Blockchain Technology in Indian Banks: Employees' Awareness, Perception, and Influencing Factors

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ABSTRACT

Blockchain technology is increasingly recognized as a transformative innovation in banking; however, empirical research has largely overlooked the role of employees, who are central to its implementation. Addressing this gap, this study examines employees' awareness, perceptions, and behavioral intentions toward blockchain adoption in the Indian banking sector. Using a quantitative approach, primary data were collected from 200 employees of selected public and private sector banks. The study extends the Technology Acceptance Model (TAM) by incorporating perceived trust, cost, strategic value, risk, and security. Descriptive statistics, Pearson's Chi-square test, and multiple linear regression analysis were employed. The findings reveal significant differences in blockchain awareness across demographic and professional characteristics. Regression results indicate that perceived ease of use, trust, cost, and strategic value positively influence employees' attitudes, while perceived usefulness, risk, and security show no significant effect. Employees' attitudes strongly predict their behavioral intention to adopt blockchain. The study provides employee-centric insights for effective blockchain implementation in Indian banks.

Keywords: Blockchain Technology; Indian Banking Sector; Employee Awareness; Technology Acceptance Model; Behavioral Intention

1. INTRODUCTION:

1.1 Blockchain's Evolution and Relevance in Banking
With the introduction of a decentralized, transparent, and secure digital ledger system, blockchain technology has become a game-changer in the financial transaction industry. Blockchain was first made possible by cryptocurrencies like Bitcoin and was intended to facilitate peer-to-peer transactions without the need for middlemen or central authorities. Because of its intrinsic qualities of immutability, transparency, decentralization, and cryptographic security, its use has spread over time beyond cryptocurrencies to industries including banking, healthcare, supply chain management, and governance.

Blockchain presents a viable substitute for conventional centralized systems in the banking industry that depend on numerous middlemen for transaction validation and settlement. High operating expenses, delayed settlements, data silos, and susceptibility to fraud and cyberattacks are common problems with conventional banking systems. By providing real-time transaction processing, automatic verification, and tamper-resistant record keeping, blockchain technology overcomes these constraints and boosts the effectiveness and confidence of financial systems.

Blockchain adoption in banking is still slow, despite its technological benefits. Regulatory uncertainty, problems integrating with legacy banking systems, a lack of technological know-how, and opposition to organizational change especially from staff members used to conventional banking operations—are some of the main obstacles. These difficulties emphasize how crucial it is to look at organizational and psychological aspects of blockchain adoption in addition to technological preparedness.

1.2 Blockchain Adoption in the Indian Banking Sector
Financial technology (FinTech), mobile banking, digital payment systems, and regulatory initiatives are driving the fast digital transformation of India's banking industry. To improve efficiency, security, and transparency in banking processes, organizations like the Reserve Bank of India (RBI) have aggressively investigated cutting-edge technology, such as blockchain. Applications of blockchain technology have received special attention in fields like smart contracts, trade finance, fraud detection, cross-border payments, and Know Your Customer (KYC) compliance.

To evaluate the viability of blockchain-based solutions, a number of prominent Indian institutions have started pilot programs, including State Bank of India (SBI), HDFC Bank, ICICI Bank, and Axis Bank. These programs seek to enhance data security, decrease documentation errors, and shorten processing times. Nevertheless, blockchain adoption in Indian banks is still in its experimental and early stages of implementation despite these attempts.

The perspective and awareness of bank personnel is one of

the key elements influencing adoption. When it comes to operationalizing and deploying new technologies, employees are crucial. While older or traditionally trained workers may view blockchain as complicated and disruptive, research shows that younger workers and those with prior experience with digital banking systems are typically more open. Therefore, for blockchain integration in Indian banks to be successful, it is crucial to comprehend employee awareness, attitudes, and perspectives.

1.3 Types of Blockchain Technology

Access permissions and transaction validation techniques can be used to classify blockchain technology, each of which has unique benefits and drawbacks for financial applications:

- Permissionless Blockchains: These are public networks in which anybody can join, verify transactions, and help create new blocks. Despite their high level of openness and decentralization, their scalability and regulatory issues make them generally inappropriate for banking.

- Permissioned Blockchains: These systems are better suited for banking institutions where privacy, control, and compliance are crucial because they limit participation to approved entities.

- Public Blockchains: Anyone can view and validate transactions on public blockchains. Despite encouraging transparency, their openness raises questions about data protection and confidentiality in banking.

- Private Blockchains: Private blockchains provide more control, privacy, and operational efficiency while restricting access and transaction visibility to certain parties. These features are in line with banking regulations.

Due to operational control, data confidentiality, and regulatory compliance, permissioned and private blockchain networks are preferred by Indian banks.

1.4 Necessity of Blockchain Technology for Banks

From manual record-keeping to fully digitalized banking services, and from barter systems to fiat currency, the banking industry has consistently changed due to technical improvements. The efficiency and convenience of banking have been greatly increased by innovations like automated teller machines (ATMs), internet banking, mobile banking, Real-Time Gross Settlement (RTGS), and electronic clearing systems.

The next stage of this growth is represented by blockchain technology. Blockchain has the ability to remove unnecessary middlemen, lower transaction costs, and increase stakeholder confidence by enabling distributed ledger systems that record transactions in a safe, unchangeable, and transparent manner. By enhancing speed, accuracy, and accountability, its decentralized design has the potential to completely transform financial services.

Gupta and Gupta draw attention to the increasing prevalence of virtual payment systems and digital wallets, with internet companies like Apple, Google, and PayPal providing substitute financial services. Additionally, the growing significance of blockchain in international financial ecosystems were highlighted by Facebook's proposed blockchain-based digital currency, Libra (later Diem). Traditional banks must embrace new technology in order to stay relevant and competitive as FinTech companies continue to innovate at a rapid pace.

In this situation, banks must use blockchain technology as a strategic need rather than just a technological alternative. Since bank workers play a major role in facilitating technological transformation, it becomes imperative to comprehend their awareness, perspectives, and behavioral intentions. Therefore, this study aims to investigate blockchain adoption in Indian banks from the viewpoint of the staff, offering insights that can help with the development and implementation of appropriate policies.

2. Literature Review

2.1 Awareness and Understanding of Blockchain Technology among Bank Employees

For blockchain technology to be successfully adopted, bank staff must be aware of and comprehend it. As a decentralized and distributed ledger system, blockchain necessitates not just technological preparedness but also adequate human knowledge and cognitive acceptability within enterprises (Nakamoto, 2008). Numerous studies highlight how workers' awareness levels have a big impact on the banking industry's adoption and efficient use of developing technology (Davis, 1989).

According to existing research, banking professionals' awareness of blockchain technology differs significantly depending on their age, education, job title, and other professional and demographic traits. Compared to senior personnel who are used to traditional banking procedures, younger employees and those with higher educational backgrounds or experience to digital banking platforms typically show greater knowledge and grasp of blockchain principles (Sharma et al., 2020). Similarly, due to increased exposure to technology advancements and competitive pressures, staff of private sector banks frequently have higher awareness levels (Gupta & Gupta, 2021).

Blockchain adoption in banks is significantly hampered by a lack of knowledge and a lack of training opportunities, according to studies done in emerging nations (Zheng et al., 2018). Workers frequently have only a cursory understanding of blockchain, largely connecting it to cryptocurrencies and being ignorant of its wider banking uses, including trade finance, smart contracts, and KYC automation (Casino et al., 2019). This lack of understanding lowers organizational preparedness and fosters opposition to adoption.

Empirical study also shows that employees' comprehension and adoption of blockchain technology are much improved by institutional support, training programs, and prior familiarity with digital financial systems (Venkatesh & Davis, 2000). Therefore, assessing awareness levels across organizational and demographic factors is crucial for creating capacity-building plans that work in banks.

2.2 Factors Influencing Employees' Perception toward Blockchain Technology

The attitudes and behavioral intentions of employees about the implementation of blockchain technology are significantly influenced by their views. The Technology Acceptance Model (TAM), which suggests that perceived utility and perceived ease of use are the main factors influencing technology acceptance, offers a well acknowledged theoretical framework for investigating such

perceptions (Davis, 1989). However, by adding other financial services-related characteristics including trust, risk, cost, security, and strategic value, new blockchain-focused research has expanded TAM (Hawlitschek et al., 2018).

Positive employee views regarding blockchain adoption have regularly been found to be strongly predicted with perceived ease of usage. When workers believe blockchain solutions are easy to use and consistent with current workflows, they are more likely to accept them (Kouhizadeh et al., 2021). On the other hand, research on perceived usefulness is inconsistent; some studies suggest little effects because of limited practical experience and ambiguous value propositions in banking institutions (Iansiti & Lakhani, 2017).

Another important factor affecting employee attitudes is trust, especially in the banking industry where data security and financial transactions are critical. According to research, adoption views are significantly impacted by employees' trust in blockchain's capacity to guarantee safe, transparent, and impenetrable transactions (Yermack, 2017). On the other hand, when employees lack in-depth technical knowledge, perceived risk and security concerns do not necessarily have a major negative impact, indicating that awareness mediates the perception–adoption link (Zheng et al., 2018).

Studies on blockchain adoption have focused more on perceived strategic benefit and cost issues. When blockchain is thought to lower transaction costs, increase operational effectiveness, and offer long-term strategic advantages, banks and employees are more likely to favor its implementation (Casino et al., 2019). Employee views have been proven to be more influenced by strategic value than by strictly technical issues, especially when it comes to competitive positioning and digital transformation (Queiroz & Fosso Wamba, 2019). Empirical research in the Indian banking sector is still few, but it suggests that past exposure to fintech solutions, organizational culture, and digital maturity all influence workers' attitudes (Gupta & Gupta, 2021). This emphasizes the necessity for context-specific research looking at perceptual elements impacting Indian bank workers' adoption of blockchain technology.

3. Research Methodology

3.1 Research Gap
Even if blockchain technology is becoming more and more popular in the banking industry, most of the research that has been done so far has concentrated on its technical architecture, security features, and customer-focused applications. Despite the fact that employees are the main consumers and implementers of financial technologies, there has been little scholarly focus on understanding blockchain adoption from their point of view.

Additionally, although the Technology Acceptance Model (TAM) has been extensively used to research the adoption of information systems, its application to blockchain technology in the Indian banking environment has not received enough attention. In order to analyze employees' attitudes and behavioral intents, previous research has infrequently combined traditional TAM variables with important categories including felt security, trust, strategic value, perceived risk, and cost considerations.

Furthermore, despite the fact that public and private sector banks in India differ greatly in terms of operational organization, technology preparedness, and employee exposure to innovation, there are little comparative insights available. By experimentally analyzing employees' knowledge and opinions about blockchain technology and determining the major variables driving its adoption in Indian banks, this study aims to close these gaps.

3.2 Research Objectives
The present study is undertaken with the following objectives:
- To evaluate the level of awareness and understanding of blockchain technology among employees of selected banks.

- To identify and analyze the factors influencing employees' perceptions and attitudes towards blockchain technology in the Indian banking sector.

By tackling these goals, the study hopes to increase the TAM framework's applicability and offer useful information to assist successful blockchain adoption plans in Indian banks.

3.3 Research Design and Approach
In order to comprehensively analyze employees' awareness, views, and behavioral intentions about blockchain adoption, the study uses a quantitative research design. Because it allows for the objective measurement of variables and statistical testing of the correlations between dependent and independent factors found in the literature, a quantitative approach is acceptable.

Data is gathered from respondents at a specific point in time using a cross-sectional survey design. The prevailing attitudes and perception patterns among banking staff can be identified using this design. To fully evaluate blockchain adoption, the survey integrates both classic TAM characteristics (perceived utility and perceived ease of use) and extended aspects including perceived security, perceived risk, trust, strategic value, and cost considerations.

Before the major survey, a pilot study was carried out to guarantee the measurement instrument's validity and reliability. Pilot respondents' comments helped to improve the clarity and uniformity of the questions across measurement scales.

3.4 Sampling and Data Collection
The study is based on original data gathered from 200 workers in Indian banks, both public and private. To guarantee sufficient representation of workers across various titles, experience levels, and organizational hierarchies, a stratified random selection technique was used.

In order to increase response rates and include participants

with different levels of digital ability, data was gathered using a standardized questionnaire that was distributed both in-person and online. In order to promote truthful and objective answers, respondents were guaranteed anonymity and secrecy. Closed-ended items on a five-point Likert scale, ranging from strong disagreement to strong agreement, were included in the questionnaire. The tool evaluated respondents' impressions of important contributing factors, awareness of blockchain technology, and demographic profiles.

Twenty banking professionals participated in a pre-test to assess the questionnaire's dependability and readability. Before the final deployment, a few small changes were made. To capture a variety of operational viewpoints, an attempt was made to include respondents from various managerial levels, including managers, senior managers, and assistant managers.

3.5 Data Analysis Techniques
The collected data was analyzed using the following statistical methods to fulfil the research objectives:

- **Descriptive Statistics**: The distribution of important perception factors, such as perceived utility, perceived ease of use, perceived security, trust, strategic value, perceived risk, and cost concerns, are summarized using it. This gives a general picture of how employees feel about blockchain technology.

- **Chi-Square Test of Independence**: It is used to investigate the relationship between employees' level of blockchain technology awareness and their professional and demographic traits. This test ascertains whether there are notable differences in awareness among several categories, including age, gender, education, designation, work experience, and bank type.

- **Multiple Linear Regression Analysis**: It is used to assess how employees' attitudes toward blockchain adoption are affected by the perception variables (perceived usefulness, perceived ease of use, perceived security, trust, strategic value, perceived risk, and cost considerations). After adjusting for other factors, this analysis finds the most important determinants of employees' behavioral desire to adopt blockchain technology.

These analytical methods make it possible to conduct a systematic investigation of workers' opinions and offer factual data to back up conclusions and suggestions for blockchain implementation in the Indian banking industry.

3.6 Testing hypothesis
H_o1: There is no significant relationship between the awareness level of employees towards blockchain technology in banks and their age.

H_o2: There is no significant relationship between the awareness level of employees towards blockchain technology in banks and their educational qualifications.

H_o3: There is no significant relationship between the awareness level of employees towards blockchain technology in banks and their gender.

H_o4: There is no significant relationship between the awareness level of employees towards blockchain technology in banks and their designation.

H_o5: There is no significant relationship between the awareness level of employees towards blockchain technology in banks and their work experience.

H_o6: There is no significant relationship between employees' awareness of blockchain technology and the type of bank (public or private).

H_o7: Perceived usefulness has no significant positive effect on employees' attitudes toward blockchain technology adoption.

H_o8: Perceived ease of use has no significant positive effect on employees' attitudes toward blockchain technology adoption.

H_o9: Perceived risk has no significant negative effect on employees' attitudes toward blockchain technology adoption.

H_o10: Perceived trust has no significant positive effect on employees' attitudes toward blockchain technology adoption.

H_o11: Perceived strategic value has no significant positive effect on employees' attitudes toward blockchain technology adoption.

H_o12: Perceived cost has no significant negative effect on employees' attitudes toward blockchain technology adoption.

H_o13: Perceived security has no significant positive effect on employees' attitudes toward blockchain technology adoption.

H_o14: Employees' attitudes toward blockchain technology adoption have no significant positive effect on their behavioral intention to use blockchain technology.

4. Findings and Perspectives: The public and private banks that comprised the study's sample were PNB, SBI, Canara, Bank of Baroda, Union Bank, and HDFC, ICICI, Kotak Mahindra, Axis Bank, and IndusInd Bank. The researchers distributed 210 copies of the questionnaires to the respondents. Out of the 205 questionnaires that respondents submitted, five people did not complete the questions and personal information sections. 200 questionnaires were therefore used in the analysis. While Table 1 shows the respondents' response rates to the questionnaire distribution.

Table 1: Analysis of Questionnaires return.

Questionnaire	Number	Percent (%)
Amount distributed	210	100.00

Amount Returned	205	97.62
Filled Incomplete	5	2.38
Total	200	95.24

OBJECTIVE 1: - To Evaluate the level of awareness and understanding about block chain technology among employees' banks under study.

Table 2: Hypothesis Testing

	Pearson Chi Square	Sig. (2-tailed)	N of Valid Cases	Result
Gender	**13.31**	**.040**	**200**	**Rejected**
Age	**70.96**	**.000**	**200**	**Rejected**
Designation	**46.84**	**.000**	**200**	**Rejected**
Experience	**53.09**	**.000**	**200**	**Rejected**
Education	**19.07**	**.000**	**200**	**Rejected**
Types of Banks	**167.26**	**.000**	**200**	**Rejected**

Table 3: Hypothesis testing results

Hypothesis	**Results**
There is no significant relationship among awareness level of employees towards blockchain technology in banks with reference to their Age.	**Rejected**
There is no significant relationship among awareness level of employees towards blockchain technology in banks with reference to their educational qualifications.	**Rejected**
There is no significant relationship among awareness level of employees towards blockchain technology in banks with reference to their gender.	**Rejected**
There is no significant relationship among awareness level of employees towards blockchain technology in banks with reference to their Designation.	**Rejected**
There is no significant relationship among awareness level of employees towards blockchain technology in banks with reference to their work experience.	**Rejected**
There is no significant relationship between employees' awareness of blockchain technology and the type of bank (public or private).	**Rejected**

Since all the null hypotheses were rejected, it indicates that employees' awareness levels towards blockchain technology significantly vary across different demographic and professional variables, including age, education, gender, designation, work experience, and type of bank. This suggests that awareness is not uniform and is influenced by these factors, implying the need for targeted awareness and training programs within the banking sector to promote blockchain adoption more effectively. The results of hypothesis testing revealed that in all cases, the p-value obtained was less than the significance level ($\alpha = 0.05$). Hence, all null hypotheses were rejected. This indicates that there are significant differences or relationships among the groups tested.

OBJECTIVE 2: - To identify and analyze the factors influencing employees' perception about block-chain technology in the banking industry in India.

4.1 Model of Measurement: When employing a construction validity test via measuring instrument, the questionnaire used in this case can determine the importance of the research model under investigation. When performing a validity test, two forms of validity must be examined: criteria validity and content validity. Since the variables are drawn from globally renowned publications, which ensures their high validity, content validity is used to assess how well a questionnaire evaluates the content of a variable. On the other hand, the validity of the criteria is used to test the correlation between two variables. The methodology used in this study, a convergent validity test, is predicated on the suggestion made by Hult et al. (2018) that the loading factor value for each question indication be greater than 0.50. The latent variables and the perception of all variables as outlined by the

questionnaire's questions can be precisely observed and measured in these conditions. The results of the study indicate that the loading factor/outer loading values for all variables, as displayed in Table 4, were higher than 0.50. Therefore, all of the variables used in this study were valid.

Table 4: Outer Loading

	ATT	BI	CS	PEOU	PR	PS	PU	PSV	TR
AT1	0.693								
AT3	0.753								
AT4	0.723								
BI1		0.699							
BI2		0.562							
BI3		0.696							
CS1			0.729						
CS2			0.743						
CS3			0.759						
PE1				0.747					
PE2				0.694					
PE3				0.763					
PR1					0.763				
PR2					0.663				
PR3					0.741				
PS1						0.785			
PS2						0.693			
PS3						0.758			
PU1							0.797		
PU2							0.662		
PU3							0.712		
PV1								0.688	
PV2								0.688	
PV3								0.688	
TR1									0.712
TR2									0.723
TR3									0.701

4.2 Construct Reliability The composite reliability as indicated by Shiau et al. (2019) and the extracted mean variance as suggested by Hult et al. (2018) must be tested after the validity has been assessed by examining Factor Loading/Outer Loading. This means that, as indicated in Table 3, every construction value employed in the research model needs to have an AVE value larger than 0.5 and a CR value greater than 0.7. Consequently, all of the variables used in this study are reliable.

Table 5: Construct reliability

Construct Reliability			
	C.A	CR	AVE
Perceived usefulness	0.741	0.769	0.527
Perceived ease of use	0.723	0.779	0.541
Perceived risk	0.753	0.767	0.524
Perceived trust	0.729	0.755	0.530
Perceived cost	0.744	0.810	0.521
Perceived strategic value	0.768	0.793	0.562
Perceived security	0.761	0.819	0.535
Attitude to use block chain	0.746	0.793	0.563
Behaviour intension to use block chain technology	0.772	0.771	0.530

Table 6: Descriptive Test Results

Variables	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Perceived usefulness	200	4	14	2422	12.110	2.0269
Perceived ease of use	200	4	14	2416	12.080	2.0579
Perceived risk	200	4	15	2430	12.150	2.0927
Perceived trust	200	5	14	2426	12.130	2.0208
Perceived cost	200	4	14	2436	12.180	2.0367
Perceived strategic value	200	4	15	2429	12.145	2.1487
Perceived security	200	4	14	2443	12.215	2.0882
Attitude to use block chain	200	4	14	2448	12.240	2.0697
Behaviour intension to use block chain technology	200	3	15	2420	12.100	2.2394

Table 4 presents descriptive data for each of the variables employed in this study.

4.3 Regression Model
Table 7: Results of Multiple Linear Regression Test, Regression Models 1

Variables	Code	Direction	Coefficient	t-count	Sig.	Result	Impact
Perceived usefulness	Ho7	+	.033	.462	.645	Insignificant	No
Perceived ease of use	Ho8	+	.255	4.016	.000	Significant	Positive
Perceived risk	Ho9	+	.051	.788	.432	Insignificant	No
Perceived trust	Ho10	+	.158	2.654	.009	Significant	Positive
Perceived cost	Ho12	+	.292	4.157	.000	Significant	Positive
Perceived strategic value	Ho11	+	.166	2.787	.006	Significant	Positive
Perceived security	Ho13	+	.039	.580	.563	Insignificant	No

Dependent Variable: Attitude to use block chain * is significant at alpha 0.0

Variables	Code	Direction	Coefficient	t-count	Sig.	Result	Impact
Attitude to use block chain	Ho14	+	.856	23.260	.000	Significant	Positive

Dependent Variable: Behavior intension to use block chain technology * is significant at alpha 0.0
A conventional assumption test that included tests for multicollinearity and normalcy was then carried out. The results of the normality test using the log (10) transformation showed that the value for the model was significant. The distribution of the data was found to be regular. Furthermore, VIF values were less than 10 and tolerance levels for all independent variables in the multicollinearity test were higher than 0.1. Consequently, it may be concluded that multicollinearity was not present in any of the independent variables.

5. Results of Hypothesis Testing and Regression Analysis
5.1. The influence of perceived utility on how employees see the adoption of blockchain.
Perceived usefulness has a regression coefficient (β = 0.033) and a significance value (p = 0.645), according to regression analysis. Given that the significance value is greater than the alpha level (α = 0.05), there is no statistically significant relationship between employees' opinions regarding blockchain adoption and perceived utility. Therefore, perceived utility has no discernible effect on employee attitudes toward blockchain adoption, leading to the rejection of hypothesis (Ho7), which initially proposed a positive effect.

5.2 How employees view the adoption of blockchain is influenced by perceived ease of use.
Perceived ease of use has a regression coefficient (β = 0.255) and a significance value (p = 0.000), per the regression analysis. The significance value is below the alpha threshold (α = 0.05), indicating a statistically significant and positive link between employees' perceptions of ease of use and their attitudes toward blockchain adoption. This suggests that employees are more inclined to embrace blockchain technology with a positive attitude if they think it's easy to use. Thus, Ho8 is confirmed, showing that perceived ease of use has a beneficial impact on employees' views toward blockchain adoption.

5.3 The effect of perceived risk on how employees see the use of blockchain. Table 7 examines how employees' opinions toward blockchain adoption are impacted by perceived risk. According to the findings, the significance value (Sig.) is 0.432, surpassing the cutoff point of $\alpha = 0.05$, while the regression coefficient (Beta) is 0.051, suggesting a mild influence. Because the p-value is more than 0.05, the result is statistically insignificant. Because of this, the first hypothesis (Ho9) is not supported, indicating that concerns about perceived risk do not substantially affect opinions about blockchain adoption.

5.4 The influence of perceived trust on how employees see the implementation of blockchain. Table 7 looks at how employees' perceptions of blockchain adoption are influenced by perceived trust. With a regression coefficient (Beta) of 0.158 and a significance value (Sig.) of.009, both of which are below the cutoff point of $\alpha = 0.05$, the results demonstrate a considerable influence. The result is regarded as statistically significant since the p-value is less than 0.05. Thus, the first hypothesis (Ho10) is confirmed, indicating that perceived trust difficulties have a major impact on employees' emotions regarding blockchain implementation.

5.5 How employees view the adoption of blockchain technology in relation to perceived expenses. Table 7 looks at how employees' attitudes toward blockchain adoption are affected by perceived cost. According to the results, the significance value (Sig.) is.000, which is below the cutoff point of $\alpha = 0.05$, and the regression coefficient (Beta) is.292, showing a significant influence. Given that the p-value is less than 0.05, the outcome is statistically significant. Thus, the first hypothesis (Ho12) is confirmed, indicating that perceived cost concerns have a major impact on employees' attitudes toward blockchain adoption.

5.6 How Employee Perceptions of Blockchain Adoption Are Affected by Perceived Strategic Value Table 7 looks at how employees' attitudes toward blockchain adoption are affected by perceived cost. The regression coefficient (Beta) of.166 and the significance value (Sig.) of.006, which are below the cutoff point of $\alpha = 0.05$, suggest a significant influence, according to the results. Given that the p-value is less than 0.05, the outcome is statistically significant. As a result, the first hypothesis (Ho11) is confirmed, indicating that perceived strategic value concerns have a major impact on employees' attitudes about blockchain implementation.

5.7. How Employee Perceptions of Blockchain Adoption Are Affected by Perceived Security The regression analysis shows that perceived security has a significant value (p = 0.563) and a regression coefficient (β = 0.039). Employee perceptions of perceived security and blockchain adoption do not statistically correlate because the significance value (α = 0.05) is higher than the alpha criterion. Since employees' attitudes toward blockchain adoption are not significantly impacted by perceived security, the hypothesis (Ho13) that initially proposed a favourable effect is consequently discarded.

5.8. How employees' attitudes about blockchain adoption affect their behaviour and intention to use the technology. The regression analysis shows that employee opinions toward blockchain adoption have a regression coefficient (β=.856) and a significance value (p=.000). Given that the significance value is below the alpha level (α = 0.05), the relationship between employees' views toward blockchain adoption and their behaviour intention to use blockchain technology is statistically significant. Thus, Ho14 is supported, showing that employees' opinions and attitudes about blockchain adoption play a significant role in deciding whether or not they intend to use the technology.

6. Conclusion:
According to the study's findings, employees' knowledge of blockchain technology in Indian banks differs greatly depending on a number of professional and demographic criteria, including age, education, gender, experience, designation, and kind of bank. This shows that awareness varies and highlights the necessity of focused education and awareness initiatives to improve comprehension and preparedness for blockchain adoption.

The results also show that while perceived utility, perceived risk, and perceived security do not significantly affect employees' opinions toward blockchain adoption, perceived simplicity of use, trust, cost-effectiveness, and strategic value do. This implies that adoption is more strongly influenced by financial and strategic advantages as well as system simplicity and trust than by technical or security considerations alone.

Furthermore, employees' behavioral intention to adopt blockchain technology is strongly positively impacted by their views, underscoring the need of fostering positive perspectives. Overall, the study highlights that rather than concentrating only on technical aspects, successful blockchain adoption in banks requires on raising staff awareness, developing digital competency, and properly articulating strategic and cost-related benefits.

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