



## FinTech privacy security and customer engagement in Nigerian financial sector

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### Abstract

One of the key achievements of digitization is the emergence of finance resources that could manage massive customer needs in the financial sector and tagged 'Fintech' the proliferation of this technology has become commonplace; creating plausible value addition in service delivery; as well as privacy concern on the technology effect on customer personal security/privacy information. The objective of this study is to examine fin-tech privacy security and customer engagement in Nigerian Financial Sector. Key issues to be considered include: customer privacy data protection, user application policy reforms, and customer trust. The Technology Acceptance Model (TAM) was adopted as the theoretical basis for articulating the model used for the study. Descriptive research design was adopted, in which 357 questionnaires was administered to respondents in Lagos, Nigeria. The respondents were bank customers selected from the 2023 top five most profitable banks in Nigeria. systematic random sampling technique was adopted in selecting the respondents, which were administered based on the ranked percentages, additionally, personal interview was conducted to obtain information on where the close ended questionnaire could not cover. Data obtained was collated and analyzed. The study findings revealed that consistent breaches in customer privacy data, affect customers trust in Fintech, and the need to augment existing efforts in finding solutions to customer understanding of fintech application. The study recommends massive application of digital solutions by customers and service providers; as a means of countering the 'gloomy side' of fin-tech

**Keywords:** Fintech Privacy Security; Customer trust; Customer Engagement; Policy Reforms; Nigeria

### 1. Introduction

The emergence of innovations in financial technology service with exceptional benefits of; adept financial entrenchment, reduced operational cost, wealth creative opportunities, personalized services, and speed/accuracy in financial service delivery; provided a competitive edge in the industry between firms adopting Fintech and the traditional financial service providers. (Chiu-Chin, *et. al*, 2021; & Van-Loo, 2018. Fintech is summed up in a proposition by Schüffel, (2016), as the emerging technological transformation process aimed at augmenting overall financial service delivery through the adaptation of infotech resources. The key tech tools used in accomplishing seamless service delivery include; big data analytics, on-demand-computing, Robotics/Artificial Intelligence -AI (Eshiett & Eshiett, 2024), and recently Block-chain technology. (Lai, *et. al*. 2020). Amidst the proliferation of Fintech and its array of benefits, several studies have been conducted with views on; cybersecurity insurance on big data [Gai, *et. al*, 2016]; privacy security records (Gai, *et. al*, 2016; & Zhang, *et. al*, 2015), Customer trust (Abawaiy, *et. al*, 2016; Lao, *et. al*, 2011; & Stewart & Jürjens, 2018), and financial vulnerabilities experience (Roumani, *et. al*. 2016). The study adopts the Technology Acceptance Model (TAM) as theoretical basis for examining human behavioral tendencies, such as in the use of AI-driven algorithm to interfaces with customers privacy data, in order to provide information on spending pattern of customers. this enables the bank to pre-empt suitable personalized product/services for customers, another AI-driven tool in the array of customer service delivery is the use of Chatbots in the financial sector (Lai, *et. al*, 2020; & Treleaven, *et. al*, 2017),

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Historical antecedent shows that; before the advent of Fintech in Nigeria, the financial sector had been 'cash driven', before the augmentation to the digital financial ecosystem, this development has created opportunities for the sector to own about 34% holding in 2021 in Africa, with greater expectations for global competitiveness in the future (Kola-Oyeneyin & Kuyoro. 2021). An estimated number of 200 brand of Fintech, the sector generated an estimated USD600million 2014-2019 (Kola-Oyeneyin & Kuyoro. 2021). In spite of the economic and infrastructural challenges, the sector has a higher competitive advantage based on the overall population of over 250million. In financial services, the banking sectors in Nigeria has made huge investments in Fintech financials, due to the migration from cash to cashless policy for financial transactions, with monthly mobile financial transactions increasing from USD5million in 2011 to USD142.8 million in 2016 (Ojo & Nwadike, 2016)

Fintech financial is a technology that performs best with efficient network architecture, the speedy transition between 4G Network and 5G Network is a necessity for the development and competitiveness of the financial sector with global peers. According to (IDC, 2022) forecast, the optimism about the future of the smartphone lies in the full deployment of the 5G Network resources (Tranate, 2020), it is expected that the innovations, and highspeed capabilities of the 5G Network will boost customer confidence, and by extension; customer satisfaction and drive towards innovative adoption (Gartner, 2018; Gartner, 2016). A post-COVID projection on 5G network is that; the return of regular global business activities (Eshiett & Eshiett, 2021; & [Uwhubetine, *et. al*, 2022], could result in an estimated 78% increase in supply chain activities by 2026, such astronomical increase of activities in 5G Network will result in reduction in the Average Selling Price (ASP) of the 5G network from \$632 in 2020 to \$440 by 2026 (IDC, 2022).

Examining customer trust, and by extension customer engagement within the framework of financial ecosystem, is to extricate the value of perceived risk and privacy/security encroachment, examining how both factors affect customer behavioral tendency and preference to engage (Van Doorn, *et. al*. 2010). It should be acknowledged that, the act of collecting, collating, dissemination information within the custody of financial firms, it is also the exclusive decision of the management of financial institutions to decide on what to do with such information, recent concerns by customers and researchers had been the effective management of customer personal information by financial institutions, since digitization allows client information to be available globally within split of seconds. (Bansal; & Zahedi, 2014). In spite of the negative fallouts in customer privacy policy and security management, the introduction of Fintech has added positive value to the growth, development the financial sector.

### **1.1. Privacy and Security Issues**

The excellence performance of Fintech in Nigerian financial sector is not without some core privacy and security issues that impinges negatively on customers relationship with financial firms which include; i) Enlightened customers are often interested in the security of their personal information, and resist unauthorized manipulation by financial institutions, other sets of customers may not be interested in their personal information; so long as they are able to conduct their transactions successfully, ii) customers should know the value of their personal information in the custody of financial institutions, iii) Customers may wish to withhold certain risky areas in their personal information, to deter financial institutions from trading it to third parties for financial gains, iv) Technically informed customers often proactive about protecting their personal information with financial institutions and.vi) Financial institution should engage customers to enhance trust between them. (Habibi, *et. al*, 2014).

The resultant effect of privacy security issues on Fintech, has aroused various empirical investigations based on the fact that; most Fintech products are mere augmentation of existing financial service products; with slight variations. Hence, existing security and privacy challenges inherent in such products are coopted while configuring Fintech as well, most research on this issue have examined; the need for service providers to enhance customer trust through efficient service offering (Lint, 2016), providing resolution to previous challenges before introducing new service options (Hines, 2018), need for service owners to be fair in customer relationship (Evans, 2017), there should be transparency in consumer lending processes (Bartlett *et al*, (2018), strengthening loose agreement on debt recoveries from customers (Brittany; & Morgan, 2019), enhanced mortgage loan recovery framework; (Khouri, 2019), the algorithm for debt collection should be flexible (Tiku, 2018; & Carter. *et al*, 2018). Other empirical investigations include; introduction of blockchain tech with procedural fairness and enhanced service responsibility (Will, 2019, Adrienne. 2018; & Adam. 2018;), claims on loss of investments should be investigated to ascertain the extent of service providers liability (Walch, 2019; & Nathan, 2018); speed in electronic payment should outsmart the speed at which fraud is committed (Saunders, 2015) P2P popularity increase without provision for customer protection (Sullivan, 2018), and the ripples and swift service offering (Penny. 2019).

## 2. Literature Review

### 2.1. Concept of Customer Engagement Marketing

The core foundation of customer engagement is rooted in the behavioral sciences, the process of interaction between service providers and the end user always involves some form of exchange (Jaakkola; & Alexander 2014), engagement is a resultant outcome of customer establishing bond with service providers, beyond initial business transaction benefits (Van Doorn *et al.* 2010), which may involve accruable cost to the customer (Vivek, *et al.* 2012), in order to create sustainable relationship with brand (Hollebeek, *et al.* 2016; & Brodie *et al.* 2011), engagement also occurs in Business-to-Business B2B relationship (Blasco-Arcas *et al.* 2020; & Jaakkola & Alexander 2019), that could result in value co-creation (Storbacka, *et al.* 2016). In conceptualization, previous researches examining the concept of customer engagement (Kumar 2013; Vivek, *et al.* 2012; & Van Doorn, *et al.* 2010). Kumar; & Pansari, (2016), posits customer engagement to be the bond between customer and firms' brand; Hollebeek *et al.* (2016), posits customer engagement to mean emotional/psychological desire to patronize brand; Jaakkola; & Alexander, (2014), also posits customer engagement to infer to the extra effort by to invest on brand.

### 2.2. Privacy Security and Customer engagement

Most scholars had examined privacy and security issues as a combine issues (Abawaiy, *et al.* 2016; & Gai, *et al.* 2016), security and customer trust (Stewart & Jürjens, 2018), security and customer/service providers engagement (Lim, *et al.* 2019), on optimizing security awareness (Qiu, *et al.* 2019), on security technique that is within the proximity of users and service owners (Xiao, *et al.* 2013), other scholars have proposed that privacy and security concerns should be examined separately (Xu, *et al.* 2012); examining security concern as an offshoot of privacy concern, Belanger, *et al.* (2002), and issues with service delivery IT applications (Lim, *et al.* 2019). The essence of this work is to adopt TAM as the foundation for examining privacy and security issues in adopted tech product; as precursory to sustainable and effective engagement of customers by the banking sector.

According to Verleye, *et al.* (2014). customer engagement is the desire to co-create brand value, Brodie *et al.* (2011), also posits customer engagement to mean customer desire to augment firms' brand. (Kumar & Pansari, 2016), argued that customer engagement involves extra inputs by customers to improve product brand. According to Bijmolt, *et al.* (2010; & [Uwhubetine, *et al.* 2022], customer engagement is the desire and commitment by customer to contribute to firms augmented value, and (Eshiett, *et al.* 2022), also posited customer engagement to mean the psychological attachment to product brand beyond the normal transactional process. Hence, engaging customers with assurance on safety of privacy data on Fintech could enhance sustainable relationship between banks and the customers.

### 2.3. The Fintech Innovation

Fintech or 'Financial Technology' is a concept that denotes the superb capabilities of combining 'Technology' and 'innovations' in the financial ecosystem, to effectively compete and outsmart traditional financial approaches, for the purpose of providing customers with superlative financial service delivery (Chiu-Chin & Chia-Chun, 2021; Rory, 2018). The Fintech innovation is founded on a 'four-pillar tech foundation' which includes; Artificial Intelligence, Cloud-computing, big data, and Blockchain [Eshiett & Eshiett, 2024]; & (Lai, *et al.* 2020). Fintech is explained also as an emerging tech that consistently adapt innovation in augmenting financial service delivery to customers (Schueffel, 2017). Fintech has expanded its innovation to suit customer myriads of needs, for instance the AI-powered Robotic Process Automation-RPA (Paolo, *et al.* 2016), these enhances personalized account processes such as; Account Payables (APs), and Account Receivables (ARs) accurately and efficiently (Madakam. *et al.* 2019), enhancing comprehensive data analytics (Lee & Kim, 2015); & Qui, *et al.* 2016),

### 2.4. Current Applications

The application of blockchain also eliminates the need for a third-party intervention in financial transactions (Treleaven, *et al.* 2017), AI-driven algorithm interfaces with customers privacy data to provide information on spending pattern of customers, this enables the bank to pre-empt suitable personalized product/services for customers, Chatbots are also AI-driven tools in the array of customer service (Lai, *et al.* 2020; & Treleaven, *et al.* 2017), AI has also complemented traditional banking service, by delivering innovative/fraud proof service delivery through; voice recognition, processing transactions using natural language, image processing, and the adoption of cloud computing in service delivery (Lai, *et al.* 2020).

## 2.5. Challenges

The challenging issue faced by fintech is the security of sensitive personal and corporate customers financial data from fraudsters and threat from hackers (Meng, *et. al*, 2019), multi-party computational innovation through cloud technology (Gai, *et. al*, 2016; Li, *et. al*, 2017; & Okamura Teranishi, 2017; & Zhang, *et. al*, 2015), has been adapted by infotech firms to mitigate on threats to fintech operations (Lim, *et. al*, 2019). It is quite important to mention the need for Fintech service providers to entrench trust (Abawaiy, *et. al*, 2016), as a consolidating customer relationship management factor (Stewart & Jürjens, 2018). A Gartner 2020 report indicates that global attraction of potential investments in cybersecurity was estimated at \$170 billion, this amount is expected to aid the process of protecting sensitive customers financial data available in the financial sector (Mehrban, *et. al*, 2020; in Morgan, 2015). The foregoing shows the need for national financial regulators to create Fintech -driven policies that could protect end users of financial services.

## 2.6. Technology Acceptance Model

The Technology Acceptance Model (TAM), is a model that is adapted to the complexities inherent in human behavior, in relation to the intention for tech innovation adoption (Bagozzi, 2007; & (Eshiett. & Eshiett, 2024), it anchors on innovative tech developments, adoption, and interactions (Bagozzi, *et. al*, 1992), tech innovation acceptance procedures (Davis, *et. al*, 1989). Other theoretical basis adopted in tech product adoption include; The Diffusion of Innovation – DIT (Roggers, 2010), and the human behavioral tendencies in relation to product adoption (Legris, *et. al*, 2003). Various criticism of TAM by scholars include; how to ascertain the basis of evaluation, (Chuttur, 2009), lack of measurable basis for the evaluating tech adoption (Moore & Reid, 2008), others have also argued that benefits and ease in TAM adoption procedures encourages users to adopt it (Lunceford, 2009). The arguments by scholars in favor of TAM, integrates human behavioral tendencies in accepting the model for innovative tech products, this could encourage organizational acceptance, based on the models’ ability to integrate workers concerns in the process of implementing innovative change. Hence, since this model has not been examined by previous studies on Fintech Privacy security concerns, it becomes needful to fill the gap in literature by this study. The TAM as a foundational basis enhances the process of articulating the study model in Figure 1.

## 2.7. Theoretical Framework

The theoretical framework of this study is adapted from The TAM model, Bagozzi, (2007), used for the model in Figure 1; on Fintech security and customer privacy engagement in Nigeria financial sector, the issues include; customer privacy data protection, user application policies, and customer trust, the detail are explained thus;

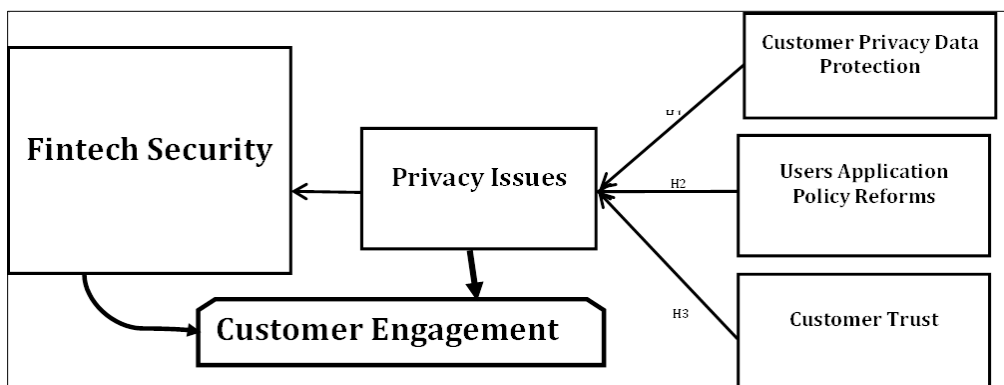


Figure 1 Theoretical Framework

### 2.7.1. Customer Privacy Data Protection

Protecting customer privacy information is prerequisite to an enhanced Fintech secured network, and increasing number of engaged customers. Inherent fears in the minds of customers involve losing ones’ life investment to fraudsters and hackers pretending to be service personnel. According to Saunders, (2019), certain security guarantees should be obtained by service owners such as; resolving inherent issues before configuring the software, adopting workable and transparent business models, enlighten customers on the ‘nitty-gritty’ of the speedy nature of Fintech operations, creating opportunities for service providers to interface with customers, when it becomes necessary. In resolving these issues, previous studies have suggested the following; service providers should create multi-party computational innovation through cloud technology ((Gai, *et. al*, 2016; Li, *et. al*, 2017; & Okamura Teranishi, 2017; & Zhang, *et. al*, 2015), enhancing customers confidence in service offering through trust (Abawaiy, *et. al*, 2016), effective data protection could consolidate customer relationship management processes (Stewart & Jürjens, 2018).

Other researchers have suggested the need for service providers to enhance customer trust through efficient service offering (Lint, 2016), providing resolution to previous challenges before introducing new service options (Hines, 2018), need for service owners to be fair in customer relationship (Evans, 2017), there should be transparency in consumer lending processes (Bartlett et al., (2018), strengthening loose agreement on debt recoveries from customers (Brittany; & Morgan, 2019), Based on the foregoing contributions by scholars, the deployment of secured AI-driven 'cloud computing technology', could enhance and protect customer data from being accessible to third parties. Hence, the proposition for customer privacy protection was stated as follows;

- Proposition 1; Customer privacy data protection has no significant effect on Fintech privacy security in Nigerian Financial sector

### 2.7.2. User Application Policy Reforms

Fintech is a new technology that is quite different from the operational paradigm of the traditional financial policies, enabling regulations should be created by policy makers on how to guarantee customers confidence in the sector. Essentially, protective legislation that guarantees consumer privacy and security protection should be enacted, legal clauses that strengthens customer bonding in the event of breaches by financial firms, should be enabled, and where necessary, customers should be given opportunity by law to seek redress in courts. Service providers should highlight risk areas as a means of engaging customers to enhance relational trust (Habibi, et. al, 2014). Service providers should be under obligation to secure sensitive personal and corporate customers financial data from fraudsters and threat from hackers (Meng, et. al, 2019), financial institutions should optimize security awareness amongst customers (Qiu, et. al, 2019), improve on energy infrastructural facilities, [Abubakar, et. al, 2019]; & [Mukhtar, et. al, 2023] and provide security technique that could be adopted by users to avert fraudulent attempts, within the proximity of users (Xiao, et. al, 2013), these efforts could boost customers confidence and trust. The proposition for user application policy reforms is as follows;

- Proposition 2; User application policy reforms has no significant effect on Fintech privacy security in Nigerian Financial sector

### 2.7.3. Customer Trust

Enhancing customer trust leads to brand loyalty, and eventual engagement with product brand. Customer engagement is a psychological process that involves the customer establishing a sustainable relational bond with product/service provider, beyond initial business transaction benefits (Van Doorn et al. 2010, and in new product developmental ideas [Eshiett & Eshiett, 2021], which may involve accruable cost to the customer (Vivek, et. al. 2012), in order to create sustainable relationship with brand (Hollebeek, et. al. 2016; & Brodie et al. 2011). Trust is a significant aspect that consolidates Business to Business B2B, and Business to Customer B2C relationships (Blasco-Arcas et. al, 2020; Eshiett & Eshiett, 2021; & Jaakkola & Alexander 2019). In Fintech operational paradigm, previous studies have highlighted trust as panacea for the growth/development of the financial sector. Other authors have argued that; Service providers should be transparent enough to highlight risk areas, as a means of engaging customers relational trust (Habibi, et. al, 2014), by enhancing customer trust through efficient service offering (Lint, 2016), enhancing customers confidence in service offering through trust (Abawaiy, et. al, 2016). It is quite important to mention the need for service providers to entrench trust (Abawaiy, et. al, 2016), as pivot for customer behavioral tendency determinant, and preference to engage (Van Doorn, et. al. 2010), and as security guarantees, and bedrock for future relationship (Stewart & Jürjens, 2018)

The COVID-19 pandemic experience had highlighted the risk of interpersonal contacts in service delivery, the encountered risk and devastation, had encouraged service providers globally, to adopt a non-personal approach in service offering (Uwhubeine, et. al, 2022; & Scheidgen, et. al, 2021), in which the Fintech financials, a digitally driven approach to financial service delivery becomes 21<sup>st</sup> century necessity to adopt for financial service delivery. Hence, government and regulators should create enabling environmental for Fintech operations in the finance sector. The proposition for Customer trust is stated as follows;

- Proposition 3; Customer trust has no significant effect on Fintech privacy security in Nigerian Financial sector

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## 3. Research Methodology

The study adopted the descriptive research design using systematic random sampling technique was used to make inferences from a given sample about a study population, based on the study objectives (Saunders, et. al, 2019), 357 questionnaire was administered to respondents from the top five most profitable banks in Nigeria, 2023, The questionnaire was administered based on the ranked percentages of the selected banks in Lagos, Nigeria as follows;

(values in million US Dollars represented by percentage; Zenith Bank Plc 500(27%), United Bank for Africa Plc 380(21%), Guaranty Trust Bank Plc 378(20%), Access Bank Plc 347(19%), and First Bank Nigeria Plc 247(13%) – (Sazu, 2023). The sample size was determined using Krejcie & Morgan (1970), schedule for sample size determination from a population of 1.800. It is acceptable to use a specific sample size within a sampling frame, for a population at a 95% confidence level, and the allowable 5% error margin. Systematic random sampling was adopted to enhance the allocation of each banks' population based on percentage (Kothari, 2015).

Closed ended questionnaire were preferred based on its simplicity in collection, collation and analysis of data (Saunders, et. al, 2019). A 5 – point Likert scale was used with the following representation; Agree = A; Strongly Agree = SA; Disagree = D; Strongly Disagree = SD; and Uncertain = U.

The instrument reliability was determined using the Cronbach Alpha value, the evaluation was based on Field, (2009), proposition on reliability which states that; Cronbach's  $\alpha > 0.7$  implies that the measurement tool reliable. The essence of validity and reliability is to reduce researchers bias and increase transparency/acceptability of the research process (Singh, 2014).

**Table 1** Questionnaire Administration Schedule

Categories	Frequency	Percentage
Unreturned	29	8
Rejected	11	3
Valid	317	89
Total	357	100

Source: Field Study 2024

In table 357 questionnaire was administered to respondents which were customers of selected top five most profitable banks in Nigeria, 2023, 29(8%) questionnaire was not returned, 11(3%) questionnaire was rejected due to cancellation and errors by the respondents, while 317(89%) was valid and usable for analysis.

**Table 2** List of Top Five most Profitable Banks in Nigeria 2023

Name of Banks	Profitability in USD (Million)	Percentage Computation	Questionnaire Computation	Questionnaire Distribution
Zenith Bank Plc	500	$500/1852 \times 100=27\%$	$0.27 \times 357$	96
United Bank for Africa Plc	380	$380/1852 \times 100=21\%$	$0.21 \times 357$	75
Guaranty Trust Bank Plc	378	$378/1852 \times 100=20\%$	$0.20 \times 357$	72
Access Bank Plc	347	$347/1852 \times 100=19\%$	$0.19 \times 357$	68
First Bank of Nigeria Plc	247	$247/1852 \times 100=13\%$	$0.13 \times 357$	46
Total	1,852			357

Source: Field Survey 2024

Table 2, shows that the list of top five performing banks in Nigeria, 2023, as arranged in descending order, based on the numerical value allocated to each of the ranked percentages of selected banks (deVaus, 2002).

It further shows the following values in million US Dollars and in percentages as follows; Zenith Bank Plc 500(27%), United Bank for Africa Plc 380(21%), Guaranty Trust Bank Plc 378(20%), Access Bank Plc 347(19%), and First Bank Nigeria Plc 247(13%) – (Sazu, 2023), Hence adopting Krejcie & Morgan (1970), schedule to determine the sample size from a sampling frame of a given population of 1.800, in order to obtain the sample size for the study.

**Table 3** Descriptive Statistics

Demography	Classification	Relative Frequency	Percentage	Cumulative Percentage
Gender	Male	149	47	47
	Female	168	53	100
Age	Below 30	67	21	28
	30 - 39	85	27	52
	40 - 39	98	31	77
	50 - 59	57	18	98
	60 and above	10	3	100
Marital Status	Single	174	55	53
	Married	133	42	94
	Anonymous	10	3	100
Occupation	Unemployed	44	14	10
	Self Employed	136	43	78
	Employed	121	38	93
	Anonymous	16	5	100
Educational Qualification	Below High School	54	17	49
	Diploma	114	36	76
	Bachelors	121	38	92
	Masters and above	28	9	100

Table 3 shows that the demographic analysis for respondents were as follows; the demographic profile for gender indicates that male respondents were 149(47%), while female were 168(53%); the age distribution were as follows; respondents below 30years 67(21%), respondents between 30-39years, were 85(27%), between 40-49years were 98(31%), between 50-59years were 57(18%), and above 60years were 10(3%). For marital status, the analysis showed that; single respondents were 174(55%), married were 133(42%), and anonymous were 10(3%). For occupation, respondents categorized as unemployed were 44(14%), self-employed were 136(43%), employed respondents were 121(38%), and anonymous represented 16(5%). In education, the distribution was as follows; respondents with qualification below high school represented 54(17%), diploma was 114(36%), Bachelors' degree respondents were 121(38%), and those with masters' degree and above were 28(9%).

## 4. Results

### 4.1. Test of Hypotheses

#### 4.1.1. Hypothesis One

Customer privacy data protection has no significant effect on Fintech privacy security in Nigerian Financial sector.

In table 4; the correlations analysis shows that  $r = .796$  which shows that there is a significant interrelationship between customer privacy data protection and Fintech Privacy Security in Nigeria. The sample represented by N used for the analysis was 317, the level of significance the p value = 0.000 which is less than the 0.05 level of significance. Hence, the analysis confirms that there is a correlation between the dependent and independent variables.

**Table 4** Correlation (a)

		<b>Fintech Privacy Security</b>	<b>Customer Privacy Data Protection</b>
Fintech Privacy Security	Pearson Correlation	1.000	0.796
	Sig. (2-tailed)		0.000
	N	317	317
Customer Privacy Data Protection	Pearson Correlation	0.796	1.000
	Sig. (2-tailed)	0.000	
	N	317	317

\*\* . Correlation is significant at the 0.01 level (2-tailed).

*4.1.2. Hypothesis Two*

User application policy reforms has no significant effect on Fintech privacy security in Nigerian Financial sector

**Table 5** Correlations (b)

		<b>Fintech Privacy Security</b>	<b>User Application Policy Reforms</b>
Fintech Privacy Security	Pearson Correlation	1.000	0.816
	Sig. (2-tailed)		0.000
	N	317	317
User Application Policy Reforms	Pearson Correlation	0.816	1.000
	Sig. (2-tailed)	0.000	
	N	317	317

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The outcome of the correlation coefficient analysis obtained in table 5 was represented by  $r=0.816$ , which shows that user application policy reforms had significant interconnection with Fintech privacy security in Nigeria. The sample N 317, the significance level p value = 0.000 which is less than the 0.05 level of significance. Therefore, the outcome of the analysis shows that there is a significant interrelationship between the dependent and independent variables.

*4.1.3. Hypothesis Three*

Customer trust has no significant effect on Fintech privacy security in Nigerian Financial sector

**Table 6** Correlation (c)

		<b>Fintech Privacy Security</b>	<b>Customer Trust</b>
Fintech Privacy Security	Pearson Correlation	1.000	0.851
	Sig. (2-tailed)		0.000
	N	317	317
Customer Trust	Pearson Correlation	0.851	1.000
	Sig. (2-tailed)	0.000	
	N	317	317

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 6 shows the outcome of the correlation analysis as  $r=0.851$ , this reveals that customer trust has significant effect on Fintech privacy security in Nigeria. The sample N = 317, the significance level of the study p value = 0.000 which is



less than the 0.05 level of significance. Therefore, the analysis outcome shows that there is a significant relationship between the dependent and independent variables.

## 5. Discussion of Findings

The discussion of findings was deduced from the objectives of the study which examines the effect of Fintech privacy security on customer engagement in Nigerian financial sector.

This study appraises the contributory role of Fintech in augmenting the Nigerian financial sector from a manually operated industry, to a digitized service delivery institution (Gai, *et. al*, 2016; Zhanf, *et. al*, 2015; Zhanf, *et. al*, 2012;), capable to compete with its peers globally (Abawaiy, *et. al*, 2016). The development of Fintech according to Gartner 2020 report, has resulted in global attraction of potential investments in cybersecurity estimated at \$170 billion, this is expected to aid the protecting of sensitive customers privacy/security data in the financial sector, which is anchored by Fintech (Mehrban, *et. al*, 2020; in Morgan, 2015; & Zhang, *et. al*, 2012).

In Nigeria, an estimated 200 brand of Fintech is being used in the financial sector, the sector generated an estimated USD600million 2014-2019 (Kola-Oyeneyin & Kuyoro. 2021), in spite of the economic and infrastructural challenges, the sector has a higher competitive advantage based on the overall national population of over 250million people. In financial services, the banking sectors in has made huge investments in Fintech financials, due to the migration from cash to cashless policy for financial transactions, with monthly mobile financial transactions increasing from USD5million in 2011 to USD142.8 million in 2016 (Ojo & Nwadike, 2016)

### 5.1. Bank Credit Ratings

The selected banks had similar features/criteria, that has kept them at the topmost performing position in the Nigeria financial sector, all the banks had international operating licenses, allocated to inly banks by the central bank; and these has harnessed the selected banks global competitiveness (CBN 2016), these banks are also deeply involved in retail banking system; that enhances their direct interaction with customers (Allen, *et. al*, 2017; & Hamzah, *et. al*, 2017), the banks performances were evaluated based on three core assessment criteria viz; profitability ratio, Liquidity ratio, and Asset quality - credit performance risk assessment (Abdulraheem, 2022; in, Islam, 2014). According to Standard and Poor on – Nigerian banks global scale rating affirmed under revised criteria, 2022, all the first top five profitable banks for 2023 had B-stable credit ratings, with the breakdown as follows; i) Zenith Bank Plc - B-/B' long- and short-term ratings and raised our national scale rating to 'ngBBB+/ngA-2' from 'ngBBB/ngA-2'; ii) United bank for Africa Plc; B-/B' long- and short-term ratings and raised our national scale rating to 'ngBBB+/ngA-2' from 'ngBBB/ngA-2'; iii) Guarantee Trust Bank Plc - 'B-/B' long- and short-term ratings and raised our national scale rating to 'ngBBB+/ngA-2' from 'ngBBB/ngA-2'; iv) Access Bank Plc - B-/B' long- and short-term ratings and raised our national scale rating to 'ngBBB+/ngA-2' from 'ngBBB/ngA-2'; and v) First Bank of Nigeria Plc - B-/B' long- and short-term ratings and raised our national scale rating to 'ngBBB/ngA-2' from 'ngBBB-/ngA-3'. Hence, these banks positioning as top five most profitable banks in 2023 is well-deserving.

It must also be noted at this point, the unequaled role of Information System (IS) in enhancing global interconnectivity, and FinTech is one of the most innovative tech hubs IS has ever created; Fintech is a technology that thrives with robust network architecture, that can guarantee; speed, transparency and accuracy of transactions. Hence, the issue of network connectivity is key, in achieving anticipated objective of customer engagement/sectoral global competitiveness. In Nigeria, achieving these feat means speedy transition from 4G Network to 5G Network, aaccording to (IDC, 2022) forecast, the optimism about the future of tech product lies in the full deployment of the 5G Network resources (Tranate, 2020), it is expected that the innovations, and highspeed capabilities of the 5G Network could boost customer confidence, and by extension; customer loyalty/engagement (Eshiett & Eshiett, 2021). A post-COVID projection on 5G network deployment s that; the return of regular global business activities, could result in an estimated 78% increase in supply chain activities by 2026, such astronomical increase of activities in 5G Network could result in the reduction of 5G Networks' Average Selling Price (ASP), from \$632 in 2020 to \$440 by 2026 (IDC, 2022). Hence, the technology could be more affordable, and easily deployed by the financial sector in Nigeria with ease.

### 5.2. Summary of Analyses

Based on the research objectives, the outcome of the analysis confirmed the significant effect of the dependent and independent variables with the following hypothetical summaries: Customer privacy data protection effect on Fintech privacy security -  $H_{01}$  - [ $r=.796$ ,  $n=317$ ,  $p<.0005$ ]; User application policy reforms effect 51on Fintech privacy security -  $H_{02}$  - [ $r=.816$ ,  $n=317$ ,  $p<.0005$ ]; and Customer trust effect on Fintech privacy security -  $H_{03}$  - [ $r=.851$ ,  $n=317$ ,  $p<.0005$ ].

### 5.3. Customer Privacy Data Protection

Enhancing Fintech development in the Nigerian financial sector; is sequel to protecting customer privacy information, customers are apprehensive of 'losing one's life investment to fraudsters/hackers, camouflaging as service personnel. Hence, the adoption of protective measures such as; creating multi-party computational innovation through cloud technology (Gai, *et. al*, 2016; Li, *et. al*, 2017; & Okamura Teranishi, 2017; & Zhang, *et. al*, 2015), effective data protection could consolidate customer relationship management processes (Stewart & Jürjens, 2018); & [Khan, *et. al*, 2020]. Other researchers have suggested the need for providing resolution to previous challenges before introducing new service options (Hines, 2018), need for service owners to be fair in customer relationship (Evans, 2017), there should be transparency in consumer financial processes (Bartlett *et al*, (2018).

### 5.4. User application policy reforms

The paradigm shift from traditional financial policies to e-policies needs urgent attention from policy makers in the Nigerian financial sector. In essence, protective legislation that enhances consumer privacy/security protection should be implemented, in order to boost customers confidence and trust in the sector Service providers should engage customers' relational trust (Habibi, *et. al*, 2014). The financial sector should protect customers sensitive financial data from fraudsters/hackers (Meng, *et. al*, 2019), financial institutions should optimize security awareness amongst customers (Qiu, *et. al*, 2019), customers should be empowered with security techniques that avert fraudulent attempts by third parties (Xiao, *et. al*, 2013

### 5.5. Customer Trust

Trust is a key element in any form of engagement based on its psychological context, customer engagement should involve the establishment of sustainable relational bond beyond initial business transaction benefits (Van Doorn *et al*. 2010), in order to create sustainable relationship with brand (Hollebeek, *et. al*. 2016; & Brodie *et al*. 2011). Trust is a significant aspect that consolidates Business to Business B2B, and Business to Customer B2C relationships (Blasco-Arcas *et. al*, 2020; Eshiett & Eshiett, 2021; & Jaakkola & Alexander 2019).

Therefore, service providers should enhance customer trust through efficient service offering (Lint, 2016), and by enhancing customers confidence in service offering through trust (Abawaiy, *et. al*, 2016). Since the custody of customers finances by banks need utmost trust, since the customers life, wellbeing, and futures depends on it

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## 6. Conclusion

The current tech trend in the financial sector is appreciable, but its impact on customer engagement based on related service delivery challenges is quite worrisome. Fintech has wholesomely changed the operational paradigm of the financial industry. The objective of this study is to examine Fintech privacy security and customer engagement in Nigerian financial sector; with the proposition by the study for banks to enhance; Customer privacy data protection, need for user application policy reforms, and the enhancement of customer trust through efficient service offering. In line with the foregoing propositions, previous researches have been examined in line with the study on hand. and suggested. The findings of the study had provided holistic suggestions on implementable privacy security measures required by the financial sector, to enhance customer engagements.

The study recommended the need for the financial sector to protect customers privacy security data through the application of technological measures such as; biometric identification, anonymizer, cloud computing, cryptography, programable apps, as measures to counter unauthorized access to privacy data, implementation of wholistic e-legislative reforms, to respond to challenging trends in electronic financial service breaches, and the enhancement of trust by the financial sector. These could enhance the engagement of customers through privacy security data protection, and by extension, reposition the Nigerian banking sector for effective global competitiveness in financial service delivery.

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