

# **SERVICE TECHNOLOGY AND CUSTOMER LOYALTY OF SELECTED DEPOSIT MONEY BANKS IN ABUJA METROPOLIS: A MODERATING ROLE OF PERCEIVED SWITCHING COSTS**

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## **ABSTRACT:**

This study examined the effect of service technology and customer loyalty of selected deposit money banks in Abuja metropolis: A moderating role of perceived switching costs, rooted on Technological Acceptance Model (TAM), employed cross-sectional survey to collect data from respondents. The study population was 369 e-banking customers of the 4 selected banks in Abuja metropolis, Nigeria, with primary data collected on the sample using a 5-scale Likert questionnaire. The study adopted descriptive and inferential statistics tests using multiple regressions with a PLS-SEM approach to analyse the data. The result showed that the direct relationship of digital payment has a moderate positive effect on customer loyalty, but this effect is not statistically significant. Further results reveal that internet banking have a positive and significantly influences customer loyalty, whereas perceived switching cost have a negative and insignificant direct effect on customer loyalty. Furthermore, the indirect relationship of the result revealed that perceived switching cost does not positively and significantly moderate the relationship between internet banking and customer loyalty and perceived switching cost does not positively and significantly moderate the relationship between internet banking and customer loyalty. This study recommends that banks should enhance digital platform functionalities, ensuring seamless user experience, personalization, and integration with other banking services. Also, customer engagement can be improved through AI-driven chat-bots, self-service portals, and interactive mobile banking features. This will improve their compleutive strategies and also increase market share and profitability of the firms.

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## **Keywords:**

Service Technology, Customer Loyalty Internet banking, Digital Payment, and Perceived Switching Cost, Abuja Metropolis, Nigeria.

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## **Introduction**

In the banking industry, maintaining customer loyalty is crucial due to the competitive landscape of financial services, where institutions must consistently innovate to keep and attract customers. A devoted customer base improves financial stability, boosts profitability, and lowers the expenses related to acquiring new customers. There are various factors influence customer loyalty in banking, this include service quality, trust, satisfaction, and advancements in technology (Rashi et al., 2020). As financial services become increasingly digitized, the impact of service technology on cultivating customer loyalty has become particularly important. Banks are currently utilizing digital platforms, mobile banking apps, AI-powered customer support, and fin-tech partnerships to improve customer experiences, thereby reinforcing long-lasting relationships (Gomber et al., 2018).

According to a survey conducted by Statista (2023), a German online platform and online portal providing data on the global digital economy revealed that South Korea ranked 82% highest mobile banking followed by Japan 62% penetration of online banking with customers processed banking matters via smartphone, tablet, PC or laptop to process banking matters. Similar report by S&P Global (2023) an American publicly traded corporation specialize business, financial information and intelligence analytics found that China major banks collectively account for 41% of the market by total assets through application of technology that made inroads in payment, lending, mutual fund management, and amongst other areas. However, the survey of McKinsey and Company (2023) an American multinational strategy and management consulting firm that offers professional services to corporations shown that Nigeria ranked 8.7% mobile and online banking penetration with Africa uses 90% transactions in cash. This means that Nigeria and Africa may not accelerate into a digital future as she makes sluggish progress. The resultant digitalization gap may have implications for bank customers and could weigh on the health of banks, national banking sectors, and economies in country.

Service technology in banking encompasses various digital innovations that improve service delivery, enhance customer interactions, and optimize operational efficiency. These technologies include automated teller machines (ATMs), mobile banking apps, internet banking, artificial intelligence-driven chat-bots, block-chain solutions, and data analytics for personalized services (Ele et al., 2023). The integration of service technology enhances banking experiences by providing convenience, reducing wait times, ensuring secure transactions, and offering

personalized financial services. These improvements contribute to higher customer satisfaction, which in turn fosters loyalty. Several scholars such as (Harris et al., 2022; Mulia et al., 2021) revealed that service technology has a positive and significant relationship with customer loyalty. The benefits of technological banking services cannot be overstated, as online and mobile banking provide customers with 24/7 access to financial services anytime, anywhere. Automated processes help reduce waiting times for transactions such as fund transfers and bill payments, while AI-driven chat-bots and recommendation systems enhance customer interactions (Mulia et al., 2021). However, despite these advancements, customers in Nigeria, particularly in the Federal Capital Territory, Abuja, continue to face significant challenges. The banking industry still relies heavily on traditional banking methods, limiting the full potential of digital banking. Key issues such as poor internet connectivity, network failures, cyber-security threats, high transaction charges, and inadequate customer support remain major obstacles. Additionally, inefficient dispute resolution systems leave many customers frustrated with unresolved transaction issues, further hindering trust and confidence in technological banking solutions (Jameaba, 2024). It is against this backdrop that this study is conducted to investigate factors that responsible for service technology in relation to customer loyalty in the deposit money banks in Abuja metropolis

## **1.2 Statement of the Problem**

In a rapidly evolving financial sector, service technology has become a critical tool for enhancing customer experience and fostering loyalty. Deposit Money Banks (DMBs) in Nigeria, particularly in the Federal Capital Territory, Abuja, have significantly adopted digital innovations such as mobile banking, internet banking, automated teller machines (ATMs). These advancements aim to improve service efficiency, reduce transaction costs, and enhance customer satisfaction. However, despite these technological improvements, many banks continue to operate with traditional banking methods, and customer loyalty remains a challenge. Previous studies (Gontur et al., 2017; James et al., 2023; Wasike et al., 2016) have measured service technology in relation to customer loyalty using variables such as automated teller machines (ATMs), bank branch networking, electronic fund transfers (EFT), perceived usefulness (PU), and perceived ease of use (Peou). While these measures contribute to reliability and theoretical consistency, they may also limit innovation and introduce measurement bias, as well as fail to capture emerging trends in the banking sector. This creates a literature gap that needs to be addressed. Therefore, this study seeks

to bridge this gap by incorporating Internet Banking and Digital Payment as additional factors, providing a more comprehensive perspective on service technology and customer loyalty.

Despite the identified challenges in this study, previous research indicates that the negative relationship between service technology and customer loyalty is more pronounced in countries with higher levels of information and communication technology (ICT) development and lower human capital quality (Qin et al., 2022). Numerous studies have reported both positive and negative outcomes of service technology, providing valuable insights for policymakers, businesses, and organizations to develop evidence-based strategies. While some findings may contradict prior research, necessitating a reassessment of existing models, access to precise and accurate knowledge on service technology remains limited (Wang et al., 2022). Therefore, this study introduces perceived switching costs as a moderating variable in the relationship between service technology and customer loyalty to obtain more accurate results.

The broad question of this research is to determine what extent internet banking affects the customer loyalty of selected deposit money banks in Abuja metropolis, to evaluate the extent of influence of digital payment on customer loyalty of deposit money banks, and Does perceived switching costs moderate the relationship between service technology (internet banking, digital payment) and customer loyalty of selected deposit money banks?

Theoretically, this study expands existing literature on service technology by examining its impact on customer loyalty within the banking sector, specifically in the context of deposit money banking sector while the findings provide actionable insights for bank executives and policymakers to enhance digital banking strategies, ensuring that service technology is designed to improve customer retention rather than inadvertently driving customers away.

## **2.0 Conceptual Review**

### **2.1 Concept of Customer Loyalty**

Customer loyalty is one of the most frequently discussed subjects in marketing and service literature. Gontur et al. (2017) defined Customer loyalty refers to a strong dedication to consistently repurchase a favored product or service in the future, resulting in the repetitive buying of the same brand. This definition captures not only the spirit as well the behaviour causing repetitive purchasing of same brand because it has to do with intention to some specific products or services in the future. This means making customers feel dedicated when the gains are important

to them. Wasike et al. (2016) defined It is a strong dedication among consumers to consistently buy a product over time, regardless of the situational factors they face in the current market, which offers specific details about a certain service or product interaction. The overall satisfaction gained from multiple transactions or service interactions is a more crucial factor in a company's past, present, and future performance. For the purpose of this study customer loyalty refers to a customer's on going preference for a particular product or service over that of competitors, resulting in sustained engagement, repeat purchases, and promotion of the brand. It includes both behavioural loyalty (consistent patronage) and attitudinal loyalty (emotional connection and trust). That is why satisfied and loyal customers promote the financial services through word-of-mouth and referrals. When a customer is retained, there is contribution to stable revenue streams and is more likely to purchase additional financial products. In a digitally controlled world, that may be possible when user-friendly mobile apps, online banking platforms, and seamless transactions strengthen customer commitment, as modern consumers demand instant, digital first services in the banking service. Service technologies like two factor authentication, encryption, and biometric verification ensure the security of transactions. A secure digital banking environment increases customer confidence and their willingness to remain with the bank (James et al., 2023)

## **2.2 Concept of Service Technology**

The manner in which services are provided through technology and the level of quality play a significant role in boosting consumer loyalty. Nowadays, banking customers prefer to operate within their comfort zones to access services effortlessly (Khan et al., 2024). This shift in preference has prompted numerous financial institutions to move away from traditional service methods and adopt technological solutions. Service technology is defined as application of digital tools, automated systems, and innovative solutions to enhance service delivery, improve efficiency, and optimize customer experiences in various industries, including banking, healthcare, and retail. Technology organizations utilize various technologies to streamline service processes, reduce operational costs, and enhance customer satisfaction (Seufert et al., 2021). In banking, service technology includes mobile banking apps, online banking platforms, AI-powered customer support, digital payment solutions, and automated loan processing systems. It enhances efficiency, improves customer experiences, and fosters financial inclusion by making services more accessible. This strengthens security through advanced fraud detection and authentication methods

and boosts customer loyalty by providing seamless and reliable service experiences, as modern consumers demand instant, digital first services in the banking service. Service technologies ensure banks can meet these evolving preferences, enabling omnichannel service delivery (e.g., combining mobile, web, and in-branch services seamlessly (Li et al., 2021)

### **2.1.0 Dimensions of Service Technology**

#### **2.2.1 Internet Banking**

The concept of internet banking, as described by Gontur et al. (2017), is to provide clients with access to their bank accounts via a website, allowing them to conduct certain transactions in accordance with the established rules and regulations governing internet banking. With the use of internet banking, customers can access information and conduct many banking activities such as checking their account balances, transferring money between accounts, and paying bills online. Internet banking inherently assists users in overseeing and carrying out their banking transactions (Firdous & Farooqi, 2017). Internet banking refers to an electronic payment method that allows customers of a financial organization to perform financial operations on a website managed by that organization, which can include retail banks, virtual banks, credit unions, or building societies. The study operationalized internet banking as online banking or e-banking as use of digital platforms provided by banks to perform financial transactions and manage accounts over the internet (Ling et al., 2020). It allows customers to access banking services remotely without visiting a physical branch. These involved customers checking balances, viewing transaction history, and downloading account statements, as well as transferring money between accounts within the same bank or to other banks (e.g., wire transfers, real-time payments) (Ling et al., 2020). This new channel has added a new dimension to the concept of customer satisfaction and how it can be affected in a positive way. All banks exist and strive to become an integral part of the lives of their customers and therefore always strive harder to keep satisfying their customers through better channels of delivering their offerings (Dangaiso et a., 2024).

#### **2.2.2 Digital Payment**

Digital payment is transactions conducted through electronic methods. In this system, both the sender and receiver utilize digital platforms to transfer and obtain funds. It is also known as electronic payment. Physical cash (banknotes) is not used in digital payment transactions. All

digital payment processes are finalized online (Franciska & Sahayaselvi, 2019). Digital payments defined as any types of payments using digital instruments, which include mobile payment, mobile wallets, crypto currency, and electronic payment. Digital banking refers to the use of technology to conduct banking transactions in a smooth manner (Alkhawaiter, 2020). It, therefore, includes commonly used terms such as electronic banking, internet banking, and online banking. This study defined digital payment as financial transactions conducted electronically without the use of physical cash or paper-based methods. The payment sector experienced significant growth over the past ten years. In 2019, the global digital payment market was valued at USD 3885.57 billion and is projected to reach USD8686.68 billion by 2025. During the e-pay Summit in 2019, Mr. Ahmed Alenazi, Vice President of STC Pay, remarked that “The pace of transformation in the payment sector has been increasing for various reasons, including technological advancements, widespread internet usage, and mobile adoption, alongside governmental initiatives promoting a cashless economy” (Alkhawaiter, 2020). In the banking sector, digital payments enable customers to transfer money, pay bills, and conduct transactions through various digital channels, such as mobile apps, online banking platforms, and electronic wallets. This is relevant to customers in the banking sector clients can make payments anytime, anywhere, without needing physical cash or visiting a bank as digital transactions are processed instantly or within minutes, reducing waiting times (Ghosh, 2021).

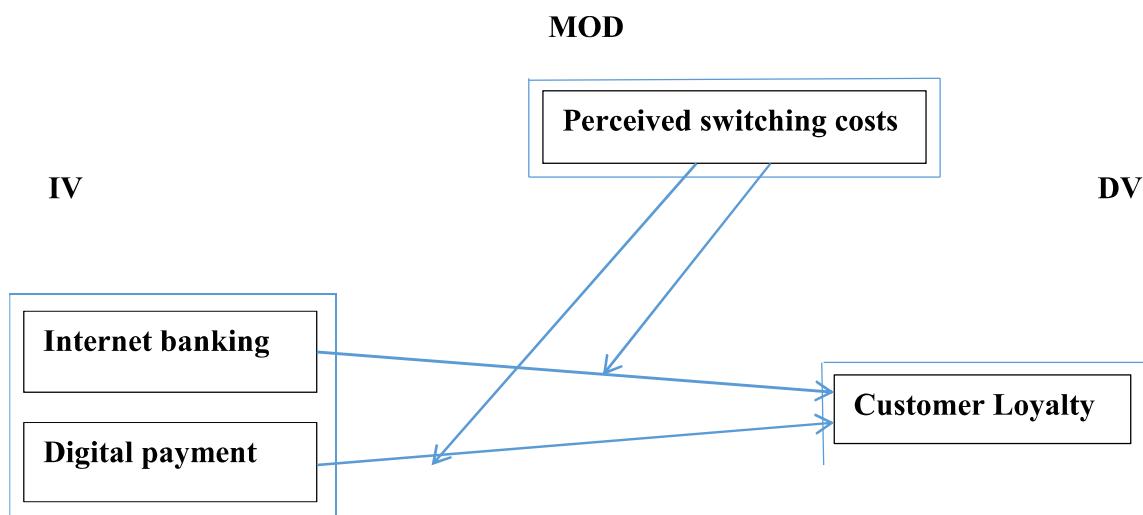
### **2.2.3 Moderating Role of Perceived Switching Costs**

It was proposed that switching costs are considered one-time expenses (Li et al., 2023), contrasting with the continuous costs linked to utilizing a product or service after a repeat purchase relationship has been formed (Porter. 1980). Burnham et al. (2019) defined switching as one-time expenses that customers face when transitioning from one service provider to another. Although these switching costs are related to the act of switching, they do not necessarily have to be paid right at the moment of switching. When customers casually express that it's simply not worth the effort to change providers, they might be considering obstacles like "the costs of searching, transaction expenses, the effort to learn something new, benefits for loyal customers, established habits, emotional costs and mental effort, along with financial, social, and psychological risks associated with the purchase (Demir et al., (2021). Perceived switching costs, as defined by this study, refer to the financial, psychological, and procedural obstacles that customers encounter with changing their banking service provider. These costs influence a customer's decision to remain with or

switch to a new bank, affecting long-term customer loyalty and retention. Perceived switching costs play a crucial role in shaping customer decisions in the banking sector. While high switching costs can enhance customer retention, banks must balance them with superior service offerings to maintain trust and satisfaction in an increasingly competitive industry (Ghufran et al., 2022). This is because financial switching costs can be used strategically to encourage customers to stay, such as offering exit penalties or exclusive benefits (Demir et al., (2021).

### 2.3 Conceptual Framework

The conceptual framework illustrates how the independent, dependent, and moderating variables are interrelated in the research. Service technology clarifies this relationship by indicating how it influences customer loyalty (CL) and perceived switching costs (PSC), thereby delineating the connection between the independent and dependent variables and explaining the moderating effects within the model



(Source: Researcher, 2025)

Figure 2.1 illustrates the conceptual framework for this research. The independent variable, service technology, is depicted by internet banking and digital banking. Customer loyalty serves as the dependent variable, while perceived switching costs act as the moderating variable.

### 2.4 Theoretical Framework

The research was grounded in the Technology Acceptance Model (TAM). Initially introduced by Fred D. Davis in 1986, TAM has played a significant role in understanding user acceptance of technology. Davis, an American academic noted for his expertise in information systems (IS), technology adoption, and human-computer interaction (HCI), has made a considerable impact on

how both organizations and researchers understand new technology acceptance (Davis et al., 1989). According to the Technology Acceptance Model (TAM), user acceptance is shaped by perceived usefulness (PU) and perceived ease of use (PEOU), with users more inclined to embrace a technology if they believe it will enhance their performance. Users tend to favor systems that are straightforward and user-friendly. Additionally, a user's intention to use a system is a strong predictor of whether they will actually adopt it, and if users maintain a positive attitude toward the technology, they are more likely to make use of it. The theory has been criticized by scholars such as (Bagozzi, 2007; Lee et al., 2003; Venkatesh & Bala, 2008) that TAM studies rely on self-reported surveys, which can lead to response bias and limit the reliability of findings and that it does not account for external factors like organizational culture, industry type, or situational constraints, which significantly influence technology adoption. Despite the criticisms, TAM theory best fit the study because it addresses all the variables and measurements under study. In applicability of the theory to study, TAM suggests that customers adopt and continue using a technology-based service if they perceive it as useful, while in banking, service technologies like mobile banking apps, ATMs, online banking, and AI-driven customer support are adopted when customers believe they enhance convenience, security, and efficiency (Bagozzi, 2007). This is because if customers perceive banking technology as useful, they are more likely to remain loyal to the bank (Venkatesh & Bala, 2008).

## **2.5 Review of Empirical Studies**

### **2.5.1 Internet Banking and Customer Loyalty**

Lotko (2022) conducted a study the influence of the quality of internet banking services on customer loyalty with survey data collected from 384 e-banking customers in Poland, used of Structural Equations Modeling (SEM) for analysis. The findings revealed that fulfillment has the greatest impact on the customer loyalty; efficiency is of slightly lower importance, whereas privacy is of the lowest importance in this case. However, surprisingly it turned out that system availability is omitted. Amin (2019) in his study internet banking service quality and its implication on e-customer satisfaction and e-customer loyalty with a total sample size of 520 internet banking customers, used Pearson regression for analysis. The result found that personal need, site organization, user friendliness, and efficiency of website have a positive significant relationship with service quality. The efficiency of banking website is the important aspect of internet banking service quality. The finding further revealed that the relationship between internet Long and Vy

(2016) in banking service quality, e-customer satisfaction and e-customer loyalty are significant. their study internet banking service quality, customer satisfaction and customer loyalty: The case of Vietnam The findings of this study indicate that three dimensions of internet banking service quality namely online customer service quality, online information system quality and banking service product quality are found to be statistically significant in determining overall internet banking service quality. In addition, overall internet banking service quality has significant impact on customer satisfaction and in turn customer satisfaction has significant impact on customer loyalty. Implications and recommendations are discussed with the aim of improving internet banking services, customer satisfaction and customer loyalty.

### **2.5.2 Digital Payment and Customer Loyalty**

Kimonye and Muchelule (2024) assessed digital payment system and financial performance of commercial banks in Nairobi County, Kenya with a sample size of 120 employees from information technology, operations, and finance management of 24 domestic commercial banks. The study used descriptive statistics and inferential statistics included tests for multiple regression used for data analysis. The findings revealed a significant relationship between electronic payment systems and financial performance. Specifically, electronic cards usage and bank agents were found to positively influence financial performance, while the impact of automated teller machines (ATMs) was statistically significant. These findings underscore the importance of embracing electronic payment systems as strategic tools for improving financial performance in the banking sector. Kilay et al. (2022) explored the influence of e-payment and e-commerce services on supply chain performance: Implications of open innovation and solutions for the digitalization of micro, small, and medium enterprises (MSMEs) in Indonesia with a sample size of 164 MSMEs while used descriptive and multiple linear regression for its analysis. The results demonstrate that there exists a positive and significant influence of both e-payment and e-commerce service variables on the performance of MSME supply chains in Indonesia.

### **2.2.3 Moderating role of Perceived Switching Costs**

Pick and Eisend in their study (2018) buyers' perceived switching costs and switching: a meta-analytic assessment of their antecedents with a sample size 152 from selected customers of banks in Lagos, meta-analysis was used. The revealed that alternatives and competition have the strongest influence on switching costs, seller investments play a minor role as a driver of switching costs and switching, switching costs have only a weak negative influence on switching. Whereas

the moderator analysis reveals that most of the effects are context specific. Further, the moderating influence of year and culture indicate fundamental market changes and variations across countries. Matzler et al. (2020) investigated switching cost experience, customer satisfaction, and switching costs in the ICT industry, survey data were collected from 327 business customers and employees from an information and communications technology (ICT) company. The research model was tested using partial least square structural equation modeling. The results show that switching experience negatively influences customer satisfaction and behavioral loyalty intention. Furthermore, the influence of customer satisfaction on behavioral loyalty intentions is partially mediated by financial and relational switching costs.

### 3.0 Methodology

This study adopted a descriptive survey methodology of a cross-sectional nature. This approach is considered suitable for collecting the necessary data to ascertain the independent variable, service technology, the dependent variable, customer loyalty, and the moderating variable, perceived switching cost. The target group for this study includes four banks and their online customer base located in the Abuja metropolitan area; specifically, these financial institutions are Access Bank, First Bank Holdings, Guaranty Trust Bank, and Zenith Bank. The selection of these banks was based on their status as leading institutions in information and communication technology (ICT), as reported in the Central Bank of Nigeria (CBN) 2024 annual bulletin. The exact number of customers in the population is unknown since the banks were unwilling to disclose it, likely due to privacy and regulatory concerns. Consequently, the researcher derived a sample size of 369 using Krejcie and Morgan's (1970) formula for determining sample sizes when the overall population is unknown.

Krejcie and Morgan's infinite sample size formula:

$$S = \frac{X^2 * P * (1-p)}{E^2}$$

Where:

$X^2 = 3.841$  (Chi-square value for 95% confidence)

$P=0.4$  (Population proportion)

$1-P=0.6$

$E=0.05$  (Margin of error)

Calculation:

$$S = \frac{3.841 \times 0.4 \times 0.6}{0.052}$$

$$S = \frac{3.841 \times 0.24}{0.0052}$$

$$S = \frac{0.92184}{0.0052}$$

$$S = 368.74$$

$$S = 369$$

The study used simple random sampling technique to select participants for this investigation. This approach was used because it allows for strong statistical inferences, as random selection reduces sampling errors and ensures independence in data collection. The collected data was analysed using descriptive statistic that is simple percentage for demographic data while regression analysis was used to test the hypothesis of the study using Smart PLS software. Building the study model, service technology (ST) and customers loyalty (CL) in Abuja metropolis with perceived switching cost (PSC) as a moderator, using internet banking (IB) and digital payment (DP) as predictors, the study followed the moderation model specification guidelines to formulate the model:

### **3.5 Model specification**

In this model, the independent variable, Service Technology (ST), is evaluated through proxies like internet banking (IB) and digital payment (DP). Customer loyalty (CL) serves as the dependent variable, while the perceived switching cost functions as a moderator. As a result, the model is depicted with the standard multiple regression frameworks outlined below:

$$CL = \beta_0 + \beta_1 IB + \beta_2 DP + \beta_3 PSC * IB + \beta_4 PSC * DP * \mu_t$$

Where:

CL = Customer loyalty

IB = Internet banking

DP = Digital payment

PSC = Perceived switching cost

$\beta_1 - \beta_3$  = Coefficient

$\beta_0$  = Intercept

$\mu_t$  = Error of Term

Consequently, PSC measurements serve as a link between Service Technology and customer

loyalty. In statistical terms, an interaction occurs when the moderator variable affects the nature of the relationship between the independent and dependent variables. In regression analysis, a moderating role is described as the interaction between a specific independent variable and another factor that influences the conditions under which it can be effective (Baron & Kenny, 1986). In this study, the PSC moderator was identified by utilizing interaction (product) terms in regression, specifically through ST and the interaction term. The term PSC\*ST was formed by multiplying the observations of PSC and Service technology. The study uses the statistics of the interaction term, including the slope coefficient and p-value, to assess the moderating role. The beta coefficient "beta" indicates the extent of the moderator in the interaction term, while the p-value enables researchers to generalize their results.

## Results and Discussion

The structural model analysis of the study, conducted with Smart PLS 4, assesses hypotheses ranging from H0:1 to H0:4. The PLS-SEM analysis illustrates the magnitude of path coefficients and the influence of independent variables on dependent variables. A bootstrapping technique with 5000 cases is utilized to assess significance, highlighting the direct effects of independent variables.

**Table 4.1 Testing Convergent Validity and Composite Reliability**

Variable	Cronback's		Composite		Average Variance
	Alpha	Reliability (rho-a)	Composite reliability (rho-c)	Extracted (AVE)	
IB	0.900	0.902	0.921	<b>0.627</b>	
DP	0.864	0.871	0.903	<b>0.651</b>	
PSC	0.852	0.860	0.894	<b>0.629</b>	
CL	<b>0.891</b>	<b>0.869</b>	<b>0.917</b>	<b>0.650</b>	

**Note: Service Technology customer loyalty: Internet banking, Digital Payment and Perceived Switching Cost**

The quality of the study's constructs is assessed by analysing the factor loading, reliability, and validity of the measurement model, as illustrated in table 4.1 and figure 4.1. The research utilized a factor loading threshold of 0.40, which is regarded as acceptable in confirmatory factor analysis (CFA), as indicated by the data in Table 4.1 (Field, 2013; Pallant, 2016; Stevens, 2002). Similarly, Cronback's alpha value ranging from 0.60 to 0.70 is acceptable for exploratory research (Hair et

al., 2019; DeVellis, 2012; George & Mallory; Nunnally, 1994). The degree of item reliability is highly acceptable, as the constructs explain over half of the variation in the indicators. In Table 4.1, Cronbach's alpha values between 0.852 and 0.900 reflect dependable internal consistency, with values for all constructs (IB, DP, CL, and PSC) ranging from 0 to 1, frequently surpassing the required standard of 0.60 to 0.70. Composite Reliability (rho-a, and rho-c) serves as another measure of internal consistency reliability by assessing how closely related the items within a construct are. As shown in Table 4.1, the composite reliability values (rho-a, and rho-c) fall between 0.860 and 0.921 for all constructs. These figures also exceed the benchmark of 0.70, indicating a strong level of internal consistency and reliability. According to Nunnally and Bernstein (1994) the Average Variance Extracted (AVE) evaluates the variance of the constructs in relation to measurement error variance, with scores ranging from 0.627 to 0.651, which signifies acceptable convergent validity.

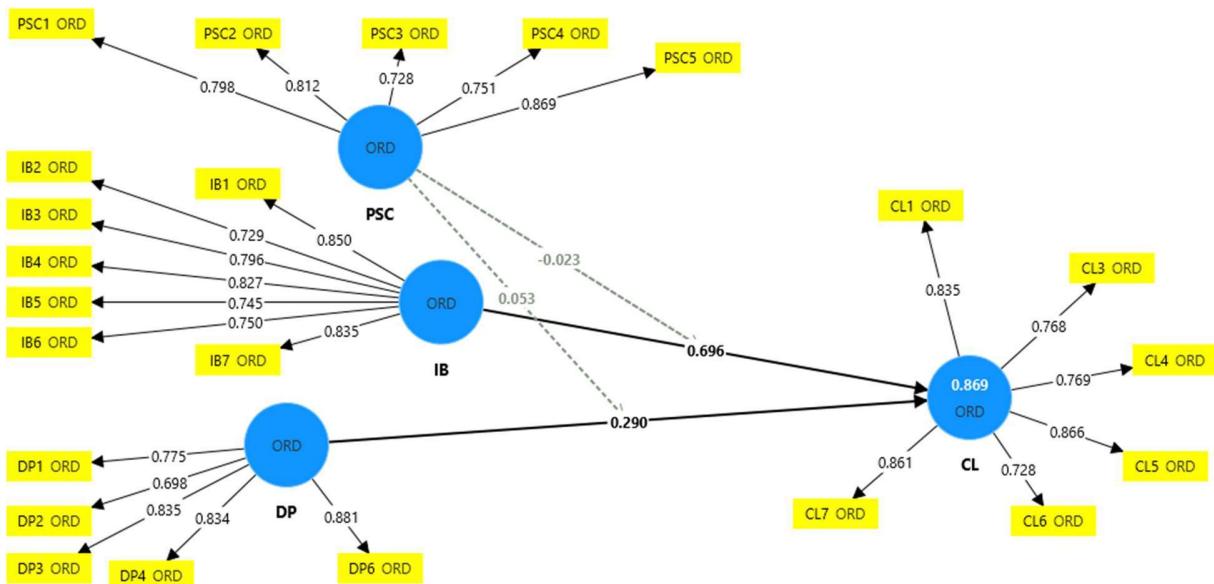


Figure 2.2 illustrates the findings of the measurement model regarding the direct and indirect relationship among the independent, dependent, and moderating variables.

### Structural Assessment Model

Following a review of the measurement model and an exploration of the structural path, it is essential to evaluate the relationships between the constructs of the study and their statistical significance. According to Hair et al. (2020), several key metrics are used to assess the structural model, including the coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), the size and importance of path coefficients and effect sizes  $f^2$  and  $q^2$ . The research focuses on the direct relationship between internet banking (IB) and digital payment (DP) and customer loyalty, as well

as the moderating effect of perceived switching costs (PSC) on the association between the independent and dependent variables.

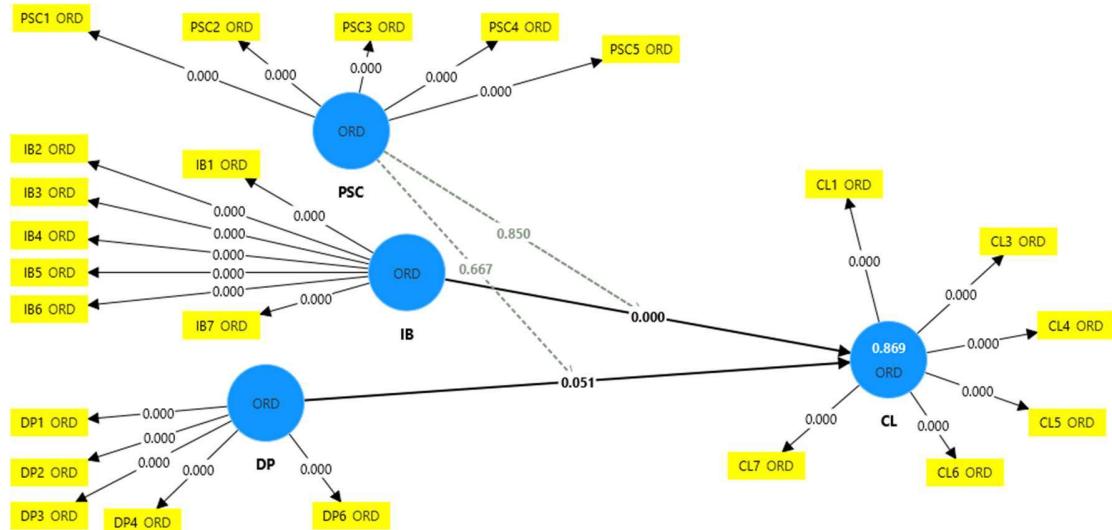


Figure 2.3 presents the structural model's results on the direct and indirect relationships between independent, dependent and moderating variables.

**Table 4.2 Coefficient of Determination (R2)**

R square	R square adjusted
CL <b>0.869</b>	0.869

Table 4.2 shows an R-squared value of 0.869, suggesting that the independent variables in the model explain 86.9% of the variation in the dependent variable (CL), which indicates a very strong relationship between the model and the data. Conversely, the Adjusted R-squared is also 0.869, which adjusts the R-squared to account for the number of predictors in the model to prevent overfitting. This indicates that the model still explains 86.9% of the variance, reflecting a strong fit. The absence of a difference between the R-squared and Adjusted R-squared suggests that all independent variables in the model are significantly contributing, indicating that the sample size is relatively substantial.

**Table 4.3 Path coefficients, Mean, STDEV, T values, p values**

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P values	Remarks
DP -> CL	0.290	0.295	0.149	1.948	<b>0.051</b>	Accepted
IB -> CL	0.696	0.698	0.163	4.259	<b>0.000</b>	Rejected

PSC -> CL	-0.043	-0.050	0.063	0.684	0.494	Accepted
PSC x IB -> CL	-0.023	-0.033	0.124	0.189	0.850	Accepted
PSC x DP -> CL	0.053	0.064	0.124	0.430	0.667	Accepted

### Discussion of the Findings

The findings of this study focus on the developed research questions in chapter one, aligning with previous research results and underpinning theories

#### Direct relationship between service technology dimensions and customer loyalty

The researcher initially misjudged the impact of internet, digital payment and customer loyalty, but later found that the perceived switching cost moderate this relationship.

**Hypothesis 1: H<sub>01</sub>: There is no significant relationship between digital payment and customer loyalty of of selected deposit money banks in Abuja metropolis.** According to the initial hypothesis (H01) presented in table 4.3, there is no correlation between digital payment (DP) and customer loyalty (CL) within the selected deposit money banks. The data analysis results indicate that digital payment has a moderate positive effect on CL, but this effect is not statistically significant at the 5% level. Based on the descriptive statistics ( $\beta= 0.290$ ,  $t= 1.948$ ,  $p\text{-value}= 0.051<0.05$ ), the moderately positive t-statistic indicates that an increase in DP leads to an increase in CL by 0.290. This implies that although digital payments enhance customer engagement and convenience, they may not be sufficiently strong to significantly influence customer loyalty on their own. The findings of the current study align with those of previous researchers (Kilay et al., 2022; Kimonye & Muchelule, 2024), who discovered a positive impact of digital payment on customer loyalty in deposit money banks.

**Hypothesis 2: H<sub>02</sub>: There is no significant relationship between internet banking and customer loyalty of of selected deposit money banks in Abuja metropolis.** In the second hypothesis (H02) outlined in table 4.3, it is proposed that there is no relationship between internet banking (IB) and customer loyalty (CL) within the selected deposit money banks. The results of the data analysis reveal that internet banking positively influences CL significantly. As per the descriptive statistics ( $\beta=0.696$ ,  $t=4.259$ ,  $p\text{-value}= 0.000<0.05$ ), this implies that customers who frequently use internet banking services are more likely to exhibit loyalty, which can be attributed

to the ease of use, transaction simplicity, and the quality of service provided. This study aligns with previous research (Amin, 2019; Long & Vy, 2016; Lotko, 2022), which also found a significant and positive relationship between internet banking and customer loyalty in deposit money banks.

**Hypothesis 3:  $H_03$ : There is no significant relationship between internet banking and customer loyalty of selected deposit money banks in Abuja metropolis.** The third hypothesis ( $H_03$ ) in table 4.3, Perceived switching cost no significant effect on customer loyalty among the deposit money bank. The result revealed that perceived switching cost have a negative and insignificant direct effect on customer loyalty. Based on the descriptive statistics ( $\beta = -0.043$ ,  $t = 0.684$ ,  $p\text{-value} = 0.494 < 0.05$ ). The negative t-statistic suggests that as PSC decreases; CL also decreases by -0.043. This suggests that high switching costs alone do not guarantee customer loyalty. Instead, customers may remain loyal due to better services, trust, and satisfaction rather than just the difficulty of switching to another bank. The current study is consistent with previous researchers (Appu et al. 2024; Njeru , 2017; Wu et al. 2022) who find out that price strategy has positively hand significant influence on customer loyalty in the food and beverages manufacturing firms. The current study is consistent with previous researchers (Matzler et al., 2020; Pick & Eisend, 2018) who find out that perceived switching cost have a negative and insignificant influence on customer loyalty on deposit money banks.

**Indirect relationship between service technology dimensions and customer loyalty**

**Moderating role of perceived switching cost in the relationship between internet banking and customer loyalty of selected deposit money banks in Abuja metropolis.**

**Hypothesis 4:  $H_04$ . Perceived switching cost does not significantly moderate between internet banking and customer loyalty of selected deposit money banks.** In table 4.3, the fourth objective of this study is to examine the moderating role of perceived switching cost (PSC) in the relationship between internet banking and customer loyalty. Specifically the objective was to determine whether PSC moderates the role of internet banking on customer loyalty. The result revealed that perceived switching cost does not positively and significantly moderate the relationship between internet banking and customer loyalty. Based on the descriptive statistics ( $\beta = -0.023$ ,  $t = 0.189$ ,  $p\text{-value} = 0.850 < 0.05$ ).The negative t-statistic suggests that as perceived switching cost decreases; CL also increases by -0.023. Whether switching costs are high or low, internet banking remains a key driver of customer loyalty. This suggests that customers prioritize

convenience and functionality over switching difficulties. This study is support previous researcher ((Matzler et al., 2020; Pick & Eisend, 2018) who found out that perceived switching cost support to customer loyalty of deposit money banks.

**Hypothesis 5: H<sub>05</sub>. Perceived switching cost does not significantly moderate between digital payment and customer loyalty of selected deposit money banks.** Table 4.3, of the fifth objective of this study is to examine the moderating role of perceived switching cost (PSC) in the relationship between digital payment and customer loyalty. The goal was to see whether PSC moderates the effect of between digital payment and customer loyalty. The result revealed that perceived switching cost does not positively and significantly moderate the relationship between internet banking and customer loyalty. Based on the descriptive statistics ( $\beta = 0.053$ ,  $t = 0.430$ ,  $p\text{-value} = 0.667 < 0.05$ ). The negative t-statistic suggests that as perceived switching cost decreases; CL also decreases by 0.053. This suggests that switching costs do not strengthen or weaken the impact of digital platforms on customer loyalty. Customers may evaluate digital platforms based on their usability and effectiveness rather than the difficulty of switching banks. This study is in support of previous studies ((Matzler et al., 2020; Pick & Eisend, 2018) that found out that perceived switching cost in line with customer loyalty of deposit money banks.

This research indicates that the findings of DP and IB significantly influence customer loyalty, while PSC has negative relationship. Additionally, PSC does not served as moderator for DP, IB and customer loyalty. These results offer important insights into how service technology can enhance customer loyalty for the deposit money banking sector.

## **Conclusion**

The importance of Service Technology (ST) in enhancing customer loyalty in the banking industry cannot be overstated. Although there are various other factors that influence customer loyalty in the banking industry, ST has a huge impact on achieving it. Based on the results of this study, it is concluded that digital payment and internet banking have positive effect on customer loyalty, perceived switching cost does not positively and significantly moderate the relationship between internet banking and customer loyalty and perceived switching cost does not positively and significantly moderate the relationship between internet banking and customer loyalty. As perceived switching costs increase, the banking sector should consider investing in more complex digital technologies matched to employee's skill levels to maximise performance.

## **Recommendation**

The study presents the findings and conclusions, recommending the following for further consideration

- i. This study recommends that banks should enhance digital platform functionalities, ensuring seamless user experience, personalization, and integration with other banking services. Also, customer engagement can be improved through AI-driven chat-bots, self-service portals, and interactive mobile banking features.
- ii. Banks should prioritize security, efficiency, and user-friendliness of internet banking platforms and expand 24/7 customer support, real-time fraud alerts, and simplified transaction processes to improve user experience. Provide incentives such as discounted transaction fees, loyalty points, and exclusive offers for frequent users to encourage continued usage.
- iii. The banks instead of relying on switching costs to retain customers, banks should focus on enhancing service quality, customer satisfaction, and trust. Implement personalized banking services, customer reward programs, and relationship management strategies to enhance customer retention.

### References

Alkhawaiter, W. A. (2020). Digital payment and banking adoption research in Gulf countries: A systematic literature review. *International Journal of Information Management*, 53, 102102.

Amin, M. (2019). Internet banking service quality and its implication on e-customer satisfaction and e-customer loyalty. *International journal of bank marketing*, 34(3), 280-306.

Appu, A., Verma, S., Ahlawat, M., & Sharma, S. K. (2024). An Ayurvedic management of Amlapitta: A case study. *Journal of Ayurveda and Integrated Medical Sciences*, 9(10), 279–283. <https://doi.org/10.21760/jaims.9.10.46>.

Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems*, 8(4), 244–254.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>.

Burnham, T. A., Frels, J. K., & Mahajan, V. (2019). Consumer switching costs: A typology,

antecedents, and consequences. *Journal of the Academy of marketing Science*, 31, 109-126.

Central Bank of Nigeria. (2024). 2023 Annual Statistical Bulletin. <https://www.cbn.gov.ng/documents/statbulletin.asp>.

Dangaiso, P., Mukucha, P., Makudza, F., Towo, T., Jonasi, K., & Jaravaza, D. C. (2024). Examining the interplay of internet banking service quality, e-satisfaction, e-word of mouth and e-retention: a post pandemic customer perspective. *Cogent Social Sciences*, 10(1), 229-2250

Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user information systems: Theory and results (Doctoral dissertation). Sloan School of Management, Massachusetts Institute of Technology.

Demir, A., Budur, T., & Heshmati, A. (2021). Antecedents of trust, corporate image, and switching costs: a case in telecommunication services in the Kurdistan region of Iraq. *International Journal of Mobile Communications*, 19(1), 53-74.

DeVellis, R. F. (2012). Scale Development: Theory and Applications (3rd ed.). Sage Publications.

Ele, L. E., Enang, E. R., & Uguru, L. C. (2023). The impact of financial technology on banking service delivery in Nigeria (Doctoral Thesis Ebonyi State University).

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). Sage Publications.

Firdous, S., & Farooqi, R. (2017). Impact of internet banking service quality on customer satisfaction. *Journal of internet banking and commerce*, 22(1), 12-35.

Franciska, A. M., & Sahayaselvi, S. (2019). An overview on digital payments. *International Journal of Research*, 4(13), 2101-2111.

George, D., & Mallery, P. (1994). SPSS for Windows step by step: A simple guide and reference. Allyn & Bacon.

Ghosh, G. (2021). Adoption of digital payment system by consumer: a review of literature. *International Journal of Creative Research Thoughts*, 9(2), 2320-2882.

Ghufran, M., Ali, S., Ariyesti, F. R., Nawaz, M. A., Aldieri, L., & Xiaobao, P. (2022). Impact of COVID-19 to customers switching intention in the food segments: The push, pull and mooring effects in consumer migration towards organic food. *Food Quality and Preference*, 9(9), 104-122.

Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the fintech revolution:

Interpreting the forces of innovation, disruption, and transformation in financial services. *Journal of management information systems*, 35(1), 220-265.

Gontur, S., Hassan, S. K., & Arin, Y. (2017). Influence of information communication technology in building customer loyalty among deposit money banks in Jos Metropolis, North Central Nigeria. *International Journal of Economics & Business Management*, 3(7), 38-55.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2020). Multivariate Data Analysis (8th ed.). Cengage Learning.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2019). A primer on partial least squares structural equation modeling (PLS-SEM) (2nd ed.). Sage Publications.

Harris, I., Rini, E. S., & Sembiring, B. K. F. (2022). The Influence of financial technology and quality of service on satisfaction and loyalty on employees of bank CIMB Niaga Bukit Barisan Branch on Grab App Users. *International Journal of Research & Review*, 6(2), 65-77.

Jameaba, M. S. (2024). Digitalization, emerging technologies, and financial stability: challenges and opportunities for the Indonesian banking sector and beyond. Emerging Technologies, and Financial Stability: Challenges and Opportunities for the Indonesian Banking Sector and Beyond .

James U. D, D., Nzeyele, E, V., Eucharia, H., Henshaw, G., A. (2023). Self service technology and marketing performance of Deposit Money Bank in Rivers State. *IIARD International Journal of Banking and Finance Research*. 9(3) 109-133. DOI: 10.56201/ijbfr.v9.no3.2023.pg109.133.

Khan, M. R., Pervin, M. T., Arif, M. Z. U., & Hossain, S. K. (2024). The impact of technology service quality on Bangladeshi banking consumers' satisfaction during the pandemic situation: Green development and innovation perspective in banking service. *Innovation and Green Development*, 3(2), 100-120.

Kilay, A. L., Simamora, B. H., & Putra, D. P. (2022). The influence of e-payment and e-commerce services on supply chain performance: Implications of open innovation and solutions for the digitalization of micro, small, and medium enterprises (MSMEs) in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 1-25.

Kimonye, E. K., & Muchelule, Y. (2024). Digital payment system and financial performance of

commercial banks in Nairobi County, Kenya. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, 8(4). 754-768

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>.

Lee, Y., Kozar, K. A., & Larsen, K. R. T. (2003). The technology acceptance model: Past, present, and future. *Communications of the Association for Information Systems*, 12(1), 752–780.

Li, M., Yin, D., Qiu, H., & Bai, B. (2021). A systematic review of AI technology-based service encounters: Implications for hospitality and tourism operations. *International Journal of Hospitality Management*, 9(5), 102-120.

Ling, G. M., Fern, Y. S., Boon, L. K., & Huat, T. S. (2020). Understanding customer satisfaction of internet banking: A case study in Malacca. *Procedia Economics and Finance*, 37, 80-85.

Long, P., & Vy, P. D. (2016). Internet banking service quality, customer satisfaction and customer loyalty: The case of Vietnam. *International Journal of Strategic Decision Sciences (IJSDS)*, 7(1), 1-17.

Lotko, A. (2022). The influence of the quality of internet banking services on customer loyalty. *European Research Studies*, 25(2B), 259-276.

Matzler, K., Strobl, A., Thurner, N., & Füller, J. (2020). Switching experience, customer satisfaction, and switching costs in the ICT industry. *Journal of Service Management*, 26(1), 117-136.

McKinsey & Company (2023). Global banking annual review: Attaining escape velocity

Mulia, D., Usman, H. & Parwanto, N.B. (2021), The role of customer intimacy in increasing Islamic bank customer loyalty in using e-banking and m-banking, *Journal of Islamic Marketing*, 12 (6), 1097-1123. <https://doi.org/10.1108/JIMA-09-2019-0190>.

Njeru, M. (2017). Influence of Strategic Management Practices on Performance of Small and Medium Enterprises in Nairobi County, Kenya (Master's Thesis University of Nairobi).

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). McGraw-Hill.

Pallant, J. (2016). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS* (6th ed.). McGraw-Hill Education.

Pick, D., & Eisend, M. (2014). Buyers' perceived switching costs and switching: a meta-analytic

assessment of their antecedents. *Journal of the Academy of Marketing Science*, 42, 186-204. DOI 10.1007/s11747-013-0349-2.

Porter, Michael E. 1980. Competitive Strategy. New York: Free Press.

Qin, T., Wang, L., Zhou, Y., Guo, L., Jiang, G., & Zhang, L. (2022). Digital technology-and-services-driven sustainable transformation of agriculture: Cases of China and the EU. *Agriculture*, 12(2), 297-304.

Rashid, M. H. U., Nurunnabi, M., Rahman, M., & Masud, M. A. K. (2020). Exploring the relationship between customer loyalty and financial performance of banks: Customer open innovation perspective. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 01-22. , 108; doi:10.3390/joitmc6040108.

S&P Global. (2023). Tech disruption in retail banking: country-by-country analysis

Seufert, S., Guggemos, J., & Sailer, M. (2021). Technology-related knowledge, skills, and attitudes of pre-and in-service teachers: The current situation and emerging trends. *Computers in Human Behavior*, 11(5), 106-130.

Statista (2024). Mobile and online banking usage worldwide by country.

Stevens, J. P. (2002). *Applied Multivariate Statistics for the Social Sciences* (4th ed.). Lawrence Erlbaum Associates.

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273–315.

Wang, Zeyu, Mingyu Li, Jia Lu, and Xin Cheng. "Business Innovation based on artificial intelligence and Blockchain technology." *Information Processing & Management* 59(1) ,102-120.

Wasike, M., Caleb, E. A., & Otiso, K. N. (2016). Effect of technological innovations on customer loyalty among commercial banks in Eldoret Town. *IOSR Journal of Business and Management (IOSR-JBM)*, 18(11), 147-167.

Wu, M., Ye, X., Chen, K., et al. (2017). Bacterial community shift and hydrocarbon transformation during bioremediation of short-term petroleum-contaminated soil. *Environmental Pollution*, 223, 657–664. <https://doi.org/10.1016/j.envpol.2017.01.079>.

Li, Z., Long, M., Huang, S., Duan, Z., Hu, Y., & Cui, R. (2023). Effects of inertia and switching costs on customer retention: a study of budget hotels in China. *International Journal of Contemporary Hospitality Management*, 35(3), 1030-1050.