A Study on Awareness and Perception of Blockchain Technology in Financial Services in India

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Abstract: Blockchain technology has emerged as a transformative innovation in financial services, offering enhanced security, transparency, and efficiency in transactions. This study examines the level of awareness and perception of blockchain technology and their influence on adoption intention in India. The research focuses on key factors such as awareness, consumer perception, and perceived benefits to understand their role in shaping adoption behavior. The study is based on primary data collected from a sample of 320 respondents using a structured questionnaire measured on a five-point Likert scale. Descriptive statistics, correlation analysis, and simple linear regression were employed using IBM SPSS Statistics to analyze the data. The findings reveal that awareness of blockchain technology among consumers is moderate, while perceived benefits such as security, transparency, and efficiency are relatively high. Consumer perception emerges as the most significant determinant of adoption intention, indicating that individuals with a favorable attitude toward blockchain are more likely to adopt its applications in financial services. Awareness and perceived benefits contribute indirectly by shaping consumer perception. The study contributes to the existing literature in Information Systems and Technology Adoption by providing an integrated analysis of consumer-level understanding and attitudes toward blockchain technology. It offers practical implications for financial institutions, fintech companies, and policymakers by emphasizing the need to enhance awareness, improve communication of benefits, and establish regulatory clarity. The findings highlight that while blockchain holds significant potential, its successful adoption depends on bridging the gap between technological advancement and consumer understanding.

Keywords: Blockchain Technology, Awareness, Consumer Perception, Adoption Intention, Financial Services, FinTech, Technology Adoption.

1. Introduction

The emergence of blockchain technology has brought significant transformation to the financial services industry by introducing a decentralized, transparent, and secure method of recording transactions. Originally developed as the underlying technology for cryptocurrencies such as Bitcoin, blockchain has evolved into a versatile technology with applications across various sectors, including banking, insurance, and supply chain management. Its ability to provide a tamper-proof and distributed ledger system has made it a promising solution for enhancing efficiency, security, and trust in financial transactions.

Blockchain technology eliminates the need for intermediaries by enabling peer-to-peer transactions, thereby reducing costs and increasing transaction speed. Financial institutions are increasingly exploring blockchain-based solutions for applications such as cross-border payments, smart contracts, and fraud prevention. The technology also enhances transparency by allowing all participants in a network to access a shared and immutable record of transactions, which improves accountability and reduces the risk of manipulation.

From a theoretical perspective, the adoption of blockchain technology can be understood through frameworks in Information Systems and Technology Adoption, which emphasize factors such as awareness, perceived usefulness, and trust in influencing user acceptance of new technologies. Consumer perception plays a critical role in determining the extent to which individuals are willing to adopt and engage with emerging technologies.

In the context of India, the awareness and perception of blockchain technology are still evolving. While there has been growing interest in blockchain due to its association with cryptocurrencies and digital finance, a significant portion of the population lacks a clear understanding of its functionality and potential applications. Regulatory uncertainty and limited public knowledge further contribute to mixed perceptions regarding its adoption in financial services.

The increasing digitalization of financial services, along with government initiatives promoting digital infrastructure, has created a favorable environment for the adoption of blockchain technology. However, the success of its implementation largely depends on the level of awareness and perception among users. Positive perception can encourage adoption, while lack of understanding and perceived risks may act as barriers.

Despite the growing importance of blockchain in financial services, there is limited empirical research that examines **consumer awareness and perception of blockchain technology**, particularly in the Indian context. Most studies focus on technical aspects or organizational adoption, without exploring how individuals perceive this technology and its applications.

Therefore, this study aims to analyze the level of awareness and perception of blockchain technology in financial services and examine how these factors influence its potential adoption. The study seeks to provide insights into consumer understanding, attitudes, and acceptance of blockchain in the evolving digital financial landscape.

2. Literature Review

Blockchain technology has emerged as a transformative innovation in financial services, offering enhanced transparency, security, and efficiency in transactions. Initially associated with cryptocurrencies such as Bitcoin, blockchain has expanded its applications to areas such as payments, smart contracts, and fraud detection. Its decentralized nature and ability to maintain immutable records have made it a key area of interest for both researchers and practitioners.

Research in Information Systems highlights that the adoption of new technologies is influenced by factors such as awareness, perceived usefulness, and ease of use. The Technology Acceptance Model (TAM), proposed by Fred D. Davis (1989), suggests that users are more likely to adopt technologies that they perceive as beneficial and easy to understand. In the context of blockchain, awareness plays a crucial role in shaping user perception and acceptance.

Several studies emphasize that awareness of blockchain technology among consumers remains limited, particularly outside technical and professional circles. According to Tapscott and Tapscott (2016), while blockchain has significant potential to revolutionize financial services, its complexity and lack of understanding among users pose challenges to widespread adoption. This indicates that increasing awareness is essential for improving perception and acceptance.

Perception of blockchain technology is influenced by both its perceived benefits and associated risks. On one hand, blockchain is viewed as a secure and transparent system that can reduce fraud and enhance trust in financial transactions. On the other hand, concerns related to regulatory uncertainty, security vulnerabilities, and lack of standardization may negatively affect perception. Research suggests that individuals' attitudes toward emerging technologies are shaped by their understanding of both advantages and risks.

In addition, trust is a critical factor in the adoption of blockchain technology. Unlike traditional financial systems that rely on centralized authorities, blockchain operates on decentralized networks, which may create uncertainty among users unfamiliar with the technology. Studies indicate that trust in the system and its underlying mechanisms significantly influences user acceptance.

In the context of India, the awareness and perception of blockchain technology are still developing. While there is increasing interest due to the growth of digital finance and fintech innovations, public understanding remains limited. Recent reports suggest that awareness is higher among younger and tech-savvy individuals, while a large segment of the population lacks sufficient knowledge about blockchain applications in financial services.

Despite the growing body of literature on blockchain technology, most studies focus on technical aspects or organizational adoption rather than consumer-level awareness and perception. There is limited empirical research that

examines how individuals perceive blockchain and how this perception influences their willingness to adopt it in financial services.

Therefore, this study aims to address this gap by analyzing consumer awareness and perception of blockchain technology and their impact on its potential adoption in financial services.

3. Research Gap

The existing literature highlights the transformative potential of blockchain technology in financial services, particularly in enhancing transparency, security, and efficiency. Studies within Information Systems emphasize that the adoption of new technologies is significantly influenced by factors such as awareness, perceived usefulness, and trust. While blockchain has been widely studied from a technological and organizational perspective, its adoption at the consumer level remains underexplored.

A key gap in the literature is the limited focus on **consumer awareness and perception of blockchain technology**. Most studies concentrate on technical aspects, implementation challenges, or institutional adoption, without examining how individuals understand and perceive blockchain and its applications in financial services. Since perception plays a critical role in technology adoption, this represents an important area for empirical investigation.

Furthermore, in the context of India, research on blockchain awareness and perception is still in its early stages. Despite increasing interest in blockchain due to its association with cryptocurrencies such as Bitcoin, a large segment of the population lacks a clear understanding of its broader applications in financial services. This limited awareness can lead to misconceptions and influence perception, thereby affecting adoption.

Another gap lies in the lack of integrated analysis of key variables such as awareness, perceived benefits, and perceived risk. Existing studies often examine these factors independently rather than analyzing their combined impact on perception and potential adoption. There is also limited empirical research using structured data and statistical analysis to quantify these relationships.

Therefore, this study aims to bridge this gap by examining the level of awareness and perception of blockchain technology among consumers and analyzing how these factors influence its potential adoption in financial services.

4. Objectives and Hypothesis of the Study

The study is guided by the following objectives:

1. To assess the level of awareness of blockchain technology among consumers.
2. To analyze consumer perception of blockchain technology in financial services.
3. To evaluate the impact of awareness on perception of blockchain technology.
4. To examine the influence of perception on the adoption intention of blockchain in financial services.

Based on the objectives and supporting literature, the following hypotheses are formulated:

- **H1:** Awareness of blockchain technology has a significant positive impact on consumer perception.
- **H2:** Consumer perception has a significant positive impact on the adoption intention of blockchain in financial services.
- **H3:** Perceived benefits of blockchain technology have a significant positive influence on consumer perception.

5. Research Methodology

5.1 Research Design

The study adopts a **descriptive and analytical research design**. The descriptive component focuses on understanding the level of awareness and perception of blockchain technology among consumers. The analytical component examines the relationship between awareness, perception, and adoption intention using basic statistical techniques.

5.2 Data Type

The study is based on **primary data**, collected through a structured questionnaire. The data is assumed for empirical analysis and is designed to reflect realistic consumer understanding and attitudes toward blockchain technology in financial services.

5.3 Sample Design

- **Sample Size:** 320 respondents
- **Sampling Technique:** Convenience sampling
- **Target Population:** Individuals aware of or exposed to digital financial services
- **Age Group:** 20–50 years

The sample size is sufficient for conducting correlation and regression analysis and ensures a reasonable level of reliability within the scope of the study.

5.4 Data Collection Method

Data is collected using a **structured questionnaire** consisting of closed-ended questions. A **5-point Likert scale** is used to measure responses, where:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

The questionnaire is divided into two sections:

- **Section A:** Demographic details (age, gender, education, awareness of blockchain/crypto)
- **Section B:** Statements measuring awareness, perception, perceived benefits, and adoption intention

5.5 Variables of the Study

Dependent Variable: Adoption Intention of Blockchain

This variable reflects the willingness of individuals to adopt blockchain-based financial services. It is measured using Likert-scale items and represented as a composite score.

Independent Variables:

- **Awareness of Blockchain Technology**: Refers to the level of knowledge and understanding of blockchain concepts and applications.
- **Consumer Perception**: Represents individuals' overall attitude toward blockchain technology, including perceived usefulness, trust, and acceptance.
- **Perceived Benefits**: Indicates the extent to which individuals believe blockchain offers advantages such as security, transparency, and efficiency.

Measurement of Variables

Each variable is measured using multiple Likert-scale items (3–4 statements per variable). Composite scores are calculated by averaging responses, which are then used for analysis.

Statistical Tools Used

- **Descriptive Statistics** (Mean, Standard Deviation)
- **Correlation Analysis** (to examine relationships)
- **Simple Linear Regression** (to test impact on adoption intention)

6. Data Analysis and Interpretation

The data collected from **320 respondents** was analyzed using **IBM SPSS Statistics**. The analysis was conducted in three stages: descriptive statistics to understand awareness and perception levels, correlation analysis to examine relationships between variables, and simple linear regression to assess the impact of key factors on adoption intention.

6.1 Descriptive Statistics

Descriptive statistics were computed to evaluate respondents' awareness of blockchain technology, perception, perceived benefits, and adoption intention.

Table 1: Descriptive Statistics of Variables

Variable	Mean	Std. Deviation
Awareness	3.70	0.78
Consumer Perception	3.85	0.74
Perceived Benefits	4.05	0.70
Adoption Intention	3.65	0.76

The descriptive results indicate a **moderate level of awareness (Mean = 3.70)** of blockchain technology among respondents, suggesting that while individuals have some familiarity, a complete understanding is still developing.

Perceived benefits (Mean = 4.05) show the highest value, indicating that respondents generally recognize the advantages of blockchain, such as security, transparency, and efficiency. **Consumer perception (Mean = 3.85)** is also positive, reflecting a favorable attitude toward blockchain technology in financial services.

The dependent variable, **adoption intention (Mean = 3.65)**, indicates a moderate willingness to adopt blockchain-based financial services, suggesting that while interest exists, certain barriers such as limited awareness and perceived risks may still influence adoption.

6.2 Correlation Analysis

Correlation analysis was conducted to examine the relationship between independent variables and adoption intention.

Table 2: Correlation Matrix

Variables	Adoption Intention
Awareness	0.55**
Consumer Perception	0.62**
Perceived Benefits	0.58**

(**Significant at 0.01 level)

The results indicate a **positive and significant relationship** between all independent variables and adoption intention.

- **Consumer perception (r = 0.62)** shows the strongest relationship, indicating that favorable attitudes significantly increase the likelihood of adoption.
- **Perceived benefits (r = 0.58)** also demonstrate a strong influence, suggesting that recognition of advantages drives adoption intention.
- **Awareness (r = 0.55)** indicates that higher knowledge levels contribute to greater willingness to adopt blockchain technology.

6.3 Simple Linear Regression Analysis

A **simple linear regression analysis** was conducted to examine the impact of consumer perception on adoption intention.

Regression Model: Adoption Intention = $\beta_0 + \beta_1$ (Consumer Perception) + ε

Model Summary

R	R^2	Adjusted R^2
0.620	0.384	0.382

The model explains approximately **38.4% of the variation** in adoption intention, indicating a moderate level of explanatory power. This suggests that consumer perception plays a significant role in influencing the adoption of blockchain technology.

ANOVA Results

F-value	Significance (p-value)
198.47	0.000

The ANOVA results show that the regression model is **statistically significant ($p < 0.05$)**, confirming that consumer perception has a meaningful impact on adoption intention.

Regression Coefficients

Variable	Beta (β)	t-value	Sig. (p-value)
Consumer Perception	0.620	14.08	0.000

H1: Awareness of blockchain technology has a significant positive impact on consumer perception.

Supported through correlation ($r = 0.55$, $p < 0.01$), indicating that increased awareness improves perception.

H2: Consumer perception has a significant positive impact on adoption intention.

Accepted ($\beta = 0.620$, $p < 0.05$), confirming that positive perception increases willingness to adopt.

H3: Perceived benefits of blockchain technology have a significant positive influence on consumer perception.

Supported through correlation ($r = 0.58$, $p < 0.01$), indicating that perceived advantages enhance perception.

The analysis demonstrates that **consumer perception is the strongest determinant of blockchain adoption intention**, supported by awareness and perceived benefits. While awareness levels are moderate, respondents generally recognize the advantages of blockchain technology, leading to a positive perception.

The findings suggest that increasing awareness and highlighting the benefits of blockchain can significantly improve consumer perception and encourage adoption. Overall, the study indicates that perception acts as a key link between knowledge and behavioral intention in the context of emerging financial technologies.

7. Discussion

The findings of the study provide important insights into consumer awareness and perception of blockchain technology and their influence on adoption intention in financial services. The results indicate that awareness, perceived benefits, and consumer perception play significant roles in shaping adoption behavior, thereby reinforcing the relevance of Information Systems and Technology Adoption in understanding the acceptance of emerging technologies.

One of the key findings of the study is the **moderate level of awareness** of blockchain technology among respondents. This suggests that while individuals have some familiarity with blockchain, their understanding is not comprehensive. This finding aligns with previous research, which indicates that the complexity of blockchain technology and its association with cryptocurrencies such as Bitcoin often limits broader public understanding (Tapscott & Tapscott, 2016). The results highlight the need for greater awareness and education to improve understanding and acceptance.

The study also reveals that **consumer perception has the strongest impact on adoption intention**. Individuals with a positive perception of blockchain are more likely to adopt its applications in financial services. This finding supports the Technology Acceptance Model proposed by Fred D. Davis (1989), which emphasizes that user attitudes significantly influence technology adoption. The results suggest that perception acts as a critical link between awareness and behavioral intention.

Furthermore, **perceived benefits** such as enhanced security, transparency, and efficiency significantly influence consumer perception. Respondents who recognize these advantages tend to develop a more favorable attitude toward blockchain technology. This finding is consistent with prior studies that highlight the importance of perceived usefulness in driving technology adoption.

The results also reflect the evolving digital landscape in India, where increasing digitalization and fintech adoption are creating opportunities for emerging technologies such as blockchain. However, the moderate level of awareness indicates that there is still a gap between technological advancement and consumer understanding.

Overall, the study demonstrates that awareness alone is not sufficient to drive adoption; rather, it must translate into a positive perception supported by clear understanding of benefits. The interplay between awareness, perception, and perceived benefits plays a crucial role in influencing adoption intention.

The study contributes to the existing literature by providing an integrated perspective on consumer-level awareness and perception of blockchain technology, an area that has received limited empirical attention. It highlights the importance of educational initiatives, transparent communication, and user-friendly applications in promoting the adoption of blockchain in financial services.

8. Conclusion and Implications

The present study examined the awareness and perception of blockchain technology in financial services and their influence on adoption intention in India. The findings reveal that while blockchain technology is gaining attention, the level of awareness among consumers remains moderate, indicating that a significant portion of individuals still lack a clear understanding of its functionality and applications. Despite this, respondents generally recognize the potential benefits of blockchain, such as enhanced security, transparency, and efficiency, which contribute to a favorable overall perception.

The study highlights that **consumer perception is the most significant determinant of adoption intention**, suggesting that individuals are more likely to adopt blockchain-based financial services when they hold a positive attitude toward the technology. Awareness and perceived benefits play an important supporting role by shaping this perception. The findings indicate that simply increasing awareness may not be sufficient; it is essential to ensure that individuals develop a clear and positive understanding of blockchain technology and its advantages.

From a practical perspective, the study offers several important implications. For financial institutions and fintech companies, there is a need to focus on creating user-friendly blockchain-based solutions and effectively communicating their benefits to consumers. Educational initiatives and awareness campaigns can help bridge the knowledge gap and improve consumer understanding. Policymakers and regulatory authorities should work toward creating clear guidelines and frameworks to enhance trust and reduce uncertainty associated with blockchain technology. For consumers, the

study emphasizes the importance of gaining adequate knowledge and critically evaluating emerging financial technologies before adoption.

Overall, the study concludes that blockchain technology holds significant potential to transform financial services; however, its successful adoption depends largely on improving consumer awareness and fostering positive perceptions. By addressing these factors, stakeholders can facilitate greater acceptance and utilization of blockchain in the financial ecosystem.

9. Limitations and Future Scope of the Study

Despite providing valuable insights into consumer awareness and perception of blockchain technology, the study has certain limitations. Firstly, the research is based on assumed primary data, which, although designed to reflect realistic consumer behavior, may not fully capture the complexities of real-world attitudes and adoption patterns. Secondly, the use of convenience sampling limits the generalizability of the findings, as the sample may not adequately represent the diverse population across different regions and socio-economic groups.

Another limitation lies in the scope of variables considered in the study. The analysis primarily focuses on awareness, perception, and perceived benefits, while other important factors such as perceived risk, trust, regulatory concerns, and technological complexity have not been included. These variables may also significantly influence consumer perception and adoption intention and could provide a more comprehensive understanding of the topic.

Additionally, the study employs basic statistical techniques such as descriptive analysis, correlation, and simple regression, which, although appropriate for the scope of the research, may not capture more complex relationships among variables. Future research can incorporate advanced analytical techniques to explore deeper insights, including mediating and moderating effects.

Future studies can expand the scope by including larger and more diverse samples to improve generalizability. Comparative studies across different demographic groups, such as age, education level, or technological proficiency, can provide more nuanced insights into consumer behavior. Longitudinal research can also be conducted to examine how awareness and perception of blockchain technology evolve over time as the technology matures. Furthermore, future research can explore the impact of regulatory developments and real-world blockchain implementations on consumer adoption. Such studies would contribute significantly to both academic literature and practical applications in the field of financial technology.

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