An Empirical Study of Artificial Intelligence: AI-Driven Banking Services Personalised Experience

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Abstract

The simulation of human intelligence in machines, called Artificial intelligence, has risen, and plays an important role in the new banking era. The present study aims to discuss the consumer's perspective on artificial intelligence's adoption in north India region. The questionnaire was developed and distributed to collect data. The total useable responses were 464 had a significant and positive relationship with the intention to adopt AI in the banking sector. The dependent variable of the model proposed is the intention to adopt AI-integrated tools and the predictors are eight independent variables including Innovativeness, optimism, discomfort, insecurity, customization, interactivity, perceived ease of use and perceived usefulness. The present study integrates technology readiness (TR) into the technology acceptance model

(TAM) in the context of consumer adoption of e-service systems, and theorizes that the impact of TR on use intention is completely mediated by both perceptions of usefulness and ease of use. TAM was originally

developed to predict people's technology-adopting behavior at work environments.

Overall, the findings of this study will be a worthy insight for making strategic decision-making in the banking industry. This will enable the banking management to build a strategy to increase the trust of consumers, which will help them to overcome risks and give them confidence in using digital technology while making transactions. The banking sector also focuses on innovative AI technologies to improve customer services as well as overall growth by generating more revenue.

Keywords- *Artificial Intelligences, TAM, Customer experience, Technology readiness, Perceived Usefulness, Perceived Ease of use.*

1. Introduction

Banking:

Artificial intelligence (AI) has completely changed the banking sector to better serve modern consumers and to expand development opportunities. Banks are using AI to help them alter their business, including accounting, sales, contracts, and cybersecurity. Data analytics, blockchain, and machine learning are being used by banks to future-proof their products and services.*(Kumar SHETTY Manel Srinivas et al.)*. The advent of automated teller machines, mobile banking, online banking, and electronic financial transactions has changed the way that banks provide their services. *(Dantsoho et al., 2021)*

Artificial intelligence (AI) is helping Indian banks transition from traditional to digital banking methods, improving their overall operations. Banking services use artificial intelligence (AI) mostly to automate processes, but owing to infrastructure issues and the necessity for human interaction, this ecosystem is not viable in emerging markets. Among the most effective instances of artificial intelligence being used in banking are chatbots. They work around the clock once they are deployed, unlike people who have set work hours. They also continue to learn about the usage patterns of specific customers. It enables them to effectively comprehend a user's needs.*(Rahman and Abedin, 2020)*

Scarcello (2018) is that AI is a multidisciplinary field involving computer science, psychology, linguistics, philosophy, and other related disciplines. AI has shaped the banking and financial services sector where its influence continues to grow with the global economic changes due to AI.

This study takes a larger sample which encompasses 464 respondents, and has stronger implications about AI adoption trends among the respondents, who hail from India that is a growing market for AI based financial services (*Rahman, 2023; Kaur, 2020*). Identification of consumer attitudes towards the adoption of AI is crucial for banking institutions wishing to compete and improve their customer experience. The factors which impact on the adoption of Artificial

Intelligence in banking are examined in this study including customer experience and consumer awareness and the social norms. But the insights from this research should help bankers better understand consumers' expectations so that banking policymakers and financial institutions can develop the right strategic AI adoption frameworks to make the AI adoption smoother within the banking ecosystem.

The three kinds of AI use cases identified by the European Banking Federation represent possible areas of opportunity for the banking industry. The use cases that were employed in this study were these three.

Improving customers experience and engagement: Biometric identification and authorization, chatbots, voice banking, robo-advice, improved customer service, client segmentation (e.g., by a customized website to guarantee that the most relevant offer is displayed).

Enhancement of banking operation efficiency: such as reporting, complaints handling, document classification, automated data extraction, KYC (Know-Your-Customer) document processing, credit scoring, process automation/optimization in IT;

Improvements in risk management and security: AML (Anti-Money Laundering) detection and monitoring, enhanced risk control, compliance monitoring, anomaly detection of any kind, support for data quality assurance, fraud prevention, payment transaction monitoring and cyber risk protection.
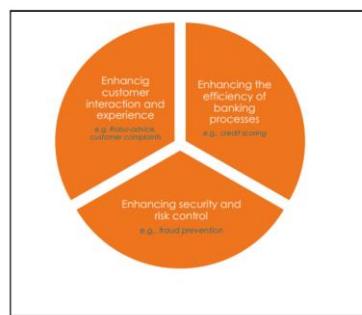

Figure 1: AI in the banking sector: use cases
(Source: European Banking Federation)

AI enabled banking products applied by top 10 Indian banks.

Figure 2 AI enabled banking products

Research gap:

➢ To improve the client experience, Indian banks are investing a significant amount of money in AI-based services. A popular AI-powered solution that can readily handle consumer enquiries around-the-clock is something that is intended to be adopted. By automating banking tasks, these devices save labour costs and save time.

➢ For any Banking transaction customer has to physically visit the bank to complete the transaction. Any questions must be answered at the bank, even though doing so would result in further mistakes and time waste. Although

the use of AI decreases transaction errors and time, it has the unintended consequence of raising unemployment.*(Kumar SHETTY Manel Srinivas et al., no date)*

Aim of the Study

Examining the banking sector's intention to implement and use AI in North India in order to identify potential prospects. *Ashfaq, M. et al. (2020)*

- ➢ To study and analyze the intension to adopt AI applications on banking practices and the factors affecting the banking sector with respect to customer experience.
- ➢ To ascertain customer attitude toward adopting the Artificial Intelligence inside the banks.
- ➢ To study the impact of TAM elements i.e perceive ease of use and perceive usefulness towards AI adoption in banking

Financial & Banking AI Applications:

Banks have already begun using artificial intelligence into their products and services as it has become a necessary component of our world. Here are some significant uses of AI in the banking sector. These are a few significant AI uses

1. **Personalized Banking Assistances:** AI assists customers in making easy and quick financial decisions by using real time information on the current market trend and provide recommendations on stocks and bonds where customers can invest. *(Tripathi, Garg and Varshini, 2022)*

2. **Smart Wallets:** An advanced, multipurpose program, a mobile smart wallet "contains components of mobile transactions, such as membership cards, loyalty cards, and travel cards." "Passports, credit card numbers, PIN codes, online shopping accounts, reservation information, and password-protected or encrypted insurance policies are among the other private and sensitive data it keeps". *(Kodrat, 2024)*

3. **Systems for Interactive Voice Response (IVRS):** An automated phone system that gives customer experience, answers specific questions, connects calls to the appropriate departments, and coordinates with customers.*(Tripathi, Garg and Varshini, 2022)*

4. **Cyber security and fraud detection**: The high volume of company financial transactions and the complexity of the work requirements make banking or financial institutions increasingly vulnerable to fraud. AI employs sophisticated algorithms and mathematical computing to monitor employee and customer behaviour through the use of unsupervised learning programs, as previously mentioned. AI is solely based on machine learning programming to replace human labour in banking sectors to prevent possible risks to the efficiency of business functions.*(Noreen et al., 2023)*

5. **Credit scoring:** The banking and financial services industry benefits from the inclusion of this unbanked population thanks to credit scoring services. Records of prior income are always requested by banks before providing services like credit or debit cards, loans, or mortgages. Credit scoring helps the unbanked obtain credit without having a history, which can help banks obtain and grow their banking operations and company. *(Ranpreet Kaur, 2024)*

6. **Customer experiences:** Artificial intelligence provides the various services at finger clicks without physically visiting the banks and helps banks to provide 24 × 7 services in a more efficient manner. Better customer service and experience with intensive technology leads to attracting and retaining the customers. *(Ranpreet Kaur, 2024)*

7. **Better regulatory compliance:** AI applications rely on deceptive analytics that monitors consumer behaviour, examines transactions, identifies questionable behaviour, and assesses the complexities of various compliance systems. By personalizing, lowering risks and expenses, increasing employee productivity, and guaranteeing better regulatory compliance, AI offers clients substantial value.

8. **Risk management:** It consists of reducing fraud by evaluating customers' creditworthiness, analysing transactions in real-time for suspicious trends, and giving risk assessors the right risk-reduction recommendations.

9. **Portfolio Management:** AI and machine learning technologies generate customized portfolio profiles for customers according to their investment choices, behaviour, and limitations. The next wave of digital revolution is about to be ushered in by banking and AI.

10. **Chatbot:** Emphasis that chatbots driven by (AI) are dramatically modifying the type of interactions by making them less human-directed and more technology-centric. Moreover, he concurs with the findings of *Guzman and Lewis (2020)* with this change in the dynamics of communication *(Castillo & colleagues, 2020; Guzman & Lewis, 2020)*. The study conducted identified five potential scenarios where users may find Chatbots interactions with unsatisfactory. These issues comprise "**authenticity concerns, cognitive challenges, emotional aspects, functionality limitations, and integration conflicts**". *(Castillo et al., 2020)*
Chatbots, automated segmentation, tailored offers and customer support are area in which artificial intelligence applies. Also, chatbots make use of the use of artificial intelligence in website communication. *(Hultman and Zarki, 2021)*. Furthermore, chatbots that converse with humans naturally are an illustration of how machine learning and AI can communicate. *(Ashfaq, 2020)*

Advantages and Disadvantages of Artificial Intelligences

Advantage	Disadvantage
Enable and expedite the automation of every banking procedure.	Adopting artificial intelligence into daily operations would be disruptive for all bank activities.
Reduced potential for human error	Total process automation will eliminate the need for supervision.
Significantly reduction in cost of banking services	Lacks the capacity to make decisions in unique circumstances. **(Alzaidi, 2018)**
Acknowledge threats and take prompt action to mitigate them.	More security measures are needed to provide a secure automated environment.

2.0 Literature Review:

Artificial Intelligence in the Banking Sector:

Topic	Description
1. Real Time Analysis of Banking Data with AI Technologies **Author:** S. C. Vetrivel, T. Mohanasundaram, T. P. Saravanan, R. Maheswari **Year: 2024**	**Summarized:** The author explains on the revolutionary potential of applying artificial intelligence (AI) technologies to analyses financial data in real-time and emphasizes how AI can swiftly identify fraudulent transactions, which is very advantageous for banks. He also discusses the difficulties in putting these technologies into practice, such as the need for high-quality data to guarantee precise insights and the need for qualified AI specialists, which forces banks to make investments in hiring and training new employees. **Research Gap:** The study identifies a research gap in creating frameworks or approaches to guarantee data quality in real-time banking data analysis, highlighting the difficulty of requiring high-quality data for AI algorithms. In order to improve the efficacy of AI applications in banking, this involves investigating methods for data management, validation, and purification. **Future research**: It could focus on improving the quality of data and developing methods for better data management practices used in AI algorithms for real-time banking analysis,

	thereby enhancing the insights and recommendations generated by these technologies. Another area for future research could involve the development of training programs and strategies for banks to attract and retain skilled AI professionals. *(S. C. Vetrivel, 2024)*
	Conclusion: The AI-powered real-time analysis of banking data can significantly enhance the ability of banks to detect fraudulent transactions quickly and provide high-quality data to ensure accurate insights, thereby providing substantial benefits to the banking industry. *(S. C. Vetrivel, 2024).*
2. An Analytical Study of Applications of Artificial Intelligence on Banking Practices **Author:** P. S. Aithal **Year:** 2023	**Summarized:** It emphasizes how artificial intelligence (AI) tools, including chatbots, robo-advisors, predictive analytics, cybersecurity, and credit scoring, greatly improve banking procedures and operations, boosting industry productivity and competitiveness. A standardized questionnaire was used to gather primary data from 150 bank workers as part of a descriptive and analytical research methodology. The findings demonstrate a strong positive correlation between the use of AI technology and enhanced banking operations, with the combined impact of various AI applications explaining 64% of the variation in banking procedures.
	Research Gap: The paper does not explicitly mention any specific research gaps identified during the study, which could include areas where further investigation or exploration is needed within the scope of AI applications in banking practices and future research to address potential limitations or challenges faced during the study.
	Future research: Future studies should concentrate on examining the ways in which banks may effectively use data-driven AI capabilities to find potential customers and segment current clients, improving targeted marketing and individualized banking services.
	Conclusion: The study concludes that the increasing adoption of artificial intelligence (AI) is set to have a lasting impact on the banking industry, as banks recognize the transformative potential of advanced technologies and are actively embracing them to enhance their operations and competitiveness. The research highlights that AI can lead to improved efficiency, accuracy, risk management, and customer experience in public-sector banking.
3. AI in Finance and Banking **Author:** Geetha Manoharan, G. Nithya, K. Rajchandar, Abdul Razak, Swati Gupta, Subhashini Durai, Sunitha Prurushottam Ashtikar **Year:** 2024	**Summarized:** The paper explores the transformative impact of AI in the finance and banking sectors, highlighting its applications in automating tasks, detecting fraud, enhancing investment profits, and improving customer experiences through tools like chatbots and predictive analytics. It emphasizes the role of AI in risk management and task automation while addressing challenges related to data quality, accountability, and compliance. Additionally, the research discusses the integration of fintech solutions such as digital wallets, blockchain, and AI-driven services, which are enhancing financial services.
	Research Gap: The paper highlights the benefits of AI in finance and banking, but it fails to delve deeply into the specific challenges and limitations faced in implementing AI technologies in these sectors. While the paper discusses the transformation brought about by AI in customer experiences, fraud detection, risk management, and task automation, it does not extensively address the potential ethical implications and concerns surrounding the use of AI in the financial industry.
	Future research: Future research could focus on further improving data quality in AI applications within the finance and banking sector to enhance decision-making processes and reduce errors. Another area for future research could be exploring ways to enhance regulatory compliance in AI-driven financial services to ensure transparency.
	Conclusion: AI in finance and banking has transformed the industry by enhancing customer experiences, improving fraud detection, optimizing risk management, and automating tasks.

	Despite its benefits, AI in finance and banking faces challenges related to data quality, accountability, and regulatory compliance.
4. Artificial Intelligence in Banking Internal Demand Management Systems: The Example of Vakıf Participation Bank **Author:** Haluk ÖZGEN, Zeynep Erbaşı, Samet Özmen **Year:** 2024	**Summarized:** The paper discusses the implementation of an artificial intelligence-based Natural Language Processing (NLP). The model created to automate tasks such as data entry and reporting, thereby increasing operational efficiency and customer satisfaction by quickly understanding and responding to customer demands. The study highlights the successful training of the model using in-house request data, achieving a 75% accuracy rate, with ongoing efforts to improve its performance. The ultimate goal is to reduce response times for requests, alleviate operational burdens, and enhance internal customer satisfaction, with plans to extend the model's application to other banking internal processes. **Research Gap**: The paper highlights the insufficiency of general NLP models to meet the specific needs of the banking sector, suggesting a gap in the development of tailored NLP models that address the unique challenges and requirements of banking operations, such as data privacy and language-based complexities. **Future research**: Future research could focus on the development of more advanced and customized Natural Language Processing (NLP) models specifically tailored for the banking sector, addressing the unique challenges and requirements of financial communication, data privacy, and operational efficiency. This would involve exploring the integration of deep learning techniques to enhance the accuracy and effectiveness of these models in processing and analyzing banking-related text data. **Conclusion:** The Vakıf Participation Demand Management System R&D Project successfully developed an NLP and classification model to automate internal processes, aiming to improve workflow efficiency and increase internal customer satisfaction within the bank.
5. Leveraging Artificial Intelligence (AI) for Banks in Emerging Markets **Author:** Joseph O. Witts **Year:** 2024	**Summarized:** The paper discusses how banks in emerging markets can utilize Artificial Intelligence (AI) to boost customer satisfaction, cut expenses, and increase operational efficiency—all of which will give them a competitive advantage in the banking industry. It highlights the significant role of AI in the facilitation of customer onboarding, authentication, data analytics, risk management, fraud detection, investment, and credit assessment, it emphasizes the important role that AI plays in advancing financial inclusion. **Research Gap**: The paper highlights the implementation of AI in banks within emerging markets but does not address the specific challenges and limitations these banks face in adopting AI technologies, such as lack of infrastructure and skilled personnel, which could hinder effective implementation. There is a mention of fewer data protection rules in emerging markets, yet the paper does not explore the implications of inadequate data privacy protection on customer trust. **Future research**: Investigating the impact of data protection regulations on the implementation of AI in banking within emerging markets, focusing on how the lack of infrastructure and rules affects customer privacy and security. Exploring the potential of AI in enhancing financial inclusion by examining specific use cases in customer onboarding, risk management, and fraud detection in various emerging economies. **Conclusion:** The use of artificial intelligence (AI) in banks within emerging economies presents a significant opportunity to enhance the financial system, improve operational efficiency, and provide better customer experiences. Although it can streamline procedures like customer onboarding, authentication, data analytics, risk and portfolio management,

	fraud detection, investing, and credit assessment, issues with data security and privacy still exist.
6. Enhancing Customer Service in Banking with AI: Intent Classification Using Distilbert **Author:** Saurabh Kumar, Suman Deep, Pourush Kalra **Year:** 2024	**Summarized:** The paper presents a comparative analysis of several artificial intelligence approaches for intent categorization in customer service in the banking industry. It evaluates several machine learning approaches, including traditional models like Naive Bayes and Random Forest, alongside the transformer-based DistilBERT model. Findings reveal that DistilBERT significantly outperforms traditional models, achieving an accuracy and F1 score exceeding 92%. **Future research:** Future studies could examine how DistilBERT and other cutting-edge AI models can be integrated into different banking customer service platforms, evaluating their effectiveness in real-time and the effect they have on customer happiness in various financial settings. Investigating the scalability of DistilBERT and its adaptability to different languages and regional banking practices could provide insights into its effectiveness across global markets, potentially leading to the development of tailored AI solutions for localized customer service needs. **Conclusion:** The paper concludes that the DistilBERT model, with its distilled architecture, surpasses traditional machine learning models in intent classification within the banking sector customer service domain. DistilBERT demonstrates exceptional performance with an accuracy and F1 score exceeding 92%, highlighting its ability to substantially enhance customer service standards.
7. Implementing AI in banking customer service: A review of current trends and future applications **Author:** Lawrence Damilare Oyeniyi, Chinonye Esther Ugochukwu, Noluthando Zamanjomane Mhlongo **Year:** 2024	**Summarized:** The study examines how artificial intelligence (AI) is revolutionizing banking customer service, emphasizing how it may improve customer satisfaction and operational effectiveness through a thorough examination of existing applications and potential future developments. It highlights how AI integration has led to notable gains in customer service metrics and the creation of individualized banking experiences. The study advocates for a balanced approach to AI adoption in banking, stressing the importance of addressing ethical and privacy concerns while promoting ongoing research and development **Research Gap**: The study highlights the need for continued research and development in the area of artificial intelligence (AI) in banking, pointing to a deficiency in thorough studies that examine the efficacy and long-term effects of AI technologies on customer service and operational efficiency over time. It highlights the importance of addressing ethical and privacy concerns associated with AI adoption, suggesting a gap in the literature regarding frameworks or guidelines that banks can follow to navigate these challenges while implementing AI solutions responsibly. **Future research**: It should focus on the ethical and privacy considerations surrounding the use of AI in banking should be the main focus, and banks should carefully consider these concerns while implementing new technology. This includes exploring frameworks for ethical governance that can guide the responsible use of AI in customer service and operational processes. **Conclusion:** The paper promotes a balanced approach to its implementation in banking, highlighting the need for continued research and development in addition to ethical considerations. By offering a roadmap for banks to prudently utilize AI's potential and directing the industry towards a future where technology and human ingenuity converge to

	redefine banking's essence, it emphasizes the significance of ethical governance and ongoing innovation in navigating the AI-driven future of banking.
8. AI in banking: socio-economic aspects **Author:** Jurijs Baltgailis, Anastasiia Simakhova, Stanislavs Buka, **Year:** 2024	**Summarized:** The study examines how artificial intelligence (AI) is revolutionizing the banking industry, emphasizing its advantages, which include better fraud detection, better customer service, and more informed decision-making, all of which boost operational efficiency and productivity. It presents a statistical analysis of economic indicators like GDP growth, inflation, and public debt. **Research Gap:** The paper discusses the potential of AI in enhancing customer service and decision-making, it lacks a comprehensive analysis of the ethical implications and challenges associated with AI adoption in banking, such as data privacy concerns and the impact on employment within the sector. **Future research**: Future studies should concentrate on the long-term effects of AI on customer happiness and service quality in the banking industry, looking at how AI technologies can be improved to better serve changing customer needs and improve consumer experiences. Future studies could also examine the legal frameworks and compliance issues surrounding the use of AI in banking, especially in view of the complexity brought about by FinTech, DeFi technologies, and Central Bank Digital Currencies (CBDC). **Conclusion:** The authors highlight the importance of adeptly managing the challenges posed by emerging FinTech, DeFi, and Central Bank Digital Currencies (CBDC) technologies while providing recommendations for maximizing artificial intelligence's advantages in banking. By improving fraud detection, customer service, and decision-making processes all of which ultimately lead to increased bank productivity and efficiency artificial intelligence significantly improves the banking sector

3. Theoretical Framework:

Research Methodology:

In order to investigate the proposed model, this study applied the survey method and particularly concerns consumer's intention to adopt AI banking. The questionnaire was then reviewed by 5 experts in AI technology and banking services in order to ensure the clarity, accuracy and relevance of the survey

An analysis was conducted using 464 usable responses to achieve sample size satisfaction. Table 2 shows the demographics of the respondents characterized in terms of sex, age, training years, experience at work, and specialty. About 300 of the respondents fell within the 25–35 years age group. Most respondents were male (262) and the rest were female (202) when examined by gender. The type of bank account by far most of the respondents had (339) that were public sector banks, but 125 of the respondents had private sector banks bank accounts. The provided demographic data helps to understand characteristics of the sample and gives the ground for factor influencing intention to use AI in banking analysis.

Measurement:

The dependent variable of the model proposed is the intention to adopt AI-integrated tools and the predictors are eight independent variables including Innovativeness, optimism, discomfort, insecurity, customization, interactivity, perceived ease of use and perceived usefulness. An extensive literature review was conducted to determine the nature of the study questionnaire and data obtained was based on this. At times, the questionnaire was modified to fit the objectives of the research. Particularly, the questionnaire was sectioned into two parts. In Section 1, demographic related questions were asked in order to capture the respondent's background information. The eight independent variables were all items in

Section 2; specifically, items related to the research variables. All of the items were measured using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) so as to establish consistency in the data collection process.

Table 4_Construct & Items

Construct	Nos of Items	Source
Innovativeness	4	Parasuraman & Colby 2001
Optimization	4	Parasuraman & Colby 2001
Insecurity	4	Parasuraman & Colby 2001
Discomfort	4	Parasuraman & Colby 2001
Customization	4	Liao, S.S., Xu, D.J., 2005
Interactivity	4	Srinivasan et al., 2002; Ballantine, 2005
Perceived Usefulness	4	Davis, 1989
Perceived use of ease	3	Davis, 1989
Intention to adopt AI	3	Lin et al., 2007

Table 5_Demographic Characteristics

AGE		Frequency	Percent	Valid Percent	Cumulative Percent
	25-35	300	64.7	64.7	64.7
	35-45	42	9.1	9.1	73.7
Valid	Above 45 years	7	1.5	1.5	75.2
	Below 25	115	24.8	24.8	100.0
	Total	464	100.0	100.0	

ENDER		Frequency	Percent	Valid Percent	Cumulative Percent
	Female	202	43.5	43.5	43.5
Valid	Male	262	56.5	56.5	100
	Total	464	100	100	

Bank		Frequency	Percent	Valid Percent	Cumulative Percent
	Private	125	26.9	26.9	26.9
Valid	Public	339	73.1	73.1	100
	Total	464	100	100	

Hypotheses Development

In line with the PLS-SEM analysis all of the proposed hypotheses are confirmed independent variables (Innovativeness, Optimism, Discomfort, Insecurity, Customization, and Interactivity), positively and independently influence Perceived Ease of Use (PEE) and Perceived Usefulness (PEL). The influence of the factors leading to the users' perceptions of ease of use and usefulness is of utmost importance because they directly lead to the intention to adopt AI based systems. The results are especially significant in that they highlight the need for the design of AI tools that are both user friendly and cognizable, thus increasing adoption by individuals who perceive the AI tool as having better perceived value.

Table 6 - Hypothesis Development Result

Variables	Path coefficients	P-Value	Test-Result
CST -> PEE	0.910	0.00	Accepted
CST -> PEL	0.198	0.00	Accepted
DIF -> PEE	-0.058	0.00	Accepted
DIF -> PEL	0.015	0.01	Accepted
INN -> PEE	0.385	0.00	Accepted
INN -> PEL	0.235	0.00	Accepted
INS -> PEE	-0.400	0.00	Accepted
INS -> PEL	0.121	0.00	Accepted
INY -> PEE	-0.013	0.00	Accepted
INY -> PEL	0.038	0.04	Accepted
OMM -> PEE	0.000	0.01	Accepted
OMM -> PEL	0.195	0.03	Accepted
PEE -> INTENTION TO ADOPT AI	0.816	0.00	Accepted
PEL -> INTENTION TO ADOPT AI	0.716	0.00	Accepted

4.0 Data Analysis and Findings

This study validates the proposed conceptual model by employing the Partial Least Squares (PLS) technique which is known for its resistance and flexibility in analysing complex data structures. PLS is one of the strengths of its distribution free property that it assumes no specific distribution data structure. Due to this property (linearity), it works best for issues like multicollinearity, where such problems may arise during analysis in other methods (*Lee et al., 2018*). Furthermore, PLS is free from model complexity, the number of observations and non-normality of data distribution, thus being fit for a broad variety of research. This renders PLS appropriate for this analysis as compared to covariance-based structural equation modelling (CB-SEM).

Measurement Model:

As a first step, we conducted an Exploratory Factor Analysis (EFA) to assure that there was separation between the seven proposed variables. As shown in Table 3, item loadings go beyond the threshold of 0.4, which is an acceptable value, ranging from 0.738 to 0.891; hence, the validity of constructs is supported (*Al-Debei et al., 2015*). For further measurement model reliability and validity assessment, we also check internal reliability, convergent, and discriminant validity. Detailed results for these assessments are provided in Table 4.

Both Composite Reliability (CR) and Cronbach's α were used for internal reliability. According to Table 5, Cronbach's α and CR values ranged from 0.923 to 0.963 and 0.942 to 0.971 respectively which are greater than the recommended value of 0.7 (Hair et al., 2013). This verifies the high internal consistency of the constructs.

Factor loadings and Average Variance Extracted were used to assess the convergent validity. The values of AVE for each variable were above 0.5 and also all factor loadings were above 0.7, therefore Convergent validity was established since the items represent the intended constructs. These findings will support the validity and reliability of the measurement model used for this study.

Table 7

Variables	Cronbach's Alpha	Composite reliability (rho_ca	Composite reliability (rho_c)	AVE
Intention to adopt AI	0.663	0.653	0.622	0.543

Table 8_Factor loading

Outer loadings	CST
CST 1	0.738
CST 2	0.914
CST 3	0.891
CST 4	0.701
DIF 1	0.947
DIF 2	0.944
DIF 3	0.968
DIF 4	0.971
INN 1	0.705
INN 2	0.839
INN 3	0.814
INN 4	0.745
INS 1	0.715
INS 2	0.822
INS 3	0.770
INS 4	0.747
INY 1	0.954
INY 2	0.962
INY 3	0.981
INY 4	0.982
OMM 1	0.938
OMM 2	0.941

OMM 3	0.913
OMM 4	0.965
PEE 1	0.967
PEE 2	0.964
PEE 3	0.770
PEL 1	0.783
PEL 2	0.707
PEL 3	0.712
PEL 4	0.719
INT1	0.750
INT2	0.762
INT3	0.744

The Heterotrait-Monotrait ratio (HTMT) approach was used to assess the discriminant validity of the measures. Discriminant validity was confirmed by all the HTMT values being below the recommended threshold of 0.85 (Henseler et al., 2016). Results of these findings are presented in Table 9 to support the distinctiveness of the constructs in the proposed model.

Table 9_Heterotrait-monotrait ratio (HTMT) – Matrix

Heterotrait-monotrait ratio (HTMT) – Matrix								
Particulars	**CST**	**DIF**	**INN**	**INS**	**INY**	**OMM**	**PEE**	**PEL**
CST								
DIF	0.427							
INN	0.642	0.467						
INS	0.648	0.474	0.657					
INY	0.883	0.325	0.525	0.517				
OMM	0.436	0.326	0.425	0.438	0.216			
PEE	0.892	0.286	0.515	0.535	0.288	0.451		
PEL	0.598	0.366	0.744	0.757	0.374	0.504	0.695	

Overall, the findings confirm that the model meets the criteria for reliability, convergent validity, and discriminant validity.

Conclusion

- ➢ The study revealed that the drivers for adopting AI Artificial Intelligence in the banking sector are customer experiences, cost reduction and the challenges to adoption of AI. AI adoption is also hindered by a lack of awareness about AI, the establishment of ethical AI governance, data protection, and other security concerns. This study investigates the extent to which the Indian banking industry has advanced in integrating artificial intelligence (AI) technology into its banking procedures. *(Suhartanto et al., 2022)*

- ➢ This paper's goal is to learn about the attitudes of customers regarding the deployment of AI in banks. Together with the help of current literature, the empirical data includes a more thorough understanding of the chosen topic,

an investigation of customers perception and attitudes, and an understanding of the fundamental elements that go into the development of cognitive decision-making for consumer desire. *(S.Venkatesan, 2019)*

➢ Customers find user-friendly and satisfied with AI-enabled sustainable banking goods and services, to be incredibly helpful and popular when they want to learn more about banking services and products. Banks and consumers can benefit greatly from AI-enabled products for risk management, fraud detection, and credit scoring. Because the needs of digital customers are diverse and evolving significantly, banks, financial institutions, and fintech companies should continue to improvise after learning about the worries of their target customers in order to keep them as clients. Artificial intelligence is present in many aspects of digital banking, including speech recognition, conversational bots, facial recognition, machine learning for fraud detection, cyber security detection, biometric identification, and humanoid robots.*(Mi et al., 2023)*

Future Scope

➢ This study looked at the banking industry's intention to use AI, so future developments may focus on **client acceptability and happiness**. The expectation confirmation model of artificial intelligence in digital banking and the mediating and moderating relationships between artificial intelligence components may be examined.

➢ Future research could look at the suggested **loyalty model for AI-enabled mobile banking** in different places and with different generations to get better results. The study then concentrates on the contribution of technology-related and service-related variables to AI-enabled mobile banking.

➢ Within the current research work, the authors have examined how customers use and perceive sustainable tools that are provided by AI. The study can be expanded to include a **cost-benefit analysis of AI-enabled products** used by the banking industry. This is the direct effect of AI use on the growth of bank revenue, market share, and profitability.

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