## Mobile banking adoption among elderly Nigerians: Challenges and potentials

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### Abstract

This study investigated the problem of adoption of mobile banking by the elderly Nigerians. While mobile banking is convenient and accessible, and saves time, the aged persons face challenges due to their limited digital literacy, security concerns, and infrastructure problems. A survey of 300 elderly Nigerians found that 80% of them had never used mobile banking, and 20% knew what the technology was. The regression analysis indicates that there is a significant relationship between the level of digital education and the extent of mobile banking among elderly Nigerians at p < 0.01. Perceived ease of use also gives a positive effect at p < 0.05, implying that if mobile banking platforms were made easy, more aged would use them. At the same time, security issues reduced the likelihood score by a large margin (p < 0.01), which underlines the importance of reassuring users' fears about fraud and losing their money. The key barriers are lack of familiarity, confidence in the use of mobiles in rural areas, and poor network coverage. Yet, there is a considerable space for development; although 60% of the respondents would be ready to use mobile banking if properly trained. The study concluded that improvement in digital literacy, reduction of complexity of mobile platforms, addressing security issues and strengthening infrastructure are deemed as possible ways of bringing about an increase in mobile banking adoption among elderly Nigerians.

Keywords: Digital literacy, Elderly Nigerians, Financial Inclusion, Mobile banking.

# 1. Introduction

The growth of digital technology is rapidly enhancing the various sectors across the world; the banking sector is among the most affected. One of the most popular sub-products that joined the list of financial services is mobile banking because dozens of advantages, such as convenience, easy accessibility, and time-saving (Choudrie et al., 2018). Mobile banking is gradually gaining popularity in Nigeria due to the enhanced use of mobile phones, the emergence of fintech, and the call for the development of deeper and wider financial developing systems across nations (Adewoye, 2013). These innovations can go a long way in filling gaps in service delivery within areas that do not have physical branches or areas that need to be better (Ohiani et al., 2021). However, while it is possible for some specific groups, for example, the elderly, to use mobile banking services, it has certain prospects and problems.

More of the elderly Nigerian population comes from the pre and early digital banking generations, and as such, the challenges that they are likely to encounter when making the switch to mobile banking include lack of familiarity with such services, low levels of digital literacy, security concerns, and seeing mobile banking as a complicated, or out of reach fantasy (Ukpabi et al., 2018). This information becomes relevant as Nigeria ages, and trends that affect the elderly's use of mobile banking need to be identified. The promotion of mobile banking to this group increases efficiency in the provision of their basic needs, adding to the fact that physical infrastructure in most the

developing countries may not support buildings, banking halls, and other infrastructural support (Chukwu & Idoko, 2021).

However, there is still considerable scope for developing this market given that the aged also need to gain experience in using mobile banking, although today, more and affordable smartphones more are becoming available, and there is increasing coverage of digital services throughout the country. There is need for financial institutions and policy makers to make policies and strategies to incorporate the needs of the senior citizens and help them gain improved financial services in this Nigeria's emergent digital economy. Thus, this paper's general objective is to examine the prospects and challenges of mobile banking services for money management amongst the elderly population in Nigeria.

## **Statement of the Problem**

Although many young people embrace mobile banking rapidly, and hence, it is rapidly growing in Nigeria, there are still many older adults who still need to be included in mobile banking services. This, in view of the rising use of mobile banking in carrying out all financial transactions, including paying bills and transferring cash, poses a risk of the elderly losing access to basic financial services (Chukwu & Idoko, 2021). It is for this reason that this demographic is constrained by issues of low levels of digital literacy, fear of technology. security concerns. and infrastructural factors that hold them back from being able to exploit the opportunities provided by mobile banking platforms (Abayomi et al., 2019). This is, however, worsened by the fact that an increasing proportion of the Nigerian population is aging and the tendency towards a cashless society, which requires access to mobile money for financial transactions (Okonji & Ogwezzy, 2018). This lack of ability to participate in mobile banking hinders the financial independence of senior citizens in Nigeria, complicates, if not hinders, their access to basic financial products, and may aggravate their social exclusion in a society that is rapidly becoming more disorganized and virtual (Fab-Ukozor *et al.*, 2020).

Despite the rapid growth of mobile banking services in Nigeria and its potential to enhance the economic lives of older people, there is a paucity of literature on barriers that elderly Nigerians the encounter while using the services and factors that may promote their inclusion in mobile banking services (Chukwu & Idoko, 2021). This gap, therefore, calls for research that will clearly analyse the causes and proffer concrete solutions on how mobile banking can be sold to these people. Consequently, the purpose of this study is to identify the barriers that prevent elderly Nigerians from using mobile banking and examine the opportunities for engaging this group of users in mobile financial services. The above challenges call for intervention in order to ensure that elderly Nigerians are not isolated in the ongoing digital financial system shift in Nigeria.

Mobile banking has various barriers in Nigeria especially regarding elderly users of the products. Some barriers have been established as lack of confidence in technology and infrastructure, security and awareness barriers (Agwu et al., 2014; Omotayo & Akinyode, 2020). Perceived usefulness. perceived ease of use. perceived facilitating perceived risk, conditions, age, education and income level influence adoption (Msweli & Mawela, 2020). Mobile banking also means innovation and the key factors that influences innovation in this case are relative advantage, complexity. compatibility, observability and trialability (Oyinlola, 2022). However, there are prospects for its further spread, since some elderly clients enjoy the availability of mobile banking for such operations as funds transfer and payment of bills (Omotavo & Akinyode, 2020). The main objective of this research is to address the challenges and prospects of mobile banking usage among the elderly in Nigeria. The specific objectives of this study are to establish the factors that determine the decision of the elderly in Nigeria to adopt mobile banking services; ascertain the technological, socioeconomic, and infrastructural barriers to mobile banking among the elderly group in Nigeria and determine the current level of digital literacy and confidence of older adults in Nigeria in the usage of mobile banking applications.

## 2. Literature Review

Another effect brought by the use of technology is mobile banking services have advanced financial systems in each country that offer a convenient channel of performing financial transactions. Nevertheless, the levels recorded among elderly people, especially those in Nigeria, some peculiar give prospects and challenges. This review harmonises these factors for the purpose of developing a conceptual model that would help explain the phenomenon of the adoption of mobile banking among the elderly in Nigeria. One of the major factors that put off the elders from going for mobile banking is their low levels of ability to accept mobile technology (Pankomera & van Greunen, 2019). This is because most of the elderly are ill-informed on current technological enhancement, a challenge they display when tackling icons and touch screens. This is compounded by the fact that the current and evolving mobile banking apps are difficult to navigate due to their cognitive, and in some cases physical, impairments (Ediagbonya & Tioluwani, 2023).

However, due to the poor infrastructure that involves slow internet connection, and intermittent power supply, the demographic so rarely enjoys optimal mobile banking experiences (Onyema, 2019). A related challenge is the lack of confidence in the mobile banking systems also. A milestone that proves this is that majority of elderly Nigerian are usually reluctant to engage in activities on digital platforms because of issues regarding scam, unauthorized access of their data, and lack of consumer rights protection (Agyei *et al.*, 2020). This distrust escalates due to the rising features of cybercrimes that are more inclined to attack sensitive groups of persons. Furthermore, cultural and social aspects diminish the willingness of older Nigerians to integrate into modern banking and reject new kinds of financial instruments (Eze *et al.*, 2021).

Nevertheless, the experience of mobile banking among elderly Nigerians poses great opportunities. Mobile banking can positively impact the provision of the banking needs in the country particularly for the people in rural and low banking populated areas (Qatawneh & Makhlouf, 2023). It fuels the exchange of secured financial interactions hindering consistent bank physical visits. Moreover, we can use activities of mobile banking tools to provide knowledge as financial literacy with regards to the elderly in an effort to fill knowledge gaps on the respective improved confidence in technology in financial services (Mogaji et al., 2021). Technological advancements also provide opportunities to developing easy to use convenient application that can suits elderly users (Ahmed et al., 2021). Elements like people's voice navigation, enlarged font, and intuitive interfaces are an effective solution for improving accessibility а lot (Olaolu, 2022). Furthermore, other role is that through policies and strategies which involves addressing infrastructural short comings, improving on security concerns or even involving awareness creation and sensitization financial among the institutions (Adegbite & Machethe, 2020). Concerning factors influencing business executive adoption, different works have revealed that economic concerns and social factors are likely to be the key factors that may influence business executives to adopt Mobile banking services as preferred means of payment (Okocha & Adibi, 2020). Al Hudithi & Kyari (2020) also relative confirmed that advantage, observability, complexity and have positive influences toward the adoption of technology while compatibility, а trialability, and perceived risk have negative influences toward the adoption. Socio-economic status also has a major influence, and elderly users are least likely to use internet/mobile banking, but are most likely to use Mobile-SMS and POS banking (Aduba, 2020). Traditional awareness and security concerns are primary barriers to the non-adoption of technology by older adults, while the convenience factor fosters technology use (Omotayo & Akinyode, 2020). The challenges of adopting and using mobile banking by the elderly in developing countries include; security, trust, technical and application complications skills. (Msweli & Mawela, 2020, 2021).

However, there are positive enabling factors inclusive of convenience, free or open access, and cost benefits that can encourage adoption (Msweli & Mawela, 2021). In Nigeria, companies that adopted mobile banking were those that gained relative advantage, had high observability. and low complexity. From this study, compatibility, trialability, perceived risk were found to have negative impacts on the adoption of mobile banking among companies in Nigeria (Kyari & Al Hudithi, 2022). For current users of the technology, perceived of perceived ease use, usefulness, and perceived trust has major impacts; for potential users, however, behavioural perceived controlself efficacy, perceived subjective norms and perceived usefulness has had a high impact (Abner et al., 2019). Therefore, despite the aforementioned challenges that affect the level of its adoption among elder and Nigeria population, they cannot deny the fact that this mobile banking has a tremendous feature that is capable of increasing the level of bankability and ease in the required transaction. Mitigating these challenges through specific approaches and implementations and technologies for the disabled create the magic of mobile banking for this group. From this paper's conceptual review, there is a consensus that requires a holistic framework to boost the usage of mobile banking among elder Nigerians.

# Theoretical framework

The concepts for this theoretical framework informing this research on the extent of mobile banking services adoption among the elderly populace in Nigeria is a function of the following theories of technology adoption, digital divide, and financial inclusion. These frameworks offer avenues to look at the determinant factors of the adopter behaviours of the elderly Nigerians and their relationship of with the adoption M-banking technology.

Using the Technology Acceptance Model (TAM) that Davis proposed in 1989, the paper indicates how elderly Nigerians engage in mobile banking (Kamal et al., 2020). TAM suggests that two primary individual's factors influence an acceptance of new technology: Perceived usefulness refers to the degree to which individuals believe using an IT will enhance their productivity, while perceived ease of use refers to the extent to which individuals believe using an IT is troublefree (Usman et al., 2022). Literature has defined perceived usefulness in the context of this study as the extent to which the aged believe mobile banking will improve their effectiveness in performing financial functions, for example, paying bills or verifying balances (Ahmad, 2018). On the other hand, perceived ease of use refers to how easy elderly users find operating mobile banking systems and whether they experience any complexities in the process (Ahmad et al., 2020). This is relevant because elderly people are generally found to have comparatively lower levels of digital literacy. However, by adopting the TAM, this study aims to establish how these perceptions could become a negative influence or a positive influence in the adoption of mobile banking among elderly Nigerians within the above-mentioned dimensions, namely perceived usefulness and perceived ease of use.

The second theoretical framework in the current study is Rogers' Diffusion of Innovation (DOI) Theory, which was developed in 1962 (Mori & Mlambiti, 2020). DOI theory is a theory that is used to illustrate how new technologies and knowledge enter society and some of the factors that affect the pace at which it will take to happen (Okour et al., 2021). In this study, DOI will assist in how elderly Nigerians perceive mobile banking innovation and their attitude towards its adoption. Another component of the DOI is called relative advantage, meaning that older adults deem mobile banking better than conventional banking, which involves paying a visit to a physical bank branch (Mori & Mlambiti, 2020). The other factor we have is the difficulty that measures how challenging the elderly users deem mobile banking both in using and accessing it (Abbas et al., 2019). In the past, many elderly users may still find mobile banking challenging because they have not used the device or have concerns about how easy it is to use the device.

Furthermore, the trial capability of mobile banking – whether the elderly feel that they can try out the service and only engage it fully later on – might also prove invaluable (Rahi & Abd. Ghani, 2018). Transaction services such as mobile banking may be adopted more readily by elderly Nigerians if the services are available on a trial basis. Discussing further. visibility. which indicates the awareness of the beneficiaries of the terminologies used in passing across the benefits of mobile banking, also affects adoption among the elderly in social groups (Alam et al., 2018). Just like other users, the aged could be less sceptical about mobile banking if they see people in their county who are elderly like them using the technology. By integrating the technology acceptance model and the diffusion of innovations theory, this theoretical framework will be able to explain the different factors that affect mobile banking for the elderly people of Nigeria. These insights will help to find out what technological, social, or psychological factors should be overcome to enhance the rates of young people's usage of financial services and boost financial inclusion for this segment.

# 3. Methodology

The cross-sectional survey research design numerical was used to generate information that will analysed be statistically to ascertain drivers of mobile banking uptake and the challenges experienced by the demographic in emerging markets. The target population of this study was the Nigerian citizens, of sixty (60) years and above, residing within urban and rural settings. Three hundred respondents were electronically surveyed using random sampling to increase the chances of representing different socioeconomic and geographical backgrounds of Nigeria.

A structured questionnaire was developed to gather data on demographic details such as age, gender, education level, mobile phone ownership and perceived ease with using mobile banking, conceptions related to mobile banking (usability, perceived relevance, and perceived risks), mobile banking adoption factors: (constrained digital skills. insufficient mobile networks), and the choice to adopt or use mobile banking in the future. A five-point like Likert scale was employed to determine the perceived challenges and prospects of respondents.

Quantitative data were analysed by descriptive statistics, including frequencies, means, and percentages, to provide an overall description of the study participants' demographic profile and other general trends. Inferential statistical technique of regression was also used to establish the nexus between variables, such as digital literacy and mobile banking adoption. Participants' consent was sought,

4. Results and Discussion Presentation of Results and they were told that their responses would be kept secret and their identity would not be revealed. The study also considered ethical research standards relating to elderly respondents.

Variable	Category	Frequency (n = 300)	Percentage (%)
Sex	Male	135	45%
	Female	165	55%
Total		300	100%
Age	60-69 years	210	70%
-	70-79 years	75	25%
	80 years and above	15	5%
Total		300	100%
Education Level	No formal education	120	40%
	Primary education	90	30%
	Secondary education	60	20%
	Tertiary education	30	10%
Total		300	100%
Location	Urban	120	40%
	Rural	180	60%
Total		300	100%

#### Field work, 2024

A total of 300 respondents participated in the survey; out of the respondents that participated, 55 % were females while 45% were males. 70 % of the respondents were within the 60-69 years age bracket, 25% were within the 70-79 years age bracket, and the remaining 5 % were aged 80 years and above. Similarly, 40% of the respondents had no formal education, while 30% had only attended the primary school level. The remaining 20% had attended secondary school, while only 10% had been to tertiary institutions. Out of the 300 respondents, 60% of them live in the rural area.

Table 2: Use of Mobile Devices and Familiarity	with Mobile Banking
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Variable	Category	Frequency (n = 300)	Percentage (%)
Mobile Phone Ownership	Own a mobile phone	240	80%
	Do not own a mobile phone	60	20%
Total	-	300	100%
Type of Phone Owned	Feature phone	180	60%
	Smartphone	120	40%
Total	*	300	100%
Familiarity with Mobile Banking	Familiar	105	35%
	Not familiar	195	65%
Total		300	100%
Usage of Mobile Banking	Have used	60	20%
5	Never used	240	80%
Total		300	100%

#### Field work, 2024

Table 2 shows that majority, 80% of the surveyed population owns phone but only 40% of them had smart phones. A total of 65% of the respondents are not familiar

with the use of phone for mobile banking. 80% of the respondents have used phone for mobile banking mobile banking.

December, 2	2024
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Variable	Category	Frequency (n = 300)	Percentage (%)
Perceived Usefulness	Mobile banking is convenient	195	65%
	Mobile banking is unnecessary	105	35%
Total		300	100%
Perceived Ease of Use	Mobile banking is complicated	210	70%
	Mobile banking is easy with guidance	90	30%
Total		300	100%
Security Concerns	Concerned about fraud and loss of funds	225	75%
•	Not concerned	75	25%
Total		300	100%

#### Table 3:Perceptions of Mobile Banking

#### Field work, 2024

In table 3, 65% of the respondents indicate that mobile banking is convenient while 70% perceived mobile banking as complicated. In terms of security, 75% of

the respondents are concerned about associated fraud and loose of money through mobile banking.

# Table 4: Barriers to Mobile Banking Adoption

Barrier	Category	Frequency (n = 300)	Percentage (%)	
Digital Literacy	Unfamiliar with mobile banking apps	210	70%	
	Familiar with mobile banking apps	90	30%	
Total		300	100%	
Confidence with Mobile Usage	Confident	120	40%	
	Not confident	180	60%	
Total		300	100%	
Infrastructural Limitations	Poor mobile network coverage	165	55%	
	Adequate mobile network coverage	135	45%	
Total		300	100%	
Cultural Resistance	Prefer traditional banking	150	50%	
	Open to mobile banking	150	50%	
Total	1 0	300	100%	
Cost of Mobile Devices	Cost is a barrier	120	40%	
	Cost is not a barrier	180	60%	
Total		300	100%	

# Field work, 2024

In Table 4, 70% of the respondents stated that they do not have any idea about mobile banking, another concern is control with mobile usage where 60% are not comfortable using mobiles apart from basic tasks. Concerning infraction, 55 percent still experience poor mobile network coverage while 45 percent have good coverage information. There is one more cultural factor: half of the respondents do

not want to embrace anything new and prefer to stick with old ways of using banking services. 60% of the respondents who do not agree that the cost of the devices is barrier. Therefore, the study avails empirical evidence on the effects of digital literacy and infrastructural enhancements to promote the uptake of mobile banking.

Table 5: Willingness to Adopt Mobile Banking in the Future	Table 5: Willingn	ess to Adopt	Mobile B	anking in	the Future
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Variable	Category	Frequency (n = 300)	Percentage (%)
Interest in Learning	Willing to learn mobile banking	180	60%
	Not interested in learning	120	40%
Total	_	300	100%
Perceived Benefits	It could save time and reduce travel	165	55%
	No significant benefits	135	45%
Total	2	300	100%

#### Field work, 2024

Despite the challenges, there is potential for growth in mobile banking adoption among elderly Nigerians. 60% of respondents expressed interest in learning how to use mobile banking if provided with proper training. 55% agreed that mobile banking could save time and reduce the need for long trips to physical bank branches, especially for elderly people with mobility challenges.

Table 6: Summary of Multiple Regression Analysis Showing the Influence of Factors onMobile Banking Adoption Among Elderly Nigerians

Predictors	В	t	р	R	R <sup>2</sup>	F	р
Digital Literacy	+0.55	4.732	<.01				
Perceived Ease of Use	+0.30	2.541	<.05	0.432	0.186	12.456	<.01
Security Concerns	-0.45	-5.281	<.01				

## Field work, 2024

Table 6 shows regression results, and the analysis indicates that there is a significant relationship between the level of digital education and the extent of mobile banking among elderly Nigerians, with the regression result being statistically significant at p<0.01. Perceived ease of use also gives a positive effect (p < 0.05), implying that if mobile banking platforms were made easy, more aged would use them. At the same time, security issues reduced the likelihood score by a large margin (p < 0.01), which underlines the importance of reassuring users' fears about fraud and losing their money to embrace the system.

# **Discussion of Findings**

The survey disclosed some significant findings about the elderly Nigerians when it comes to the usage of mobile banking. Although 80% of the population are mobile phone users (60% with basic feature phones), only 20% of them have used mobile banking services. The key barriers are digital illiteracy, 70% are not familiar with mobile banking apps, and 75% are worried about fraud. Rural residents have to contend with bad network coverage and a strong tradition for traditional banking which is consistent with the reports in (Abbas et al., 2019; Rahi & Abd.Ghani, 2018). However, there is a lot of interest in learning - 60% opined that they would likely adopt mobile banking if given the right training, and 55 per cent feel it has the potential to save them time.

The Regression analysis also revealed the strength of digital literacy and perceived ease of use as strong drivers of adoption, and weak deconstructionists of security concerns as strong inhibitors of adoption. As a result, mobile banking usage among the elderly may be increased through education and security measures to address these barriers. This is also consistent with the findings reported in (Alam *et al.*, 2018; Mori & Mlambiti, 2020; Okour *et al.*, 2021).

## 5. Conclusion and Recommendations 5.1 Conclusion

The study revealed that though various challenges influence the elderly Nigerians in using mobile banking, there is still enormous opportunity for growth, provided certain factors that may hinder the use of mobile banking, like illiteracy in the use of digital gadgets, insecurity, and poor mobile infrastructure, are overcome. This is a clear call to financial institutions that mobile banking solutions can improve the elderly's socio-economic lives by enabling them to engage in the digital economy.

# **5.2 Recommendations**

Based on the findings, the following recommendations are proposed that:

1. Community organizations and financial institutions assist the elderly by creating awareness of new skills in mobile money and general income transfers through mobile phones targeting elderly users.

2. Innovative apps provided through commercial banks and the leading fintech firms should be designed as convenient and friendly mobile banking applications with clear interfaces and texts, a slightly larger font, and easily understandable instructions that can be comfortable for the aged. 3. Banks and other financial institutions should ensure optimal security, and where this is not possible, they should have proper and constant communication in order to eliminate as many fears of fraud as possible amongst the elderly. This could include creating educative messages on how to make mobile banking safer.

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