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BANKING SERVICE INNOVATIONS AND CUSTOMER SATISFACTION IN ILORIN METROPOLIS OF NIGERIA

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Abstract
The increasing stiff competition in the banking industry has placed customer satisfaction at the centre of banks' product and service decisions. The study examines the impact of banking service innovations on customer satisfaction in Ilorin metropolis. The study employed survey research design and the population consist of bank customers in Ilorin metropolis from which four hundred and twenty five (425) customers were drawn as sample. Descriptive statistics and Partial Least Square Structural Equation Model (PLS-SEM) were employed in the analysis of data collected through structured questionnaire. The findings revealed that, cardless ATM service (t-value = 5.650, p-value = 0.000) and phygital banking (t-value = 6.175 and p-value = 0.000) have significant impact on customers satisfaction at 5% level of significance whereas envelop deposit service had no significant effect. The study concluded that banking service innovations such as cardless ATM and phygital banking are the service innovations that influence customer satisfaction in Ilorin metropolis. The study therefore recommended that managements of DMBs should provide more ATMs with cardless operation options at bank premises or other commercial points in the metropolis. Also, DMBs' management should design more user friendly, personalised and less costly digital bank applications which can enable customers to efficiently access virtually all bank services even without visiting any branch.

KEYWORDS: Automated Teller Machine, Phygital banking, envelope banking, Customer Satisfaction

INTRODUCTION
Continuous escalating competitive environments across the world and persistent increase in customer expectations have been part of the factors responsible for making customer satisfaction targets extremely challenging in any business. Customers are becoming difficult to please, smarter, more conscious of cost of services and are approached by many more companies with same or improved offers (Kotler & Armstrong, 2010). In addition to that, customer expectations are growing in terms of the speed with which service providers

respond, breadth and depth of interaction and communication, customisation of product and service offerings as well as the rapid change in customer demands, desires, and expectations. As a result, what satisfied and impressed them a short time ago may not satisfy them now (Jones, Brown, Zoltners, & Weitz, 2005; Richards & Jones, 2008).

Bank customer's satisfaction has been the focus of academics and bankers worldwide, as it is a key marketing factor for most firms, particularly those operating in highly competitive industries. Banking practice reveals that sustaining a reasonable level of customer satisfaction is an exceedingly challenging endeavour for a bank and a continuous process with varying outcomes. Customers in many nations express a high degree of dissatisfaction, and many banks recognise the need of improving customer relationships in order to ensure that they are happy with the services provided to them (Chocholʹáková, Gabčová, Belás & Sipko 2015).

In Nigeria, after the bank consolidation exercise which took place in 2006, expert argued that Deposit Money Banks that were either sold or compelled to merge with other banks were not only confronted by inadequate capital or asset base but took customer satisfaction less important and underestimated its importance to their corporate existence (Onyike, 2012). After that period, for individual DMB to survive and stay ahead of competition which remained a major task to surviving in a dynamic banking industry, the need for them to persistently improve their relationship with customers and researching in more innovative ways of serving them arose (Tran, Nguyen & Taikoo 2015).

The adoption of innovative channels such as; Envelope deposit, Cash deposit machine POS, ATM, telephone banking, envelope or cash deposit machine in serving customers is paramount. This is because for any bank to be relevant in the banking industry, improvement in the quality of services channelled to meeting customers' needs innovatively becomes crucial. After all, the survival and profitability of banks in Nigeria depends mainly on the extent to which they have been able to satisfy the specific needs of their customers because of the presence of stiff competition among banks within the industry (Tran, *et al*., 2015; Alegbe, Onyike & Okoye, 2019).

Traditionally, customers that want to deposit funds do flood the banking hall as cash and cheque deposits are largely made only on the counter during the banking services hours. This sometimes gives rise to excessive waiting and delays in their transactions. The need to deposit cash with other means such as envelope deposit or cash deposit machine during banking service hours or even at weekends arose. When customers are unable to save or transfer their money when necessary, they are exposed to risks of theft or misplacement.

According to Iluno, Farouk and Saheed (2018), excessive waiting leaves customers with bad service experience and causes gradual dissatisfaction. The implication therein is that a unsatisfied customer will most likely not recommend the provider to other customers and this can cause the bank to lose customers to other competitors.

More so, some challenges in the usage of ATM cannot be overemphasized even though ATM usage improves bank's efficiency and effectiveness and is cost effective for both of bank and customers (Bzhar, 2018). Since the emergence of ATM, there cannot be access to it without card. This situation, on many occasions, has rendered customers disappointed and helpless especially when they have urgent need for cash. Cases of card misplacements, card damages and difficulties in using ATM after banking hours or non-banking days are common places for many Nigerian banks. Such issues around ATM usages as these have been giving customers bad experiences in their banking activities. The development has led to increased clamour for card less operation of ATMs.

In addition, the complains of customers about the excessive charges on their transactions, stress and time being wasted on visiting bank branches and persistent high demand in more personalised banking experience are the emerging problems in this present time (Kathari, 2019). With the fact that the world is experiencing rapid advancement in technology across all service-oriented institutions including banks, customers desire more efficient personalised banking with zero cost. It is on this context that this study examines the impact that banking service innovations have on customer satisfaction in Ilorin metropolis of Kwara state, Nigeria.

In conformity with the problem stated above, the following research hypotheses stated in null form were tested to achieve the study objectives:

Ho_1: There is no significant effect between envelop deposit adoption and customer satisfaction in Ilorin metropolis.

Ho_2: There is no significant influence between card less ATM service usage and customer satisfaction in Ilorin metropolis.

Ho_3: Phygital banking has no significant effect on customer satisfaction in Ilorin metropolis.

LITERATURE REVIEW

Kotler and Keller (2009) define service as 'any economic act and performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything'. According to Schumpeter (2002), service innovation is a service product or service process that is based on a technological or systematic technique and is implemented

to benefit its provider. According to Hall, Jaffe, and Trajtenberg (2005), service innovation helps both service-provider and consumer, as well as improving the developer's competitive advantage. Service innovation is the introduction of new service products or service processes that are based on technological or systematic approach. However, when it comes to services, the innovation does not always have to do with the uniqueness of the technology itself; rather, innovation often emerges in non-technological domains. For example, service innovations might take the shape of new client interfaces, new distribution channels, the integration of technology into the service process, new supply chain operations, or new ways to organising and managing services. The service innovations covered by this study are explained below and accordingly.

An envelope deposit is an "off the counter" Self-Service Technology (SST) which enables customers to make deposit and payment transactions by cash. This enables clients to deposit funds into a specific account on a real-time basis in a 24x7 work window. As alternative, banks who do not have these terminals provide cash drop box in the banking hall (Syed and Khaliquzzaman, 2016; Ruwan, Hashan, Chandima, Harin, Sithumini and Thanuja, 2020). Some modern day ATMs are configured to accept deposit either in stack of cash, cheques or in envelopes. In the case of cash or cheques, the machines have scanning technology that can differentiate between bills and cheques and can detect the total amount of money being deposited. For envelop, the deposited amount has to be written on the envelope and manually entered into the ATM. It may take a couple of business days for the funds to become available since the bank must confirm the deposit amount. Nigerian banks like First bank Plc, United Bank of Africa Plc, Union Bank Plc and a host of other deposit money banks have long keyed into this service innovation.

Auluck (2002) defined the automated teller machine as a device that integrates a computer terminal, record-keeping system, and cash vault into a single unit, allowing consumers to access the bank's book-keeping system via a plastic card embedded with a Personal Identification Number (PIN). ATMs are often placed outside of banks, although they may also be found in airport, shopping mall, and other locations where consumers do not have access to their bank. They were initially introduced to the market to serve as cash dispensing machines. However, as a result of improvements in in technological innovations, ATMs may now offer a variety of services such as cash withdrawal, money transfers, airtime purchase, and payment of cable and utility bills etc.

ATMs are known to be a banking device that cannot be used without a card and PIN but with technology advancement and efforts of banks to keep simplifying banking and making it more convenient, some ATMs can now be used without inserting card to perform all the

aforementioned services. This cardless ATM services can be done through generation of paycode on the customer's mobile phone via the registered mobile number which will be imputed in the machine by the user in order to gain access. Another way cardless ATM is done is via thumbprint. Some ATMs already have an attached biometric device that grants access to the user when the user's thumbprint matches the PIN code. So with card or no card, ATMs can still serve customers when needed and efficiently.

"Phygital" is a portmanteau of "physical" and "digital". Phygital banking is the notion of bridging the digital and physical worlds via banking technology in order to provide consumers with exceptional interactive banking experience. Phygital refers to being inherently digital across all channels (physical and digital), activities, and the methods by which bank's businesses are structured and managed. The 'Phygital' bank communicates with its clients digitally through both physical and online means.

They provide all banking services digitally through internet (applications) and also physically like the brick-and-mortal banks (Kathari, 2019). The licenced phygital bank in Nigeria which are licensed to operate under micro finance structure include Kuda bank, Spakle bank, ALAT bank (owned by WEMA bank), Eyowo, rubies, VFD as Deposit Money Banks also have virtually all the features of phygital banking in their respective mobile applications. This phygital banks have the lowest cost in banking services charges due to their digitised operations in Nigeria (Daniel, 2020).

Customers are considered as a key stakeholder whose satisfaction with the company must be integrated into strategic planning initiatives. Commercial banks that are forward-looking recognize the benefits of actively measuring and monitoring client satisfaction as a critical success factor. Increasing evidence suggests that putting customer satisfaction first is crucial to improving firms' success in a global marketplace (Chiguvi 2016).

Additionally, Kotler (2003) described satisfaction as 'a person's feeling of pleasure and dissatisfaction as a disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations'. These two meanings attest to the fact that all customers have certain expectation of their bankers. These expectations have arisen because of a need that must be met. These expectations vary, since there are diverse customers.

Kotler and Armstrong (2002) further state that if performance falls short of expectations, the customer becomes unsatisfied, and vice versa. When performance exceeds the customer's expectations, the customer is very satisfied and pleased. Motley (2003)

reinforces the concept of service performance being aligned with customer expectations. He argues that a bank's objective is to create satisfied clientele who, over time, would favour the institution by patronising the financial services provided by the bank. He continues by stating that banks may accomplish this goal by gaining a thorough grasp of what makes their customers satisfied and dissatisfied

Concentrating on innovative technology concerns Davis (1989) makes significant contributions to the Technology Acceptance Model (TAM). This model establishes a connection between an individual's behavioural intentions and his or her technology usage. It is proposed that an individual's actual behaviour is influenced by his willingness to use, which is a function of user's attitude and perceived utility of the technology. However, both the attitude and perceived utility are influence by ease of use. Adopting the TAM model requires a grasp of the end user's requirements for utility and usability. (Pedersen, Leif, Methlie & Thorbjornsen, 2002).

According to this model, the perceived utility and user friendliness influences consumers' perceptions about any service. Davis (1989; 1993) argues that it is critical to evaluate user needs in terms of perceived utility and user friendliness of the technology, rather than any other objective measure. The model has been criticised for its emphasis on the technical components of the technology in issue, while disregarding other considerations such as the social aspects of the users. In practice, restraints such as limited ability, time, environmental or organisational restraints, and unconscious habits all limit one's capacity to act freely.

Martha (2012) studied the influence of service innovation practices on customer satisfaction in the Kenyan commercial banking sector. The results from regression and correlation analysis showed that respondents were moderately satisfied in RTGS services and telephone banking services. Findings also indicated that respondents were not at all satisfied with innovations in Internet banking services and automated teller machine. Generally, the results show that there exists a significant and positive correlation between service innovation practices in Commercial banks in Kenya and customer satisfaction.

Mashood (2015) uses a respondents' survey approach to investigate consumers' perceptions of internet banking in the United Kingdom. Descriptive statistics and simple correlation were used to examine the data. The study's findings indicate that customers perceive internet banking services as reliable and safe. However, the survey focused on consumers' perceptions of internet banking in the United Kingdom and did not analyse the implication of E-banking as a whole on customer’s satisfaction.

Chocholáková, Gabčová, Belás and Sipkoaimed (2015) examined bank customers' satisfaction, customers' loyalty and additional purchases of banking product and services in Czech Republic. Based on a qualitative analysis, the study reveal that satisfied customers are significantly more inclined to make strong recommendation about their banks and be more resistive to offers from other banks. The study further revealed that customer loyalty of varying degrees translates into a potential purchase of additional banking products.

Worku, Tilahun, and Tafa (2016) also found that in recent time, e-banking has enhanced customer satisfaction, reduced customers frequency at the bank halls and reduced waiting time for customers should they have any need to be physically present. Conversely the study by Douglas, Lovemore and Roselight (2017) showed that customers in Botswana are not perfectly satisfied with the assurance, accessibility, tangibles, and dependability of commercial banks' e-banking operations.

Iluno, Farouk, and Saheed (2018) conducted a study to determine the effect of electronic banking on customer satisfaction in Kaduna, Nigeria. This study used a survey research methodology. Both quantitative and qualitative data were gathered through in-depth interviews, focus groups, and structured questionnaires administered to 400 respondents in the research areas. The findings indicate that electronic banking services and products significantly improve customer satisfaction in Kaduna State, Nigeria.

Alegbe, Onyike and Okoye, (2019) investigated whether consumers' choices for new and old generation deposit money banks were influenced by their perceptions of their customer relationships. The study showed that customers perceive new generation banks are more creative and inventive, whereas older generation banks are more reliable in terms of liquidity.

To the extent of literature search, it seems no researcher, especially in Nigeria, has proxied innovations with envelop deposit, cardless ATM service and phygital distribution. This study includes these emerging service innovations as variables of interest. Methodologically, large chunk of existing literature in Nigeria has employed ordinary least square (OLS). This study improves on this methodological gap by using more robust multivariate analysis which is the Partial Least Square-Structural Equation Modelling (PLS-SEM). PLS-SEM gives more robust results through a bootstrapping method and factor loadings in testing the significance of the path coefficients (Hair, et al., 2014). To the best of researcher's knowledge, it seems none of these studies in Nigeria has used PLS-SEM.

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Conceptual Framework

Based on the Technological Acceptance Model, the perceived utility and user friendliness influences consumers' perceptions about any service. It is therefore conceptualized that the ease of use of the bank service innovations including envelop deposit, cardless ATM and phygital banking will tend to enhance bank customer satisfaction. Hence, the model of the study is presented pictorially where the dependent variable which is customer satisfaction is a function of the independent variables which are envelop deposit, cardless ATM and phygital banking.

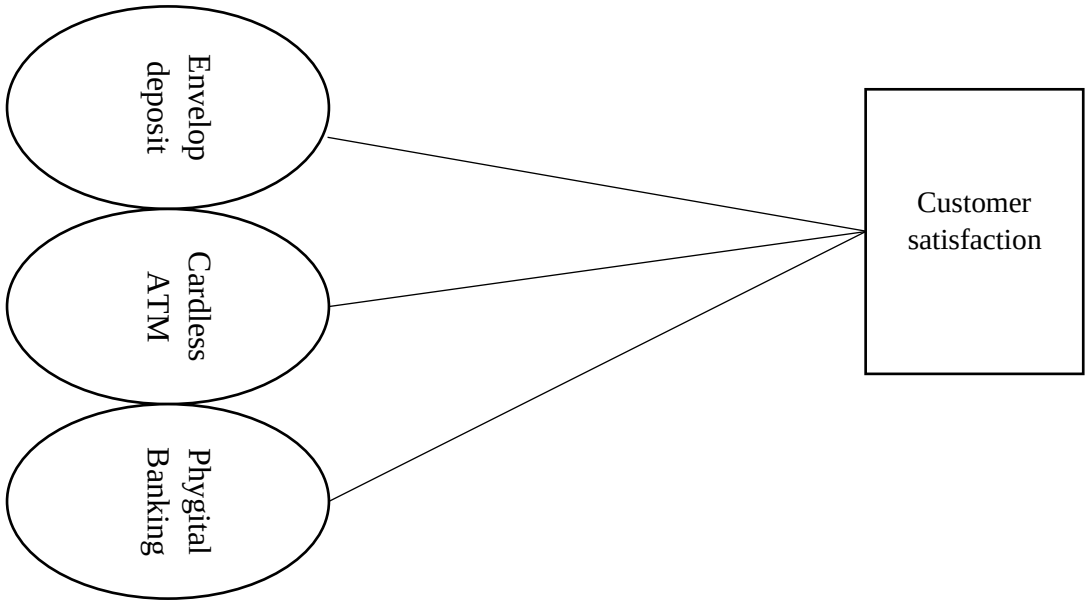


Figure 2.1: Conceptual Diagram of the Relationship between bank service innovations and customer satisfaction
Source: Author's Conceptualization.

METHODOLOGY

The study used descriptive survey design which according to Churchill (1991) is suitable for studies that attempt to explain the features of specific groups, describe what exists and considers the existing conditions or relationships, current processes and tangible developing effects. Population of the study comprises the customers of seventeen (17) DMBs residing in Ilorin metropolis only. A sample of four hundred and twenty five (425) customers of DMBs residing in Ilorin was drawn using convenience sampling technique. 5-point likert scale questionnaire was used for data collection. Data were analysed and the hypotheses were tested using Partial Least Square Model-Structural Equation Model (PLS-

SEM) at 5% level of significance. Following Technology Acceptance Model and Iluno *et al,* (2018), the model of the study is specified as follows:

$CS = \beta 0 + \beta 1EDi + \beta 2CATMi + \beta 3PBi + \varepsilon i \ldots\ldots\ldots (1)$

Where: CS = Customer satisfaction, ED = Envelop deposit, CATM = Cardless ATM Services

PB= Phygital Banking

β0=Constant, β1, β2, and β3 are the parameters estimate.

ε = Error Term

Aprori expectations: Aprori expectations: β1 > 0, β2> 0, β3> 0

RESULTS AND DISCUSSIONS

Measurement Models (Preliminary Diagnostic Tests)

Reliability Test

To test for reliability, Cronbach's Alpha test for internal consistency was employed in this study. As shown in Table 1, each construct yielded more than 0.70 which is the minimum threshold (Ringle, Wende & Becker, 2015; Hair, Hult, Ringle & Sarstedt, 2011). The implication of this is that the measures are highly reliable for the measurement of each construct.

Table 1: Construct Overview

	AVE	Composite Reliability	Cronbachs Alpha
Envelope Deposit	0.588248	0.855285	0.779
Cardless ATM	0.587519	0.867191	0.812
Phygital Banking	0.614779	0.859797	0.763
Customer Satisfaction	0.633121	0.857213	0.776

Source: Author's computation (2022)

Likewise, as depicted by Table 1, all construct met the minimum benchmark for both composite reliability and AVE which is 0.7 and 0.5 respectively. The Cronbachs Alpha statistics for all the variables are above 0.7 indicating internal consistency among the statements measuring each of the constructs.

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Table 2: Fornell-larcker Discriminant Validity Test

	Envelope Deposit	Cardless ATM	Phygital Banking	Customer Satisfaction
Envelope Deposit	**0.766973**			
Cardless ATM	0.565012	**0.766498**		
Phygital Banking	0.689090	0.701083	**0.784078**	
Customer Satisfaction	0.699101	0.721165	0.731713	**0.795689**

Source: Author's computation (2022)

Table 2 shows the discriminant validity result. The square root of AVE in each latent variable was used to establish discriminant validity; if this value is larger than other correlation values among the latent variables then discriminant validity is well established (Fornell & Larcker, 1981). This number is larger than the correlation values in the column and row, thus result indicates that discriminant validity is well established.

Multicollinearity Test

Table 3 depicts the multicolinearity test as suggested by Tabachinick and Fidell (2007); Hair, et al., (2017). VIF is used to test for multicolinearity of the variables. It describes the percentage by which standard error is inflated or increased for each regression coefficient as a result of presence of multicolinearity. The higher the value of VIF, the larger the standard errors which shows evidence of multicollinearity and renders the variables insignificant to the model. A rule of thumb commonly used in practice is if VIF is greater than 10.

Table 3: Variance Inflation Factor and Tolerance

Predictors	N	Tolerance	VIF
Envelop Deposit	354	0.336	2.972
Cardless ATM	354	0.292	3.419
Phygital Banking	354	0.411	2.434

Source: Author's Computation, (2022)

As shown in Table 3, the VIF values are less than 10 and also below the critical level of 5. (Hair, *et al*., 2017). Thus, this means that there is no evidence of multicolinearity among the independent variables. A tolerance of 0.10 or lower indicates a multicolinearity problem Tabachinick and Fidell (2007). The tolerance values are greater than 0.1. This implies that there is no evidence of multicolinearity between the independent variables.

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Structural Model Assessment

The structural model was analysed using Smart PLS 3.0 (Ringle, Wende and Becker, 2015; Kong and Masud, 2019) to perform Partial Least Squares Structural Equation Modelling (PLS-SEM) to test the hypothesized relationships among the constructs in the proposed model depicted. According to Hair, *et al*., (2013), it was argued that in order to assess the structural model; R2, beta and its equivalent T-values must be examined as well as the P-values. It was also suggested that predictive relevance (Q^2) and the effect sizes (f^2) should also be stated alongside the measures mentioned. Most importantly, the assessment of structural model is to estimate and test the relationship between the latent independent variables and dependent variable (Customer satisfaction). The estimated parameters used to test the four null hypothesis earlier stated in this study are reported below in Table 4 below.

Table 4 Summary of Structural Equation Model

Hypothesis	Beta	Std. Error	T-Value	P-value	Remarks	Decision
Ho_1: Envelope Deposits → Customer Satisfaction	0.13	0.074	1.726	0.085	Not Supported	Accepted
H_{o2}: Card-less ATM → Customer Satisfaction	0.318	0.056	5.65	0.000	Supported	Rejected
H_{o3}: Phygital Banking → Customer Satisfaction	0.376	0.062	6.175	0.000	Supported	Rejected

Source: Author's Computation, (2022)

The table 4 presents the result of the Partial Least Square Structural Equation Model (PLS-SEM) shows the model employed in the study which was used to test the hypotheses earlier stated in the study.

Based on the result shown in table 4 the findings show that envelop deposit usage has insignificant effect on the customer satisfaction as shown by ($\beta = 0.13$, t-value = 1.726 and p-value = 0.085) at 5% significance level. Hence the null hypothesis which states that envelop deposit usage has no significant impact on customer satisfaction is accepted.

Also, the results in table 4 reveal that cardless ATM service has significant effect on customer satisfaction as shown by ($\beta = 0.318$, t-value = 5.65 and p-value = 0.000) at 5% significance level. Since the regression remark from table 3 supported cardless ATM as a significant predictor of customer satisfaction, this then provides a basis to reject the null hypothesis which states that cardless ATM service has no significant impact on customer satisfaction.

Also according to the results, phygital banking has positive and significant effect on the customer satisfaction as shown by (β = 0.376, t-value = 6.175 and p-value = 0.000) at 5% significance level. Since the regression remark from table 4 supported phygital banking as a significant predictor of customer satisfaction, this then provides a basis to reject the null hypothesis which states that phygital banking has no significant impact on customer satisfaction.

Effect Size (f2)

Using the Cohen (1988) recommendation that 0.02, 0.15, 0.35 have small effects, medium effects, and large effects respectively, table 5 reveals the contribution of each independent variable to the prediction of the dependent variable (customer satisfaction).

Table 5: Effect size (f2)

Variables	Effect size (f^2)	Decision
Envelop Deposit	0.019	Small
Cardless ATM	0.093	Medium
Phygital Banking	0.187	Medium

The examined effect sizes (f2) as shown in Table 5 indicated that card-less ATM and phygital banking (exogenous constructs) had a medium effect on customer satisfaction (endogenous construct) with 0.093 and 0.187 respectively, while envelope deposit had small effect on customer satisfaction with value of 0.019.

Coefficient of Determination (R2)

The coefficient of determination R2 is the exogenous constructs' integrated effect over the endogenous latent construct. It other words, the R2 depicts the percentage at which the independent variables explain the variation in the endogenous (dependent) variable. Cohen (1988) suggested that R2 of 0.67 is substantial, 0.33 is moderate while R2 0.19 is weak.

Table 6: Coefficient of Determination R2

Variable	R^2	Adjusted R^2
Customer Satisfaction	0.693	0.689

Source: Author's Computation, (2021)

As shown in Table 6, the R2 is 69.3% and the Adjusted R2 is 68.9%. This implies that the exogenous latent constructs of this study; envelope deposits, card-less ATM and phygital banking (banking service innovations) explain 69.3% of variance in customer satisfaction and as the value is higher based on Cohen, (1988) recommendation.

Discussion of Findings

The first finding revealed that envelope deposit usage has no significant effect on customer satisfaction at 5% level of significance and with very small effect size of 0.019. This implies that bank customers in Ilorin metropolis are not deriving much satisfaction in the usage of enveloped deposit as against the study expectation. This contradictory result may be as a result banks not providing this service adequately and effectively.

The second finding revealed that cardless ATM service is positively related and statistically significant at 5% to customer satisfaction with medium effect size of 0.093. This implies that cardless ATM service has a strong impact on customer satisfaction and that items of cardless ATM service explained the variation in the level of customer satisfaction to a large extent. The result is consistent with a-prior expectation of positive relationship between cardless ATM service and customer satisfaction among bank customers in Ilorin metropolis. The result is also consistent with the findings of Bzhar (2018), Iluno *et al.*, (2018). Thus show that customers give their positive opinions and confirmed that using ATM without card is reliable, responsive, easy to use and convenient. The last finding revealed that phygital banking is positively related and statistically significant at 5% to customer satisfaction with medium effect size of 0.187. This implies that phygital banking as an innovation which is characterised with low transaction cost in banking has a strong impact on customer satisfaction and that items of phygital banking explained the variation in the level of customer satisfaction to a large extent. The finding is consistent with Hicks and Niehans (1983) that posit in Transaction Innovation Cost Theory that cost reductions stimulate innovations and enhance efficiency in service delivery to customers or users. The result is also consistent with a-prori expectation of positive relationship between phygital banking and customer satisfaction among bank customers in Ilorin metropolis.

CONCLUSION AND RECOMMENDATIONS

The study concluded that banking service innovations such as cardless ATM and phygital banking are the service innovations that influence customer satisfaction in Ilorin metropolis. The study therefore recommended that managements of DMBs should provide more ATMs with cardless operation options at bank premises or other commercial points in the metropolis. Also, DMBs' management should design more user friendly, personalised and less costly digital bank applications which can enable customers to efficiently access virtually all bank services even without visiting any branch.

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