

The Artificial Intelligence Revolution: Transforming Mobile Banking Applications And Adoption

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ABSTRACT

The study investigates on the various ways that artificial intelligence (AI) affects mobile banking apps and how that affects user utilization. Acknowledging AI's revolutionary potential in the financial industry, this study attempts to give a thorough grasp of the technology and user experience at moves. Through the integration of Technology Acceptance Models (TAM), which are crucial for online payment administration and for researchers studying the technological environment, this study suggests a model to generalize the online payment environment. This study uses actual data to identify the main terms used in the technology acceptance model. In this study, survey data from 110 people using the internet is proposed to be analyzed by regression, correlation, and weighted mean calculations.

Keywords: Digital payments, Technology acceptance model (TAM), Cashless society, Artificial intelligence and Technology.

INTRODUCTION

Companies in the service industry, particularly those in the banking sector, aim to retain and grow their current customer base. This perspective informs the assessment of technology-based alternatives. For banks that are refusing to invest in technology-based alternatives, a need for strategic expertise has emerged in order to make this goal feasible. Smartphones, which have embraced technology-based services in the banking industry, will eventually be able to acquire this capability and rapidly incorporate their users into technical advancements on this issue. As previously said, these technologies—also referred to as self-service—are the best means of gaining a competitive edge in the banking industry by raising client value, lowering expenses, and enhancing the value of banking transactions. Customers can use this technology to do these transactions independently at their convenience without physically visiting a bank. This suggests that the banking industry is about to undergo an enormous transformation.

REVIEW OF LITERATURE

Mobile Banking

Mobile banking, or m-banking, is the process of doing financial transactions online with a laptop, tablet, or mobile phone (Shaikh & Karjaluo, 2015). Without traditional banking, managing financial transactions would need face-to-face interactions with banks and bank staff. Furthermore, m-banking allows for the execution of both financial and non-financial transactions. Among the simple tasks that can be completed using m-banking are normal balance inquiries, account management, bill payment, and unique identification changes such as PIN changes (Luarn & Lin, 2005). The rapid advancement of mobile communication technologies has made it possible to conduct trade and commerce that was

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before unthinkable (**Schierholz et al., 2007**). M-Banking provides a range of financial services to retail banking users as well as prospective bank customers. M-Banking provides a range of financial services to retail banking users as well as prospective bank customers. In addition, it offers clients flexibility and engagement when completing their banking activities in a popular environment that integrates banking services in a contextually aware, practical, and experience-centric approach (**Cunningham et al., 2009**). In this regard, m-banking is an effective marketing strategy for retail banking users since it fosters an established connection with their clientele (**Cheah et al., 2011**). The benefits of mobile banking for banks include lower expenses and increased operational efficiency (**Curran et al., 2003**). M-banking indicates that a number of factors affect m-banking adoption. In essence, customers' attitudes and intentions to use m-banking technology are influenced by technology (**Shaikh & Karjaluo, 2015**).

Artificial Intelligence (AI)

Artificial intelligence is a technological advancement that involves educating it to solve difficulties. Deep learning, machine learning, and big data sets are commonly brought up while discussing artificial intelligence. The way artificial intelligence functions is by using sophisticated algorithms to process data. AI systems encompass a wide range of theories and sub-fields, such as computer vision, deep learning, machine learning, and cognitive computing. One can employ artificial intelligence in countless ways. Our world has changed, but it has also made our lives more interesting and convenient. Applications of AI in the finance sector, especially in banking, include voice recognition, chatbots, online shopping, streaming services, self-driving cars, healthcare technology, manufacturing and warehouse systems, educational aids, and more.

Any aspect of learning or intelligence can be characterized through AI. A machine that can resemble artificial intelligence can be created (**McCarthy et al., 1955**). According to **Haugeland (1985)**, this represents a novel attempt to imbue computers with intelligence, characterizing them as knowledgeable machines. Artificial intelligence was defined by **Charniak & McDermott (1985)** as the study of mental capacities through numerical models. Artificial intelligence, according to **Rich & Knight (2009)**, is the study of how computers will eventually perform tasks that humans currently perform well. **Nilsson (1998)** defined artificial intelligence as "human-made intelligent responses." Four approaches to AI were examined by **Russell & Norvig (2010)**: behave like humans, think like humans, think rationally, and act logically. In the light of these explanations, **McCarthy** is the AI expert who has contributed the most. According to **Russell and Norvig (1995)**, AI is so unique that it might be said to have originated from a two-month workshop.

NEED FOR THE STUDY:

Since artificial intelligence (AI) significantly improves the security of mobile banking applications, examining its effects enables researchers to spot emerging risks. Gaining an understanding of AI-powered fraud detection techniques can help create strong security measures that safeguard consumers' money. AI is revolutionizing mobile banking apps, making it easier for scholars and business experts to stay up to date on the newest developments in technology. It's critical to keep up with technological developments, enhance user experiences, address security issues, promote financial inclusion, improve operational efficiency, protect data privacy, make strategic decisions, and comprehend the wider economic impact by studying the AI revolution in mobile banking applications.

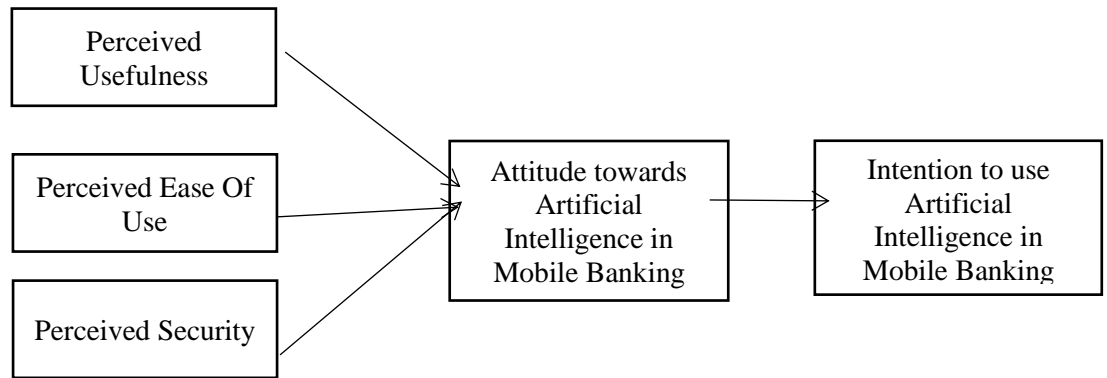
LIMITATIONS OF THE STUDY

- AI implementations in mobile banking may have long-term effects that are challenging to predict within the study's time-frame.
- Sample size used for the study is small hence, the results cannot be taken as universal
- Limitations of questionnaire are applicable to the study

OBJECTIVES OF THE STUDY:

- To examine the various factors that influence the intention to use the mobile banking applications.
- To analyse the relationship that exist between the various factors that influence the intentions touse the mobile banking applications.
- To analyse the cause-effect relationship that influence intentions touse the mobile banking applications

RESEARCH MODEL:



Source: Koyluoglu, A. S., & Acar, O. E. (2023).

RESEARCH METHODOLOGY

In order to understand the many aspects of mobile banking, this study began with a survey of the literature conducted through periodicals and journals. This is an analytical study with an empirical focus. Using the Purposive Sampling Technique, 110 internet users in Chennai were selected as a sample and given a structured, standardized questionnaire to complete in order to gather primary data. Google Forms was used to administer the questionnaires. The study's components were assessed using a five-point Likert scale that went from "Strongly Disagree" (1) to "Strongly Agree" (5). Regression analysis, weighted mean, and Karl Pearson correlation were employed in the SPSS analysis. Tests for reliability and validity were carried out, and the results were satisfactory. The Cronbach's Alpha Reliability Test yielded an overall reliability score of 0.901 for the questionnaire.

DATA ANALYSIS AND INTERPRETATION

Demographic profile being the basic attributes of the respondents are required to assess the characteristics of the respondents who are to be surveyed. In order to examine the characteristics of the study, a number of variables relevant for the study like gender, age of the respondents, educational qualifications have been used in this study. The classification of the respondents based on the various categories of demographic variables have been listed below in Table I

Table I Demographic profile

Demographic variables	Category	Frequency	Percentage
Gender	Male	47	40.8
	Female	68	59.1
Age	Less than 20 years	27	23.4

	20-50 years	70	60.8
	25-28 years	18	15.6
Educational qualifications	Undergraduate	52	45.2
	Post graduate	34	29.5
	Professionals	29	25.2

Source: Primary Data

The following is explained by the data about the respondents' demographic profile as shown in Table No. 1 above. It may be deduced that the majority of respondents (61.8%) are female, and the remaining respondents (38.1%) are male. Regarding age, it can be deduced that the majority of respondents (63.6%) are between the ages of 21 and 24; 24.5% are between the ages of 17 and 20; and 11.9% are between the ages of 25 and 28. Regarding educational background, it can be deduced that the majority of respondents (42.7%) are undergraduates, while 30.9% fall into the postgraduate category. The category of Others comprises 26.3% of the participants.

The next part of the analysis deals with determining the factors of mobile banking applications using Weighted mean .

All statements are being measured on a five point Likert scale ranging from “Strongly Agree” -5 to “Strongly Disagree” -1, the weighted mean score of which are calculated and depicted in the Table II as shown below.

Table II Weighted mean- Factors of the study

S. N o	Fac tors	Weighted mean
1	Perceived Usefulness	4.25
2	Perceived Ease of Use	3.78
3	Perceived Security	3.50
4	Attitude towards Artificial Intelligence / Technology towards Mobile Banking	4.12
5	Intention to use Artificial Intelligence/ Technology in Mobile Banking	4.04

Source : Primary Data

The above Table II depicts the weighted mean scores of the Factors of mobile banking applications, Attitude towards Artificial Intelligence and Intention to use. It reveals the weighted mean scores for all the statements that measured the aforesaid factors are above 3. This indicates that, the respondents have moderately agreed all these factors influencing the Intention to use Artificial Intelligence in Mobile Banking.

The next part of the analysis deals with relationship among the factors of Mobile banking using Correlation analysis.

CORRELATION:

Relationship amongst the Factors of the Study, the Hypotheses framed and tested include: **Hypothesis (H₀₁):** There is no significant relationship between Perceived Usefulness and Attitude towards Artificial Intelligence in mobile banking.

Hypothesis (H₀₂): There is no significant relationship between Ease of use and Attitude towards Artificial Intelligence in mobile banking.

Hypothesis (H₀₃): There is no significant relationship between Perceived Security and Attitude towards Artificial Intelligence in mobile banking.

Table III Factors of mobile banking and Attitude towards Artificial Intelligence In Mobile Banking

Factors	“r value”
Independent Factors	
Perceived Usefulness & Attitude towards Artificial Intelligence	0.544 **
Perceived Ease of Use & Attitude towards Artificial Intelligence	0.310 **
Perceived Security & Attitude towards Artificial Intelligence	0.126

Sources: Primary data

Note: **Correlation is significant at the 0.01 level (2-tailed)

According to the preceding Table, at the 1% level of significance ($p < 0.01$), there is a substantial positive correlation between perceived usefulness, perceived ease of use, and attitude toward artificial intelligence. Consequently, the null hypothesis is disproved. On the other hand, Perceived Security does not display a significant relationship with the Attitude towards Artificial Intelligence In Mobile Banking ($p > 0.05$) at a 5% significance level. Consequently, The null Hypothesis (H₀₃) is accepted.

Hypothesis (H₀₄): There is no significant relationship between Attitude towards Artificial Intelligence in Mobile Banking and Intention to use Artificial Intelligence in Mobile Banking

Table IV Relationship between Attitude and Intention to use Artificial Intelligence in Mobile Banking

Factors	“r value”
Independent Factors	
Attitude towards Artificial Intelligence & Intention to use Artificial Intelligence in Mobile Banking	0.515 **

Sources: Primary data

Note: **Correlation is significant at the 0.01 level (2-tailed)

At the 1% level of significance, the preceding Table shows a significant positive link between the intention to employ artificial intelligence in mobile banking and the attitude towards it, with $p < 0.01$. Consequently, the null hypothesis is disproved.

The next part of the analysis deals with determining the impact amongst the Factors of the study using Regression Analysis.

REGRESSION

Impact of Factors of mobile banking applications on Attitude towards Artificial Intelligence in mobile banking

Hypothesis (H₀₅): There is no significant impact of Perceived Usefulness on Attitude towards Artificial Intelligence in mobile banking.

Hypothesis (H₀₆): There is no significant impact of Ease of use on Attitude towards Artificial Intelligence in mobile banking.

Hypothesis (H₀₇): There is no significant impact of Perceived Security on Attitude towards Artificial Intelligence in mobile banking.

Table V Showing Regression Analysis of Factors of mobile banking applications on Attitude

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	1.062	0.429		2.478	0.015
PU	0.503	0.076	0.509	6.584	0.000**
PEOU	0.249	0.089	0.238	2.801	0.006**
PS	-0.06	0.073	-0.007	-0.086	0.932
R Value	0.592				
R ²	0.350				
F value	19.932				
P value	0.000**				

Source: Primary data

Dependant variable: Attitude towards AI

Note: **denotes significant at 1% level

*denotes significant at 5% level

It is evident from Table V above that there is a substantial positive correlation between the factors of mobile banking applications and attitudes toward artificial intelligence, as indicated by the multiple correlation coefficient (Multiple R) of 0.7592.

The R² value of 0.501 indicates that about 35% of the variance in Attitude towards Artificial Intelligence is explained by the Factors of Mobile banking applications.

The Regression Equation is Y,

Attitude towards Artificial Intelligence = 1.062(Constant) + 0.503 (Perceived Usefulness), 0.249 (Perceived Ease of Use), -0.06 (Perceived Security).

It is inferred that, Perceived Usefulness and Perceived Ease of Use had a significant positive impact on Attitude towards Artificial Intelligence at 1% level of significance since $p < 0.01$. Therefore the null hypothesis is rejected. Perceived security does not

demonstrate a significant positive impact on the Attitude towards Artificial Intelligence at a 5% significance level ($p > 0.05$). Hence, the null hypothesis is accepted.

Hypothesis (H₀₈): There is no significant impact of Attitude towards Artificial Intelligence on Intention to use Artificial Intelligence in Mobile Banking

Table VI Showing Regression Analysis of Attitude on Intention to use Artificial Intelligence in Mobile Banking

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	1.902	0.350		5.432	0.000**
ATT	0.549	0.086	0.515	6.380	0.000**
R Value	0.515				
R ²	0.265				
F value	40.698				
P value	0.000**				

Source: Primary data

Dependant variable: Intention to use AI

Note: **denotes significant at 1% level

*denotes significant at 5% level

It is clear from Table VI above that there is an important positive connection between the intention of using AI in mobile banking and one's attitude toward AI, as indicated by the multiple correlation coefficient (Multiple R) of 0.515.

The R² value of 0.265 indicates that about 26.5% of the variance in Intention to use Artificial Intelligence in Mobile Banking is explained by the Attitude towards Artificial Intelligence.

The Regression Equation is Y,

Intention to use Artificial Intelligence in Mobile Banking = 1.902(Constant) + 0.549 (Attitude towards Artificial Intelligence).

Since $p < 0.01$, it can be concluded that, at the 1% level of significance, Attitude toward Artificial Intelligence had a substantial positive impact on Intention to utilize AI in Mobile Banking. Consequently, the null hypothesis is disproved.

CONCLUSION

The finding suggests that specific elements or features within mobile banking applications have a meaningful impact on shaping users' attitudes toward artificial intelligence. The objectives of the study were centred on customer thinking about the mobile banking and

ascertain the impact of Technology acceptance model(TAM) on customers intention to use AI in mobile banking.The study made clear that attitudes and intentions toward the application of AIS in mobile banking are significantly influenced by Perceived usefulness and perceived ease of use. The study's findings also demonstrate that attitudes toward and intentions to employ artificial intelligence in mobile banking are significantly influenced by Perceived usefulness and perceived ease of use.Mobile banking applications can be designed and implemented with user preferences and positive impressions of artificial intelligence in mind by taking into account the aspects that impact users' opinions.

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