



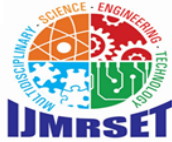
# International Journal of Multidisciplinary Research in Science, Engineering and Technology

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## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

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# Blockchain Adoption and Transparency in Banking Operations: An Empirical Study among Bank Employees and Fintech Professionals in Bangalore

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**ABSTRACT:** The rapid evolution of fintech has transformed banking, with blockchain emerging as a pivotal development for industry transparency. This study investigates how blockchain adoption enhances transparency, accountability, and data integrity within Bangalore's banking and fintech sectors, specifically across operations, compliance, audit, risk management, and digital banking. Utilizing a quantitative methodology, data was gathered from 110 professionals via structured questionnaires and analyzed in Python using descriptive, reliability, correlation, and regression techniques. Findings indicate a strong positive perception of blockchain's ability to improve traceability and operational efficiency. Regression analysis confirms that blockchain significantly boosts visibility and compliance capabilities while strengthening risk management by mitigating fraud and data manipulation. Notably, perceived barriers—such as implementation costs, technical gaps, and regulatory uncertainty—do not significantly hinder adoption. Ultimately, the study concludes that blockchain's benefits far outweigh its challenges, reflecting a robust industry-wide commitment to technological advancement.

**KEYWORDS:** Blockchain Technology, Banking transparency, FinTech, Banking Business, Compliance, Auditing, Risk Management, Digital banking, Technology adoption, financial technology.

## I. INTRODUCTION

Over the past decade, banking has changed dramatically due to rapid digital advancements, shifting customer expectations, stricter regulations, and the rise of fintech. Traditional systems based on manual processes and centralized control are being replaced by faster, more transparent, and real-time digital solutions, placing technology at the core of banking operations. Among these innovations, blockchain has gained attention as a secure, transparent, and tamper-proof system that can improve how transactions are recorded and monitored. Its ability to enhance traceability, reduce fraud, and support compliance makes it especially relevant in complex banking environments where accuracy and accountability are critical.

At the same time, fintech has accelerated innovation, pushing banks to adapt and collaborate within a growing digital ecosystem. However, despite blockchain's potential in areas like auditing, risk management, and transaction processing, its adoption remains limited due to concerns about cost, scalability, integration, and regulatory clarity. In a tech-driven hub like Bangalore, professionals working in banking and fintech—especially in operations, compliance, and risk—offer valuable practical insights into how blockchain is perceived and whether it can truly improve transparency in everyday banking functions. This study focuses on understanding their awareness, perceptions, and attitudes, linking technological innovation with real-world organizational practices.



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### II. LITERATURE REVIEW

The growing importance of blockchain technology in the financial sector has attracted significant academic and practical attention in recent years. Several studies have explored its potential to enhance transparency, efficiency, and reliability in banking operations, accounting systems, auditing processes, and financial reporting. The literature collectively highlights blockchain as a transformative technology, though its adoption is influenced by multiple organizational and technological factors.

- Research indicates blockchain improves operational performance by enhancing data integrity and traceability. Integration with accounting systems further strengthens financial data quality, aiding internal transparency and decision-making.
- Studies show blockchain lowers costs and accelerates processing by removing intermediaries. This fosters trust and streamlines traditionally slow tasks like verification and reconciliation within banking operations.
- Blockchain enables continuous, real-time auditing and immutable trails, curbing fraud. These features enhance evidence reliability and support rigorous compliance monitoring, crucial for regulatory adherence and accountability.
- Recognized for improving security and accuracy, blockchain reduces information asymmetry. Smart contracts automate reporting, increasing stakeholder trust in financial disclosures and strengthening overall institutional governance.
- Combining blockchain with IoT and digital frameworks boosts real-time visibility and automation. This synergy confirms blockchain as a key driver within the broader digital transformation of finance.
- Literature identifies high costs, technical skill gaps, and legacy system integration as major hurdles. Success depends on organizational readiness, managerial support, and strategic alignment with infrastructure.
- Advancements like blockchain revolutionize banking by improving efficiency and customer experience. While influencing risk and profitability, the specific impact depends heavily on market and institutional conditions.
- Blockchain provides tamper-proof records that bolster institutional accountability. By reducing information asymmetry, it strengthens monitoring mechanisms essential for trust-based sectors like banking and risk management.
- Current studies are largely theoretical, with sparse empirical evidence on professional perceptions. Research often focuses on isolated functions rather than providing an integrated view of banking operations.
- There is a lack of localized research in emerging economies like India. Specifically, few studies examine real-world feasibility in major fintech hubs like Bangalore, creating a gap.
- While literature supports blockchain's potential to enhance trust and efficiency, implementation hurdles and research gaps remain. Further empirical studies are needed to understand effective adoption in practice.

### III. METHODOLOGY

This study utilizes a quantitative, descriptive, and analytical research design to examine blockchain's impact on banking transparency in Bangalore. Using purposive sampling, primary data was collected from 110 bank and fintech professionals across operations, compliance, and risk management. A cross-sectional approach captured current perceptions through a structured questionnaire featuring Likert scale items.

Data analysis was performed using Python-based statistical tools. The methodology focused on testing hypotheses and measuring systematic relationships between blockchain adoption and operational integrity. This systematic measurement ensures that the findings accurately reflect the professional consensus on blockchain's role in modernizing financial accountability and institutional control. **Descriptive statistics** (mean, standard deviation) to summarize data

- **Reliability analysis (Cronbach's Alpha)** to test consistency
- **Correlation analysis** to examine relationships between variables
- **Regression analysis** to test the impact of blockchain adoption on transparency and other functions

In this study, **blockchain adoption** is treated as the independent variable, while **transparency in banking operations** is the main dependent variable. Additional dimensions such as compliance efficiency, audit traceability, and risk management effectiveness are also considered to provide a comprehensive analysis.

Overall, the methodology provides a structured and reliable framework to analyze how blockchain adoption influences transparency and operational efficiency in the banking sector.



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### IV. RESULTS: HYPOTHESIS TESTING

The hypotheses of the study were tested using statistical techniques such as **correlation and regression analysis** with the help of Python-based tools. The objective was to examine the relationship between blockchain adoption and transparency in banking operations, along with its impact on compliance, audit, and risk management functions.

#### Hypothesis 1 (H1)

- **H1:** Blockchain adoption has a significant positive impact on transparency in banking operations.
- To test this hypothesis, a **linear regression analysis** was conducted with blockchain adoption as the independent variable and transparency as the dependent variable. The results indicated a **high R-squared value**, suggesting that a substantial portion of variation in transparency is explained by blockchain adoption. The **p-value was less than 0.05**, indicating statistical significance.
- **Result:** H1 is **Accepted**.

This implies that blockchain adoption significantly improves transparency in banking operations by enhancing traceability, accountability, and data integrity.

#### Hypothesis 2 (H2)

- **H2:** Blockchain adoption has a significant positive impact on compliance, audit, and risk management functions.
- This hypothesis was tested using regression analysis by taking compliance, audit, and risk management as dependent variables. The findings showed a **strong positive relationship** between blockchain adoption and these functions. The results were statistically significant with **p-values below 0.05**.
- **Result:** H2 is **Accepted**.

This indicates that blockchain technology enhances compliance monitoring, strengthens audit trails, and improves risk management practices in banking institutions.

#### Hypothesis 3 (H3)

- **H3:** Adoption factors and implementation challenges significantly influence blockchain adoption.
- To test this hypothesis, regression analysis was performed with adoption challenges as the independent variable and blockchain adoption as the dependent variable. The results showed a **low R-squared value** and a **p-value greater than 0.05**, indicating no significant relationship.
- **Result:** H3 is **Rejected**.

This suggests that perceived challenges such as cost, technical complexity, and regulatory uncertainty do not significantly hinder blockchain adoption among the respondents.

#### Final Interpretation

The hypothesis testing results clearly indicate that **blockchain adoption plays a crucial role in improving transparency and operational efficiency** in banking. While it significantly enhances compliance, audit, and risk management functions, the impact of perceived challenges on adoption appears to be minimal. This reflects a strong positive perception of blockchain technology among banking and fintech professionals.

### V. DISCUSSION

This study demonstrates that **blockchain adoption** significantly enhances transparency and accountability within Bangalore's financial sector. By utilizing a decentralized, immutable ledger, the technology ensures data integrity and real-time visibility, preventing unauthorized alterations. This strengthens trust across critical operations, providing a reliable "single source of truth" that improves overall decision-making and institutional control.

Furthermore, blockchain bolsters compliance, audit, and risk management by creating secure, chronological trails that reduce fraud and simplify regulatory adherence. Interestingly, professionals prioritize these long-term strategic benefits over common obstacles like high implementation costs or technical skill gaps. This reflects a robust appetite for innovation, signaling that the perceived advantages of the technology far outweigh its perceived barriers.

Ultimately, the study underscores that positive employee perception is a primary driver for successful integration. As banking and fintech workers recognize blockchain's usefulness, the likelihood of effective practical implementation



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increases. With targeted technical support and infrastructure investment, blockchain is poised to play a crucial role in modernizing financial governance and securing the future of digital banking operations.

### VI. CONCLUSION

This study confirms that blockchain adoption significantly enhances transparency and accountability in Bangalore's banking and fintech sectors. By utilizing a decentralized, immutable ledger, the technology ensures data integrity and real-time visibility, preventing unauthorized alterations. This strengthens trust across critical operations, providing a reliable "single source of truth" that improves overall reliability and decision-making.

Furthermore, blockchain bolsters compliance, audit, and risk management by creating secure trails that reduce fraud. Interestingly, professionals prioritize these long-term benefits over challenges like high costs or regulatory uncertainty. This highlights a strong appetite for innovation, suggesting that with strategic technical support, blockchain will be pivotal in modernizing financial governance and operational security.

### VII. ACKNOWLEDGEMENT

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### REFERENCES

1. Abbas, Z., Awan, U., Abbas, M., et al. (2024). Blockchain technology adoption in large-scale industries: Challenges and implementation gaps.
2. Abu-Musa, A. A., & Mansour, E. M. E. (2024). Blockchain and smart contracts in financial reporting: Bridging the trust gap.
3. Ahmed, I. E. (2025). Efficiency of blockchain technology in banking transactions.
4. Akter, M., Michael, K., Uddin, M. R., McCarthy, G., & Rahman, M. (2024). Challenges of blockchain adoption in accounting systems.
5. Al-Dmour, A., Al-Dmour, R., Al-Dmour, H., & Al-Adwan, A. S. (2024). The impact of blockchain applications on bank performance: The mediating role of accounting information systems.
6. Al-Emran, M., AlShamsi, M., & Shaalan, K. (2022). A systematic review of blockchain adoption: Determinants and barriers.
7. Alkaraan, F., Albitar, K., Hussainey, K., & Venkatesh, V. G. (2022). Blockchain adoption and financial reporting quality in Industry 4.0.
8. Almadadha, R. (2024). Blockchain technology in financial accounting: Transparency, security, and ESG reporting.
9. Alarifi, G., Robb, D. A., et al. (2021). Blockchain opportunities and challenges in banking business models.
10. Bag, S., Telukdarie, A., Pretorius, J. H. C., & Gupta, S. (2021). Role of blockchain in enhancing transparency in Industry 4.0 and supply chains.
11. Bonyuet, D. (2020). Overview and implications of blockchain in auditing.
12. Casino, F., Dasaklis, T. K., & Patsakis, C. (2019). A systematic literature review of blockchain-based applications.
13. Chand, S. A., Singh, B., Narayan, K., & Chand, A. (2025). Impact of financial technology on bank profitability and risk-taking.
14. Cheng, C., & Huang, Q. (2020). Blockchain in auditing systems: Enhancing reliability and efficiency.
15. Garg, P., Gupta, B., Kapil, K. N., Sivarajah, U., & Gupta, S. (2025). Blockchain capabilities and organizational performance in Indian banking.
16. Georgiou, I. (2024). Blockchain in accounting and auditing: Opportunities and challenges.
17. Ilbiz, E. (2020). Blockchain as a disruptive innovation in knowledge risk management.
18. Kokina, J., Mancha, R., & Pachamanova, D. (2017). Blockchain adoption and implications for accounting.
19. Nofal, M., Al-Hiyari, A., Alrawashdeh, N., et al. (2024). Integration of blockchain, IoT, and XBRL in accounting systems: A systematic review.
20. Omoteso, K. (2022). Future of auditing with blockchain-enabled assurance systems.



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**(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)**

21. Prokopenko, O., Koldovskiy, A., Khalilova, M., Orazbayeva, A., & Machado, J. (2024). Blockchain in financial accounting: Efficiency and transparency.
22. Rane, N., Achari, A., & Choudhary, S. (2022). Impact of fintech and blockchain on banking and financial services.
23. Regueiro, C., Sanjuán, A. M., et al. (2024). Blockchain-based evidence systems in auditing and certification.
24. Schmitz, J., & Leoni, G. (2019). Accounting and auditing at the time of blockchain technology.
25. Sheikh, R., Miah, S. J., Skinner, J., & Cook, P. (2025). Blockchain adoption in the banking sector: A content analysis.
26. Tan, B. S., & Low, K. Y. (2019). Blockchain as a database engine in accounting systems.
27. Vergne, Y. Y., Hsieh, Y. Y., Anderson, P., Lakhani, K., & Reitzig, M. (2018). Blockchain and the emergence of decentralized organizations.
28. Yermack, D. (2017). Corporate governance and blockchain technology.
29. Zhang, Y., Ma, Z., & Meng, J. (2025). Auditing in the blockchain environment: A literature review.



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