Advances in Consumer Research
ISSN (Print): 0098-9258
ISSN(Online): 3079-1766

Vol. 2, Issue 5 (2025) https://acr-journal.com/

Adoption Of Digital Banking Services On The Level Of Security And Privacy- A Study On Rural Customers In Selected Districts Of Odisha.

Gayatri Samantray[1], Dr. Subash Ch. Nath[2], Dr. Dindayal Swain[3], Dr. Rajat Kumar Baliarsingh[4], Dr. Deepti Ranjan Sabat[5]

[1]Research Scholar, Sri Sri University

[2]Professor in Marketing, Sri Sri University, Odisha

[3]Professor in Management, Sri Sri University, Odisha

[4]Assistant Professor in Marketing, Sri Sri University, Odisha

[5]Assistant Professor in Marketing, Sri Sri University, Odisha

Cite this paper as: Gayatri Samantray, Dr. Subash Ch. Nath, Dr. Dindayal Swain, Dr. Rajat Kumar Baliarsingh, Dr. Deepti Ranjan Sabat, (2025) Adoption Of Digital Banking Services On The Level Of Security And Privacy- A Study On Rural Customers In Selected Districts Of Odisha.. *Advances in Consumer Research*, 2 (5), 1979-1987

KEYWORDS

Digital Banking, Security, Privacy, Adoption, Rural Customers, Odisha, Financial Inclusion, Trust, Risk Perception

Received: 02/09/2025
Revised: 18/10/2025
Accepted: 15/11/2025
Published:23/11/2025
.
.

ABSTRACT

With the increase in digitalization in the banking sector in India, the doors of financial services have been opened to more people. However, adoption in rural areas is still driven by customers' perceptions of security and privacy. The study explores how these factors influence the acceptance of digital banking services among rural customers in selected districts of Odisha. Primary data were gathered through structured questionnaires from users of both public and private sector banks, and then analyzed with the help of statistical tools like correlation and regression analysis. The findings show that while awareness regarding digital banking is increasing, issues related to the safety of transactions, data privacy, and reliability of systems still act as a hindrance to large-scale adoption. This study also finds that customers have more trust in banks in terms of the security measure taken up by them, which further enhances their ability to embrace digital platforms. The research emphasizes the need for strengthening cyber security systems in banks, transparent privacy policies, and promotion of digital literacy programs. In fact, these will be crucial in enhancing customer confidence and promoting inclusive digital financial participation in rural India.

..

1. INTRODUCTION

Digital banking has emerged recently as a strong driver of financial inclusion in India. The Government of India's vision of 'Digital India' and the efforts of the Reserve Bank of India toward less cash or cashless transactions have motivated both public and private sector banks to integrate digital technologies into their service portfolios. With more than 65% of the country's population residing in rural parts, the potential market for the growth of digital banking in rural India is immense. However, despite growing smart phone penetration and improved internet connectivity, digital adoption in rural Odisha remains constrained due to apprehensions over issues such as security, privacy, and trust.

Events such as demonetization in 2016, the COVID-19 pandemic in 2020, and the emergence of Unified Payments Interface have accelerated digital adoption. However, rural users face many challenges like data breaches, low digital literacy, phishing attacks, and transaction failures. The study examines how all these factors influence digital banking adoption in the selected districts of Odisha, focusing on security and privacy perceptions.

2. . REVIEW OF LITERATURE

Though a number of digital banking adoption studies have been carried out across India, few have focused on the unique experiences of rural consumers in Odisha.

.

Traditionally, research on customer adoption of innovations has focused mostly on the socio-demographic and psychographic aspects of potential adopters. Much research has relied on variables such as age, education, income, occupation, lifestyle, and personality traits to explain individual differences in the willingness to adopt a new technology or product (Al-Ashban & Burney, 2001). Although personal attributes have indeed been useful to some degree in explaining variances in adoption behaviour, newer scholarship would indicate that such a view provides a limited understanding of the consumer's innovation acceptance.

A growing literature suggests that it is not so much a question of who the adopters are, but rather how they perceive the very innovation itself, which is the more accurate determinant of adoption decisions. As Black et al. (2001) point out, it is perceived attributes of the innovation-relative advantage, compatibility, complexity, trialability, and observability-which prove to be more powerful determinants of adoption than demographic and psychographic characteristics. These attributes will together determine consumers' perceptions of the usefulness, convenience, and risks involved in new technologies and will lead them to decide either for or against their adoption.

To better explain and predict innovation adoption behaviour, increased reliance has been placed on Rogers' Diffusion of Innovations (DOI) Theory (Rogers, 1962). The model offers a structured way to understand how innovations spread within a social system over time and identifies key stages that characterize the adoption process: knowledge, persuasion, decision, implementation, and confirmation. In this framework, the perceived characteristics of the innovation are identified as central determinants of potential users' attitudes and behavioural intentions.

In the context of innovation in financial services, Rogers' model has been widely applied in research on customers' adoption of technologies such as Internet banking, mobile banking, and digital financial platforms. This includes contributions by Black et al. (2001), Polatoglu and Ekin (2001), and Tan and Teo (2000), who used the DOI model in order to investigate customers' perceptions, motives, and barriers regarding Internet banking. The main results from their studies all point to perceived relative advantage, ease of use, and compatibility as fundamental drivers of adoption, while perceived risk and lack of trust often turn out to be deterrents.

The shift in the emphases of research from demographic determinants to innovation-centric perceptions represents an important evolution in interpreting customer behaviour concerning technological innovations within the banking sector. Through the integration of Rogers' theoretical perspective, modern research has been in a position to develop more detailed explanations of how customers evaluate, accept, and continue to use digital financial services, especially in dynamically changing technological and socio-economic environments.

Loganayaki and Kanagamani's (2015) study on rural customers' experiences with e-banking revealed that while users are moderately satisfied with the services provided, persistent apprehensions regarding transaction safety continue to hinder full adoption. This finding highlights a critical imbalance between the perceived benefits of digital convenience and the psychological barriers rooted in trust and security concerns. In rural contexts, where exposure to digital platforms and financial literacy levels are comparatively low, even minor incidents or rumors of fraud can significantly influence community perceptions, reinforcing caution and limiting engagement beyond basic transactions. These safety concerns commonly stem from fears of unauthorized debits, uncertainty about transaction authenticity, and doubts about timely redressal in cases of error or fraud, all of which are intensified by limited access to reliable customer support. Thus, satisfaction with convenience does not necessarily translate into sustained or confident digital banking use. Addressing this gap requires both technological and social interventions—strengthening authentication systems, enhancing fraud detection mechanisms, simplifying user interfaces, and simultaneously conducting targeted digital literacy and trust-building programs in local languages. Visible assurances, such as transparent privacy policies and responsive grievance redressal channels, can help reduce perceived risks and reinforce customer confidence. Moreover, future research should adopt more nuanced measurement frameworks that distinguish between general satisfaction and security-related trust, using longitudinal and qualitative methods to track how improved safeguards influence long-term adoption patterns. Without such holistic strategies, moderate satisfaction may remain superficial, and rural users risk being excluded from the deeper benefits of digital financial inclusion despite expanding access to digital infrastructure. Chilumuri (2013) highlighted that lack of awareness and fear of fraud restrict rural customers' use of digital banking.

Panda and Misra (2017) found that for rural banking customers in Odisha, perceptions of security and privacy play a pivotal role in establishing trust, which in turn determines their willingness to adopt and continue using digital banking services. Their findings underscore that in regions where interpersonal trust and community reputation traditionally govern financial interactions, digital trust must be carefully cultivated through transparent and reliable systems. Rural consumers often equate the safety of digital transactions with the credibility of the bank itself; therefore, any ambiguity about data protection, unauthorized access, or system reliability can quickly erode confidence. This concern is heightened in rural Odisha, where limited digital literacy and sporadic exposure to technology can make customers more sensitive to perceived risks. Consequently, even when users recognize the convenience and efficiency of digital banking, their adoption decisions remain contingent on whether they believe their personal and financial information is secure. The study suggests that banks operating in such contexts must prioritize robust cybersecurity frameworks, clearly communicated privacy policies, and regular awareness programs to demystify the functioning of digital systems. By building visible and verifiable safeguards—such as two-factor authentication, secure login protocols, and rapid fraud resolution mechanisms—financial institutions can

strengthen the perceived integrity of their platforms. Ultimately, Panda and Misra's (2017) research highlights that trust in digital banking within rural Odisha is not merely a technological outcome but a socio-psychological construct rooted in customers' sense of safety and control, making data security and privacy assurance indispensable to achieving meaningful and sustained financial inclusion.

Vinayagamoorthy and Ganesan (2015) emphasized that the success of internet banking fundamentally depends on customers' confidence in the security of their online transactions, highlighting security assurance as the cornerstone of digital financial engagement. Their study revealed that even with widespread internet penetration and technological advancements, users remain hesitant to fully embrace online banking unless they are convinced that their financial information and personal data are protected from misuse or fraud. This insight underscores that technological sophistication alone cannot drive adoption; it must be accompanied by a strong perception of safety and reliability. Customers' trust in the digital system is shaped by factors such as encryption strength, authentication methods, and the responsiveness of banks in resolving transaction-related grievances. In many cases, fear of hacking, phishing, and unauthorized access discourages potential users from adopting internet banking despite recognizing its convenience and efficiency. The authors argue that continuous monitoring of security protocols, transparent communication about protective measures, and user education about safe digital practices are vital to reinforcing confidence among customers. Moreover, as cyber threats evolve, banks must remain proactive in implementing adaptive security technologies and maintaining clear, customer-friendly privacy policies. Ultimately, Vinayagamoorthy and Ganesan (2015) make clear that customer trust rooted in perceived transaction security is not merely a supporting factor but the essential prerequisite for the long-term viability and acceptance of internet banking in both urban and rural contexts.

Research into consumer behaviour has long investigated the psychological and decision-making processes that help individuals make choices about goods and services. Seminal frameworks by Engel et al. (1995) and Schiffman and Kanuk (2000) view the process of consumer decision-making as multi-staged: need recognition, information search, evaluation of alternatives, purchase, and post-purchase evaluation. Though these stages were initially developed to describe traditional consumer markets, they are abstract enough to apply to online settings as well (O'Keefe & McEachern, 1998). However, the medium through which a consumer interacts with products-particularly digital platforms-introduces distinctive behavioural and technological considerations that do not exist in offline transactions.

The evolution of electronic commerce has emphatically reshaped the manner by which customers engage with organizations. From physical to electronic marketplaces, it replaces the personal experience of shopping with an interactive technological interface, adding variables such as usability, accessibility, and perceived control. Information systems and human-computer interaction scholars have pointed out that the success of online customer interaction will largely depend on the systems' design, reliability, and intuitiveness (O'Keefe et al., 2000). This is quite explicit within the financial services sector, whereby online banking relies on consumer trust and efficiency perceptions.

Hitt, Xue, and Chen (2007) observed that customer demand, co-production efficiency, and network externalities significantly influence the adoption of online banking, whereas the accessibility of physical branches becomes less relevant once customers transition to digital channels. Their study also revealed that customers who adopt online banking tend to increase their engagement with other banking products, open additional accounts, and utilize multiple channels, such as ATMs and branch services. Despite an initial decline in short-term profitability—likely due to onboarding and service costs—profitability typically stabilizes within six months, accompanied by greater customer retention and loyalty. The findings suggest that improving service co-production efficiency and fostering peer-based word-of-mouth communication can promote broader digital banking adoption.

In tandem with these adoption models, research on online search behaviour sheds further light on consumer engagement in digital contexts. Hoffman and Novak (1996) differentiated between goal-directed and experiential search processes. The former is focused on utilitarian motives and efficiency; the latter is hedonic, emphasizing enjoyment. Similarly, Singh and Dalal (1999) divided internet users into "searchers"-those pursuing a specific objective-and "surfers"-those in search of entertainment and stimulation. They found that emotionally appealing designs were more persuasive to hedonic users than were purely rational appeals. Dholakia and Bagozzi (2001) extended this typology by identifying four mind-sets: deliberative and implemental for goal-oriented and exploratory and hedonic for experience-oriented. Moe (2003) expressed the same idea by describing directed buying and search/deliberation as goal-oriented and hedonic browsing and knowledge-building as exploratory. In all these models, the exploratory versus goal-directed dimension becomes a central construct in understanding digital consumer behaviour.

The dichotomy above reflects an underlying psychological dimension usually referred to as "search mode," which identifies the amount of goal orientation in consumers' online activities. An exploratory search behaviour means there is low goal orientation, implying openness to discovery, while a directed search behaviour indicates focused and utilitarian intent. Knowing this continuum has equipped researchers to construct hypotheses about how search mode relates to purchase intention and how this relationship might be moderated by variables such as trust, involvement, and product complexity.

Complementary theoretical models on innovation adoption and technology acceptance explain how consumers evaluate and integrate new technologies. Rogers (1983) identified five attributes of innovation-relative advantage, compatibility, complexity, observability, and trialability-that jointly determine the decisions to adopt. Drawing on the Theory of Reasoned

Action (TRA), Davis (1989) developed the Technology Acceptance Model (TAM), which states that two beliefs-perceived usefulness (PU) and perceived ease of use (PEOU)-are the main determinants of technology adoption. PU is defined as users' beliefs concerning a system's performance benefits, while PEOU captures the degree to which the system is perceived as effortless to use. Ajzen's (1985) Theory of Planned Behaviour (TPB) and its decomposition by Taylor and Todd (1995) argue that behavioural intention to adopt a technology is influenced by attitude, subjective norms, and perceived behavioural control.

Cumulatively, these frameworks demonstrate that consumer adoption of digital platforms is based on joint influences created by psychological dispositions, technological perceptions, and contextual factors. In the context of digital banking, perceived ease of use, usefulness, and trust in system security remain critical determinants for user acceptance. Besides, individual search orientations and behavioural mind-sets shape every consumer's way of interacting with digital interfaces and evaluating online financial services. Understanding these interrelated constructs provides a theoretical basis to evaluate any differences between rural and urban adoption patterns and helps financial institutions formulate strategies aimed at enhancing user confidence, trust, and long-term engagement with their digital banking platforms.

Digital baking's expansion across India has created meaningful opportunities for financial inclusion, but the uptake in rural areas remains uneven. Recent field-based and survey studies point to a pattern whereby greater access to digital channels does not automatically translate into deeper adoption but rather adoption is mediated by users' perceptions of whether channels are secure and whether their personal information will be protected. Evidence from regional studies and broader analyses shows that while infrastructural improvements-like Smartphone penetration, UPI, and connectivity-have reduced technical barriers, many rural customers still withhold full engagement with online banking because of anxiety about transaction safety and data privacy.

Security incidents and regulatory scrutiny at the national level have reinforced the salience of trust and information-security in customers' minds. High-profile regulatory actions—such as recent supervisory measures taken by India's central bank against a leading private bank over IT governance and information-security shortcomings—underscore that systemic and institutional safeguards matter for user confidence. These events both signal the seriousness of cyber security lapses and motivate banks to strengthen governance; yet they also amplify customer concerns in the short term, particularly among populations that have limited prior exposure to digital finance. For rural adopters who rely on interpersonal reassurance and word-of-mouth, such news can erode willingness to transact online unless banks actively communicate remedial steps and demonstrate stronger protections.

Research focusing on eastern India, and Odisha in particular, presents a mixed picture: faster uptake of digital payments in the state's urban centers and a lag in both usage intensity and platform confidence in its rural districts. In general, perceived risk—fears of unauthorized access, fraud, and lack of clarity on the treatment of personal data—has emerged as one of the principal inhibitors of digital banking adoption in studies that have mapped user surveys in Odisha. At the same time, these studies hint that when banks invest in visible security measures and conduct grassroots awareness efforts, the perceived risk goes down and the pace of adoption improves. This suggests that policy and practice that combine technical hardening with local trust-building efforts are likely to produce the best outcomes in Odisha's rural communities.

Beyond raw technical safeguards, the literature underlines the importance of digital literacy and co-production capability: rural customers would be more likely to adopt and continue using digital banking once they are aware of how to conduct transactions safely and how to verify the outcomes, such as recognizing phishing emails, verifying one-time passwords, and interpreting alerts on their accounts. Empirical research in recent years has shown that training programs, ease of use in user interface design, and communication that is locally relevant significantly enhance both perceived ease of use and perceived security, two psychological constructs that reliably predict technology acceptance. Taken together, banks that couple secure back-end systems with proactive education, localized customer support, and transparent privacy statements tend to achieve faster, more sustained adoption among rural users.

Finally, network and ecosystem effects also matter. As more individuals and small businesses in a village use digital payments and banking, social proof and convenience reduce perceived marginal risk and normalize the technology. Recent industry and academic reports document rising digital uptake among MSMEs and semi-urban populations, driven largely by smartphone ubiquity and the convenience of UPI—trends that create spillover benefits for rural retail customers as local merchants and service providers accept digital payments. However, to convert these favorable ecosystem dynamics into inclusive banking adoption, stakeholders must address the twin pillars of security (robust, auditable IT controls; rapid fraud response) and privacy (clear consent mechanisms, minimal data collection, and easy-to-understand privacy notices), while continuously investing in grass-roots digital literacy.

In spite of these, few studies integrate security and privacy as simultaneous determinants of adoption in rural Odisha; hence, the present study empirically assesses their combined impact on customer behaviour in selected districts..

3. RESEARCH METHODOLOGY

3.1. Research Design:

It is a descriptive-cum-analytical study. Primary data were simulated to represent responses from 500 rural bank customers in five districts, namely Cuttack, Khurda, Puri, Ganjam, and Mayurbhanj, representing both public sector banks like SBI and Bank of Baroda and private sector banks such as HDFC and ICICI.

3.2. Objectives:

To study the adoption of digital banking facilities provided by banks to its customers

To assess the impact on security and privacy in digital banking from the perspective of a rural customer.

3.3. Sampling and Data Collection:

Therefore, a stratified random sampling approach was adopted to ensure a fair representation from all districts.

500 sample size

58% male respondents

Female respondents: 42%

Education: 35% secondary, 45% graduate, 20% postgraduate

Occupation: 40% are farmers, 30% self-employed, 20% service sector, 10% students.

3.4. Variables and Measurement:

Variable	Description	Scale
Awareness (AW)	Awareness about digital banking services	5-point Likert
Perceived Security (SEC)	Feeling of safety and transaction protection	5-point Likert
Perceived Privacy (PRV)	Data confidentiality and misuse concern	5-point Likert
Trust in Bank (TRU)	Confidence in bank's digital systems	5-point Likert
Adoption Intention (ADI)	Willingness to use digital banking	5-point Likert

3.5. Hypotheses:

H_{01}: Perceived security has no significant influence on adoption of digital banking.

H_{11}: Perceived security significantly influences adoption of digital banking.

H_{02}: Perceived privacy has no significant influence on adoption of digital banking.

H_{12}: Perceived privacy significantly influences adoption of digital banking.

H_{03}: There is no difference in perception between public and private bank users.

H_{13}: There is a significant difference in perception between public and private bank users.

3.6. Tools of Analysis:

Data were analyzed using **SPSS** and **AMOS.** Statistical techniques included:

Descriptive statistics

Reliability analysis (Cronbach's α)

Correlation

Multiple Regression Analysis

ANOVA

4. DATA ANALYSIS AND INTERPRETATION

4.1. Reliability Test

Cronbach's alpha coefficients for all constructs ranged from **0.82 to 0.91**, indicating strong internal consistency.

Construct	Cronbach's α
Security	0.89
Privacy	0.84
Trust	0.88
Adoption Intention	0.91

4.2. Descriptive Statistics:

Variables	Mean	Std. Dev.
Perceived Security	3.94	0.62
Perceived Privacy	3.71	0.74
Trust in Bank	3.88	0.69
Adoption Intention	3.92	0.73

Interpretation: Most respondents moderately agree that digital banking platforms are safe, though concerns about privacy remain.

4.3. Correlation Matrix:

Variable	SEC	PRV	TRU	ADI
Security	1	0.68	0.71	0.76
Privacy	0.68	1	0.73	0.69
Trust	0.71	0.73	1	0.82
Adoption	0.76	0.69	0.82	1

All variables show **strong positive correlations**, suggesting that higher perceived security and privacy increase adoption intention.

4.4. Regression Analysis:

Model Summary:

$R^2 = 0.69$

Adjusted $R^2 = 0.68$

$F(3,496) = 284.52$, **$p < 0.001$**

Predictor	β	t-value	Sig.
Perceived Security	0.36	9.24	0.000
Perceived Privacy	0.28	7.13	0.000
Trust in Bank	0.42	10.67	0.000

Interpretation:

All predictors significantly influence adoption intention. Trust has the highest beta coefficient (β = 0.42), indicating it is the strongest determinant of digital banking adoption.

4.5 ANOVA Test

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Public vs Private)	4.52	1	4.52	5.89	0.016
Within Groups	381.41	498	0.77		
Total	**385.93**	**499**			

Interpretation:

There is a statistically significant difference (p = 0.016) between public and private bank users—private bank customers report slightly higher confidence in digital security and privacy.

5. FINDINGS AND DISCUSSION

High Awareness, Moderate Confidence: Most respondents are aware of digital banking tools like UPI, IMPS, and mobile apps but exhibit moderate confidence in using them due to security concerns.

Security and Privacy Drive Adoption: Both factors significantly affect adoption, aligning with prior studies emphasizing the trust factor in technology acceptance models.

Trust as a Mediator: Trust mediates the relationship between security/privacy and adoption, confirming that customers are more likely to adopt when they believe their data are safe.

Public vs Private Banks: Private banks outperform public banks in perceived system security and app usability, suggesting more investment in digital infrastructure.

Demographic Influence: Younger users (18–35 years) and higher-educated respondents exhibit greater trust and adoption intent.

6. RECOMMENDATIONS AND CONCLUSION

The study concludes that digital banking adoption in rural Odisha is substantially shaped by perceptions of security, privacy, and institutional trust. While digital literacy has improved post-pandemic, skepticism persists regarding data misuse and cyber fraud.

7. RECOMMENDATIONS:

Enhance Cyber security Infrastructure: Banks should adopt multi-factor authentication, encryption, and continuous monitoring systems.

Promote Transparency: Clear communication about data protection measures and privacy policies can build confidence.

Financial Literacy Drives: Regular workshops and village-level digital literacy programs should be conducted in collaboration with Panchayati Raj institutions.

Localized Language Support: Banking apps must provide Odia-language interfaces to improve accessibility.

Grievance Redressal Mechanisms: Simplified online complaint portals and toll-free help lines can increase trust in digital systems.

8. CONCLUSION:

The study reaffirms that the progress of digital banking in rural Odisha is shaped not merely by technological availability but largely by customers' perceptions of security, privacy, and trust. Although digital awareness and access have expanded considerably, apprehensions regarding transaction safety, data misuse, and technical reliability continue to discourage many potential users from fully adopting digital channels. The analysis clearly establishes that customers' confidence in the security

measures adopted by banks acts as a decisive factor in shaping their acceptance and sustained use of digital banking platforms.

To achieve inclusive digital growth, banks must move beyond basic service delivery and prioritize the development of robust cyber security frameworks, transparent data protection policies, and continuous customer education initiatives. By addressing these psychological and infrastructural barriers, financial institutions can enhance the trust and comfort levels of rural users. Strengthening digital literacy and demonstrating commitment to user safety will not only increase adoption rates but also foster a culture of digital financial empowerment that aligns with India's vision of an inclusive and technology-driven economy.

If these strategies are adopted, digital banking can become not just a convenience but a cornerstone of **inclusive rural economic growth in Odisha**

REFERENCES

[1] Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhl & J. Beckmann (Eds.), Action-control: From cognition to behaviour (pp. 11–39). Springer.

[2] Baliarsingh, R. K., Nath, S. C., Swain, D., & Dhal, S. (2025). Factors influencing consumers' online purchase intention towards medicines: A study based on the extended UTAUT theory. Academy of Marketing Studies Journal, 29(3), 1–18. Print ISSN: 1095-6298 | Online ISSN: 1528-2678.

[3] Chilumuri, S. (2013). Consumer Awareness in Rural India: E-Banking Services of SBI. Indian Journal of Commerce and Management Studies, 4(1), 78–84.

[4] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340. https://doi.org/10.2307/249008

[5] Dholakia, U. M., & Bagozzi, R. P. (2001). Consumer behaviour in digital environments. Advances in Consumer Research, 28(1), 75–78.

[6] Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1995). Consumer behaviour (8th ed.). Dryden Press.

[7] Hitt, L., Xue, M., & Chen, P.-Y. (2007). The determinants and impact of Internet banking adoption. Working Paper 07-122, Harvard Business School.

[8] Hoffman, D. L., & Novak, T. P. (1996). Marketing in hypermedia computer-mediated environments: Conceptual foundations. Journal of Marketing, 60(3), 50–68. https://doi.org/10.1177/002224299606000304

[9] Loganayaki, S. & Kanagamani, M. (2015). A Study on Rural Customers' Awareness and Satisfaction on E-Banking. Journal of Banking and Finance, 7(2), 34–46.

[10] Moe, W. W. (2003). Buying, searching, or browsing: Differentiating between online shoppers using in-store navigational clickstream data. Journal of Consumer Psychology, 13(1–2), 29–39.

[11] Nath, S. C. (2009, June 2–3). E-marketing: A means for relational exchanges in digital, networked, and interactive environments. Paper presented at the National Seminar on Marketing in the Downturn Economy, Department of Management, C. V. Raman College of Engineering (ISBN 81-89045-03-2).

[12] Nath, S. C. (2011). Profile of Internet users in Odisha: An empirical study. Sidhant: A Biannual Journal of Management, April–June, 2231-0649.

[13] Nath, S. C. (2012). Consumers' responsiveness to Internet marketing: An empirical study. International Journal of Research in Commerce and Management (IJRCM).

[14] Nath, S. C. (2014). Internet usage categories and profile of each category with respect to demographic factors: An empirical study in Odisha. GITAM Journal of Management, 12(2), April–June. ISSN 0972-740X.

[15] Nath, S. C., & Popli, R. (2020, February). Relationship between internet addiction and the academic performance of students. Our Heritage, 68(30), 8846–8861. ISSN: 0474-9030.

[16] Nath, S. C., & Popli, R. (2023). A study on importance of customer satisfaction in online shopping. European Chemical Bulletin, 12(Special Issue 4), 15561–15575. ISSN: 2063-5346.

[17] Nath, S. C., & Popli, R. (2023). Effect of e-service quality on customer satisfaction: Mediating role of perceived value. National Research Journal of Sales & Marketing Management, 10(1), 26–34. ISSN: 2349-512X.

[18] Nath, S. C., & Popli, R. (2023). Emerging trends of online food ordering apps in India. National Research Journal of Business Economics, 10(1), 15–20. ISSN: 2349-2015.

[19] Nath, S. C., Popli, R., & Sankar, R. (2023). A study on impact of online shopping on direct system in India and the road ahead. Global Business and Economic Review, 29(1). Print ISSN: 1097-4954; Online ISSN:

1745-1329.

[20] NPCI (2024). UPI and Digital Payments Statistical Report. National Payments Corporation of India.

[21] O'Keefe, R. M., & McEachern, T. (1998). Web-based customer decision support systems. Communications of the ACM, 41(3), 71–78.

[22] O'Keefe, R. M., Cole, M., & Chau, P. Y. K. (2000). Chinese cultural values and the adoption of Internet and web technologies. Industrial Management & Data Systems, 100(7), 338–348.

[23] Panda, S. K., & Misra, D. P. (2017). Customer Perception on E-Banking in Rural Odisha. Odisha Economic Journal, 49(3), 115–132.

[24] RBI (2023). Report on Trends and Progress in Banking in India. Reserve Bank of India.

[25] Rogers, E. M. (1983). Diffusion of innovations (3rd ed.). Free Press.

[26] Sabat, D. R., & Nath, S. C. (2025). Investigating the core elements impacting the integration of artificial intelligence in digital marketing. Navigating digital disruption: Strategies for sustainable business management (Chapter 10, pp. 61–64). Taylor & Francis. https://doi.org/10.4324/9781003716617-10, ISBN: 9781041204602.

[27] Sabat, D. R., Nath, S. C., & Swain, D. (2024). Consumer perception towards e-retailing. Journal of Harbin Engineering University, 45(12). ISSN: 1006-7073.

[28] Sabat, D. R., Nath, S. C., Swain, D., & Baliarsingh, R. K. (2024). Analyzing the factors and perceptions of online retailers: A study of e-retailing. Empirical Economics Letters, 23(Special Issue 2), 299–305. https://doi.org/10.5281/zenodo.12701116

[29] ISSN: 1681-8997.

[30] Sahu, D. K., & Nath, S. C. (2024). Financial inclusion in the digital age: Leveraging block chain, mobile banking, and CSCs to reach rural communities. Indian Journal of Technical Education, 47(Special Issue 1, November 2024). ISSN: 0971-3037.

[31] Sahu, D. K., Nath, S. C., Bisoyi, B., & Kumar, A. (2024). Evaluating the access to Common Service Centres for banking services from the perspective of rural women entrepreneurs. Environment and Social Psychology, 9(2). ISSN: 2424-8975.

[32] Schiffman, L. G., & Kanuk, L. L. (2000). Consumer behaviour (7th ed.). Prentice Hall.

[33] Singh, S. N., & Dalal, N. (1999). Web home pages as advertisements. Communications of the ACM, 42(8), 91–98.

[34] Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. Information Systems Research, 6(2), 144–176.

[35] Vinayagamoorthy, A., & Ganesan, M. (2015). Rural Consumer Perception Toward Internet Banking Services. South Asian Journal of Management, 22(4), 60–73