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Adoption and Usage of E-Banking Channels in Nigeria: Implication for Deepening Financial Inclusion

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Abstract

Increasing and/or lack of access to financial services has huge economic and social implications in Nigeria. The overall objective of this study is to reduce the prevalence of financial exclusion through adoption of technology-enabled e-banking channels. The aim is to guarantee greater access to financial access across the divide, hence the study sought to identify the various e-banking channels, and level of use of these channels. Analytically, the study adopted descriptive statistics and the results show a huge disequilibrium between available e-channels and use. The major channels identified are Debit card, video banking, e-payments, fund transfer, and mobile transfer. Debit card was identified as the most widely known and used of all the channels, besides e-payments which also shows a high level of use among respondents. Finally, poor infrastructure and telecommunication facilities and poor financial education were identified as major weaknesses in the adoption of e-banking channels and thus serves as hindrances to financial inclusion. The study highlighted that access alone cannot guarantee inclusion without commitment to addressing issues of constraints to availability and use with good policy framework. Given that financial exclusion persists due to illiteracy, the study therefore recommends multi-sectoral approach of integration among the government agencies, financial institutions, and telecommunication firms in terms of greater consumer awareness and literacy programme. Others are needed for infrastructure development especially in rural areas; improve security as an important policy and strategic branding tool to build confidence among consumer and a pathway to address exclusion.

Key words: Technology; Financial inclusion; Adoption; E-banking channels; Digital finance and usage

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INTRODUCTION

A. Background Information

One of the greatest developments in the global business environment in the 21st century is around technology. The powers of globalization and technology have redefined the traditional parameters of assessing activities of market and businesses such that there are increased tendencies to improve efficiency in response to creating consumer value. Invariably, with technology, it has become increasingly easy to take and make decision on complex activities by organization and individuals; it has also shifted control to buyers, thereby making it difficult to control choices, preferences and consumptions.

Although advancement in technology innovation has been witnessed in every industry, its revolution and impact in the service sector have been tremendously alarming especially in the banking industry. There has been a paradigm shift in banks from the traditional banking system to an improved platform anchored on electronic system (Kamakodi & Khan, 2008). This has made it easy for people to manage their finances, have easy access to their account without visiting the bank hall and has seamlessly spark digital finance management, thereby creating what has been called a cashless society in Nigeria.

In order to leverage on this opportunity, banks have responded with the deployments of e-banking platforms anchored on information and communication technology

such as automated teller machines (ATM), point of sales (POS) machines, mobile banking, internet banking, electronic web collection and transfer, agent banking etc. Whilst the intention of e-banking is noble, it permit consumers greater autonomy and access to wide services, saves time, reduces tax evasion, fights crime among other reasons, the rates of its adoption in Nigeria has been discouragingly low. Several authors such as Aliyu et al. (2012), Nto et al. (2014), Ovia (2001), and Asaolu et al. (2011) have identified the challenges of e-banking adoption in Nigeria to include but not limited to unreliable electronic communication infrastructure, poor public perception, inadequate facilities, poor internet security, incidence of fraud, low telecommunication penetration and other infrastructure. Other studies have shown that poor awareness of e-banking transaction platforms, social influences and poor knowledge of technology hinders adoption (Odemuro, 2012; Omotayo & Adebayo, 2015). These challenges are partly responsible for the exclusion of bankable adults in most developing countries from financial services with several far reaching economic and social implications in a growing economy like Nigeria. Unless effectively managed with strong incentives and policy, these challenges will continue to pose serious threat to digital financing in Nigeria; thereby limiting the push for financial inclusion.

The negative implications of financial exclusion on Nigeria economy have increased pressure on banks to widen access to their services especially in the rural areas where most of the poor people resides. According to Worldbank Group, about 73% of these people are unbanked due to costs, travel distance and the often-burdensome requirements involved in opening a financial account. Technological innovation via electronic banking channels provide a veritable platform to harness the benefits of reaching a wider spectrum of these people in need of banking services. Besides the enormous economic advantage of utilizing this platform to reach the rural areas such as saving banks huge resources in opening up branches among other reasons, the need to appraise the usage of e-banking channels following the full-scale introduction of cashless policy by banks in Nigeria makes the consideration of this paper necessary. Again, this study is an attempt to look at financial inclusion from the technological approach rather than the systematic approach adopted by Central Bank of Nigeria (CBN) in its recent study on financial inclusion.

Therefore, the overall objective is to reduce the prevalence of financial exclusion through technology-enabled e-banking channels in terms of adoption and use. It is in view of all these that this paper aims to identify and examine various electronic banking platforms, assess the level of use and adoption of these platforms as well as evaluate problems associated with use and adoption of e-banking channels. The study also test the hypothesis that demographic factors are not positively relevant to financial inclusion and improved knowledge and channel diversification will not achieve reduction in the prevalence of financial exclusion in Nigeria.

B. Theoretical Background

Over the years, several attempts at understanding motivation for accepting technological innovations have been examined through varied theoretical lenses such as diffusion of innovation (DOI), technology acceptance model (TAM), theory of reasoned action (TORA), theory of planned behavior (TPB), a combined theory of planned behavior/technology acceptance model (C-TPB-TAM), the model of PC Utilization (MPCU), and social cognitive theory (SCT). Although these theories have advanced the frontiers of understanding consumer purchase patterns, they are not robust enough to address bundle of influences behind the acceptance and motivations to adopt innovations. This is because their variables were mutually exclusive of each other. Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al. (2003) is an attempt to integrate significant elements of these theories and explained their vital links with other variables which influence behavioral intention and use. This study adopted UTAUT model as the theory underpinning it. This hinged on the fact that those variables and constructs in UTAUT called moderators (socio-economic factors), which are intervening factors are key demographic factors important in explaining adoption especially financial inclusion and as it relates to hypotheses for this study. In this study, financial inclusion means that everyone—low-income individuals, households and small and medium businesses have access to and can effectively use financial service as at when the need for such services falls due.

UTAUT lists seven constructs but suggests four of these as core determinants of both intention and use of technological innovation. These are performance expectancy, effort expectancy, social influence and facilitating conditions. The impacts of these constructs to influence usage are moderated by other variables such as age, gender, experience, and voluntariness to use. These moderators act as links and intervening factors between intention, acceptance, and use. Given that these moderators and variables constitute barriers to enhance access to financial services in most developing countries (World Bank, 2014), it becomes important to consider their implication in deepening financial inclusion. They are important in consumer profiling of financial service, which aids in identifying gaps in products development, acceptable technological innovation, market segmentation and barriers to product adoption. Furthermore, examining financial inclusion of this lens will assist banks in efficient management of customer and overall strategy. This is because this system will provide banks with reliable data and management system for planning, monitoring, implementation, and evaluation of efforts aimed at improving access and usage for better policy formulation.

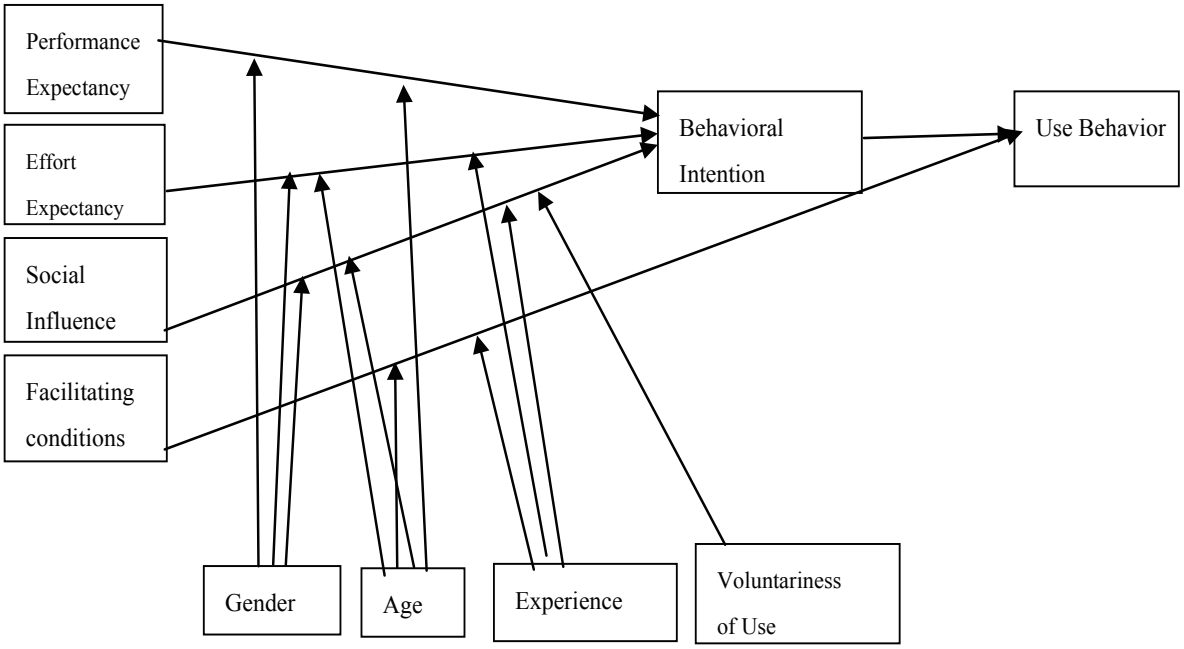

Figure 1
Diagrammatic Links of Unified Theory of Acceptance and Use of Technology, Adapted From Venkatesh et al. (2003)

Perhaps it is important to explain that these four constructs and demographic factors (moderators) integrate in a unique way to build a positive behavior but the moderators do not influence these construct in similar ways as shown in Figure 1. This becomes a springboard for formulating policies that will align behavioral expectation to actual behavior since all the elements do not react to the same stimulus. The influence of these construct on behavioural intentions have been highlighted by several authors such as Venkatesh et al. (2003); Manimekalai (2013) and Attuqayefio and Addo (2014).

C. Financial Inclusion: Demographic Factors and E-Banking Transaction Adoption

Demographic factors are increasingly mentioned in the context of adoption of any product. This is also true of adoption of e-banking channels. Several studies have examined some of these factors relationship with varying degree of outcomes especially variables of age, gender, and education. There appeared not to be a consensus on these variables except for education which is in line with *a priori* expectations.

For instance, in terms of age, studies such as Karjaluoto et al. (2002) and Wang et al. (2003) observed a positive correlation between age and adoption of innovations; as older people are less likely to adopt innovations. This implies that younger people respond more to innovation especially e-banking devices more than others. Nto et al. (2014) obtained a similar result but negative coefficient of age which implies an inverse relationship with e-banking compliance. This however contrasts with the finding of Omotayo and Adebayo (2015), who found no relationship between age and intention to adopt e-banking innovation; which agrees with Okeke and Okpala (2014). This inconsistency may make or mar efforts to address the exclusion of adults in designing policies that will encourage improve methodology to reach more bankable adults.

Although the influence of gender should not ordinarily be a contentious issue; studies such as Gefen and Starub (1997), has shown that men are more likely to adopt computer based technologies on a general scale but are less likely to adopt such technologies for fund management than their female counterpart.

While it is not the aim of this paper to summarily dismiss these findings, it is necessary to state that global banking policies and procedural tendencies do not discriminate based on age, sex, or any other variable. Demographic factors however, are important policy instrument in designing products that suit the needs of markets. In Nigeria, there are instances of tailored financial services for different categories of individual. Rarely do banks differentiate their services based on gender. This is due in part to the sensitivity of such issue in the world. However, age has consistently been used and continues to serve as an important basis in profiling and designing products for consumers such as children and futures accounts etc.

The consensus on the positive correlation between education and technology adoption identifies poor level of awareness as a major limiting factor to the adoption of electronic channels while holding other factors constant. According to Nto et al. (2010), education is a propelling

force to the adoption of an innovation and leads to positive change in the target market. As mentioned by Venkatesh et al. (2003), experience is one of the key moderators in UTAUT. Although there may be seeming differences between experience and education, their relationship is not in doubt. Experience is acquired through formal and informal education. This implies that members of the target market acquire experience through learning, consciously or unconsciously. The importance of education in achieving the mandate of cashless policy in Nigeria and by extension deepening financial inclusion cannot be over-emphasized. Education is the pathway through which the goal of financial literacy as an important financial inclusion strategy element can be realized.

One of the major challenges is how to explain and sell technology to final consumers depending on their levels of socio-economic profiling by technicians and companies. The importance of such profiling to adoption is substantial. It permits greater connectedness given that it is designed based on established conditions and commonalities relevant to users. Without doubt, socio-economic factors are important tools in galvanizing policy of deepening financial inclusion—education, gender, age, and irregular income are frequently mentioned as barriers to increase access to financial services in most developing countries. Thus, it has continued to command increasing emphasis among researchers and policy makers. This thinking therefore answers to the first hypothesis and the study concludes that demographic factors are positively related to financial inclusion. In addition, the need for improved knowledge gained through either experience or education is important construct of UTAUT. As such it is key to the reduction of prevalence of financial exclusion. This thinking is anchored on the positive impact of financial literacy as important strategy in financial inclusion model.

Although, the adoption of e-banking has been low when compared with increased penetration rate of information and communication technology (ICT) in Nigeria, which grew from 0.2% to over 60% in 2014 (NBS, 2014); the rate of public acceptance of ATM/debit cards as a channel has improved significantly with the absolute number of people with ATM/debit cards since 2008 (EFlna, 2012), following the mandatory revised banking policy to reduce crowding effect. This is a boost to financial inclusion from a technological point of view. Discouragingly, this has been at the expense of other electronic channels, calling into question efforts to narrow the gap in access, availability. and use of wide range of financial services options to achieve financial inclusion.

According to Central Bank of Nigeria (CBN, 2012), financial inclusion is achieved when adults have access to a broad range of formal financial service that meet their needs and are provided at affordable cost. Financial inclusion implies not only access but use of a full spectrum of financial service including but not limited to payments, savings, credit, insurance, and pension products. In Nigeria, National Financial Inclusion Strategy (NFIS) was launched by CBN in 2012 with the aim of reducing the number of adults without access to financial service from 46.3% in 2010 to less than 20% by 2020. The benefits of financial inclusion are substantial. On a micro level, it helps people to manage their lives, smooth their cash flow etc., while at the macro level, it serves as a strategy to accelerate economic growth and is critical for achieving inclusive growth in a country (Worldbank, 2014; Kama & Adigun, 2013).

Achieving the above implies that people must be able to use their account in a regulated financial institution to initiate or receive electronic transaction, beyond simply withdrawing cash at an ATM (EFlnA, 2013). It requires greater access through increase diversification of financial channels to enhance access, availability, and usage. This no doubt provides the fulcrum upon which the study answers the final hypothesis. It is the view of the study that financial inclusion can be deepen through increase diversification of financial channels that create equal access to financial service.

1. METHODOLOGY

This study was conducted in Aba. Aba is the commercial nerve center of Abia state, South eastern Nigeria. It is situated on the latitude 5°07′N and longitude 7°22′E, covering an area of about 2.458 km^2 (ABSG, 2007). Aba metropolis is made up of four local government areas (LGAs) comprising Aba South, Aba North, Osisioma and Ugwunagbo LGAs. Aba christened "Enyimba" city, is one of the most densely populated towns in Nigeria. It is historically known for "Aba women riot" of 1929. A protest by women against colonial taxation policy. The city is home to Nigeria made shoes, bags and other fabrications. Its ingenuity, enterprising, entrepreneurial, and industrious spirit earned the city the nickname "Japan of Africa"

The major occupation of the people of the city is trading. As a result of commercial activities in the city, all national banks in Nigeria have offices in the City. Other businesses like restaurants, hospitality/tourism industry, telecommunication etc., that drive the business chain have blossomed. Given this advantage, the City was selected among other locations for the implementation of the second phase of pilot zone of the cashless policy of the Central Bank of Nigeria. This may have resulted in the reduction in financial exclusion rate in south east Nigeria from 31.9% in 2010 to 25.6% given the strategic implementation of NFIS by CBN.

Respondents for this study are comprise of business owners who were selected using multistage sampling technique. The first stage involved purposive selection of two Local Government Areas (LGAs). These are

Aba South and Aba North LGAs. In the second stage, 2 markets were randomly selected from each of the LGA selected. The final stage involved the selection of sixty (60) respondents from each market. This gave a sample size of 120 respondents for this study. Data were collected from mainly primary sources using questionnaire sets. Experts and professors vetted these questionnaire sets; and it was pre-tested prior to distribution to ensure validity and consistency with study objectives.

Based on the various attributes of the objectives, the study employed descriptive statistics such as frequencies and percentages, and rating scale like Likert scale in analyzing data for the study.

The study adopted a 6-point modified Likert to rate scaling to measure the level of use and adoption of e-banking channels, where very high is assigned 6; high 5; moderate 4; low 3; very low 2; and not low at all 1. As a decision rule, any response with mean score below 3.5 was not in agreement.

To determine the mean score Likert level $=Xs = \sum X \cdot Xs$ of each item was computed by multiplying the frequency of each response pattern with its nominal value and dividing the sum by the number of respondents to the items. This can be summarized with an equation below.

Xs= Efn/N

Where Xs= mean score

E= summation

f= frequency

n= Likert nominal value

N= number of respondents

Xs= 1+2+3+4+5+6/6 = 21/6 = 3.5

2. RESULTS AND DISCUSSIONS

Before the advent of e-banking in Nigeria, banks face daily pressure of crowding out effect with serious impact on bank's carrying capacity. Crowding out effect hinders the operational effectiveness of banks to manage its obligations to customers in a successful way. The need to reduce this effect was partly responsible for viable alternatives to micromanage customer's financial activities. There are various diversification options but their awareness and use among banking consumer is the result presented in Table 1 analysed with simple descriptive statistics. The result shows that majority (100%) of the respondents are aware and use ATM/ Credit Card. Electronic payment (65%) ranked second, while mobile banking (34.17%) ranked third. Others are smart cards (31.67%), video banking (12.5%), fund transfer through internet (15.58%) and others (11.67%). This result is in line with *a priori* expectation given that Debit card is the first electronic banking channel deployed by banks and available in major towns in Nigeria. This platform enjoys first mover advantage. This policy was geared towards helping to reduce crowding out effects in the banking hall. It also follows Central Bank of Nigeria (CBN) policy which makes it mandatory to link accounts to cards and immediate issuance of such Debit/Credit cards to customers to encourage more access to wide range of financial options. This result agrees with Nto et al. (2014), who had a similar outcome. This result also shows a wide gap between and among these channels. This result shows that both government and institutional policy on deepening the use of electronic platforms have not been effectively implemented especially the strategy of financial literacy. This negates the efforts to reduce financial exclusion. In addition, it limits effective tracing of financial crime and other malpractices. E-banking is vital in the fight against tax evasion, fraud and other related offenses. Secondly, the limitation of most Nigerians to the use of ATM/Debit cards implies that many people are not fully aware of the existences, use and benefits of other channels of payments. This is an indictment on the operational efficiency of banks in Nigeria especially with regards to promotion and/ or management of its array of financial services to the publics. In comparison with other countries around the world, Nigeria banks lack real-time online presence and ability to influence customers to utilize tools in their website to manage their finances in this era of internet.

Table 1
Frequency Distribution of Electronic Banking Channels and Awareness

E-Banking system	*Frequency	Percentage	Rank
ATM/debit card	83	100	1
Mobile banking	41	34.17	3
Smart card	38	31.67	4
Agent banking	27	22.50	5
Video banking	15	12.50	7
Fund transfer	19	15.58	6
E-payment	78	65.00	2
Others	14	11.67	8

Note. *= multiple responses.
Source: Author's computation.

Table 2 shows the Likert scale analysis of the level of use of electronic banking devices in the study area. The result shows that ATM (4.008), debit card (3.966) and electronic payment (3.758) had mean values greater than the Likert mean value of 3.50. This implies that these channels have increased use among respondents in the study area. Mobile banking (2.192), visa card (1.833), video banking (1.375) and fund transfer (1.59) had mean values less than the Likert mean value of 3.50 indicating that they are rarely used for the transaction in the study area. This result agrees with the survey conducted by EFlnA (2013) with a similar outcome. It implies that other channels which are not significant are not often used by customers. This also means that there is a huge disequilibrium given that less number of services offered by banks have huge customer response in terms of demand. Based on this line of reasoning, this study is

forced to align itself with the opinion that opening of bank branches is seen as a way of balancing the gap in demand for electronic banking. Conversely, associated cost of bank branch operation can be minimized by encouraging effective utilization of these alternatives. Again, the comparison between Tables 1 and 2 show that it is not enough to have knowledge of technology, the importance lies in having the competence to use it. This is one of the daunting challenges of financial literacy as a strategy.

The positive sign for e-payment is a confirmation of adherence to government policy for greater financial transparency among its stakeholders and other businesses. It implies strict compliances to regulations that govern payments for goods and services. This has been made simpler with the ease of money transfer within and among banks in Nigeria in recent time.

The above result also lends credence to the previous result in Table 1 on the demand for debit/credit card and use of ATM as an alternative measure to conduct banking business. This study in fact, confirms the overall perception of customer and their acceptance of ATM and credit cards (especially among big customers with access to such facility) as a credible platform to conduct their businesses without recourse to visit the banking hall. Although, there are still pockets of resistance among many customers over the acceptance of other electronic platform as viable alternatives based on the result above, the significant variables will serve as a model of reeducation the general populace about the intentions and good intentions of proponents of such alternatives and will encourage efforts to deepen inclusion.

The results of Table 3 illustrate various bias against adoption of e-device in the study area. These constraints are obviously given that they are mostly mentioned and perception of resistance have been built around them over the years such as issues of privacy and security among internet users. If consumers do not feel secure, they will not buy. Although efforts have gone and currently been put in place to address these negativities; therefore, this study believes that unless there is a strong cue to change these perception, they will continue to constitute hindrances.

The threats of poor internet access, network failure and other infrastructure facilities to highlight the difficulties faced by many Nigerians to access the internet as at when due. The success of e-banking and financial inclusion relies on the efficient functioning of ICT. This result also is an indictment on the operational effectiveness of telecommunication companies in Nigeria given that their services are instrumental to the success of financial inclusion. The challenges of poor network and other infrastructure facilities are more prevalent in the rural areas.

Though some of these concerns are causally expressed among customers, banks in Nigeria have continued to deploy measures to address them such as an issue of high charge on machine and some transfers. The need for consumer education over certain key bank operations cannot be overemphasized. Education is a conduit through which banks enrich consumer experience of their service/ operations and/or policies. In Venkatesh et al. (2003), experience obtained through education moderates three important constructs of facilitating conditions, social influence and effort expectancy. This implies that non-compliance to bank policies that encourage financial inclusion answer to experience through the instrument of consumer education. Consumer experience is important to change resistance and turn behavioral intention to actual purchase or use behavior.

Table 2
Likert Scale Analysis of Level of Use and Adoption of E-Banking Devices in the Study Area

E-Banking	Very high	High	Moderate	Low	Very low	None	Total	Mean
ATM	54(324)	15(75)	7(28)	3(9)	4(8)	37(37)	481	4.008***
Mobile banking	9(54)	9(45)	16(64)	7(21)	-	79(79)	263	2.193^{NS}
Smart card	12(72)	23(115)	1(4)	-	2(4)	82(82)	277	2.308^{NS}
Debit card	48(288)	21(105)	10(40)	1(3)	-	40(40)	476	3.966***
Visa card	5(30)	17(85)	-	2(6)	3(6)	93(93)	220	1.833^{NS}
Video banking	2(12)	8(32)	1(4)	4(12)	-	105(105)	165	1.375^{NS}
E-payment	42(252)	13(65)	23(92)	-	-	42(42)	451	3.758***
Fund transfer	5(30)	4(20)	10(40)	-	-	101(101)	191	1.59
Others								

Note. Figures in parenthesis are Likert frequency *** in significant at 1% level of probability.
Source: Author's computation.

In sum, analysis of Table 3 shows that power failure (60%) was ranked the highest (first) and most important constraints mitigating the adoption of e-device in the study area. This is followed by network failure (2^{nd}), high charges (3^{rd}), and problems of security (4^{th}), lack of education (5^{th}), reduce employment (6^{th}), others (7^{th}) and loss of human touch (8^{th})

Table 3
Constraints Affecting the Use of E-Banking Devices

Constraints	Frequency*	Percentage	Rank
Network failure	63	52.50	2
Loss of human touch	15	12.50	8
Reduces employment	37	30.83	6
Lack of financial education	45	37.50	5
Power failure	72	60.00	1
High charges on machines	59	48.17	3
Problem of security	48	40.00	4
Others	18	15.00	7

Note. *Multiple responses.
Source: Author's computation.

CONCLUSION AND RECOMMENDATIONS

The identified benefits of financial inclusion are substantial. Financial inclusion according to the World Bank group is a key enabler to reduce poverty and boosting prosperity. Nigeria with its huge population is saddled with millions of unbanked adults who are cut off from financial service due in part to cost, travel distance among other reasons. This situation has enormous economic and social implication on their wellbeing. These implications include but not limited to worsen income inequalities in our society and low saving culture among the populace with a spillover effect on bank ability to discharge its primary obligations and the general economic growth. A key strategy of financial inclusion is to ensure inclusive growth. Banks are important vehicles for development given their strategic role in mobilizing fund. Anything to the contrary will have gross negative impact on any system. In some ways, there appeared to be a deliberate attempt to exclude certain adults from financial services given the state, inefficient, inadequate technology and infrastructure facilities to boost financial inclusion especially in most rural areas. Financial inclusion of the technological approach seeks to remove constraints to proximity to financial services and engender social changes in the society. Some of these social changes include but not limited to narrow inequalities gaps, propensity to save, cashless economy and unlocking of business potentials in the rural areas. This study identified among other things a huge gap between demand and supply for technological and/or digital financial services which have continued to pose a threat to goals of financial inclusion. These constraints are the basis upon which the foundation for effective implementation of strategies to achieve goals of financial inclusion revolved. The lens of UTAUT is important in creating a better window through which policy formulation and implementation will be anchored. Therefore, it is important to galvanize efforts to utilize technology to bridge the divide and create better access. However, access alone will not guarantee inclusion without efforts to address constraints of availability and usage. This in itself hinge on the removal of constraints identified which constitute blocks to financial inclusion. As a commitment to this, banks must create avenues to educate the people about its services and its importance in bettering their lives. Financial illiteracy and lack of protections are easily mentioned in the context of poor adoption. Conversely they impede financial inclusion. Therefore, banks must address this twin issue and make them an important tool of their strategy in mitigating financial exclusion. Finally, there is need for multi-sectoral approach of integration between government agencies and telecommunication firms; consumer literacy programme, security as an important policy and strategic branding tool to build confidence among consumer and a pathway to address exclusion.

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