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An Empirical Study on Consumer Behaviour towards Digital Banking Services in Uttarakhand Using Technology Acceptance Model (TAM) and UTAUT2

Dr. Chaman Kumar[1]

[1]Assistant Professor & Head Department of Commerce,Govt. Degree College Kanda (Bageshwar), Uttarakhand, India.

E-Mail: clickckumar@gmail.com

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KEYWORDS

Digital Banking, Consumer Behaviour, TAM, UTAUT2, Uttarakhand, Financial Inclusion, FinTech, Structural Equation Modelling, India.

ABSTRACT

Digital technologies have revolutionized the banking sector across the world and India is not an exception to that. The use of digital banking services, however, in hilly and semi-urban regions like Uttarakhand has not yet been studied in detail. The aim of this paper is to identify determinants of consumer behaviour towards digital banking services in Uttarakhand in an empirical study with a hybrid theoretical framework of the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT2). The primary data was collected by using a structured questionnaire from 450 people in six districts of Uttarakhand. The data was analysed using Structural Equation Modelling (SEM) by Amos 24.0. The findings reveal that perceived usefulness ($\beta = 0.391$, $p < 0.001$), social influence ($\beta = 0.312$, $p < 0.01$), trust ($\beta = 0.367$, $p < 0.001$), and hedonic motivation ($\beta = 0.261$, $p < 0.05$) are significant predictors of consumers' intention to adopt digital banking services. Income level and digital literacy were determined to moderate performance expectancy. Other key challenges noted are security issues and insufficient connectivity in the hill districts. The study makes valuable theoretical contributions by bringing global technology adoption models to a geographically and culturally unique context for India, and delivers timely and relevant managerial insights for managers of banks, FinTech organisations, and policy makers who are aiming to create financial inclusivity in Uttarakhand.

Background: The current study draws on Digital Banking literature and draws on the theoretical frameworks of TAM and UTAUT2....

1. INTRODUCTION

In the twenty first century, the financial services and digital technology have experienced an unprecedented convergence. Digital banking, which includes internet banking, mobile banking, UPI-based transactions, and AI-powered financial services, has become a key pillar of the economic inclusion and modern commerce. The above initiatives have put India at the heart of the global FinTech revolution and established a strong digital financial ecosystem in the country.

While there has been significant progress on a national scale, digital banking services are far from evenly distributed geographies. The state of Uttarakhand with its rugged terrain, scattered rural settlements, seasonal tourism and largely agrarian economy is an engaging yet under-researched landscape for the study of digital banking behavior. Having a population of around 10.09 million (Census 2011, projected ~11.5 million by 2023) and having 13 districts, the situation of digital banking adoption in Uttarakhand is very different from that of metropolitan or coastal studies, where a large part of villages is located in hilly areas with limited internet connectivity.

Existing literature on digital banking in India tends to focus on the analyses of metropolitan cities such as Mumbai, Delhi, Bangalore and Hyderabad (Kumar and Sharma, 2020; Misra and Rana, 2021; Aggarwal et al., 2022). Research into the hill-state context, which has its own linguistic diversity, digital divide, financial illiteracy and infrastructural challenges is particularly rare. This study directly fills this critical gap.

In this study, authors have combined two most validated models in technology adoption research – Technology Acceptance Model (TAM) by Davis (1989) and Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) by Venkatesh et al. (2012) along with the contextual factors of digital trust, perceived security and regional digital literacy which are specific to Uttarakhand. This paper is a part of the literature that addresses the issue of technology adoption in emerging economies and its consideration of context.

.1.1 Research Objectives

The purposes of this study are:

(i) To Study the Factors affecting Consumers' intention to use Digital Banking services in Uttarakhand.

(iii) To evaluate the interaction between income level and digital literacy with the performance expectancy and behavioural intention.

(iv) To find out about the major challenges faced in the adoption of digital banking in the hilly areas of Uttarakhand.

(iv) To give policy and managerial suggestions to improve the penetration of digital banking in Uttarakhand.

1.2 Research Questions

RQ1: What are the main factors that influence consumers' digital banking service usage intentions in Uttarakhand?

RQ2: Do digital literacy act as a mediator between performance expectancy and adoption intention?

RQ3: What are structural and behavioural obstacles to digital banking in the hill districts of Uttarakhand?

2. LITERATURE REVIEW

Global and Indian Digital Banking context:

Digital banking is broadly defined as banking products and services delivered through electronic means including internet banking, mobile banking, ATMs and payment applications (Laukkanen, 2017). The COVID-19 pandemic, open banking regulations and the widespread adoption of smartphones in many markets around the world have helped to drive digital banking adoption (Demirgüç-Kunt et al., 2022; KPMG, 2022).

As part of its Annual Report for 2022-23, the NPCI reported that it had facilitated more than 83.71 billion transactions valued at ₹139.2 trillion through its UPI in India, highlighting the sheer volume of digital financial transactions (NPCI Annual Report, 2023). The RBI Digital Payments Index (RBI-DPI) has recorded strong growth in all the parameters of digital payments, reaching 395.57 in March 2023 (RBI, 2023). However, the overall achievements obscure deep regional inequalities, such as those among people in digitally excluded states like Uttarakhand, Jharkhand and Nagaland who are not seeing a commensurate share of the benefits of the digital finance revolution.

2.2 Theoretical Foundations

The Technology Acceptance Model (TAM) first suggested by Davis (1989) suggests that perceived usefulness (PU) and perceived ease of use (PEOU) are the most important factors in user acceptance of information technology. TAM has been widely tested in banking technology studies in various national settings (Pikkarainen et al., 2004; Riffai et al., 2012; Dash et al., 2021).

UTAUT2 is an extension of the original UTAUT (Venkatesh et al., 2003) that adds hedonic motivation, price value, habit, and experience as additional constructs that impact technology adoption in consumer settings (Venkatesh et al., 2012). Incorporating TAM and UTAUT2 paradigm, as suggested by several researchers, such as Shaw (2014) and Baptista & Oliveira (2015) offers a more comprehensive perspective to explain the adoption of digital banking.

The importance of digital trust – consumers' trust in digital banking systems' reliability, security, and benevolence – has been identified as a major determinant in the adoption decision (McKnight et al., 2002; Alalwan et al., 2017). Perceived security concerns is another critical construct, especially in semi-urban and rural areas with low awareness of digital fraud in India (Malhotra & Singh, 2010; RBI, 2022).

2.3 Digital Banking in Hilly and Rural India

Some studies on digital banking in the rural and semi-urban area of India reveal the fact that the adoption of technology varies based on the social norms, financial literacy and infrastructure quality (Kumbhar, 2011; Sharma & Goyal, 2015; NABARD, 2021). Poor network connectivity, lack of trust in online transactions, and language barriers are identified as key factors in the adoption of electronic transactions in a state like Himachal Pradesh and rural which are also relevant to Uttarakhand.

There is significant lack of literature available on banking in Uttarakhand. Rawat and Singh (2020) investigated the pattern of financial inclusion in Kumaon division and concluded that there are major gaps in awareness of digital payment.

According to Bisht & Nautiyal (2022), the limited adoption of mobile banking among women in Garhwal is due to gender digital access disparities. The current research is an expansion of and a significant contribution to the fledgling field.

2.4 Research Gap and Positioning

The findings of the systematic review of 87 papers from Scopus indexed journals published between 2010 and 2023 are: (i) less than 3% of the studies conducted in India's digital banking consider hill states, (ii) no study has used a combination of TAM–UTAUT2–Trust framework for the Uttarakhand region, and (iii) moderating effect of digital literacy and income on performance expectancy is not tested in this geography. This study directly tackles all three gaps.

3. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

3.1 Proposed Conceptual Model

The conceptual framework of this study combines five key constructs from the theory of TAM, UTAUT2, and two additional context-specific constructs: Digital Trust and Perceived Security. The dependent variable is considered to be Behavioural Intention to Use Digital Banking (BI) that is hypothesized to predict the Actual Use Behaviour (AUB). Moderating variables, Income Level and Digital Literacy are introduced.

3.2 Hypotheses

From the literature reviewed the following hypotheses have been made:

H1: Perceived Usefulness (PU) has a significant positive effect on Behavioural Intention to use digital banking services.

H2: Perceived Ease of Use (PEOU) has a significant positive effect on Perceived Usefulness of digital banking.

H3: Performance Expectancy (PE) has a significant positive effect on Behavioural Intention to use digital banking.

H4: Effort Expectancy (EE) has a significant positive effect on Behavioural Intention to use digital banking.

H5: Social Influence (SI) has a significant positive effect on Behavioural Intention to use digital banking.

H6: Hedonic Motivation (HM) has a significant positive effect on Behavioural Intention to use digital banking.

H7: Digital Trust (DT) has a significant positive effect on Behavioural Intention to use digital banking.

H8: Perceived Security (PS) has a significant positive effect on Digital Trust in digital banking.

H9: Facilitating Conditions (FC) have a significant positive effect on Actual Use Behaviour.

H10: Behavioural Intention to use digital banking significantly predicts Actual Use Behaviour.

H11: Income Level moderates the relationship between Performance Expectancy and Behavioural Intention.

H12: Digital Literacy moderates the relationship between Performance Expectancy and Behavioural Intention.

4. RESEARCH METHODOLOGY

4.1 Research Design

This study is conducted using a positivist research philosophy and in terms of research design is conducted using a cross sectional survey design which is used in technology adoption researches as indicated by Saunders et al (2019). The deductive approach allows the testing of theoretically derived hypotheses systematically with empirical data.

4.2 Population and Sampling

The targeted population are adults (18 years and more) with a bank account and exposed to at least one Digital Banking Service in Uttarakhand. Stratified random sampling technique was used to have proportionality of six districts namely Dehradun, Haridwar, Nainital, Almora, Pithoragarh and Chamoli. These districts have been chosen to represent a cross section of urban, semi-urban and rural geography of both Garhwal and Kumaon division.

To be consistent with Hair et al.'s (2019) suggestion that SEMs should have 10 observations per indicator variable, and according to a 15% loss rate, a minimum sample of 430 valid responses was set. Out of the 500 questionnaires sent to the students, 472 were returned and 450 of these were completed and used for analysis, giving a response rate of 90%.

4.3 Instrument Development

There were two parts to the structured interview. Information collected in Section A was demographical that included age, gender, education, monthly income, occupation, and district of residence. The 42 items that were measuring the nine latent constructs were presented on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) in Section B.

The items were adapted from validated scales for TAM constructs (Davis, 1989); UTAUT2 constructs (Venkatesh et al., 2012); Digital Trust (McKnight et al., 2002); and Perceived Security (Malhotra & Singh, 2010). In rural areas items were translated into Hindi to reduce the language measurement error.

Content validation was done by five academicians in commerce information systems department. A pilot study was conducted with 45 respondents which yielded acceptable reliability for all constructs with Cronbach's $\alpha > 0.80$, and was used to make minor refinements of the items before data collection on a large scale.

4.4 Data Analysis Techniques

For the descriptive analysis of the data, IBM SPSS Statistics 26.0 was used while IBM AMOS 24.0 was used to analyse the data using the Structural Equation Modelling (SEM) technique. Anderson & Gerbing (1988) two-step process was used, first confirmatory factor analysis was conducted for the Measurement Model to test construct validity and second, the Structural Model was estimated to test hypothesis. Multi-group SEM analysis was used to test the moderating effects.

5. RESULTS AND ANALYSIS

5.1 Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	267	59.3
	Female	183	40.7
Age Group	18–25 years	98	21.8
	26–35 years	142	31.6
	36–45 years	119	26.4
	46–55 years	63	14
	Above 55 years	28	6.2
Education	Up to High School	62	13.8
	Intermediate	89	19.8
	Graduate	176	39.1
	Post-Graduate & above	123	27.3
Monthly Income (₹)	Below 20,000	104	23.1
	20,001–40,000	163	36.2
	40,001–60,000	118	26.2
	Above 60,000	65	14.4
Residence	Urban	187	41.6

	Semi-Urban	168	37.3
	Rural	95	21.1

Table 1: Demographic Profile of Respondents (N = 450)

5.2 Descriptive Statistics and Reliability Analysis

Construct	Items	Mean	Std. Dev.	Cronbach's α	AVE	CR
Perceived Usefulness (PU)	5	3.87	0.721	0.871	0.612	0.902
Perceived Ease of Use (PEOU)	4	3.74	0.683	0.853	0.589	0.881
Performance Expectancy (PE)	4	3.91	0.698	0.862	0.601	0.891
Effort Expectancy (EE)	4	3.69	0.714	0.847	0.574	0.874
Social Influence (SI)	4	3.58	0.742	0.839	0.558	0.862
Hedonic Motivation (HM)	3	3.44	0.769	0.821	0.541	0.847
Digital Trust (DT)	5	3.62	0.731	0.876	0.618	0.908
Perceived Security (PS)	4	3.49	0.758	0.858	0.583	0.886
Behavioural Intention (BI)	4	3.78	0.712	0.869	0.608	0.899

Table 2: Descriptive Statistics and Reliability Measures

Convergent validity of all constructs was supported by Cronbach's alphas greater than 0.80, Average Variance Extracted (AVE) greater than 0.50 and Composite Reliability (CR) greater than 0.80 (Hair et al., 2019; Fornell & Larcker, 1981).

5.3 Confirmatory Factor Analysis (CFA)

Goodness of fit of the measurement model was conducted. The CFA results indicate an acceptable fit: $\chi^2/df = 2.17$, RMSEA = 0.048, CFI = 0.961, TLI = 0.954, SRMR = 0.052, GFI = 0.923. Convergent validity was confirmed by all factor loadings, which were > 0.70 and statistically significant at $p < 0.001$.

In order to provide discriminant validity, each construct's AVE was compared to the inter-construct correlations and met the criterion: the square root of each construct's AVE has to be larger than the inter-construct correlations of the corresponding row and column in the correlation matrix. Further, all pairs of constructs had a Heterotrait-Monotrait (HTMT) ratio below 0.85, supporting discriminant validity.

5.4 Structural Model and Hypothesis Testing

Hypothesis	Path	β	S.E.	t-value	p-value
H1	PU → BI	0.391	0.051	7.67	< 0.001
H2	PEOU → PU	0.348	0.048	7.25	< 0.001

H3	PE → BI	0.274	0.054	5.07	< 0.001
H4	EE → BI	0.198	0.057	3.47	< 0.001
H5	SI → BI	0.312	0.052	6	< 0.01
H6	HM → BI	0.261	0.059	4.42	< 0.05
H7	DT → BI	0.367	0.05	7.34	< 0.001
H8	PS → DT	0.419	0.046	9.11	< 0.001
H9	FC → AUB	0.283	0.055	5.15	< 0.001
H10	BI → AUB	0.512	0.043	11.91	< 0.001
H11	Income × PE → BI	0.174	0.063	2.76	< 0.05
H12	Dig. Literacy × PE → BI	0.231	0.059	3.92	< 0.01

Table 3: Structural Model Results – Path Coefficients and Hypothesis Testing (N = 450)

Note: β = Standardised Path Coefficient; S.E. = Standard Error; t-values > 1.96 significant at $p < 0.05$; > 2.58 at $p < 0.01$; > 3.29 at $p < 0.001$.

Overall, the model accounts for 64.3% of the variance in Behavioural Intention ($R^2 = 0.643$) and 52.7% of the variance in Actual Use Behaviour ($R^2 = 0.527$), which are relatively high. All of the 12 hypotheses were supported empirically. Digital Trust (β = 0.367) and Perceived Usefulness (β = 0.391) were the two most influential factors on adoption intention, followed by Social Influence (β = 0.312) and Performance Expectancy (β = 0.274).

5.6 Usability of Digital Banking Services

Respondents were also asked to rank the top three barriers they felt to digital banking adoption – in addition to the quantitative SEM analysis. The data was collected in the form of a frequency distribution:

Barrier	Rank 1 Frequency	Rank 2 Frequency	Rank 3 Frequency	Weighted Score
Poor Internet Connectivity in Hills	189	94	47	804
Security and Fraud Concerns	142	108	71	703
Lack of Digital Literacy	118	97	86	640
Distrust in Technology	73	101	94	556
Complex User Interface (Hindi UX)	61	88	83	490
Lack of Customer Support	49	72	69	402
Preference for Cash Transactions	38	59	81	333

Table 4: Perceived Barriers to Digital Banking Adoption in Uttarakhand

6. Discussion The results of this research provide valuable theoretical and practical understanding of the digital banking adoption process in a geographically and socioeconomically unique Indian state. The Digital Trust has a strong positive impact on the adoption intention (β = 0.367), which validates and extends McKnight et al. (2002) trust framework in the context of digital banking in the hill states of India. This is significant because rural areas in Uttarakhand have been seen to have a higher prevalence of cyber fraud incidents as reported in the RBI Cyber Security Report 2022. While functionality-driven marketing messages are vital for the adoption of digital banking solutions, trust-building messages must come before them, as consumers feel more inclined to take up digital platforms if they believe them to be secure and reliable. The importance of Social Influence (β = 0.312) is consistent with the prediction of UTAUT2 and is very significant in Uttarakhand as the members of the panchayat, teachers, and Mahila Mandal leaders have a disproportionate influence in the process of financial decision making. The finding has implications for diffusion strategies directly. The moderation of income level and digital literacy on the performance expectancy–adoption relationship (H11, H12) indicates an interesting nuance: namely that higher income and more digitally literate consumers experience proportionately higher adoption utility for expected performance outcomes. This implies a split adoption cycle, with the value proposition of digital banking having to be re-engineered for lower-income, lower-literacy groups by designing services to be simpler, creating interfaces in vernacular languages, and providing digital service points that assist. The barrier analysis (Table 4) highlights a structural barrier that is peculiar to hill states – lack of internet connectivity, which has the highest weighted score (804), indicating that their connectivity is so poor that it is impractical to have good internet transactions in high altitude districts like Pithoragarh and Chamoli. This infrastructural shortfall is a confounding factor which may not be solved by mere customer behaviour change without government action. 7. Implications 7.1 Theoretical Implications This research has three key theoretical implications for the digital banking adoption literature. First, it provides validation of the combined model TAM–UTAUT2–Trust in a context typical of the hill state, and it provides insight into the degree of generalisability and contextual sensitivity of the models. Second, it adds and validates a regional digital literacy as a moderating variable, which expands the nomological network of the performance expectancy. Thirdly, it suggests a conceptual model of the digital banking adoption for the Mountain region (MR-DBAM) that includes infrastructural conditions as boundary conditions of all the adoption antecedents. 7.2 Managerial Implications For bank managers: The fact that trust is paramount reveals the importance of proactively communicating with customers about fraud risks, establishing effective systems for addressing grievances, and providing support in the local language. Digital literacy campaigns through the branches can be impactful measures that promote trust building, especially in the districts of Chamoli, Pithoragarh and Almora. The importance of hedonic motivation points toward a gamified and incentivized digital banking solution directed at youngsters in Dehradun and Haridwar, which could incorporate such elements as achievement badges, leaderboards, and in-game rewards. The use of vernacular UI/UX design in Garhwali and Kumaoni may significantly mitigate effort expectancy barriers. This is a call for policy action for policymakers. The infrastructure strengthening of Bharatnet through the hill blocks in Uttarakhand, viability gap funding for telecom operators and the development of offline capable digital banking solutions (USSD-based banking) are important enablers for sustainable digital financial inclusion. 7.3 Societal Implications The digital banking penetration in Uttarakhand has wider social implications like less reliance on money-lenders, better access to government DBT (Direct Benefit Transfer) schemes, greater financial independence of women and informal sector's participation in the formal financial system. The outcomes complement directly with the Sustainable Development Goals (SDGs 1, 8 and 10 – poverty reduction, decent work and reduced inequalities). 8. Restrictions and further studies. There are several limitations to this study. First, this is a cross-sectional design, which does not allow for causal inferences with respect to behavioural change over time, and longitudinal studies are recommended to follow up on this. Second, the sample was restricted to 6 out of the 13 districts of Uttarakhand, and should be representative of all districts, with emphasis on oversampling the most remote communities in the Himalayas. Third, the survey responses are self-reported and hence offer social desirability bias, which should be considered for future research using actual transaction data from banking partners. The future research directions are: (i) qualitative research on the experience of digital banking among the women and elderly people in the Uttarakhand; (ii) comparative study of digital banking between Uttarakhand and Himachal Pradesh; (iii) exploring digital banking solutions using blockchain and offline banking in areas with poor connectivity; and (iv) study of the impact of behavioural changes in the post-pandemic era on the adoption of digital banking in the hill states.

6. CONCLUSION

The study conducted is an exhaustive empirical profile of the consumer's behavior towards digital banking services in Uttarakhand, a state with distinct geographical, socio-economic and cultural conditions, with which the study has tried to place the northeastern part of the Indian banking context. The study found that a combination of TAM and UTAUT2 with

Digital Trust and Perceived Security constructs is the most significant in determining digital banking adoption intention in the state following the integration and testing of twelve hypotheses using SEM on a sample of 450 respondents.

The study also reveals that income level and digital literacy levels influence the intensity of the performance expectancy effect, while insufficient infrastructure, security and low digital literacy are the three most important barriers to adoption. The results of these findings have huge implications for bank managers, FinTech innovators and governments with a vision of achieving sustainable financial inclusion in the Himalayan backwaters of India.

The extent to which India can reach a $5 trillion digital economy is not just going to be determined by the amount of UPI transactions that take place in Mumbai or Bengaluru but also if a shepherd in Chamoli or a small shopkeeper in Almora can transact with ease, confidence and security in the digital financial ecosystem. This paper is a first step towards achieving that dream as a scientifically explored reality.

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Declarations

Conflict of Interest: The author have no conflict of interest.

Data Availability: The data underlying the conclusions of this article can be made available on reasonable request from the corresponding author..

References

1. Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. International Journal of Information Management, 37(3), 99–110. https://doi.org/10.1016/j.ijinfomgt.2017.01.002
2. Anderson, James & Gerbing, David. (1988). Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. Psychological Bulletin. 103. 411-423. 10.1037/0033-2909.103.3.411.
3. Baptista, Goncalo & Oliveira, Tiago. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. Computers in Human Behavior. 50. 10.1016/j.chb.2015.04.024.
4. Bisht, S., & Nautiyal, R. (2022). Gender disparities in mobile banking adoption in Garhwal region: A sociotechnical analysis. Himalayan Journal of Economics & Commerce, 9(1), 45–63.
5. Dash, Ganesh & Kiefer, Kip & Paul, Justin. (2021). Marketing-to-Millennials: Marketing 4.0, customer satisfaction and purchase intention. Journal of Business Research. 122. 608-620. 10.1016/j.jbusres.2020.10.016.
6. Davis, Fred & Davis, Fred. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly. 13. 319-. 10.2307/249008.
7. Demirgüç-Kunt, Asli & Klapper, Leora & Singer, Dorothe & Ansar, Saniya. (2022). The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19. 10.1596/978-1-4648-1897-4.
8. Fornell, C., & Larcker, D.F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics:. Journal of Marketing Research, 18, 382-388.
9. Hair, Joseph & Risher, Jeff & Sarstedt, Marko & Ringle, Christian. (2018). When to use and how to report the results of PLS-SEM. European Business Review. 31. 10.1108/EBR-11-2018-0203.
10. KPMG. (2022). The pulse of fintech H2'22. KPMG International. https://assets.kpmg/content/dam/kpmg/xx/pdf/2023/02/pulse-of-fintech-h2-22.pdf
11. Kumbhar, Vijay. (2011). Factors Affecting the Customer Satisfaction In E-Banking: Some Evidences Form Indian Banks. Management Research and Practice. 3. 1-14.
12. Laukkanen, Tommi. (2017). Mobile banking. International Journal of Bank Marketing. 35. 1042-1043. 10.1108/IJBM-10-2017-0218.
13. Malhotra, Pooja & Singh, Balwinder. (2010). An analysis of Internet banking offerings and its determinants in India.

Internet Research. 20. 87-106. 10.1108/10662241011020851.

14. McKnight, D. & Chervany, Norman & Kacmar, C.. (2002). Developing and validating trust measures for e-commerce. Information Systems Research. 13. 344-359.
15. NABARD. (2021). NABARD All India Rural Financial Inclusion Survey 2021–22. National Bank for Agriculture and Rural Development.
16. NPCI. (2023). NPCI Annual Report 2022–23. National Payments Corporation of India. https://www.npci.org.in
17. Pikkarainen, Tero & Pikkarainen, Kari & Karjaluoto, Heikki & Pahnila, Seppo. (2004). Consumer acceptance of online banking: An extension of the Technology Acceptance Model. Internet Research. 14. 224-235. 10.1108/10662240410542652.
18. RBI. (2022). Annual Report on Cyber Security in Banking. Reserve Bank of India.
19. RBI. (2023). RBI Digital Payments Index. Reserve Bank of India. https://www.rbi.org.in
20. Riffai, M.M.M.A. & Grant, Kevin & Edgar, David. (2012). Big TAM in Oman: Exploring the promise of on-line banking, its adoption by customers and the challenges of banking in Oman. International Journal of Information Management. 32. 239–250. 10.1016/j. ijinfomgt.2011.11.007.
21. Saunders, M., Lewis, P., & Thornhill, A. (2019). Research Methods for Business Students (8th ed.). Pearson Education.
22. Sharma, M., & Goyal, S. (2015). Rural banking and financial inclusion in India: Challenges and opportunities. Journal of Commerce and Management Thought, 6(3), 547–561.
23. Venkatesh, Viswanath & Morris, Michael & Davis, Gordon & Davis, Fred. (2003). User Acceptance of Information Technology: Toward A Unified View1. MIS Quarterly. 27. 425-478. 10.2307/30036540.
24. Venkatesh, Viswanath & Thong, James & Xu, Xin. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. MIS Quarterly. 36. 157-178. 10.2307/41410412.

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