily.com/>

Our study aims to achieve the following objectives:

- 1) To explore the future of blockchain in the banking industry.
- 2) To study and examine the impact of blockchain in banking.
- 3) To offer appropriate knowledge on the prospects provided by blockchain technology in banking.
- 4) Understanding the obstacles that banks face in implementing blockchain technology and looking towards potential solutions.

2 LITERATURE REVIEW:

Elisa Ughetto, Francesco FontanaID, and Daniel Levis (2021) uses the Delphi approach to examine whether and to what extent block-chain-based applications may affect firms' organizations, innovations, and strategies by 2030. It looked at a wide range of potential blockchain applications within specific domains, such as finance, logistics, healthcare, and education. They spoke with 12 blockchain specialists for 30 to 45 minutes on average to explore topics like the evolution of business models, security and utility tokens, and legal concerns. After that, they conducted two rounds of surveys, which produced insightful findings and cogent conclusions. They came to the conclusion that the adoption of blockchain constitutes a significant technological shift that brings with it intriguing and real potential.

HuaqunGuo a,*, Xingjie Yu b,1(2022) investigates blockchain security. They begin with a survey of blockchain technology, specifically its history, quantitative comparisons of consensus algorithms, details of cryptography in terms of public key cryptography, Zero-Knowledge Proofs, and hash functions used in the blockchain, and a comprehensive list of blockchain applications. They compare various consensus algorithms using detailed analysis and numerical figures, and they present blockchain cryptography fundamentals. They discussed the web application security risks associated with blockchain technology. It has investigated numerous real-world attacks and bugs on

blockchain systems.

It is written by Wesley L. Harris and Jarunee Wonglimpiyarat (2019) and the paper focuses on the growing challenges to the banking industry as a result of blockchain technology. This paper employs case study methodology and contributes to the theory of technology diffusion in order to comprehend the directional path of innovations. The systemic innovation model is being developed in this study as a methodological tool for analyzing the systemic characteristics of innovations. This study provides some empirical evidence that blockchain banking may necessitate cross-industry collaboration to achieve a level of diffusion.

3. RESEARCH METHODOLOGY:

3.1 Data Collection: The current study is based on primary data collected from banking industry employees in the Mumbai region via a questionnaire. To achieve a research conclusion, the collected data were analyzed using the chi-square test.

3.2 Data Analysis and Interpretation

Total number of samples (N) for Banking = 40

Table - 1: Is your bank currently using or planning to use Blockchain technology?

Uses of Blockchain technology	Total(40)	Percentage
Yes	29	72.5%
No	11	27.5%

According to Table 1, 72.5% of people's banks use Blockchain technology on a daily basis.

Table - 2: Has your bank formed a group to support a Blockchain initiative?

Group to support Blockchain initiative	Total(40)	Percentage
Yes	30	75%
No	10	25%

Table 2 shows that 75% of people's banks employ a specialized team to support blockchain technology.

Table - 3: Has your bank created a budget for its Blockchain initiatives?

Budget for Blockchain initiative	Total(40)	Percentage

Yes	29	72.5%
No	11	27.5%

According to Table 3, 72.5% of people's banks have a specialized budget to support blockchain technology.

4 RESULTS AND DISCUSSION:

4.1 Hypothesis:

H₀ - The future of block chain technology in banking is not expected to be promising.

H₁ - The use of block chain technology in banking has a promising future.

4.2 Chi-square Method: is used to find out the relation between the block chain technology and their uses in banking.

Formula :

$$\text{Chi square}(\chi^2) \text{ Test} = \sum \frac{(O-E)^2}{E}; \text{ with } E=N * P, P = 0.5$$

Where: O = Observed value, E = Expected value, P = Probability

Table -4: Calculation of Chi square Test χ^2

O	E	O - E	(O - E) ²	$\frac{(O - E)^2}{E}$
29	20	9	81	4.05
11	20	-9	81	4.05
Total				8.1

To test the Hypothesis at $\alpha = 0.05$ level of significance -

From the Table- 4: Calculated $\chi^2 = 8.1$

Decision criterion: n = 2

Reject H₀ if : calculated $\chi^2 > \chi^2_{n-1, 0.05} = \chi^2_{2-1, 0.05} = \chi^2_{1, 0.05} = 3.84$

Do not reject H₀ if $\chi^2 \leq 3.84$

5 FINDINGS:

Calculated $\chi^2 >$ Critical Value (χ^2) i.e. $8.1 > 3.84$, therefore rejecting the null hypothesis at $\alpha = 0.05$ level of significance that is accepting the alternative hypothesis at $\alpha = 0.05$ level of significance; it is evidence that the use of block chain technology in banking has a promising future.

Table -5: Graphical Representation of Current stage of Blockchain Technology in Banking

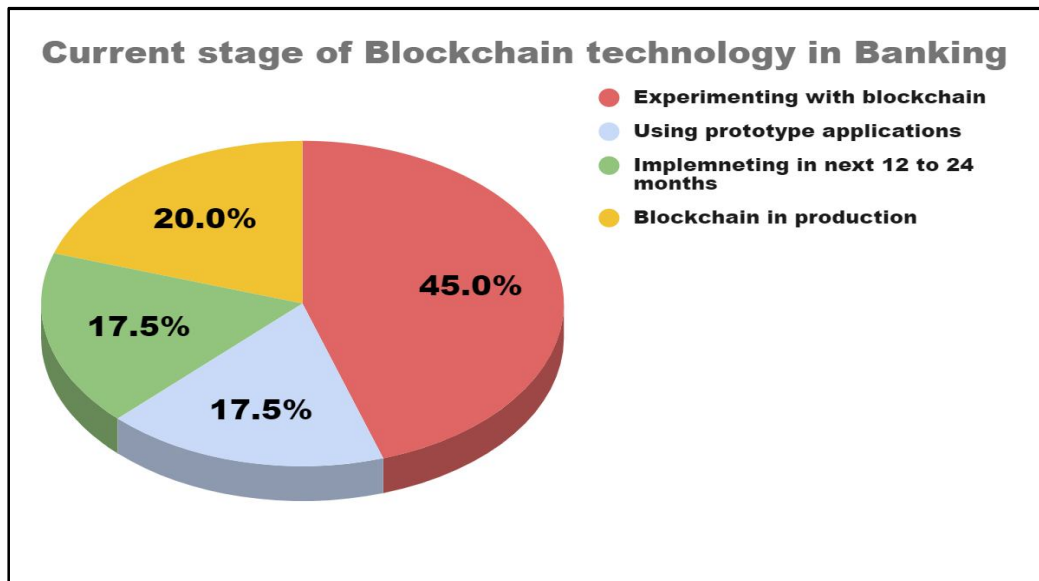
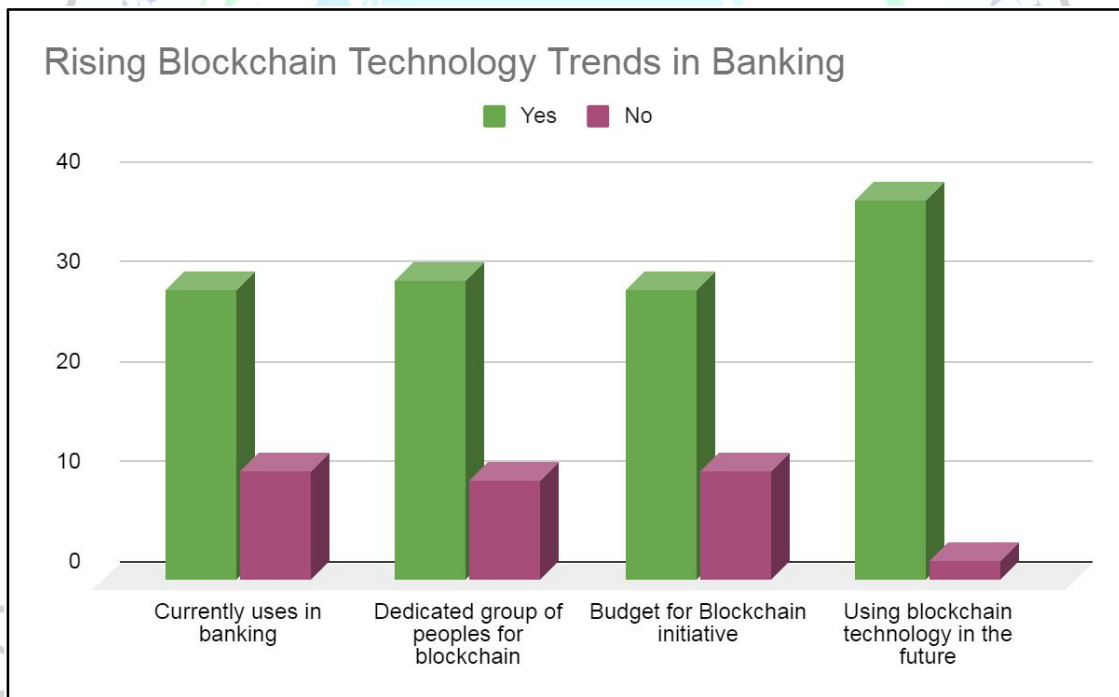


Table - 6: Rising Blockchain Technology Trends in Banking



6 CONCLUSION:

Our present research reveals that the usage of blockchain technology in banking has a promising future, which in turn opens opportunities for future researchers to work on the upcoming blockchain trends. This paper examines the potential of blockchain as a technological platform in the banking industry. Our research focuses on the impact of blockchain's capacity to eliminate points of failure in corporate networks, such as higher transaction speeds, time savings, risk reduction, and greater data protection.

As an emerging technology, we also focused on the major obstacles encountered by the banking sector, such as a lack of awareness of what blockchain as a concept can achieve, a lack of qualified professionals who know how to work with the technology, a lack of industry standards created for the same, privacy and security issues, and a lack of a prospective market for blockchain-related products. In terms of the potential of blockchain technology and its impact on the financial services sector, banks must adapt to the trend of digital transformation and changing client behaviour.

Blockchain opens up new future opportunities in sectors such as client KYC, securities, loans and credits, and settlement and clearance systems, allowing the banking industry to reclaim lost market share.

References:

- [1] Guo, H. and Yu, X., 2022. A Survey on Blockchain Technology and its security. *Blockchain: research and applications*, 3(2), p.100067.
- [2] Shehna, C.S. and Jacob, A., A Survey of Blockchain Technology and Challenges.
- [3] Levis, D., Fontana, F. and Ughetto, E., 2021. A look into the future of blockchain technology. *Plos one*, 16(11), p.e0258995.
- [4] Harris, W.L. and Wonglimpiyarat, J., 2019. Blockchain platform and future bank competition. *Foresight*.
- [5] Cucari, N., Lagasio, V., Lia, G. and Torriero, C., 2022. The impact of blockchain in banking processes: The Interbank Spunta case study. *Technology Analysis & Strategic Management*, 34(2), pp.138-150.
- [6] Daluwathumullagamage, D.J. and Sims, A., 2021. Fantastic beasts: Blockchain based banking. *Journal of risk and financial management*, 14(4), pp.1-43.

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