

ICT Revolutions In The Banking Sector of Nigeria: Determinants of E-Payment Channels By Customers

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Abstract

Over two decades, the banking industry in Nigeria has been experiencing unprecedented ICT revolutions. These dynamics are reshaping and remodeling the entire sector. It is revolutionizing traditional banking methods using e-banking as an excellent tool for driving fast financial transactions. E-banking offers tremendous transaction opportunities to customers. This study examined factors that determine customers' choice of e-banking platform in Nigeria. The predictors considered here are Usefulness, reliability, ease of use and security. The study used a survey method. The sample size was determined using Survey Monkey Sample Size Determinant Technique at 3.3 margin error with 95 per cent confidence level. Semi-structured interview and questionnaire to retrieve data from participants. Elucidated data was analyzed using descriptive and parametric statistics. Results revealed that 71.5 per cent of the participants reported that electronic payment channel was easy to use, 99.5 per cent reported the Usefulness of electronic payment channel. Only 27.9 said that electronic payment channels are secured and safe. Again, 47.7 per cent reported that the electronic payment channel was reliable. From the parametric statistics carried out, the result revealed that Usefulness, security, ease of use and reliability are significant drivers of e-payment channels. The study recommends a need for the banks, fintech, financial and regulatory agencies to put in place structures and resources that will help improve the safety of the platforms and their reliability.

Keywords: ICT, E-banking, Banking sector, Customers, E-payment channels.

1. Introduction

Modern innovation in information technology has changed the dynamics of human existences, changing the various mode of human interaction living patterns and creating new means of making exchange faster and easier (Angioha et al. 2020; Agba et al. 2010). This technology innovation has also created modern means of performing commerce. Now people can carry out their business endeavours with a more extensive customer base, in different states, countries and even continents. Because of the evolution of electronic payment channels, making a purchase, exchanging goods and services, and money is as easy as tapping a button on your smartphone. Electronic payment channels have greatly been influenced by the evolution of credit and debit card processing channels, which has resulted in the new modern payment industry (Hartmann 2011). Electronic payment channels now provide businesses and individuals, especially those in developing economies, with more accessible, safer and cheaper access to financial services (World Bank, 2018).

Globally, the electronic payment system is expected to rise to 6.6 trillion dollars by the end of 2021, accounting for a 40 per cent increase between 2019 and 2021 (Finaria 2021). In Europe, the total number of card payments increased by 8.1 per cent to 48 per cent in 2019 compared to the year before. Mobile wallets account for 45 per cent of global electronic payment transactions, with 70 per cent of China consumers using mobile wallets regularly (Chang 2014). On the other hand, credit card transactions account for 23 per cent of all electronic transactions globally (Statistic Research Department 2021). The increase in the number of users of electronic payment channels is attributed to the

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novel Coronavirus pandemic in late 2019, overwhelming the health system of nations and bringing a standstill to most physical, socio-economic activities as a result of the measures put in place to curb the spread of the Virus (Akintola, Angioha & Abang, 2021; Ojong-Ejoh et al. 2021; Agba et al. 2021)-at this moment accelerating shift in adopting payment and purchasing preference for convenience and emphasis from health expert to avoid physical cash where possible. Electronic payment channels are becoming very popular in Nigeria since the Central Bank of Nigeria introduced the payment system vision (Oyelami et al. 2020; Ikechi et al. 2020).

Although still a cash-based economy, Nigeria has seen a significant rise in the adoption of electronic payment channels, especially with introducing the country's Apex bank (CBN,2012). Since the implementation of the policy and the introduction of new electronic platforms such as Nigeria interbank settlement system controlled electronic fund transfer (NEFT) and instant payment (NIP), there has been a significant increase in the adoption and use of electronic payment channels (Mustapha 2018; Fadoju et al. 2018). According to Nigeria Interbank Settlement System (NIBSS) (2021), electronic transactions grew to 10.89 trillion nairas in 2021 from 8.41 trillion nairas recorded in 2019. A 29 per cent increase in the average daily usage of electronic payment increased by 96 per cent between 2017 and 2018 (NIBSS 2020).

Despite the significant number of unbanked individuals in the nation (people afraid or unconvinced to get on the bandwagon), many persons adopt electronic payment channels for business transactions (Afaha 2019; Joseph & Richard 2015). The number of E payment channel users continue to increase; the increase can be attributed to the Covid-19 lockdown, which forced Nigerians who are hitherto accustomed to cash transaction to use electronic channels for payments and other money transactions. According to Shree, Pratap, Saroy, and Dhal (2021), electronic transactions are expected to remain high even when movement restrictions are eased. So despite the many challenges associated with the use of electronic channels, such as security attacks and technical reliability (Kim et al. 2010), why are Nigerians adopting electronic payment channels. This study attempts to analyze the drivers that influence the adoption of electronic payment channels in Nigeria

2. Theoretical Foundation

The study adopted Technology Acceptance Model, Developed by Fred Davis and Richard Bagozzi (Agba & Ushie, 2010). The model extends Ajzen and Fishbein's Theory of Reasoned Action (TRA) and Ajzen's Theory of Planned Behaviour. The model is used to understand people's intention to adopt and use technology. According to Technology Acceptance Model, the adoption and use of any technology are determined by two significant factors; perceived Usefulness and perceived ease of use (Venkatesh & Davis 2000; Davis et al. 1992). The model emphasis is on the perception of potential users. Therefore, it emphasizes the importance of perception. Thus, an individual's intention to use new technology and the actual adoption of the technology is determined by their perception of the Usefulness of the technology and the ease of use of the technology (Moon & Kim 2001; Davis 1989).

Perceived Usefulness refers to how an individual believes using a particular technology would achieve an objective (Davis 1989). According to Davis (1989), an intended user assesses the consequence of adopting a behaviour based on the desirability of the Usefulness derived from adopting a technology (Chau & Hu, 1996). Perceived ease of use is how an individual believes that using a particular technology innovation will be free of efforts or complexities (Vankatesh & Davis 2000; Venkatesh 2000). Hence, for this study, the primary driver of user intention and actual usage of electronic payment channels are perceived Usefulness and ease of use of such technology.

3. Materials and Methods

3.1. Research Settings

The study area is the Southern Senatorial District of Cross River State, Nigeria. The district is a political creation that comprises of seven local government areas: Akamkpa, Akpabuyo, Bakassi, Biase, Calabar Municipality, Calabar South and Odukpani Local Government Area. The area is located within the tropical rainforest region of southern Nigeria. Covering an area of 4444 square kilometres that stretches from the Atlantic Ocean through the swamping area of Akpabuyo, Calabar and Odukpani with their vegetation to the virgin forest of Akamkpa within it different species of animals to Biase Local Government Area Southern Cross River is made up of three Federal constituencies. The original inhabitants are the Efiks, Quas, Ejagham, Ekoi and Efots. The people all share cultural affinity, which is noticeable in their dressing, language, musical steps dancing and rhythm (Okon & Morgan 2018). Figures from the 2016 census puts the district's population at 1,189,801, representing 41.13 per cent of Cross River's population.

Southern Cross River is home to the capital of Cross River and, as a result, draws population from the districts within and outside the state. The district is also home to industrial and business enterprises.

3.2. Methods and Instruments

The survey method was adopted to collect data from the study participants. The method allows the researchers to gather information from a sample population to create descriptive characteristics or attributes of a more extended population. A semi-structured paper-based questionnaire was used to collect data from the study participants. Drafted in English language, the instrument contains 16 questions and sub-divided into two sections. The questionnaire instrument was pre-tested first on 50 subjects who were not part of the study to check the instrument's internal consistency. Retrieved data was subjected to Cronbach Alpha reliable estimates. Result obtained ranged from 0.70 to 0.91, confirming the validity of the instrument.

3.3. Participants and Procedures

Eight hundred and eighty-two (882) participants were used for the study; this was arrived at using Survey Monkey Sample Size Determinant Technique at 95 per cent confidence level and a margin of errors of 3.3 per cent. Convenience and proportional stratified sampling technique were used in selecting the participants from the study setting. The convenience was used to select three (3) Local Government Area from Southern Senatorial District. These are Calabar South, Calabar Municipality and Akamkpa. These areas are primarily urban and semi-urban. According to data gathered from banks, these areas had the largest account (NUBAN) holders. The proportional stratified sampling was used to select the sample size for each Local Government Area that is proportional to its Population size. This is highlighted in table 1. To select the sample from the selected local government area. Convenience sampling was adopted for Calabar South; convenience sampling was used in selecting four areas. The chosen areas are watts, Ekpo Abasi, Mayne Avenue and Mbukpa. From these areas, 81 participants were selected using convenience sampling. For Calabar Municipality, four areas were conveniently selected. The areas are Etta Agbor, Mariam, Mary Slessor, and Satellite Town. From these areas, 76 were chosen conveniently. The selected communities are Awi, Uyanga, Mbarakom and Akampka urban and Akpet. From these chosen communities, 51 participants were conveniently selected. Convenience sampling was used in selecting the town and participant because of the nature of the study and the participants used. Criteria for participant selection is based on their ownership of an active bank account and must have carried out transactions using electronic means. Also, all participants must be 18 years and above.

Table 1. showing Sample Selection Procedure using Proportional Sampling

S/N	Local Government Area	Population Size	Proportion of Pop.	Sample Size (n)
1.	Akamkpa	151,125	0.3	255
2.	Calabar Municipality	179,392	0.3	303
3.	Calabar South	191,630	0.4	324
Total		522,147		Σn= 786

Survey, 2021

3.4. Ethical Consideration

A letter of approval from the Department of Sociology, University of Calabar, was given to the researcher for the study. This enabled the researchers to approach the participants. A written consent letter was also attached to the instrument to support the verbal consent for the study. The confidentiality of all information supplied was assumed.

3.5. Data Collection Process

The data collection lasted for three months, with four research assistants trained on the research process. The researchers and the assistance divided themselves into three groups of three, each group for one Local Government Area. Each instrument was collected immediately after completion, information gathered were screened to check for error. Out of the 882 instruments, 96 was not viable due to mutilation or the amount of missing information. Thus, the final instrument used was 786.

3.6. Data Analysis

Data was measured on perceived usefulness, perceived reliability, ease of use, and perceived security of participants using electronic payment channels. Data screened and coded was first entered into the statistical package for social science (SPSS V.2021). the preliminary statistic was carried out using frequency distribution, and graphical illustration before the result was subjected to parametric statistics using Regression analysis..

4. Findings

4.1. Participant response on the most used e-payment channels

Participants response on how often they use electronic payment channels, as evident in figure 1, revealed that that 47.2 per cent (N=371) of the participants reported USSD, 30.0 per cent (N=236) reported Bank Application and 22.8 per cent (N=179) reported ATM/POS.

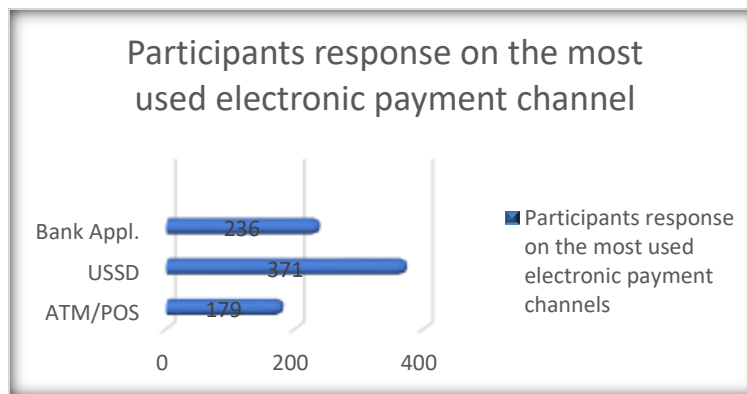


Figure 1. Presentation of response on the most used electronic payment channel

4.2. Participants response on how often electronic payment channels are used

Response on how often participants use electronic payments channel as evident in figure 2 revealed that 16.2 per cent (N=127) reported often, 40.8 per cent (N=321) reported when there is in other option, 20.7 per cent (N=163) reported not often, and 22.3 per cent (N=175) reported just specific transaction.

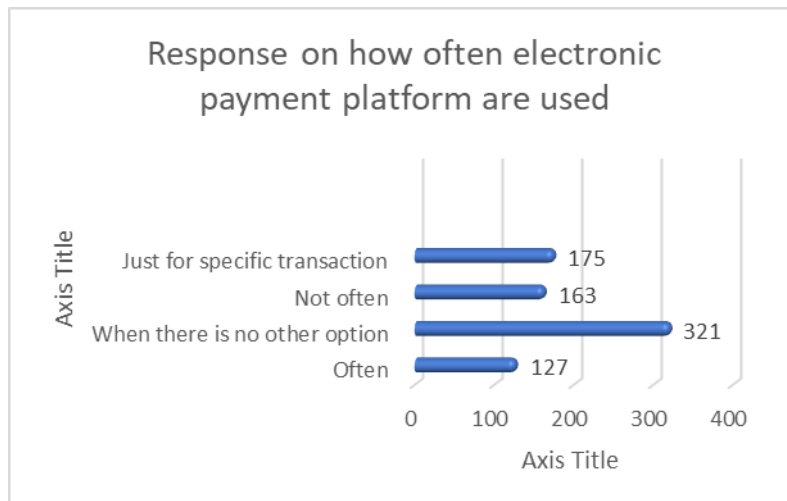


Figure 2. Response on how often customers' uses electronic payment channels

4.3. *Participants response on ease of use of electronic payment channels*

Participant response on the ease of use of electronic payment channels as evident in figure 3 revealed that 11.5 per cent (N=562) of the participant, 8.5 per cent (N= 67) reported complicated, 12.5 per cent (N=95) reported difficulty in use, and 7.5 per cent (N=59) reported do not know.

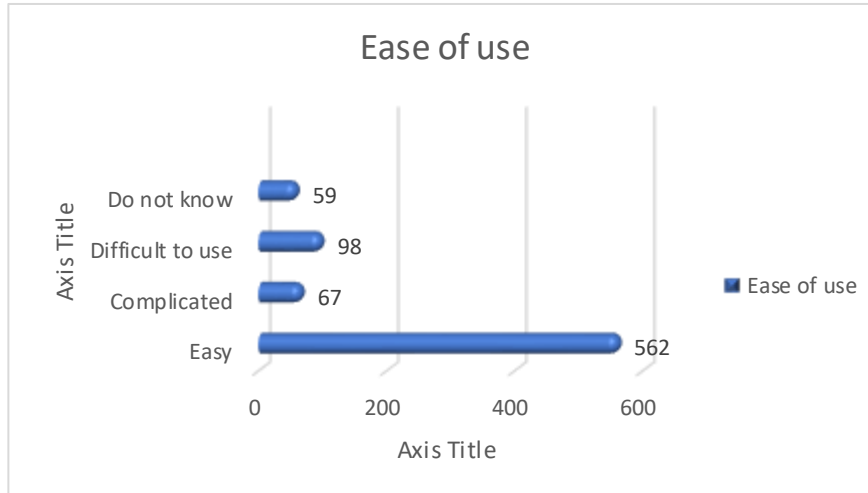


Figure 3. Response on ease of use

4.4. *Response on the electronic payment channels easy to use*

Participant response on the electronic payments channel that is easy to use, as evident in figure 4 revealed 26.8 per cent (N=211) reported ATM/POS, 41.5 per cent (N=326) of the participant said USSD and 31.7 per cent (N=249) reported bank application.

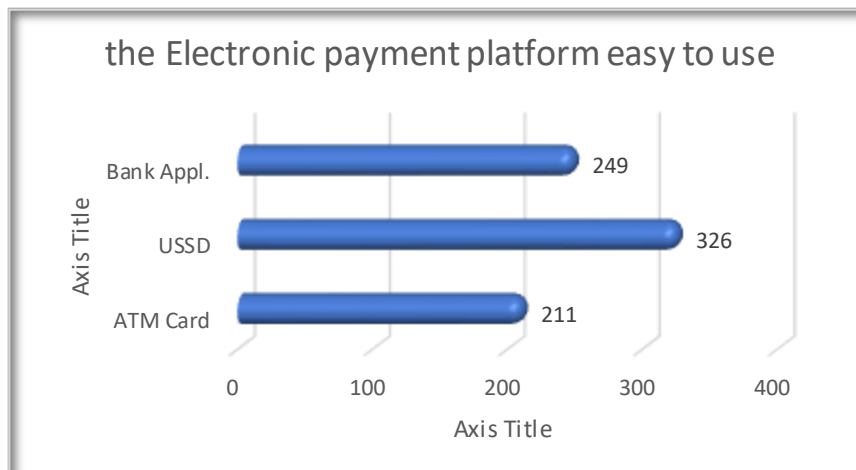


Figure 4. Response on Ease of use Electronic payment channels

4.5. *Participant response on the reliability of electronic payment channels*

Participant response on the reliability of electronic banking Chanel as evident in figure 5 revealed that 47.7 per cent (N=375) of the participants reported reliable 15.4 per cent (N=121) reported inconvenience, and 36.9 per cent (N=290) reported not reliable (Figure 5).

4.6. *Response on which of the electronic channel is most reliable*

Participant response on the electronic payment channel that is most reliable, as evident in figure 6, revealed that 15.0 per cent (N=118) out of the participant report ATM/POS, 35.8 per cent (N=281) reported USSD, and 49.2 per cent (N=387) reported bank application (Figure 6).

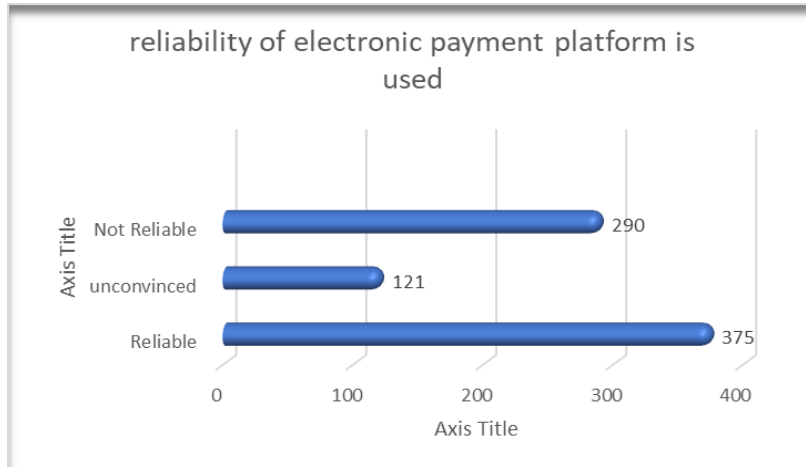


Figure 5. Response on the reliability of electronic payment channels

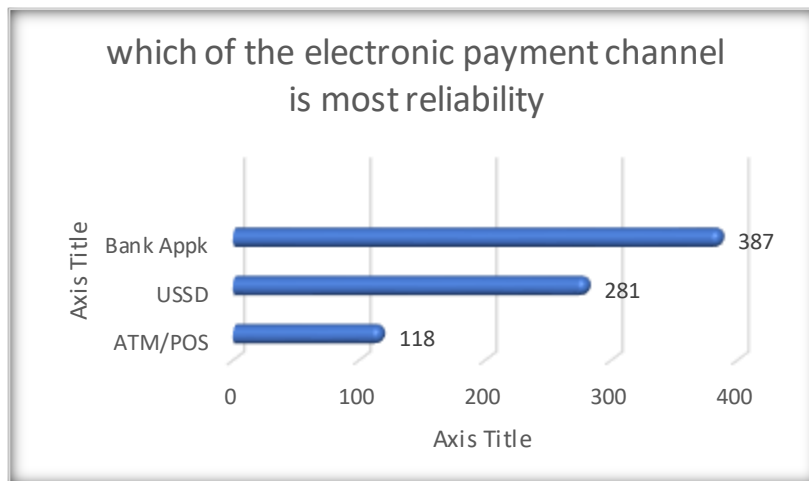


Figure 6. Response on the electronic payment channel that is most reliable

4.7. Response on usefulness on e-payment platform

Participant response on confidence or electronic payment channel as evident in figure 7 revealed that 99.5 per cent (N=782) reported yes, and 0.5 per cent (N=0.5) reported not sure.

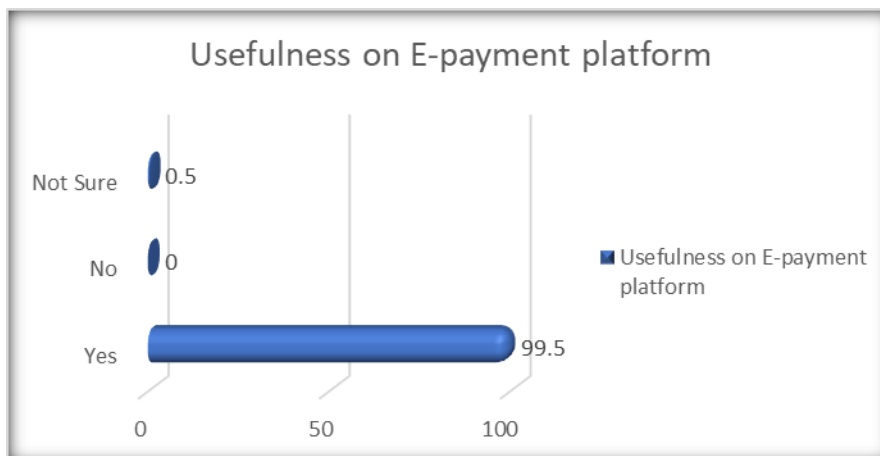


Figure 7. Response on usefulness of E-payment platform

4.8. Response on which of the electronic payment channel is most useful

Participant response on which electronic payment channel participant is most useful, as evident in figure 8 revealed that 30.2 per cent (N=237) of the participant report ATM/POS, 30.8 per cent (N=242) reported USSD, and 39.0 per cent (N=309) reported bank application.

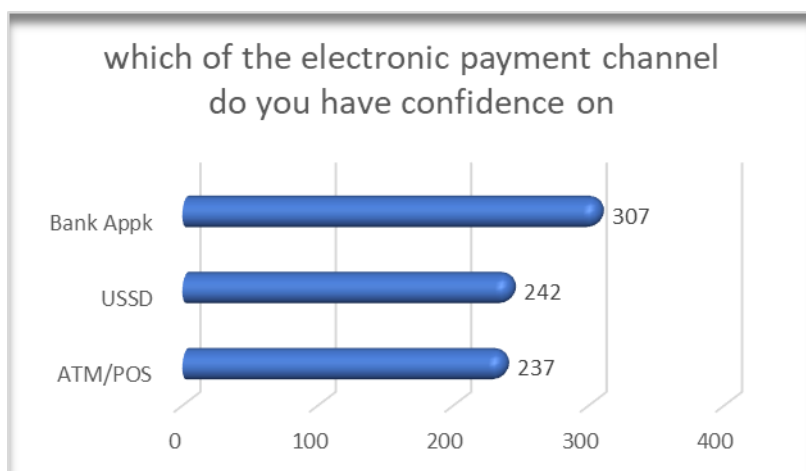


Figure 8. Response on which of the electronic payment channel do you have confidence in

4.9. Response on which e-payment platform is secure and safe for transaction

Participants response on the electronic payment channel that is secured and safe, as evident in table 2, revealed that 26.8 per cent (N=211) reported ATM/POS, 26.6 per cent reported USSD, and 43.5 per cent reported bank application.

Table 2. Participant response on which of the electronic payment channel is secure and safe

Ease of use	Frequency	Percentage (%)
ATM/POS	211	26.8
USSD	233	26.6
Bank Application	342	43.5
Total	786	100.0

Survey, 2021

4.10. Response on problems associated with the use of e-payment channels

Participants response to the problem associated with the use of electronic payment channels, as evident in table 3 revealed that 30.7 per cent (N=241) of the participants reported unresponsive. Again, 41.9 per cent (N=329) reported network issues, 22.1 per cent (N=174) reported security issues and 5.3 per cent (N=42) reported privacy.

Table 3. Participant response on problems associated with E-payment (N=786)

E-payment platform is secure and safe	Frequency	Percentage (%)
Unresponsive	241	30.7
Network	329	41.9
Security	174	22.1
Privacy	42	5.3
Total	786	100.0

Survey, 2021

5. Parametric Statistics

This analysis was to check the determinants of the choice of e-payment channels by customers. For this analysis, the independent variable here are usefulness, reliability, ease of use and security. And the dependent variable is choice of electronic payment channels. To carry out this analysis, linear regression model statistics were employed.

Table 4. Regression model analysis of determinants of electronic payment channels by customers

Model Summary

Model	R	R Square	Adjusted R Square
1	.081 ^a	.007	.001

a. Predictors: (Constant), security, Usefulness, reliability, ease of use

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.153	4	.038	11.275	.278 ^b
	Residual	23.104	770	.030		
	Total	23.257	774			

a. Dependent Variable: Motivation of the adaptation of electronic payment channels by customers

b. Predictors: (Constant), security, usefulness, reliability, ease of use

Coefficients

Model		Unstandardized Coefficients		Standardized	T	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	1.116	.062		17.982	.000
	usefulness	.016	.027	.022	.606	.545
	reliability	-.038	.023	-.060	-1.648	.100
	ease of use	-.025	.042	-.022	-.595	.552
	security	-.033	.025	-.049	-1.336	.182

a. Dependent Variable: Determinant of the adaptation of electronic payment channels by customers

Source: Field Survey, 2021/SPSS (Version 21.0 for Windows Output)

From the first model summary result, it is statistical that there is a strong influence ($R = 081$) between the determinants (usefulness, reliability, ease of use and security) and the adoption of electronic payment channels. The adjusted R square ($R. Square = 007$) also showed that the determinants relate to the adoption of electronic payment channels ($Adjusted R2 = 001$). Of the total variation of the disaggregated independent variable (usefulness, reliability, ease of use and security) as predictor indices of adoption of electronic payment channels. A similar significant result difference was obtained in the ANOVA model, which also showed a significant F-ratio of 11.275, which was calculated against the critical F-ratio of 3.053 at 0.05 levels of significances and 4 degree of freedom.

The result from the table in the coefficient regression analysis further revealed a significant relationship between the drivers and E-Satisfaction and the motivation to adopt electronic payment channels. Table 3c showed that a strong relationship exists between the drivers (usefulness, reliability, ease of use and security) and the adoption of electronic payment channels ($\beta = 17.982, t = 776, P < .05$). Thus, this implies that drivers such as usefulness, reliability, ease of use and security significantly impact on adoption of electronic payment channels

6. Discussion of Findings

The descriptive analysis revealed that the most used electronic payment channel is the unstructured Supplementary Service Data (USSD), accounting for 47.2 per cent. This was followed by bank application, which accounts for 30.0 per cent. This result contrast the findings of Tijani and Ilugbemi (2015), who asserts that the most popular and used electronic payment channel is the A.T.M., accounting for 98.09 per cent, followed by web (0.72%) and mobile (0.71%). The central bank of Nigeria (2020) reported that online transaction accounts for 3,432,6772,730 of all electronic payment for 2020 Okafor (2019) in his article on electronic payment transaction E-payment in Nigeria, report that automated teller machine (ATM) is the most popular payment channel. The increase in USSD for transaction could be attributed to the lockdown occasioned by the covid-19 measures, which kept people indoors and restricted movement. People resort to using of mobile and internet measures for payment of goods. Result revealed that 71.5 per cent of the participant reported that electronic payment channels are easy to use.

The study further revealed that people in the study area found electronic payment channels easy to use. Most participants, 71.5 per cent, reported that electronic channels were easy to use, with only 12.5 per cent reporting difficulty in the use of E-payment channels. This finding is corroborated by that of Al-rfou (2013), who found a significant relationship between ease of use the adoption of internet banking. Teka (2020) found that perceived ease of use is among other variables that significantly impact user electronic banking practices. The easiest to use electronic payment channel was the USSD, with 41.5 per cent of the participant preferring the use of USSD, followed by bank application (31.7%) and ATM/POS (26.8%).

A large proportion of participants reported that electronic payment channels are reliable. More so, 36.9 per cent reported that e-payment channels are unreliable, and 15.4 per cent reported that they were unconvinced. In their study, Nagar and Ghai (2019) discovered that the reliability of electronic banking channels is the most crucial factor in the adoption of electronic banking platform. Hamakhan (2020) found that perceived security significantly influences directly or indirectly the adoption of electronic banking technology. On the problems associated with using electronic payment channels, 41.9 per cent reported network problem, 30.7 per cent said unresponsive, 22.1 per cent reported security and 5.3 per cent report no privacy.

Result from the descriptive analysis using regression analysis at 0.05 level of significance revealed usefulness, reliability, ease of use and security (independent variable) influenced the adoption electronic payment channels by customers. This is because the adjusted R square (R. Square = 007) also showed that the determinants relate to the adoption of electronic payment channels by customers. (Adjusted R2 = 001). Of the total variation of the disaggregated independent variable (usefulness, reliability, ease of use and security) as predictor indices to the adoption of electronic payment channels. In addition, a similar significant result difference was obtained in the ANOVA model, which showed a significant F-ratio of 11.275, which was calculated against the critical F-ratio of 3.053 at 0.05 levels of significances and 4 degree of freedom. The coefficient regression analysis further revealed that there is a significant relationship between the drivers and the adoption of electronic payment channels. Table 4c showed that a strong relationship exists between the drivers (usefulness, reliability, ease of use and security) and the adoption of electronic payment channels ($\beta = 17.982$, $t = 776$, $P < .05$).

This finding is supported by Hammoud et al. (2018); their study revealed that reliability, efficiency, responsiveness, ease of use, security, and privacy have a significant impact on customer satisfaction and choice of electronic banking services. Liébana-Cabanillas et al. (2013) found a relationship between proposed variable such as trust, ease of use, Usefulness, accessibility, and satisfaction with electronic banking technology. Jahan et al. (2020) found that security, ease of use, and service quality significantly impact customer satisfaction and choice of e-payment channels

7. Conclusion and Recommendation

This study examined the determinants of customers' choice of e-payment channels. Findings from the descriptive and parametric analysis revealed that all four predictors (usefulness, reliability, ease of use and responsiveness) are significant drivers in the adoption of electronic payment channels by customers. Thus, there is the utmost necessity for regulatory agencies to put in place structures that will help improve the quality of electronic payment channels in terms of reliability, ease of use, usefulness, and responsiveness. In addition, banks should concentrate efforts on improving the electronic payment channels, to make them more reliable and easier to use. Again, bank management should enhance the security of electronic payment channels by providing improved security controls

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