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Walden University

College of Management and Human Potential

This is to certify that the doctoral study by

Peter Iwegbu

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2023

Abstract

Strategies for Leveraging Financial Technology to Improve Retail Banking Services in Nigeria

by

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MBA, LBS, Pan Atlantic University, 2003

MSC, University of Lagos, 1995

PGD, University of Lagos, 1990

BSC, University of Lagos, 1988

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

November, 2023

Abstract

The lack of financial technology (fintech) can harm banking operations. Bank managers need strategies to leverage fintech to satisfy customers and retain market share in the highly competitive banking industry. Grounded in the diffusion of innovation theory, the purpose of this qualitative multiple-case study was to explore strategies bank managers use to leverage fintech to improve their retail services. The participants included six retail bank managers in Nigeria with at least 5 years of work experience and who have successfully implemented strategies to leverage fintech to improve retail services. The participants also included five customers who have used the banks' fintech platforms for at least 1 year. Data were collected from semistructured interviews, company documents, and public websites. Five themes emerged from the thematic analysis: relative advantage strategies, fintech compatibility strategies, strategies for overcoming fintech complexity, trialability strategies, and observability strategies. A key recommendation is for bank managers to create a framework to capture the customer needs and structure for sustainably meeting these needs, minimizing cost, and enhancing the benefits of fintech. The implications for positive social change include the potential to improve banking services, facilitate economic development, decrease unemployment, and enhance living standards in local communities.

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Dedication

The dedication of this project also goes to my family, particularly to my wife, Mrs. Nkechi Rosemary Iwegbu (NK), and our four children, Dalu, Dubem, Somto, and Ebube. NK., thank you for caring for our children and the domestic fronts as I progressed through this demanding doctoral journey. Thank you all for sacrificing your time and resources to support the completion of this study and for always encouraging me that all things are possible through dedication and perseverance.

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Section 1: Foundation of the Study

In this qualitative case study, I explored the strategies used by bank managers to leverage fintech to improve retail services in Nigeria. Fintech uses technology to deliver financial services to benefit financial institutions and their customers (Breidbach et al., 2020; X. Chen et al., 2021). Customers enjoy technological convenience, accessibility, availability, and cost savings (Aduba, 2021; Breidbach et al., 2020; Nwankwo et al., 2021; Tetteh, 2022). Managers of financial institutions, such as bank managers, use fintech to create efficiency, promote customer retention, and create a sustainable competitive advantage (Gozman et al., 2018; Kou et al., 2021; Sheth et al., 2020). As a developing country, Nigeria has substantial infrastructural challenges affecting this fintech's easy adoption and the quality of service.

Background of the Problem

Managers use technology to transform most businesses, markets, and industries by providing innovative ways of adding value to existing and new markets. This has increased customer patronage and is creating opportunities that can expand the scope of business beyond the boundaries. Thus, technology has become a tool for superior and reliable financial service delivery (Aduba & Asgari, 2021; Akinwale & Kyari, 2022; C. Breidbach et al., 2020; M. A. Chen et al., 2019; Chul et al., 2020; Yoti & Kesharwani, 2020). The application of this technology has led to increased use of technology platforms in the financial industry in Nigeria. The Central Bank of Nigeria (n.d.-a) reported that the volume of technology-enabled transactions grew from about two trillion

in 2018 to over 22 trillion as of December 2022, while the value also moved from ₦126 trillion in 2018 to over ₦1,550 trillion as of December 2022.

Despite this increased use of technologies to deliver services and create sustainable competitive advantage, the quality of the services is still challenging (Breidbach et al., 2020; Sheth et al., 2020). In the competition among financial institutions, improving service quality is a crucial competitive strategy to attract and retain customers (Gozman et al., 2018; Senyo & Osabutey, 2020; Vy & Tam, 2021). Most financial institutions struggle to provide good service to meet the customers' changing needs. The World Bank Report (2020) highlighted that banks have not entirely quelled dissatisfaction despite continued efforts. n line with these trends, managers of financial institutions are encouraging the use of relevant fintech that delivers quality service at a minimal cost and reduces operational inefficiencies (Agyapong, 2021; Bankuoru et al., 2021; Gomber et al., 2018; I. Lee & Shin, 2018; Tianhui et al., 2021). The emphasis on this technology-enabled services to deal with this dissatisfaction led to the emergence of the fintech industry (Bahri-Ammari et al., 2022). Thus, self-service technology-enabled services are now a critical service delivery component in most financial institutions such as banks (Agyapong, 2021; Ahmad, 2020; J. Liu et al., 2020). Chul et al. (2020) noted that the 2020 *Deloitte Banking and Capital Market Outlook* highlighted how financial institutions embrace a technology-centric customer service due to changing customer needs and increased technology acceptance. Many bank managers use fintech to improve customer satisfaction and gain competitive advantage. Thus, bank

managers need strategies to leverage fintech to satisfy customers and retain market share in this highly competitive banking industry.

Problem and Purpose Statements

The general business problem was that many banks fail to provide high-quality technology-enabled services resulting in low customer satisfaction and loss of market share. The specific business problem was that some bank managers lacked strategies to leverage fintech to improve their retail services.

The purpose of this qualitative multiple-case study was to explore strategies that bank managers use to leverage fintech to improve their retail services.

Population and Sampling

The target population for this study is bank managers in Nigeria who provide retail banking services using fintech. I used the purposive sampling method. Participants comprised six bank managers of two private banks in Lagos and Abuja, who successfully implemented strategies to leverage fintech to improve their retail platforms. The participants also included customers who use the retail services that these bank managers implement. I included customers to assess from their perspective the results or impact of the bank managers' strategies. These customer perspectives were an additional data source to triangulate (corroborate) bank managers' strategies. Thus, in this study, participants also included four retail banking customers of these banks. I interviewed two customers from each bank. Information from the bank's annual reports and websites was retrieved and reviewed for additional data sources. I also used secondary data sources

from banks' internal reports (not publicly available) and publicly available data for this study.

Nature of the Study

In this study, I applied qualitative methods. Researchers use the qualitative method to enable in-depth descriptions of the phenomena related to the research questions (Pitari et al., 2020; Reis et al., 2019). I used the qualitative method because the purpose of this study was to produce a detailed description of the strategies that bank managers use to leverage fintech in providing retail banking services. Researchers use the quantitative method to examine the relationships and differences between and among variables (Ahmad, 2020; Inegbedion et al., 2019). Therefore, the quantitative approach was not applicable because the purpose of the study was not to examine the relationship and differences between variables. Mixed methods research includes quantitative and qualitative approaches in a single study (Agu, 2021; Radia et al., 2022; Windasari et al., 2022). Thus, the mixed method would have been inappropriate because this study did not require the quantitative method.

The research design for this qualitative study was the case study design. Researchers use the case study design to address the "how," "why," and "what" overarching research questions (Pitari et al., 2020; Reis et al., 2019). The case study design met this study's needs because it aimed to answer the "what" research question: What strategies do bank managers use to leverage fintech to improve their retail services? Although single-case studies can yield invaluable insights, multiple-case studies are likely more rigorous than single-case studies (Yin, 2018). This study explored strategies

in diverse situations across banks. By doing so, the multiple-case study design yielded more comprehensive insight into bank managers' strategies to leverage fintech to improve their retail services.

Other qualitative research designs that I did not select include phenomenology, ethnography, ground theory, and narrative analysis. Researchers use phenomenological designs to describe a phenomenon's shared meanings, feelings, and lived experiences (Olani et al., 2022; Song et al., 2020). A phenomenological design did not meet the needs of this research study because the purpose was not to study the feelings or meanings of participants' lived experiences. Researchers adopt the ethnographic design to focus on the cultural aspects of groups and communities (Ejimabo, 2015). Thus, an ethnographic design was inappropriate because the research purpose was not to study the cultural phenomenon. A grounded theory design focuses on discovering new theories (Charmaz & Thornberg, 2021; Corbin & Strauss, 2008). A grounded theory design was inappropriate because this study did not want to discover a new theory. Narrative designs are usually used in clinical trials to collect and analyze the accounting of people's experiences with clinical outcomes, coping, and quality of life (Overcash, 2003). Narrative design did not meet the need of this research as it was not conducted in a clinical trial setting.

Research Question

What strategies do bank managers use to leverage fintech to improve their retail services?

Interview Questions

This study had two sets of interview questions: Six questions for bank managers and five questions for the customers. These questions listed below are tagged as "M" for managers and "C" for customers.

Bank Managers

M1. What are your adopted strategic plans in deploying fintech platforms to enhance your retail services?

M2. What are the critical barriers to your strategies in leveraging fintech platforms to improve the retail banking experience?

M3. What strategies did you adopt to address and overcome these critical barriers?

M4. How can you, as a business leader, assess the effectiveness of your organization's strategies to address the entrance of fintech services providers into the retail banking service?

M5. What is the effectiveness of the strategies adopted as a business leader in meeting the needs of your retail customers?

M6. What other information would you like to add regarding your organization's strategies to leverage fintech to improve retail banking services?

Customers

C1. How do you use the fintech platforms provided by your bank?

C2. How do these fintech platforms improve your retail banking experience?

C3. What are the critical challenges with these fintech platforms?

C4. What additional information would you want to share about the strategies adopted by your bank to leverage fintech to improve retail services?

Conceptual Framework

The theory that grounded this study is the diffusion of innovation (DOI) theory developed by E. M. Rogers at the University of New Mexico in 1962. Researchers use this theory to focus on the following constructs: relative advantage, compatibility, complexity, trialability, and observability as critical factors to technology or innovation adoption (Parthasarathy et al., 2021; Yoon et al., 2020; Yuen et al., 2021; Zhao et al., 2022). *Relative advantage* is the degree to which new technology or innovation provides more significant intrinsic benefits or values than others (Yoon et al., 2020). The higher the relative advantage, the greater the likelihood of adoption relative to others (Yuen et al., 2021). *Compatibility* is the degree of perceived strategic fit and congruency or consistency of innovation with existing values, experience, and needs (Yuen et al., 2021); high compatibility would likely enhance the adoption of an innovation (Yoon et al., 2020). *Complexity* is the extent to which innovation is relatively easy to deploy, understand, and use (Yoon et al., 2020). The complexity of innovation often functions as an inhibitor for successful implementation and is usually negatively associated with adoption. *Trialability* refers to the degree to which an innovation is triable before its adoption (Rogers, 1995), with a focus on the triable, quantifiable outcome or benefits of using the innovation (Yuen et al., 2021). The easier the trialability of innovation (including ease of usage, learning, and explanation to others), the more the likelihood of adoption (Venkatesh et al., 2003). *Observability* (visibility) is the result of the

communicability of innovation that enables consumers to ascertain whether other people can observe the innovation usage process for perceived status and value enhancement (Yuen et al., 2021), usefulness (F. D. Davis, 1989; Ghazali et al., 2020) ease of use, social learning or provides an opportunity to personalize exclusives offer/benefits and preferential treatments (A. Fan et al., 2021; Huang et al., 2020; Yuen et al., 2021). The higher the visibility, the higher the probability of adoption (Yuen et al., 2021). DOI theory applies to this study because its constructs are suitable for identifying and labeling emerging themes.

Operational Definitions

Digital banking: Digital banking refers to using an electronic platform or a channel to undertake online banking transactions (X. Chen et al., 2021; Peong et al., 2021; Windasari et al., 2022).

Digital banking risk: Risk is the extent to which a customer feels at risk regarding their decision to use digital banking (Bankuoru et al., 2021; Hu et al., 2019; Ohiani, 2021).

Ease of use: Ease of use is the extent to which the consumer believes using digital platforms is effortless (F. D. Davis, 1989).

Financial technology (fintech): Fintech refers to using technology by financial institutions to promote seamless financial transactions (Breidbach et al., 2020; Gozman et al., 2018; Sangwan et al., 2019).

Retail banking services: These are services targeted at individuals or persons, not corporate entities (X. Chen et al., 2021; Peong et al., 2021).

Technology-enabled banking services: These are banking services that ride on technology (Breidbach et al., 2020; X. Chen et al., 2021)

Technology usefulness: Usefulness is the degree to which a user believes that using the technology will increase performance and meet changing consumer needs (F. D. Davis, 1989).

Assumptions, Limitations, and Delimitations

Assumptions

An *assumption* is a premise or belief accepted as true or sure to happen without proof. Assumptions consist of conclusions the researcher makes that cannot be substantiated by facts or other evidence (Bloomberg & Volpe, 2019; Dahlin, 2021). Durkin et al. (2020) noted that an assumption is a fact considered genuine but unverifiable. Researchers exercise inductive reasoning about the theoretical framework and the researchers' own experience in participants' selection, gathering, and analyzing data (Cousins et al., 2019; Yin, 2018). In their qualitative studies, Topping et al. (2021) and Levitt (2021) explored this approach.

Three critical assumptions are in this study. The first was that the participants would be able to understand interview questions and be knowledgeable to answer these questions. This assumption was reasonable because the participant eligibility criteria include current critical stakeholders familiar with the topic to ensure effective use of the participants' experiences concerning using fintech. The second assumption was that all participants would respond to the interview questions truthfully. This assumption was reasonable as questions were explained, and participants were freely allowed to respond

with their confidentiality guaranteed, with no socially embarrassing questions or questions about any trade secrets. Finally, I also assumed that the selected participants took the necessary time to answer the questions. It was a reasonable assumption because participants reviewed the online interview questions sent to them at their convenience before the interactive interview session.

Limitations

The *limitations* of a study are its flaws or shortcomings not under the researcher's control. Limitations are potential drawbacks or unavoidable weaknesses beyond the researcher's control that may affect the study design, data collection, analysis, and outcome (Sperling, 2022; Theofanidis & Fountouki, 2018; Ujjaini, 2021). There were three limitations in this study. The first was that the findings of this qualitative study may not be as generalizable over a large population as a typical quantitative study's findings. However, the study provided a thick, detailed description of the phenomenon under study to make up for this weakness. Researchers consider it an acceptable trade-off (Griggs & Crain-Dorough, 2021). The second limitation identified was that I relied on the interview responses provided by the bank managers and customers selected based on the participating criteria for this study. Much of the information related to the business decision to leverage fintech to improve the quality of retail banking services is typically part of internal meetings, considered business-sensitive information, and not publicly distributed; thus, information about business strategies regarding the leverage of fintech could not be verified by other documentation beyond the data collected by interviews. The participants were selected based on their knowledge and experiences in deploying

retail fintech platforms, and I also reviewed internal documents. These were considered a sufficient trade-off (Kumar et al., 2023). The third limitation of this study was that participants' bias may affect their responses. Participants' bias may also influence their evaluations, attitudes, and opinions. Researchers regard this potential influence of bias as acceptable because various methods are available to capture and account for participants' potential bias. Triangulation helped identify and describe these differences and divergences in subjective views (Alsharari & Ikem, 2023; Farquhar et al., 2020; Janis, 2022). I applied data and methodological triangulation in this study to identify and correct factually untruthful participants' responses.

Delimitations

Researchers decide to set boundaries or limits within their study to achieve the purpose and objectives. These *delimitations* define restrictions implemented by the researcher and the characteristics that limit the study's scope and boundary (Burkette, 2022; Leedy & Ormrod, 2019; Theofanidis & Fountouki, 2018; Ujjaini, 2021). According to Coker (2022), delimitation factors include a researcher's choice of a specific problem, purpose statement, research question, and criteria to select participants, geographic location, profession, or organization involved in the study.

In this qualitative study, I explored the strategies bank managers use to leverage fintech in improving customer experiences in the Nigerian context. In this study, three delimitations were established. I conducted a case study at only two commercial banks in Lagos and Abuja. This delimitation would not significantly affect the interpretations of findings because banking practices, laws, and customs in other regions are similar to

those in these two states and across the country. The participant eligibility criteria included bank managers and heads of digital and retail banking who have at least 5 years of work experience as a bank manager and have successfully implemented strategies to leverage fintech to improve retail banking experience. The criteria also included customers who use the bank's fintech retail platforms for at least 1 year. Focusing on such bank managers and customers would provide a more comprehensive view of bank managers' strategies. Finally, this study was limited to exploring strategies for using fintech to improve retail banking services in Nigeria using the lens of Rogers's (1995) DOI as guidance. Thus, this study was limited to banks that deployed retail fintech platforms and individuals who possess basic computer skills, have access to a computer or digital device, and have been using fintech platforms for at least 1 year in Abuja and Lagos.

Significance of the Study

Technology and social change deal with how technology is developed and used in social contexts and how technology shapes the work environment, culture, and society. Technology has altered how firms design, manufacture, distribute, and sell their products and the conduct of their professional practice. This has impacted the bottom line, their consumers, and society (Bulger & Rouen, 2022).

Contribution to Business Practice

The findings of this study may be helpful to bank managers in improving and deploying customer-centric, value-adding, fintech-enabled services. These services enhance the quality of services in the financial industry and simultaneously increase

customer satisfaction and loyalty. Fintech offers different opportunities to users through improvement in transparency, reduction of costs, eradication of intermediaries, and retail financial inclusiveness (Kass-Hanna et al., 2022; Pandey et al., 2022; Yu, 2021; Zavolokina et al., 2016). The findings of this study may highlight such opportunities. Some banks spin fintech companies to leverage technology to improve retail banking services, thereby creating further employment opportunities.

Implications for Social Change

This study's findings may improve the banking services in Nigeria, while improved banking services will facilitate the community's economic development. The enhanced economic growth may result in increased economic activities that could decrease unemployment and enhance living standards. The findings may help managers leverage fintech to improve retail banking services. Helping banks improve retail banking services is vital because accessible and easy-to-use banking services are essential for the communities' economic development and eradicating poverty and hunger. These are objectives of the United Nations Sustainable Development Goals (SDGs) 1 and 2 (Hudaefi, 2020). The findings from this study may also impact the SDG 10's inequalities with improved technology-enabled services and financial inclusion for small and medium enterprises and individuals. Applying this study's findings can help structure the fintech industry to create employment opportunities. One of the expectations of improvement in financial services through the leverage of fintech in Nigeria is decreased unemployment, a similar impact of such innovations on unemployment figures in Canada, as reported by Reynolds (2019). J. Liu et al. (2020) also identified a list of possible social impacts of

improved technology-enabled services in the financial sector on standards of living and an enhanced digital economy.

Review of the Professional and Academic Literature

A literature review for a study assists a researcher in understanding the existing research and debates relevant to a particular topic or area of study and presenting that knowledge in a form that aligns with the research objectives. Assessment of the research topics requires an understanding of the current knowledge about the main topic, its limitations, and the strategic fit of the research into the broader business management issues and alignment with the conceptual framework, problem statement, purpose statement, and research question (Wilson & Anagnostopoulos, 2021). I used a literature review as an essential component of this study to appreciate the existing works and concepts about leveraging fintech to improve the retail banking experience.

In this study, I used ProQuest Central, Emerald Insight, SAGE Premier, Google Scholar, and EBSCO Host to search and identify the literature relevant to this study. The literature sources consisted mainly of peer-reviewed journal articles published within the past 5 years to ensure that these sources are current and relevant. The main keywords used in the search of the databases were banking innovation, banks, e-banking, electronic banking, diffusion of innovation theory, digital banking, digital retail banking, DOI, financial automation, financial technology, financial services, fintech, internet banking, mobile banking, mobile money, omnichannel banking, quality service, self-service terminal, social media banking, technology, technology acceptance model, technology-enabled services, theory of planned behavior, TAM and TPB. The literature review

includes 300 peer-reviewed articles, with 285 (95%) published within the past 5 years. Sources included 23 articles representing conceptual papers from scholarly journals or professional conferences (see Table 1). Since the topic of business strategies involving fintech is at the forefront of banking innovative and contemporary service delivery issues, the literature review is as comprehensive as possible, providing the very recent literature concerning the emergence of fintech.

Table 1

Literature Review Sources by Type and Publication Date

Sources	Total	Percentage peer-reviewed	Total less than 5 years	Percentage less than 5 years
Peer-reviewed sources	300	93%	285	95%
Government, seminal, or other non-peer-reviewed sources	23	7%	20	87%
Total	323		305	94%

Application to the Applied Business Problem

The purpose of this study was to explore strategies that bank managers use to leverage fintech to improve their retail services. The target population of this study consisted of five bank managers who have at least 5 years of work experience as a bank manager and successfully implemented strategies to leverage fintech to improve their retail services. The participants also included five customers of the banks who have used the bank's fintech retail platforms for at least 1 year. I included customers to assess from their perspective the results or impact of the bank managers' strategies. The customers' perspectives are an additional data source to triangulate (corroborate) bank managers'

strategies. I used the literature review to provide a foundation to investigate this phenomenon and identify controversies and gaps the research can address.

The literature review below comprises the following key topics: understanding fintech as an innovation tool, fintech as a disruptive innovation, the challenge of using fintech, the value of fintech, and the impact of fintech on financial services. Other topics are service innovation, the impact of fintech on customers and, service quality, knowledge, and user experience. The review covers the application of technology acceptance and usage theories to the Nigerian banking system, emphasizing the specific application of technology to the provision of retail banking services. This review ends with a review of the study's conceptual framework/theoretical basis with subsections for the DOI theory and alternate theories.

Understanding Fintech as an Innovation Tool

There is increasing use of innovative technologies offered by fintech companies as a competitive tool in financial services in advanced economies and emerging markets. Compared with services provided by traditional financial sector companies (retail banks, insurance companies, asset management, and investment companies), evaluating how consumers adopt and use fintech services is essential. Innovation and creativity are at the heart of business development, growth, and sustainability in today's competitive world. *Innovation* is the practical translation of ideas that introduce new products (or services) or improvements in offering existing products or services (Subanidja et al., 2022). In the entrepreneurial context, innovation is any new idea, process, product, or change to an existing product or method that adds value to a current product or service to meet the

market's demands and trends (Bunduchi et al., 2022; Drucker, 2002). Thus, innovation is introducing, replacing, or improving a process, product, or service to satisfy some market needs (Kogabayev & Maziliauskas, 2017). When fully implemented, innovation leads to economic and business growth, increased employment, better services or products for the consumer, and creates pure profit for the innovative business enterprise.

In innovation management, all approaches and tools are well understood, integrated into an organization's strategic plans, and linked to the customer's values and experiences. Schumpeter (1982) developed the theory of innovation based on combining technology and economics to solve business problems. The infusion of technology and other economic activities has recently become a base for most enduring innovations. Thus, bridging the knowledge gap between business and technology will help fast-track the achievement of innovation objectives and minimize the related innovation risk (Peykani et al., 2022). Franco et al. (2021) advised organizations to create a business model innovation engine driven by market exchanges as a function that incorporates dynamic capabilities and related ecosystems as part of the value creation architecture. For the operational effectiveness of this architecture, organizations should pay good attention to third parties' collaboration, design thinking, lean operation, open innovation, sustainable innovation, social media influences, and emerging disruptive innovations such as artificial intelligence (AI) and good use of the value creation wheel for strategic alignment with organizational strategic intent (Lages, 2016; Moretti & Biancardi, 2020; Rumanti et al., 2021; Yuen et al., 2021). An example of such technological innovation is the use of fintech in the banking industry (Yao et al., 2018). Banks should decide when

and how to adopt these emerging innovations, such as AI, blockchain, and cryptocurrency, to leverage fintech to improve retail banking services (D. K. C. Lee et al., 2021). Banks should also continually explore avenues that promote ideas and innovative engagements across organizations and opportunities with result-driven goals for an invention that will improve the retail banking experience.

Fintech as a Disruptive Innovation

New technologies have disrupted most financial institutions by providing innovative ways of adding value to existing and new markets, increasing patronage, and creating opportunities that can expand the scope of financial institutions beyond the boundaries of organizations. With this advent of technology, managers of financial institutions are pursuing ways to leverage technology to deliver exemplary service (X. Chen et al., 2021). The emphasis on technology-enabled services led to the emergence of the fintech industry (Bahri-Ammari et al., 2022). Thus, self-service technology-enabled services are now a critical service delivery component in most financial institutions like banks (Agyapong, 2021; Ahmad, 2020; J. Liu et al., 2020). Chul et al. (2020) noted that the 2020 *Deloitte banking and capital market outlook* highlighted how financial institutions embrace a technology-centric customer service due to changing customer needs and increased technology acceptance. Fintech is now an innovative service delivery tool for financial institutions.

Financial institutions have employed fintech to improve their service offerings in response to the changing needs of their customers. Researchers see fintech as a novel innovation financial service institutions adopt to deliver services. Breidbach et al. (2020)

identified fintech as the use of technology to enhance service accessibility and availability (resource density) and transferability (service liquefaction). Gozman et al. (2018) defined the fintech ecosystem as technology innovation that affects core financial services, business infrastructure, and its components. This creates an enabling platform for distinct value addition by redesigning and renewing the sector value chain and matrix. Sangwan et al. (2019) reviewed extant literature on fintech and provided qualitative insight into the use of technology in financial institutions. Fintech, according to Ahmad (2020) and Sangwan et al., represents the marriage of finance and information technology (IT) and disrupted the status quo of mainstream banking.

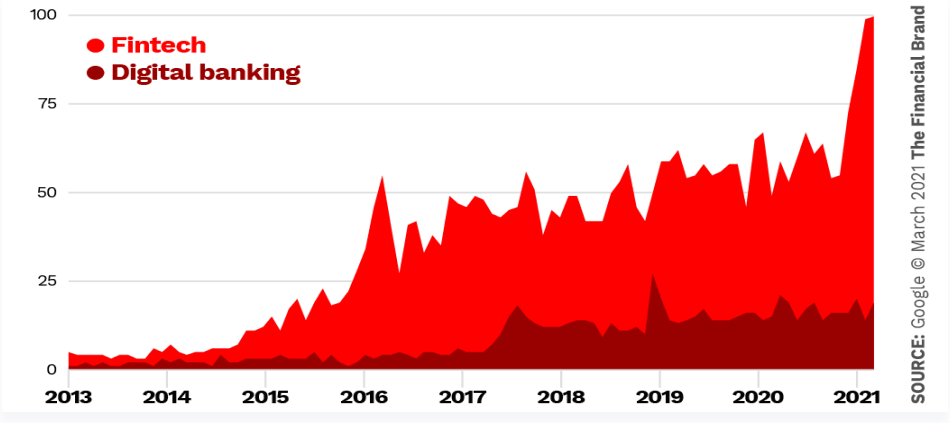
For enhanced loyalty and profitability, banks focus on improved user experience and cost optimization as part of their digital transformation. Using fintech helps with overall operational cost optimization and enhanced user experience. Breidbach et al. (2020) set a future research agenda for research into the digital transformation of financial service systems through fintech. The authors analyzed the corpus of 1,545 published practitioner articles associated with fintech in addressing the managerial and societally relevant phenomenon of fintech by identifying and responding to the individual challenges and problems related to the digital transformation of financial services. Breidbach et al. also affirmed the understanding that information and communication technology impacted quality service by creating new insights into disruptive, innovative technology-enabled services. Breidbach et al. observed that due to the separate consideration of quality service and technology impact in most research, the research on managerial insights into the relevance of fintech on service delivery is not readily

available. Thus, this study focuses on improving retail service delivery by leveraging fintech.

Fintech offerings have disrupted mainstream banking and are witnessing significant growth. Fintech impacted retail services with better means of delivering services from various retail applications (Khudolii & Khalievina, 2021; Pena & Breidbach, 2021) to fintechs (Dave et al., 2019) or advanced applications of blockchain technology in the delivery of financial services (Panisi, 2017). There is an increased focus on fintech, as fintech represented a $5 billion market in the United States alone in 2016 (Zavolokina et al., 2016). The fintech global market is expected to reach $385.93 billion by 2027 (Fintech Global Market, 2022). Figure 1 shows the rising global interest in fintech.

Figure 1

Global World Interest in Fintech



Note. From *Trends in Digital Banking, Payments & Fintech*, by S. Cocheo, 2021, The Financial Brand (https://thefinancialbrand.com/news/banking-trends-strategies/google-search-trends-digital-banking-channel-paymetns-fintech-bigtech-covid-pandemic-111105/). This article was originally published on March 29, 2021. All content copyright © 2023 by The Financial Brand. Reprinted with permission.

Fintech as an Enabler

Fintech is a crucial enabler for financial inclusion. As noted by Demir et al. (2022), the UN 2030 agenda for sustainable development (UN-2030-ASD) and the G20 high-level principles for digital financial inclusion (G20-HLP-DFI) highlighted the importance of harnessing the potential of fintech to reduce financial exclusion and income inequality. Fintech also acts as an enabler to a sustainable new face of finance, ultimately leading to a sustainable competitive advantage. Disruptive innovation such as fintech and blockchain significantly impacts the banking and finance industries in decentralization, transparency, and immutability, allowing financial institutions to increase their competitiveness (Ghosh, 2021). Lasak and Gancarczyk (2021) elaborated on the theoretical framework for establishing the bank's boundaries in response to expanding financial technologies into the industry. Serookiy (2021) analyzed the effectiveness of adopting digital technologies in the traditional banking ecosystem. Serookiy (2021) also offers directions for minimizing the adverse effects and developing competitive advantages in financial technologies. Fintech enhances financial inclusion and provides mobility, ease of use, speed, and lower cost of financial services.

Challenges of Using Fintech as an Innovation Tool

There is a significant increase in fintech usage and adoption as an innovation tool. As adoption surges, emerging challenges affecting the usage also require attention. Breidbach et al. (2020) identified six managerial challenges and three research directions for each challenge that deals with various aspects of using fintech. In dealing with these challenges, Breidbach et al. set some inspired research agenda concerning the complexity

of digital financial service systems (micro level), orchestration of value co-creation with fintech (Meso level), and the development of elastic infrastructures, models, and markets (macro level). In exploring strategies for leveraging fintech to improve retail services, Breidachi et al. provide good insight into how innovation, such as fintech by new market entrants, challenges the position of mainstream financial institutions.

There are interesting views on the emergent of fintech. Gozman et al. (2018) addressed empirical questions about technological innovation's emergent nature and dynamics across the fintech landscape. Gozman et al. used an extensive range of qualitative and quantitative data collected from 402 fintech firms from 2013 to 2015 across the globe as part of a global startup competition operated by the Society for Worldwide Interbank Financial Telecommunications (SWIFT). Gozman et al. related to previous work on relevant theory and discussed the value creation in the fintech sector. Gozman et al. demonstrated how the fintech landscape is affected by competition and cooperation. Hendrikse et al. (2020) further analyzed how the coalescence of finance and technology offers new opportunities for second-tier financial centers while highlighting the difficulties in exploring these opportunities. Hendrikse et al. noted that conceptualizing this coalescence of high-tech and finance requires careful reflection on available theoretical tools such as applications and software developers. Hendrikse et al. emphasized the evolution of fintech over the years. They highlighted the following trends: (a) 2014 as a fintech hype with many expectations, (b) 2016 as blockchain, and (c) 2018 as AI, while since 2017, the struggle has been to commercialize AI and blockchain (Panisi, 2017). Despite the increased adoption, Hendrikse et al. concluded that

finding the right balance between collaboration and competition among the involved actors is vital. The mix of this increased adoption and leverage of fintech for higher productivity requires consideration of these challenges.

In furtherance of building the fintech ecosystem as sustainable innovation, R. P. Buckley et al. (2020) noted it is vital to examine the regulator's role in streamlining processes and supporting the development of fintech ecosystems. Establishing dedicated testing environments called *financial regulatory sandboxes*, which temporarily exempt fintech companies from some regulatory requirements, and providing *innovation hubs* is one such effort toward a functional fintech ecosystem (R. P. Buckley et al., 2020). In exploring strategies to leverage fintech for the banking industry, developing skilled youths into fintech ecosystems or hubs will make it easy to churn out financial applications at a relatively low cost and create structured employment. Fintech trends are changing in response to consumer needs, but fintech has considerable value to the financial industry.

Value of Fintech Innovation

Most fintech innovations yield substantial value. The rapid advance in fintech has disrupted the industry with newly emerging technologies reshaping the financial industry market forces (M. A. Chen et al., 2019; Sangwan et al., 2019; Senyo & Osabutey, 2020). Competition among banks is now more at deploying and using fintech solutions or platforms (Gomber et al., 2018). M. A. Chen et al. (2019) observed that fintech results in less expensive, more convenient, and more secure transactions. The value of fintech is visible in the increase in external funding for fintech development. M. A. Chen et al.

(2019) emphasized that KPMG 2018b report that global investment in fintech, as of 2018, increased from $38.1 Billion to $57 Billion in 2017. Bulger and Rouen (2022) highlighted that, to date, fintech companies have a collective global market value of $5 trillion and a projected industrial growth of above 23% for the next 5 years. Fintech will continue to be valuable and impactful in the financial industry, and bank managers should leverage fintech to improve their retail services.

Impact of Fintech on Financial Services

Fintech has transformed the way financial services are delivered and changed the structure of the banking industry. Gomber et al. (2018) illustrated the impact of fintech on financial institutions by presenting a fintech innovation framework for assessing the extent to which there are changes and transformations in four areas of financial services: (a) operations management and the changes; (b) technology innovations that have begun to leverage the execution and stakeholder value associated with payments, fintechs, blockchain, and cross-border payments; (c) multiple innovations that have affected financial institution's lending and deposit services, peer-to-peer (P2P) lending, and social media use; (d) issues concerning investments/funding raising, financial markets, trading, risk management, and customer services influenced (; Tianhui et al., 2021; Yoti & Kesharwani, 2020). Gomber et al. provided good insights for the study concerning the directions of fintech. Gomber et al. noted that if fintech competes freely, it could increase consumer welfare/customer-centricity, improve the quality of services transparency, and ultimately create a new business model. It could lower the probability of a financial crisis, improve financial inclusion, and generate employment opportunities in the

financial services sector (R. P. Buckley et al., 2020; Senyo & Osabutey, 2020). Thus, fintech helps improve the quality of retail banking services and increases the social impact opportunities of leveraging technology (Al-Ajlouni et al., 2018). In this leverage, the components of the fintech ecosystem need to align. I. Lee and Shin (2018) identified five elements of the fintech ecosystem: traditional financial institutions, fintech startups, technology developers, customers, and government/regulators. Finally, evaluating the emerging technical and managerial challenges across the fintech ecosystem will help financial institutions leverage this technology to deliver transformed services that meet the needs of these stakeholders.

Fintech has made significant impacts on banks' operations. To bring this impact closer to banks, X. Chen et al. (2021) analyzed the impact of fintech products on commercial banks' performance by investigating the effects of fintech products on non-financial performance among commercial banks in China. Chen et al. highlighted the internal and external loops of fintech. They indicated that fintech products' perceived usefulness (PU) and low perceived difficulty (PD) positively impact customer satisfaction, low expectations of bank employee assistance, service quality, and work efficiency. Interestingly, this implies that service quality and work efficiency can reduce some shortcomings of using fintech products. This view reinforced Riana's (2021) views and calls for an in-depth look beyond customers and critical internal processes that fintech impacts in improving the quality of financial service. Dimensioning the exact implications of fintech on financial institutions and defining the relevant components of

the fintech ecosystem will help improve the quality of services through technology innovation.

As an innovation tool, Fintech brought fundamental changes across all aspects, from the conduct of banking activities to how the capital market is organized and even to the form money or instruments have assumed. As noted by I. Lee and Shin (2018) and Ohiani (2021), the usage and scope of fintech in the financial sector will continue to increase dramatically with the introduction of AI and blockchain innovations. The findings by I. Lee and Shin (2018) reinforced the recent figure from the Central Bank of Nigeria (CBN) (Central Bank of Nigeria, n.d.-a) on electronic transactions in Nigeria and the need to map out a strategy for leveraging technology to improve retail banking services. The fintech ecosystem also needs to function more effectively and collaboratively using open innovation and other emerging innovative approaches to improve the quality of financial service delivery, particularly technology-enabled retail banking services. Finally, research is needed to advance the knowledge of fintech and the other disruptive digital innovations used by financial institutions in dealing with misalignment service science and managerial practices. A study of the strategy of leveraging fintech to improve the quality of retail banking services aligns with this call for research.

Service Innovation: A Service-Dominant Logic Perspective

To succeed in today's market, banks should consider fundamentally reshaping the value proposition mechanism and improving product and service delivery architecture that aligns with the customer's changing needs. Service delivery is a business framework

or process in which a provider supplies services to a consumer of such service. It includes the constant interaction between the two parties during the service in which the provider supplies the service, and the consumer pays for its value. Lusch and Nambisan (2015) offered a broad conceptualization and innovative view of service delivery architecture and linked it with the application of technology. Service innovation is seen as a collaborative process occurring in an actor-to-actor network like a financial institution, as delivery of service through the application of specialized competencies for the benefit of stakeholders, as a basis of exchanges in economic relationships (Lusch & Nambisan, 2015; Radia et al., 2022). Lusch and Nambisan (2015) divided service innovation into the service ecosystem, platform, and value chain/co-creation elements. In relating this to the banking service delivery architecture, Bankuoru et al. (2021), Chul et al. (2020), Vy and Tam (2021), and Yoti and Kesharwani (2020) explained the characteristics of these three elements. These authors adopted a holistic focus when looking at these elements concerning banking services and their interconnections, threw up some entrepreneurial and employment issues, and further explored the critical focus on value, quality, and user experience at the point of exchange. Thus, this study of strategies that bank managers use to leverage fintech to improve their retail services could help address the issues of value and user experience in service delivery.

The user experience of the consumers of such a service measures the success of service innovation. Alamgir et al. (2021) and Okoye et al. (2019) noted that the shift to value and user experience is the central focus of most innovations rather than the features and attributes of the innovation output. Lusch and Nambisan (2015) noted that this shift

expanded the role of technology in delivering innovative services, which aligns with the recent call to focus on experiential computing (J. Liu et al., 2020).

In conclusion, this theoretical review identifies and integrates salient themes, theories, and concepts that will significantly impact service innovation, particularly technology-enabled services. Technology-enabled services in the digital world will continue to be accelerated and are critical for service innovation (Alamgir et al., 2021; Lusch & Nambisan, 2015). Lusch and Nambisan (2015) also pointed out the need for further research on the nature of service innovation and the role of technology in delivering such service, which supports the need for this study. Managers should review the essential determinants of quality retail banking services in exploring service innovations.

Impact of Fintech on Customers and Services Quality

Service quality refers to a customer's comparison of the expectations from service and the perceptions of what the service provider delivers. The critical determinants of quality service as perceived by the service provider and the consumer, namely, reliability, responsiveness, competence, access, courtesy, communication, creditability, security, understanding/ knowing the customer, and tangibility, help formulate a service quality framework (Alzaydi et al., 2018). Chul et al. (2020) explored the determinants of relationship quality in retail banking services by emphasizing that service justice and quality significantly affect customer satisfaction, loyalty, and corporate image. Financial institutions use the provision of quality service as a competitive advantage. Thus, as Chul et al. noted, most financial institutions direct their activities to increase customer

satisfaction and loyalty. This direction is typically aimed at fintech to improve service quality as a retention strategy and a growth plan. Improved quality of service results in reduced operating expenses as retention of existing customers is cheaper than new customer acquisition. A satisfied customer also gives an increased share of mind and pockets, enhancing loyalty for the financial institution. In their study, Alamgir et al. (2021) indicated that service justice and quality significantly affect customer satisfaction, loyalty, and corporate image.

Most financial institutions need help to provide quality service to satisfy the customers changing needs. The World Bank Report (2020) highlighted that banks have yet to quell dissatisfaction despite continued efforts. The emphasis on technology-enabled services to deal with this dissatisfaction led to the emergence of the fintech industry (Bahri-Ammari et al., 2022). Thus, fintech is a critical service delivery component in most financial institutions like banks to deal with these dissatisfactions (Agyapong, 2021; Ahmad, 2020; J. Liu et al., 2020). Chul et al. (2020) noted that the 2020 *Deloitte banking and capital market outlook* highlighted how financial institutions used technology to satisfy the changing customer needs and increased technology acceptance.

Technology deployment should generally meet these customer needs satisfactorily. Bankuoru et al. (2021) studied the interplay between quality digital banking services and satisfaction. The authors investigated the impact of quality digital banking services delivered during the COVID-19 pandemic on customers' satisfaction and retention intentions. Bankuoru et al., in their study, combined constructs drawn from

the electronic service quality (E-S-QUAL) and bank service quality (BSQ) models to measure the impact of digital banking services on subscribers of digital banking services in Ghana. Bankuoru et al. used a partial least square test to analyze 395 responses. The authors highlighted the influence of other critical digital banking services quality dimensions, such as ease of use, efficiency, privacy/security, and reliability, on customers' satisfaction and retention. Bankuoru et al. suggested the appropriate use of technology to improve the quality of retail banking services. They underscored the significance of the quality of fintech-enabled services in developing countries. Thus, Bankuoru et al. made significant theoretical contributions and emphasized the practical implications and the relevance of quality digital banking services in customer retention. Khudolii and Khalievina (2021) stressed that bank managers could determine the current place of fintech in the banking business by identifying modern customers' needs and existing market conditions concerning providing digital services and customer value. Promptness, convenience, flexibility, reliability, ease of use, accessibility, and affordability are measures of satisfactory consumer service (Agrawal et al., 2022; Bankuoru et al., 2021; Saxena et al., 2022; Tetteh, 2022; Ugwuanyi & Idoko, 2022). The extensive use of various technologies, such as fintech, will help meet these satisfactory consumer service measurements.

Emerging technology trends are essential in mapping out strategies for leveraging technology to improve the quality of retail banking services. Khudolii and Khalievina (2021) provided valuable insights into critical trends of the future, including digital services in non-financial relations, the Internet of things (seamless payments), where the

focus shifts from payment to the service itself, sustainable interaction between the sellers and the buyers; the nature and consequences of changing the format of payment services in the domestic market (PSD2). Using fintech has helped banks address the critical determinants of service quality with an appropriate connection to the customer's changing needs and current trends in service delivery.

Knowledge and User Experience

Knowledge and customers' changing needs influence innovation as a necessary means of sustained competitiveness. Thus, knowledge, user awareness and experience are critical in leveraging technology innovation. Al-Dmour et al. (2021) examined the influence of the knowledge management process on fintech innovation in commercial banks in Lebanon. Al-Dmour et al. noted that prior research in Western countries focused on knowledge management and business process re-engineering rather than fintech innovation. The findings by Al-Dmour et al. confirmed that managers' experiences and level of education impact the management of technology-enabled services and fintech innovation in commercial banks in Lebanon, a developing country like Nigeria. They also noted that fintech broadly covers establishing new technologies, instruments, processes, products, and services. Thus, financial institutions, particularly banks, could improve their quality of services, ultimately improving their performance and profitability by relying on fintech innovations. Therefore, the technology-enabled service managers must acquire the appropriate managerial skills and knowledge of the customer's user experiences to enhance fintech innovation's effectiveness.

Application of the Theories in the Nigerian Banking System: Prospects and Challenges

The Nigerian banking industry is going through significant innovation that has disrupted traditional banking practices and evolved various technology platforms for delivering retail services, changing the face of retail banking in the country. Ohiani (2021) noted that the Nigerian banking system is gradually moving transactions across branches to customers' fingertips and voices with modern technologies. These new technologies have improved customer service delivery for banks in Nigeria, resulting in increased risk and fear of cybercrimes in the mix of substantial service failures and disruptions (Ololade & Ogbeide, 2017; Reis et al., 2019; Yoti & Kesharwani, 2020). Ohiani (2021) tested the following hypotheses to establish the impact of technology innovation on banking services:

- *H1*. Innovation adoption does not have a significant relationship with the competitiveness of banks.
- *H*2. Frauds in banks do not have a significant relationship with the usage of mobile banking products.
- *H*3. Service quality does not have a significant relationship with the intention of bank customers to switch.
- *H*4. Cybercrime does not significantly affect customers' perception of online services.

From the data analyzed, Ohiani (2021) found innovation adoption, service quality, and cybercrime/risk to have a significant relationship with banks' competitiveness, the

intention of the customers, and the perception of customers towards such innovation and ease of use of technology-enabled services. Ohiani also concluded that the intention of customers to use technology-enabled services decreases with high cybercrime. In contrast, the technology-enabled platform adapted impacts the service quality (Ohiani, 2021). These two factors significantly affect customer loyalty or retention.

Retail Banking Fintech Platforms

A useful general finding of the use of technology-enabled retail platforms in Nigeria is that technology innovation has improved the operational efficiency of the banking systems in Nigeria (Ebere et al., 2020; Ohiani, 2021; Okoye et al., 2019; Ololade & Ogbeide, 2017). I examined the following retail fintech platforms commonly used in Nigeria in evolving strategies that retail bank managers use to leverage fintech to improve retail banking services: (a) mobile banking, (b) mobile money (MM), (c) unstructured supplementary service data (USSD), (d) internet banking, (e) self-service terminals, (f) chat or social media banking, and (g) E-commerce portals.

Mobile Banking. In this study, it is imperative to explore how the technology acceptance model (TAM) and DOI factors impact the adoption and usage of mobile telephone banking platforms as related to successful strategies to leverage technology to improve retail banking services, as stated in the research question and purpose. The first component of TAM is PU, which refers to the degree to which an individual believes that using a given system would meet the need (Hu et al., 2019; Kang et al., 2021; Sohn & Kwon, 2020). In mobile banking, PU refers to appropriately incorporating mobile services into day-to-day banking needs (Akinwale & Kyari, 2022; Alalwan et al., 2016).

The intentions to use these services grow with the increase in acceptance. According to Akinwale and Kyari (2022), PU significantly impacts the development of the preliminary willingness or altitude to utilize technology like mobile banking. A consumer positively influences using mobile banking services once such service benefits personal business life. A fair conclusion based on this evidence is that consumers mainly use mobile banking services because of their usefulness and convenience (Chawla & Joshi, 2017). Subsequently, PU directly impacts the behavioral intention to use mobile banking. PU is thus a critical determining factor I analyzed in this study to understand customers' behavior toward fintech platforms.

The second component of TAM2 is perceived ease of use (PEOU), which is the degree of effort required to use a specific system (Bankuoru et al., 2021; Yuen et al. (2021). A system perceived to involve little effort will lead to more system usage and consumer acceptance (Akinwale & Kyari, 2022). Moreover, Yuen et al. (2021) documented that the greater the ease of use, the higher the customer acceptance, adoption, and usage. Just as Aldammagh et al. (2021) suggested, the intention to use mobile banking services is positive if the mobile banking services are user-friendly. According to other researchers, PEOU affects consumers' attitudes towards adopting mobile banking services (Akinwale & Kyari, 2022; Aldammagh et al., 2021). As Calitz and Cullen (2016) noted, utilizing a complicated system when performing banking transactions using a small device could be very difficult.

Subsequently, *perceived creditability* (PCRED) in the context of mobile banking refers to an individual's judgment regarding the privacy and security issues of mobile

banking (Akinwale & Kyari, 2022; Aldammagh et al., 2021). By implication, creditability regards the extent to which an individual believes that the use of mobile banking services will have no privacy or security threats (Bankuoru et al., (2021). Ohiani (2021) inferred that the fear of lack of security and privacy presents a major stumbling block in the acceptance of mobile banking. PCRED, therefore, influences the intention of consumers to use mobile banking services. From the available evidence, general agreement exists that security is the most crucial factor to consider when using mobile banking. As reported by Aldammagh et al. (2021) and Hu et al. (2019), low trust exists on the part of consumers regarding exposing their finances and personal information in case of a deficiency on the part of the providers of financial services. Consumers often worry that mobile banking is risky because of the possibility of the divergence of personal and financial information. Thus, a lack of creditability inhibits the opportunity to adopt mobile banking (Aldammagh et al., 2021). This challenge implies that the higher the creditability associated with new technology, the lower the risk and, thus, the higher the willingness of consumers to adopt (Calitz & Cullen, 2016). Therefore, one can hypothesize that PCRED directly influences the behavioral intention to use mobile banking.

Perceived self-efficacy is another component of TAM2, which affects consumer acceptance and usage of mobile banking. In the context of mobile banking, perceived self-efficacy refers to the judgment of the ability of an individual to use mobile banking (Al-Dmour et al., 2021; Tianhui et al., 2021). Chawla and Joshi (2017) determined that perceived self-efficacy is a necessary capability in using mobile banking services. Studies

in the field of mobile banking provide support for self-efficacy as a crucial determinant that influences consumers' decision to use mobile banking (Chawla & Joshi, 2017). When customers can perform banking transactions securely, they intend to use mobile banking. Yuen et al. (2021) asserted ability to improve perceived self-efficacy exists if consumers gain exposure to more education programs, short courses, or awareness seminars on the subject. This strategy will enhance the knowledge and skills of mobile banking in individual consumers (Aldammagh et al., 2021). Consequently, it is reasonable to infer that perceived self-efficacy directly affects the behavioral intentions to use mobile banking (Hu et al., 2019).

The other factor that influences the willingness of consumers to adopt and use mobile banking is *perceived financial cost*, referring to the extent to which an individual believes that using mobile banking will cost money (Chawla & Joshi, 2017). The cost of using mobile banking comes in different forms and may include transaction and device costs. A perceived acquisition cost is one of the significant barriers to adopting innovative new technologies such as mobile banking (Yoon et al., 2020). In that line, Ho et al. (2020) and Yoon et al. (2020) also suggested that perceived costs significantly affect the behavioral inclination to utilize new technology like mobile phones for business purposes. As the cost of using new technologies is high, researchers inferred less about their usage and popularity (Yoon et al., 2020). Because cost is a crucial factor when using innovation, reducing the cost will likely lead to the adoption of the innovation by price-conscious consumers (Breidbach et al., 2020; Panisi, 2017). Thus, the perceived financial costs will negatively impact the behavioral intention of consumers to use mobile

banking (Aldammagh et al., 2021). All these components of TAM and related factors affect mobile banking adoption in Nigeria (Olaleye et al., 2022)

Mobile Money. *MM* is a fast, convenient, affordable, and secure means of transferring money, making payments, and conducting other transactions using mobile phones and handheld devices. Some services available through MM include person-to-person fund transfers and person-to-person business payments for purchasing goods and services (Ohiani, 2021). Senyo and Osabutey (2020) also claimed that MM has many benefits, such as enabling faster and more efficient financial transfers and increasing trade volume and payments to workers and their families. The high rates of mobile phone network penetration and adoption, lower service fees relative to conventional bank accounts, and lack of affordable alternatives, especially among rural communities, have resulted in the rapid use of MM, especially in developing economies. Today, switching to technology creates channels beyond branch networks that help extend banking and non-banking services to the unbanked, similar to those dispersed by branches.

All the components of TAM (PU, PEOU, PCRED, and social influence) apply to the adoption of MM. Similarly, researchers found the elements of DOI in MM consumer behavior. TAM and DOI are amazingly similar in some constructs and supplement one another (Nwankwo et al., 2021). Some similarities are recognizable between the relative advantage (RA) component of DOI and the PU of TAM; the complexity of DOI and PEOU of TAM, to the extent that some researchers identify the TAM constructs as a subset of DOI (Nwankwo et al., 2021). However, developing different scales for RA and

PU is crucial in MM adoption. Also, complexity and PEOU are too similar to be separated.

This study used the TAM and DOI to review relevant literature on the evolution, acceptance, and use of fintech among consumers in Nigeria and its effectiveness in improving retail banking services. In the TAM, two main factors, PU and PEOU, remain powerfully relevant in MM use behaviors (David-West et al., (2020). The extended TAM introduced other variables that act as valuable factors when investigating the users' adoption of MM (Hu et al., 2019; Kang et al., 2021; Sohn & Kwon, 2020). These factors include cost, age, sex or gender, income level/employment status, type of bank account, location, and level of education. Nwankwo et al. (2021) and Aldammagh et al. (2021) also emphasized the impact of the perceived financial cost on technology adoption as added factors to the original TAM/DOI constructs. The perceived financial cost has a positive association with the intentions of consumers to use MM services (David-West et al., 2020; GSMA, 2017). The cost of using MM can come in different forms, such as device acquisition costs, money transfer costs, mobile network charges, and bank charges, among others. The higher the usage cost, the lower the consumers' willingness to adopt MM services (J. Liu et al., 2020). Additionally, increased affordability of services leads to more willingness by consumers to adopt MM services (Aldammagh et al., 2021).

The TAM emphasizes the importance of trust as a primary construct variable because users perform MM services without any face-to-face communications or meetings (Senyo & Osabutey, 2020). Higher confidence levels will lead to more

willingness of an individual to use MM services (Aldammagh et al., 2021; Hu et al., 2019). Individuals would like to engage in transactions where they feel their finances are safe from manipulation and other financial malpractices (Aldammagh et al., 2021). In the context of MM applications and services, perceived risk refers to a consumer's belief regarding the possible uncertain negative results from MM transactions (Senyo & Osabutey, 2020). Conforming to J. Liu et al. (2020), perceived risk is a significant determinant of the intention to use MM transaction services. One can reasonably infer that perceived risk negatively influences consumers' behavioral intention to use MM services. MM provides an excellent opportunity to leverage technology to improve retail banking services.

USSD/Chat Banking. The USSD usage to provide quick banking services to most customers without smart devices is gaining ground in Nigeria (Nigeria's FirstBank USSD service has attracted a significant number of customers, 2020; Nigeria's Sterling Bank offers chat banking, 2020). It is the most popular phone-related banking, as many Nigerians lack smartphones. Customers can enjoy a wide range of banking services using the USSD without the Internet (David-West et al., 2020). The services include data and airtime top-ups for self and third-party individuals, quick balance inquiry, fund transfers, bank verification number (BVN) inquiry, BVN linkage, mini-statement, account number inquiry, account opening, bills payment, and retail loan service (Nigeria's FirstBank USSD service has attracted significant number of customers, 2020). The relative advantage and PEOU purely determine the adoption. USSD service is a platform that bank managers could use to reach out to a wide range of the population. Hence, the

adoption of USSD is vital for using fintech to improve retail banking services and financial inclusion.

Internet Banking. *Internet banking* refers to an Internet or web portal that gives customers various banking services such as funds transfer, viewing of account balances, viewing of statements, and payment of bills (Aduba, 2021). Unlike mobile banking in Nigeria, internet banking has evolved quickly since 2010. Since Internet banking is a relatively huge distribution channel for the delivery of banking services, one must have an in-depth understanding and assessment of the consumers' intentions to use Internet banking (Onah et al., 2021). Several competing theoretical approaches, such as the TAM, DOI, the planned behavior (TPB), and the decomposed theory of planned behavior, are valid models to analyze the determinants of acceptance and usage of new IT such as internet banking (Aduba, 2021).

In Internet banking, PU includes definition as the extent to which technology can offer a means-end relationship, that is, the effectiveness of technology to the desired need (Ebere et al., 2020). The ease of use of Internet banking is an influencing factor in reducing issues dealing with the system's complexities because such a system leads to fewer errors during transactions (Aduba, 2021; Bernard-Azolibe et al., 2022; Ebere et al., 2020; Ohiani, 2021). For this reason, several scholars (Aduba, 2021; Bernard-Azolibe et al., 2022; Ebere et al., 2020) ascertained that PEOU is one of the most important factors influencing the adoption of Internet banking. Aldammagh et al. (2021) also synthesized various components that can fall under ease of use to affect consumer acceptance under

the TAM. One of the crucial components is the ability of customers to access multiple services simultaneously without any delays.

In keeping with the research by Aduba (2021) and Inegbedion et al. (2019), several additional factors can influence user acceptance of Internet banking. Poor internet connectivity, poor navigational possibilities, customer services, and poor interactivity are capable deterrents to customers wishing to adopt internet banking services (Aduba, 2021). Aldammagh et al. (2021) asserted that bank managers should also be quick to offer help on any technical or non-technical issue, leading to improved customer service, which is the focus of this study.

Self-Service Terminals. Another fintech or digital banking channel or platform is the self-service banking terminals (SSBTs). SSBTs are imperative because these terminals ensure convenience to customers, especially for customers who want to transact outside banking hours and during the weekends and public holidays (Inegbedion et al., 2019; Thomas et al., 2019). Some of the most common self-service terminals in banking include the automated teller machine (ATM), point of sales (POS) devices, and contactless devices (Chondough, 2021; Olatokun & Igbinedion, 2009; Thomas et al., 2019;). These terminals are technological interfaces that give customers the ability to produce a service without the direct involvement of a service provider (Inegbedion et al., 2019; Thomas et al., 2019). These self-service technologies have a high degree of acceptance and usage as it is the closest to cash. It is retailing cash. It is the most popular means of electronic transactions in most developing countries (Yusuf et al., 2019). For banks in these countries, encouraging customers to accept and embrace self-service

terminals is easy as it mimics cash. It addresses the trust element of TAM as they feel and see the money instantly. There is also relative PEOU, as all they need do is press or enter their personal identification number (PIN), cash is made available, or payment is completed. The PU is also high as it helps to make cash and payment services available to people at their convenience. However, some risk associated with carrying or retailing cash still exists.

A total of 22,500 ATM terminals and 1.6 million POS terminals are deployed in the country, with the top 10 banks owning over 80% of the ATM and PoS footprints as of December 2022 (Central Bank of Nigeria, n.d.-b). While only banks can deploy and manage ATMs, CBN has licensed payment terminal services providers (PTSP) authorized to deploy and manage PoS and other self-service terminals. Currently, CBN has licensed about 15 PTSPs as of January 2022. CBN also licensed cash-in-transit companies that help with cash replenishments of the ATMs on behalf of the banks. There are eight cash-in-transit companies, with the top three controlling over 80% of the market. Any strategy to improve the retail banking experience needs to develop plans to make cash replenishment for these terminals seamless, as cash-based transactions dominate most third-world economies, which these terminals address (Omodero, 2021). From NIBSS and CBN statistics, these terminals controlled over 50% of the retail digital transactions in Nigeria

Various researchers, such as Babajide and Azeez (2020), Inegbedion et al. (2019), Thomas et al. (2019), and Yusuf et al. (2019), explored some of the factors that influence user acceptance of self-service banking terminals. In their studies, using TAM constructs

to explain the user acceptance and adoption of self-service technologies, PU, PC, and PEOU significantly influence banking customers' willingness to use them. In addition, Ohiani (2021) found that perceived risk significantly affects the adoption of SSBTs. In the context of self-service terminals, perceived risks can include the risk of burglary during a transaction and the risk that the bank managers will not compromise the confidentiality of the customer (Póta & Becsky-Nagy, 2023). Consumers tend to readily accept and adopt technologies that they perceive to be less risky and secure (Ohiani, 2021). Everyone considers safety first when deciding to conduct a transaction using SSTs such as ATMs and POSs (Thomas et al., 2019). The intention to use a certain SSBT is negatively affected if a consumer suspects such a system is unsafe (Ohiani, 2021).

PU refers to the extent to which a person believes a precise system helps meet their needs (Chondough, 2021). In the context of self-service terminals, PU refers to consumers' perception that SSBTs can improve their daily activities (A. Y. L. Chong et al., 2022). Some researchers, such as A. Y. L. Chong et al. (2022) and Inegbedion et al. (2019), used TAM as a reference to propose that usefulness and ease of use act as critical mediators affecting various SSBT acceptance predictors. Madugba et al. (2021) found that SSBTs like ATM have a positive and significant association with earning per share (EPS) and return on asset (ROA), POS significantly affects ROA only, while WEB has an insignificant impact on both EPS and ROA. Madugba et al. concluded that electronic self-service terminals significantly affect the financial performance of deposit money banks in Nigeria.

Therefore, in this study, establishing PEOU and PU as the essential factors gives banks' managers an actionable and concise set of factors influencing behavior towards leveraging fintech to improve retail services. Other factors influencing technology acceptance do so through these two main factors above, as postulated by the TAM. Other factors impacting technology acceptance include age and gender (Ohiani, 2021). In some studies, Al-Gasawneh et al. (2021) and Inegbedion et al. (2019) used individual differences as moderators of technology innovations and acceptance, while others utilized them as determinants of technology acceptance.

According to the DOI, the decision by an individual to accept, adopt, or reject technology includes a determination of five main innovation characteristics. The first characteristic is the relative advantage, which implies that a given technology should be able to offer a given advantage over similar or almost similar technologies (Ohiani, 2021). Consumers will accept technology when it provides a relative advantage, rejecting it if no offer or advantage exists over other systems (Ohiani, 2021). The second factor influencing consumer acceptance of technology is complexity, which refers to the state that a given technology is complicated or intricate (A. Y. L. Chong et al., 2022). In the case of self-service terminals such as ATMs, complexity may mean the perceived complications users will likely experience when using such a system (Yusuf et al., 2019). The more intricate a system is, the more likely customers are unwilling to accept and use new technology (Calitz & Cullen, 2016). The compatibility of a system influences the consumer's willingness to accept and adopt a given technology (Yuen et al., 2021; Yusuf et al., 2019). Such compatibility issues are related to the outcome where two or more

systems can work together with little or no complications. Customers will readily accept a system compatible with other technological devices (Aduba, 2021; Bernard-Azolibe et al., 2022). For example, self-service technologies such as ATMs should be compatible with other devices such as mobile phones (Yusuf et al., 2019). Compatibility is a sure way of ensuring the convenience and flexibility of a specific system, giving users an easy time when using such a system (Parthasarathy et al. (2021). The other innovation characteristic that determines the willingness of an individual to adopt a specific innovation is the level of trialability of such a system (Thomas et al., 2019). Trialability refers to the relative ability of a system to be tried and tested before being put into use (Yuen et al., 2021). The last factor that influences a customer's acceptance of technology is observability, which refers to how proper the internal states of a given system can be inferred by knowledge of external outputs (Parthasarathy et al. (2021). By implication, a system's output should reflect its external attractiveness (Aduba, 2021; Bernard-Azolibe et al., 2022; Ebere et al., 2020).

Technology acceptance may also depend on the type of technology, culture, and the user (A. Y. L. Chong et al., 2022). In that event, Al-Gasawneh et al. (2021) revealed that customers' perceptions regarding individual control and convenience differ depending on personal choices. The latest developments in technology acceptance theory make out various factors that may have a role to play in moderating the influence of acceptance determinants. For example, Schirgi and Brenner (2021) inferred that the TAM proposes that users' experience with new technology and voluntariness of use influence the efficacy of some of the determinants. In this study, the importance exists to determine

if customers' perceived enjoyment/satisfaction impacts their decisions to use any specific digital banking channel, improving customer experience. Banks' managers responsible for leveraging fintech to improve their retail services must know these technology acceptance factors when launching new self-service terminals.

Social Media Banking. Online social media is a disruptor and permissive in Nigeria, underpinned by data. Businesses must recognize the enormous data sets and followers of social media. In this age, the use of social media by corporate organizations such as banks is on the increase. Specifically, the impacts were huge on financial service providers like banks. In 2015, Nigerian banks were slow in leveraging social media. However, they have fully embraced social media usage a few years down the lane. Some Nigerian banks are now gaining visibility with social media (Okocha & Awele, 2020). For instance, the United Bank for Africa (UBA) launched its WhatsApp chat banker, Leo, in September 2018, while Guaranty Trust Bank Plc (GTBank) also announced in the same 2018 that it would be leveraging the WhatsApp business solution to offer Nigerians an additional channel to connect with the bank (Nigeria's UBA, GTBank take banking services to whatsapp, 2018).

Utmost delivery of banking services is one of the primary ingredients to the success of any bank (Calitz & Cullen, 2016). Most bank managers work hard to ensure that their clients receive the best possible services at any touchpoint conducive to a customer (Chul et al., 2020). The banking industry's primary focus is optimizing services to customers because efficient service delivery is a significant driver of loyalty (Alamgir et al., 2021; Chul et al., 2020). Before 2010, customers only maintained contact with the

bank through emails, branch visits, and written letters (Calitz & Cullen, 2016), but most customers now use social media for fast contacts and interactions.

In understanding the changing customers' behaviors toward adopting and using fintech or digital banking and its bearing on customer service, it is imperative to appreciate the role broadband internet communications and smart devices played in this disruptive innovation. As internet access and smart device availability increase, banks and their customers continue to appreciate the evolution of social media and its power to enhance service delivery (Akinwale & Kyari, 2022). With the rising number of internet users and increasing availability of smart devices, the application of social media evolved from individuals to businesses, growing tremendously since 2015 in Nigeria.

Therefore, one can analyze and understand some factors that influence customer acceptance of social media banking using the TAM and the extended TAM2. Many factors explained by TAM and TAM2 affect consumer acceptance of social media marketing. The perceived cost of using the system is one of the critical factors that will impact consumers' behavioral intention to use social media banking (Yoon et al., 2020). Consumers who believe using the new system is costly are less willing to adopt and use such a technology (Durkin et al., 2020). However, as Durkin et al. (2020) posited, social media banking gained popularity and broader acceptance because it is less costly than other e-banking channels. The relatively cheap cost of internet access and smart devices stimulated the growth of social media, including conducting banking transactions. Bank managers must understand how to leverage this opportunity to provide customers with a seamless retail digital banking experience.

Social influence also plays an essential role in influencing consumer acceptance of adopting a given technology (Akinwale & Kyari, 2022). Social influence refers to the influence of other people actively using social media banking. It positively correlates with the behavioral intention to adopt and use social media banking (Akinwale & Kyari, 2022). Sadeghi and Mehrani (2018) inferred that the perceived risk of a given technology also plays a significant role in influencing the willingness of consumers to accept or reject a system. Ohiani (2021) argued that perceived risk concerns transaction uncertainty. A higher perceived risk leads to low customer acceptance of new technology and vice versa. Perceived risk is critical when evaluating the adoption rate of social media banking in Nigeria. Subsequently, trust plays a vital role in influencing the behavioral intention of consumers to adopt a specific technology (Sohn & Kwon, 2020). Trust refers to the psychological state that involves the discretion to accept the vulnerability of positive expectations to other behavior (Aldammagh et al., 2021; Hu et al., 2019). Consumers tend to be more inclined to accept and adopt trustworthy systems more often than those less trustworthy (Sohn & Kwon, 2020).

Perceived self-efficacy of a given system also influences the behavioral intention to adopt a given system or approach (Yuen et al., 2021). Self-efficacy positively influences a consumer’s behavioral intention to adopt and use any new system. The perceived security of a system also influences the behavioral intention to adopt and use a system. Perceived security refers to how a given technology is secure to a consumer (Durkin et al., 2020). Customers quickly adopt a technology if they perceive the new system to be safer than a system that does not guarantee security (Ohiani, 2021).

Satisfaction also influences the behavioral intention of consumers to adopt an approach or a system (Bankuoru et al., 2021). *Satisfaction* is a feeling that emerges from a consumer's experience with a given product or service (Durkin et al., 2020). Durkin et al. (2020) asserted that consumers are more willing to adopt social media banking if they derive more satisfaction from this innovative banking channel.

Similarly, perceived security and satisfaction are two factors that will impact a customer's decision to embrace such fintech. Subjective norms also influence the behavioral intention of consumers to accept a system (Bankuoru et al., 2021). The norms represent different expectations from others to perform a given behavior and how a person uses a specific system by perceiving their conduct by referencing people such as friends and family members (Akinwale & Kyari, 2022). The level of education also influences the intention to adopt and use social media **(**Department of Works and Pensions, 2014). Low literacy levels, especially in developing countries, are a setback to the use of social media banking. Illiterate customers find it challenging to memorize and change their social media login passwords and credentials, thus rejecting the service (Hazan et al., 2021). Akinwale and Kyari (2022) proclaimed that gender differences also play significant roles in adopting social media. As Chondough (2021) stated, more females accept and embrace the use of social media, and as such, more females than males can adopt social media banking. The work of these researchers showed that various factors impact the acceptance of technology, such as social norms, level of education, gender, and type of smart devices (Akinwale & Kyari, 2022; Kuchciak & Wiktorowicz,

2021; Ojagh et al., 2020). In this study, I examined how these factors influenced the leveraging of fintech to improve retail digital banking services.

E-Commerce. The wave of these digital mobile telecommunications and other fintechs brought numerous digital electronic banking services, enabling the growth of branchless banking in Nigeria. As the digital divide narrows in Nigeria, efficient digital ecosystems are emerging, allowing individuals and businesses to perform banking transactions with a mere "click" on digital devices. The results are lowered transaction costs and accelerated business and economic growth, especially for developing economies (Madugba et al., 2021). Also, with internet and mobile penetration estimated at 80% as of 2020, Nigeria has become Africa's largest market in digital mobile telecommunication and other digital ecosystems associated with the emergence of mobile technologies (Gillwald et al., 2018; GSMA, 2021). According to GSMA (2019), of the 62 million new mobile subscribers forecasted for 2020, 32 million came from Nigeria, higher than all other countries in sub-Saharan Africa.

Taking advantage of this digital transformation, the CBN introduced several monetary policies, namely, the mobile payment system and the Payment System Vision 2020 (Central Bank of Nigeria, 2003), the cashless policy (Central Bank of Nigeria, 2011), and the financial inclusion policy (Central Bank of Nigeria, 2018). These policies led to the proliferation of various e-commerce platforms. E-commerce platforms exist for retail lending, bill payment, payment aggregation, marketplaces, e-wallets, revenue collection portals, and online shopping malls. Some of these platforms are now being

offered by CBN-licensed fintech companies like Fluterwave, Paystack, and Remitta, in addition to those provided by banks.

Electronic banking (e-banking) refers to a method of banking where the customer electronically conducts transactions (Aduba, 2021; Nwankwo et al., 2021). E-banking emerged as one of the most profitable electronic commerce applications from 2005 forward. Functionality and flexibility are the key features customers consider the most significant for using electronic banking (Aduba, 2021; Ebere et al., 2020). Ohiani (2021) inferred that with the present growth in internet technology, e-commerce plays a crucial role in online transaction platforms, supporting many electronic business applications such as online auctions, online shopping, and the creation of online marketplaces, among others using electronic payment options. The expectation is that the growth in Internet technology will be a driving factor behind the increase in digital banking services. E-banking offered many banks and financial institutions the ability to reduce costs related to physically serving customers, shortening the processing time, enhancing the quality of services, and the flexibility of business transactions (Akinwale & Kyari, 2022; Ohiani, 2021; Ololade & Ogbeide, 2017). From the customer's perspective, e-banking enhances flexibility and convenience. However, a good acceptance of such services is crucial for such a service to be generally adopted for regular use (Aduba, 2021; Nwankwo et al., 2021).

In reviewing the consumer intention toward electronic banking services, using the TAM, the three major factors that influence the intention to adopt e-banking include social norms, PU, and PR will be considered (Nwankwo et al., 2021; Ohiani, 2021;

Ololade & Ogbeide, 2017). Conversely, TAM2 revealed that perceived self-efficacy, financial costs, PU, PEOU, PCRED or service trust, and social influence positively and significantly impact users' willingness to adopt an innovative solution in Nigeria (Akinwale & Kyari, 2022). Aduba (2021) and Ebere et al. (2020) also revealed that cost and the perceived characteristics of innovation ((PCIs), i.e., relative advantage, compatibility, complexity, trialability or demonstrability, and observability) as captured in DOI also impact PU and PEOU. Based on the review of common retail innovative platforms in Nigeria, the use of fintech as an innovation tool in the retail banking space, the impact of quality retail service on the operating cost of banks, the importance of PU, ease of use, and intention to adopt technology are considered critical for bank managers leveraging fintech to improve retail banking services. In this study, both the TAM/TAM2 and DOI were appropriate conceptual frameworks in evaluating the adoption and leverage of fintech.

Conceptual/Theoretical Basis for the Study

Technology acceptance is the willingness of the intended users to employ technology for the designed purpose. Over the years, researchers demonstrated interest in understanding the factors or user-planned behavior influencing the adoption of technologies in various settings. The DOI (Rogers, 1995) is the primary conceptual framework in this study. In addition, I also used the TAM (F. D. Davis, 1989) to measure the TPB (Ajzen, 1991) of users in accepting and using technology as alternative theories.

DOI Theory

Rogers (1995) developed the DOI theory. The DOI theory focuses on the following: relative advantage, compatibility, complexity, trialability, and observability(visibility) as critical to the adoption of new technology or innovation (Parthasarathy et al., 2021; Yoon et al., 2020; Yuen et al., 2021; Zhao et al., 2022). *Relative advantage* is the degree to which new technology or innovation provides more significant intrinsic benefits or values than others (Yoon et al., 2020). The higher the relative advantage, the more likelihood of adoption relative to others (Yuen et al., 2021). *Compatibility* is the perceived strategic fit of innovation with existing values, experience, and needs (Yuen et al., 2021). High compatibility would likely enhance the adoption of an innovation (Yoon et al., 2020). Yoon et al. (2020) described *complexity* as the extent to which innovation is relatively easy to deploy, understand, and use. Usually, the complexity of innovation functions as an inhibitor for successful implementation; it is usually negatively associated with adoption. *Trialability* refers to the degree to which an innovation is triable before its adoption (Rogers, 1995). It focuses on the triable quantifiable outcome or benefits of using the innovation (Yuen et al., 2021); the more effortless the trialability of innovation (also including the easier the usage, learning, and explanation to others), the more likely of adoption (Venkatesh et al., 2003). *Observability* is also the communicability of innovation that enables consumers to ascertain whether others can socially observe the innovation usage process for perceived status and value enhancement (Yuen et al., 2021). It also addresses the usefulness (F. D. Davis, 1989; Ghazali et al., 2020), ease of use, and social learning or provides an opportunity to

personalize exclusive offers/benefits and preferential treatments (A. Fan et al., 2021; Huang et al., 2020; Yuen et al., 2021). The higher the visibility, the higher the probability of adoption (Yuen et al. (2021).

DOI theory applies to this study because its constructs are suitable for identifying and labeling emerging themes. DOI is used as the conceptual framework to deductively formulate a set of qualitative research objectives, questions, and processes and set all aspects of the data collection and analysis around relative advantage, compatibility, complexity, trialability, and observability(visibility) in measuring user experience, ease of use, usefulness, and consumer behavioral intent to adopt technology-enabled services, and fintech providers.

The relevance of the DOI in this study was that it is the foundational premise for explaining customers' and bank managers' behaviors and strategies to adopt fintech as a reliable alternative platform for retail banking service delivery in the modern global digital economy. Generally, the theoretical/conceptual frameworks help make informed decisions about the research philosophy, designs, strategies, methodology, and data analysis techniques (Lemon & Hayes, 2020; Lochmiller, 2021). As a researcher, my philosophical views align more with Stake (2005) but differ slightly. I started with DOI as a conceptual framework and then used alternative theories to review relevant literature and analyze the emerging themes.

DOI also focuses on how these products or services are created, diffused, adopted, and adapted over space and time and their usage throughout the life cycle. Hartley et al. (2021) explored blockchain adoption intentions for supply chain applications using the

DOI and institutional theory. Yuen et al. (2021) also applied the DOI in determining the factors that affected the adoption of the automated vehicle, while Huang et al. (2020) examined the derivation of factors influencing the diffusion and adoption of an open-source learning platform. Hari et al. (2022) applied DOI in examining the use of chatbots by banks. In addition, L. Fan (2022) used DOI to examine investors' internal characteristics, including investment literacy, risk tolerance, and familiarity with mobile financial services, as antecedents of mobile investment technology adoption among American investors. Levratto et al. (2021) also used empirical data about people's digital mobile reading experiences to analyze smartphone dependence through a small-scale qualitative study involving informants from three European capital cities. Ohiani (2021) applied the elements of DOI in examining the prospects and challenges of technology innovation in the Nigerian banking system. In further consideration of DOI use in the Nigerian banking industry, Okoye et al. (2019) noted that the shift to value and user experience is the central focus of most innovations rather than the features and attributes of the innovation output. In this study, I used this conceptual framework to identify and label emerging themes banks use to leverage fintech to improve retail banking services from the lens of DOI. At the same time, the TAM and TPB were helpful in the literature review and thematic analysis as alternate theories.

The TAM Concept

The TAM by F. D. Davis (1989) addressed the PEOU and PU in determining the intention to use and accept technology. Davis postulated that the TAM measures how individuals perceive technology's usefulness, ease of use, and behavioral intention to use

technology. The basic TAM suggests PEOU and PU as the most critical determinants for technology acceptance among people (Akinwale & Kyari, 2022). Hu et al. proposed an improved TAM incorporating good determinants of how users adopt fintech services. Hu et al. (2019) comprehensively and concretely analyzed the influencing factors and their relationship with Fintech services' adoption. It extends the applicability of traditional TAM models by considering more factors influencing the users' adoption, such as the PCRED of the technology and social influence. Hu et al. provided valuable information for adjusting bank marketing strategies and implementing strategic goals to meet changing needs. Changing users' behavioral intentions by adjusting the influencing factors when providing financial and technological products is significant for developing banks in the digital age. Hu et al. contributed to the literature on adopting fintech services by providing a more comprehensive view of the determinants of users' attitudes by combining trust in fintech services with TAM.

Technology adoption also depends on the institutional structure supporting the technology deployment. Kang et al. (2021) investigated how institutions influence the adoption of new IT using the institution-based technology acceptance model (ITAM). Kang et al. conducted an empirical test using survey data collected from 300 employees in the public sector, and structural equation modeling was applied to test the hypotheses. The results showed that the total effect of both external and internal institutions on the intention to use new technology is positive and significant. The external institution takes a greater role in inducing PU, ease of use, and social influence than the internal. Kang et al. also observed that PEOU and usefulness mediate institutions and technology adoption.

An alternative expanded model considering more individual and organizational factors agrees with the TAM. Kang et al. concluded that if digital-based new technology is assumed to be the new means of information usage, it would only strongly differentiate the behavioral patterns of new technology adoption from conventional technology use if the institutional impact was present. In addition, the applications of new technology in the fourth industrial revolution to confront emerging challenges are constantly increasing. However, this technological use would only be as effective when considering users' perceptions and behavior (Yoo et al., 2019). Kang et al. encouraged further studies to explore the issues and practices of new technology and its effectiveness in the context of determinants.

Furthermore, offering greater insight into usage and utilization, Kang et al. recommended using multiple-case studies to investigate more interpretive research of new technology in the fourth industrial revolution phenomena. Kang et al. related the strategies of leveraging fintech to improve the quality of retail banking services to the roles of retail bank managers, fintech providers, and customers within the context of the chosen conceptual framework. TAM helped examined the driving intent of customers to use fintech platforms and bank managers to leverage fintech to improve the quality of retail banking services.

The TPB Concept

TPB by Ajzen (1991) posits that behavioral intentions drive individual behavior. Behavioral intentions are a function of an individual's attitude towards behavior, subjective norms, and perceived behavioral control. Assessing one's beliefs regarding the

consequences arising from behavior and evaluating the desirability of these consequences determines TPB. Huang et al. (2020), Mohr and Kühl (2021), and Sharif and Naghavi (2021), applied this in the determination of the behavior of customers toward technology innovations. Applying the TPB helped review the behavioral intention of using fintech platforms by customers for retail services and bank managers to improve the quality of retail banking services.

The theoretical contributions on technology acceptance and policy implications for deepening financial inclusion are vital for leveraging fintech to improve the quality of retail banking services. It also impacts the customer's behavioral influence on the quality of retail bank services and fintech development. Researchers could view these behavioral intentions from a framework viewpoint based on a theory or concept. In summary, in this study, I used the DOI theory (Parthasarathy et al., 2021; Yoon et al., 2020; Yuen et al., 2021) as the primary framework. I used the improved technology acceptance model (TAM2) by Hu et al. (2019), Kang et al. (2021), and Sohn and Kwon (2020) along with the TPB concept (Mohr & Kühl, 2021; Sadeghi & Mehrani, 2018; Sharif & Naghavi, 2021; Winkelman et al., 2020) as alternate theories to elucidate the aspects that influence users' acceptance of technological innovation such as fintech.

Conclusion and Relevance of This Literature to the Study

This section provides a good starting point for a literature review on strategies for leveraging fintech to improve the quality of retail banking services. They contain evidence-based information on fintech and a sufficient understanding of previous related research and conceptual frameworks. In this literature review, I highlighted the critical

factors influencing customer acceptance of various fintechs and their effects on the quality of retail services. I utilized two main conceptual frameworks, the DOI and the TAM, to explore the improvement strategies. In localizing it to Nigeria, the review considered the following common retail fintech platforms: mobile banking, MM, USSD/Chat banking, internet banking, self-service terminals, social media banking, and e-commerce. Some common factors that affect the behavioral intention of consumers to adopt financial technologies include perceived self-efficacy, PU, PR, PEOU, PCRED, social influence, and the availability of information regarding the use of IT systems. These factors influence consumers' intention to adopt most fintech platforms.

Overall, the five components of the extended TAM2 explain the ability and willingness of consumers to accept and use all the common fintech platforms. Each of the five components impacts the consumer's willingness to accept and use retail fintech banking platforms differently. Akinwale and Kyari (2022) revealed that PU, PEOU, PCRED, or service trust and social influence positively and significantly impact users' attitudes towards fintech service. In addition, users' attitude toward technology positively influences the adoption of fintech services. Yuen et al. (2021) also revealed that cost and the perceived characteristics of innovation (PCIs, i.e., relative advantage, compatibility, complexity, trialability, and observability), as captured in DOI, impact PU and PEOU. Based on this review of these common retail platforms, the use of fintech as an innovation tool in the retail banking space, the impact of quality retail service on the operating cost of banks, and the importance of PU, ease of use, and intention to adopt

technology are considered critical for leveraging fintech to improve retail banking services.

In the Nigerian banking industry, there is increased development and acceptance of various banking technology platforms, making it essential for banks to find ways to innovate and automate customer services and ensure that customers embrace and accept such technologies. With the rising technological use in the banking sector, banks in Nigeria must ensure that consumer satisfaction with these platforms is at the forefront of their strategies to remain competitive in the global industry.

Transition Statement

Section 1 included a description of the background of the study, problem statement, purpose statement, nature of the study, research question, conceptual framework, operational definitions, assumptions, delimitations, limitations, and significance of the study. The literature review concluded the section with details about fintech, the application of TAM and DOI as conceptual frameworks, and the quality of technology-enabled retail platforms in Nigeria.

In Section 2, I provide a comprehensive summary of the study's purpose, the researcher's role, study participants, population and sampling, and ethical research. I described the research methods and designs with descriptions of the approaches used and the rationale for selecting the specific approaches. Section 2 also includes explanations of data collection instruments and techniques with descriptions of the data analysis procedures and the plan for the reliability and validity of the interview instruments and statistical procedures. In Section 3, I present the research findings, cover the application

to professional practice the implication for social change, and offer recommendations for further research, reflections, and conclusion.

Section 2: The Project

The purpose of this qualitative multiple-case study was to explore strategies that bank managers use to leverage fintech to improve their retail services in Nigeria. In the literature review in Section 1, I identified the range and scope of current research on this topic. Section 2 describes the research methodology and procedures I used in this study. Section 2 also includes the purpose statement, the role of the researcher, participants, research method and design, population and sampling, ethical research, data collection instruments, data collection technique, data organization technique, data analysis, reliability, validity, and saturation, and ends with a transition and summary.

Role of the Researcher

The researchers' role in their study is to recruit participants, collect data, analyze data, report findings, and ensure that the data collected are sufficient and valid to meet the study requirements (Cairns-Lee et al., 2022). This role is critical to any research and must follow the acceptable standard in achieving the research objectives. Miguel (2022) and Roberts (2020) explained that the role of the researcher in their qualitative study is to serve as the primary data collection instrument. As the primary data collection instrument in this qualitative multiple-case study, my role included recruiting and interviewing participants, analyzing information and data, and managing the interview process.

Relationship With Participants and Topic

Establishing a good relationship with the participants is a significant role of a researcher, and a good understanding of the research topics aids the researcher in data collection. During the data-gathering process, the researcher should provide the

participants with a conducive environment to conduct an informed interview with complete confidentiality and privacy of their information (Resnik et al., 2020; Tshiani & Tanner, 2018). Resnik et al. (2020) also emphasized discerning how to interpret and apply various ethical standards in research, as existing ethical codes may only cover some situations. To ensure the creditability and reliability of the data, the researcher must use open-ended questions, recording(s), journals, and documentation to gather data (Constantino, 2021; Ebenso et al., 2021; Saldana, 2016; Saunders et al., 2016). I conducted all the interviews at the convenience of the participants. The participants answered each interview question openly and without obstruction and was free to exit anytime.

I have extensive professional work experience concerning the topic of this study. This experience includes about 30 years working in the banking sector at different senior levels, including 20 years in the IT department implementing various banking projects and another 10 years on the business side as branch manager, head of cards division, head of retail banking, and head of e-business. Furthermore, I served as chairman of the salary and pension working group of the CBN 2010 National Payment System Committee for 5 years.

The experience and expertise in the subject area of this study helped me collect and analyze data. These work experiences supported my ability to identify the most appropriate participants for this research, understand their responses, and ask meaningful follow-up and probing questions. I ensured that I had no prior professional or personal relationship with the prospective participants. However, experience and knowledge in

this area helped build rapport with the participants. This professional experience and knowledge were also helpful in data analysis.

Research Ethics and the Belmont Report

In this study, the researcher's role included maintaining high ethical standards in every research stage. Research ethics refers to the standards of behavior that guide conduct and the rights of those involved in the study. The *Belmont Report* provides a framework for ethical research. To fulfill the ethical principles for using human subjects for research, I applied the report's three ethical principles of respect for persons, beneficence, and justice in this study (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). Accordingly, a researcher should (a) respect every individual who participates in a research program, (b) maintain the confidentiality of the study participants, (c) accept their answers without any prejudice, and (d) report their responses without any judgment. I sought and obtained the necessary permissions to conduct the study from the bank's management and the institutional review board (IRB) of Walden University. I also used informed consent to ensure that research participants understood their rights, obtained their consent to participate willingly and be free to exit at any time.

Furthermore, I encouraged open and honest participant responses to ensure I could draw valid conclusions based on reliable data. As the primary data collection instrument, I led the inquiry with open-ended questions in a semistructured virtual interview. The names of the participants and banks were protected and kept confidential. I observed all ethical protocols consistent with the *Belmont Report* (U.S. Department of

Health and Human Services, 2017). I have also completed the National Institute of Human Web-based training course to guide the development of the interview protocol and the conduct of the interviews.

Finally, the researcher must avoid generalization, personal bias, and other unethical considerations (Bell et al., 2020; Husband, 2020; Zapata-Barrero & Yalaz, 2020). I followed the guidelines, as recommended by the *Belmont Report* (U.S. Department of Health and Human Services, 2017), to conduct this research in a trustworthy manner to reduce bias and protect participants' privacy and dignity.

Managing Bias

The researcher's role in this study included mitigating bias in data collection and analysis. Bias is any trend or deviation from the truth in design, participant selection, data collection, data analysis, interpretation, and publication that can cause false conclusions (Farrar et al., 2021; Mackieson et al., 2019; Marbin et al., 2021). Farrar et al. (2021) noted that bias can occur intentionally or unintentionally. The researcher must ensure that the information gathered face-to-face is authentic and trustworthy (Hamilton, 2020; Mackieson et al., 2019). At a personal level, the researcher must block all personal biases to ensure that the participants act freely to obtain reliable and meaningful results (Ergün, 2017; Farrar et al., 2021; Hamilton, 2020). In qualitative research, where evidence is not readily available, researchers need to become an instrument themselves and rely on their interview questions (see Yin, 2018). As suggested by Saunders et al. (2016), I mitigated the researcher's bias by (a) generating increased awareness of perceived bias, (b) maintaining focus on the study interview questions, (c) adhering strictly to the research

design, (d) avoiding handing off sensitive data to third parties, and (e) concentrating on verifying and sharing findings with others. The interviews were conducted based on the professional relationship with the selected participant to mitigate a biased result (Cairns-Lee et al., 2022).

I used several methods to avoid or minimize bias in this study, such as interview protocol, triangulation, member checking, peer reviews, transcript review, and use of NVIVO for analysis. I collected data from multiple sources to be sure collected data samples were from different groups in the target population and achieve data triangulation. I verified every piece of data collected before data analysis to check consistency with other data sources. I sought research participants' help to review the findings to check for wrong interpretations and misrepresentations of their beliefs and peer reviews of the conclusion to ensure consistency and identify any gaps in the arguments. The information gathered from participants followed an interview protocol with appropriate probing questions related to DOI as a framework and addressing the research question. The data collected offered unbiased, valuable insights regarding the most effective strategies for leveraging fintech to improve the quality of retail banking services.

However, reflexivity is a concern when conducting this research study. Reflexivity is another essential aspect of data collection (Dodgson, 2019). Although personal bias could be avoided, the researcher is an integral part of the overall research effort, and the personality cannot be completely isolated from the process (Jesmi et al., 2020). The protocols, procedures, and processes followed reflect directly on the

creditability of the researcher and the associated level of self-awareness (Jesmi et al., 2020). Personal perspectives were documented in a reflection journal or diary for periodic rumination to aid in the subsequent decisions in the study (Jesmi et al., 2020). I periodically sought confidential assistance from fellow researchers through a study group to review the study reflection journal and converse weekly regarding feelings, thoughts, and actions within the research inquiry. According to Borraz et al. (2021), the emotional weight of academic research is differently perceived when shared. As such, other researchers' perspectives helped to illuminate any biases that I may have inadvertently exerted within the confines of this research study. Managing reflexivity could affect the interpretation of participant's responses (Ananth & Maistry, 2020; Cairns-Lee et al., 2022). I managed the relationship with the ethical standard by ensuring that prior preconceptions, beliefs, values, assumptions, and positions do not interfere with this research process.

In this study, I used an interview protocol (see Appendix A) to conduct interviews. The interview protocol involves probing, remaining silent, knowing when to ask follow-up questions, building relationships, and learning from others' experiences (Dunn et al., 2021; Marbin et al., 2021; S. Wang et al., 2021; Youn et al., 2021). Using the interview protocol helped ensure that I asked each participant the same initial interview questions (as listed in Appendix A).

In a qualitative study, researchers guide participants in the interview process through an engaged approach and are cautious not to dictate or direct the thought process of the study participants (Durkin et al., 2020). An interview protocol helps to guide the

collection of data that aligns with the research questions and purpose (Dunn et al., 2021; S. Wang et al., 2021; Youn et al., 2021). I established an interview protocol that consisted of a series of interview questions to explore and elicit participants' perspectives and experiences.

In addressing the problem and purpose of the study, the data that I collected determined the design of each target and follow-up interview questions. All interviews were conducted based on the interview protocol designed for this study (see Appendix A). I have sufficient experience and knowledge in bank operations in Nigeria to enable good rapport with interviewees and to ask the right questions. This improved the validity of the interviews. Therefore, most questions are short, at most 20 words, excluding possible answers, and aligned to the research question (see Ebenso et al., 2021). Christensen et al. (2022) and Yin (2018) concluded that following an interview protocol is a significant step to ensure that the data collected by the researcher can answer the research question. With these in mind, I used the developed interview protocol to explore practical strategies for leveraging fintech to improve the quality of retail banking services. Following this role of participant recruitment, collecting valid and reliable data with approved interview protocol, and ethically managing the interview process helped explored strategies that bank managers use to leverage fintech to improve their retail services.

Participants

Participants in a study play a critical role in shaping the research. Researchers use different strategies to manage participants' activities in research studies (Oravcová &

Slačálek, 2020; Steinmetz et al., 2021). Researchers determine how the context of participation, setting, and processes align with the research question, which is critical to ensuring the eligibility criteria of study participants (Azizi et al., 2020; Khan & Jabeen, 2019). In this study, the participants were retail bank managers across two banks in Nigeria and their retail banking customers.

The participant's eligibility criteria included bank managers and heads of digital and retail banking who have at least 5 years of work experience as a bank manager and have successfully implemented strategies to leverage fintech to improve retail banking experience. The criteria also include customers who have used the bank's fintech retail platforms for at least 1 year. Data were collected from a purposeful sample comprising six bank managers and five customers from partner banks in Lagos and Abuja. The customers were from each of the two banks and one from a non-bank customer using a fintech platform. These established selection criteria ensured that the participants' experiences contributed to this study and that the participants addressed the strategies bank managers use to leverage fintech to improve retail services.

Gaining Access to Participants

Access to the participants is vital to data collection, and researchers must take adequate ethical steps to have unhindered access to participants. I had site partnership agreements for the interviews signed by the authorized officers of the banks. Based on the site partnership agreement, the two bank's management provided the contact information of their bank managers and customers who may participate in this study. I reached out to them with consent forms. With experience on the research topic and work

experiences, I was able to identify from the list the names and contact information of six bank managers who have at least 5 years of work experience as a bank manager and have successfully implemented strategies to leverage fintech to improve their quality of retail banking experience.

I created a protocol explaining the study's purpose, background, specific business problem, and the assurance of confidentiality. I used the protocol to guide interaction with the identified participants by providing the necessary context to equip participants to answer the interview questions adequately. This protocol was subsequently used with research participants to ensure they thoroughly understood the study. In preparation, I cross-checked prospective participants' information provided by the partner banks using LinkedIn, online public directories, and other publicly available information. Purposive selection criteria also ensured that participants met the eligibility criteria based on their published biographies and experience. Although formal recruitment efforts of participants did not begin until the IRB approval, I discussed with professional networks to learn more about the prospective participants (see Walden University, 2021). The discussion served as a foundation for building fruitful and trusting relationships.

Strategies for Establishing a Working Relationship With Participants

Qualitative researchers rely heavily on the informed research interviews of the selected participants. The relationship between the researcher and the participants plays a vital and dynamic role in eliciting and comprehending the individual experiences of each participant (Durkin et al., 2020; Harvey, 2017; Owor, 2022). This relationship is a basis for data collection (Goodwin et al., 2020; Harvey, 2017; Smith et al., 2022). In managing

the relationship, researchers should ensure neutrality so that participants' responses are not influenced (Yin, 2018). Goodwin et al. (2020), Harvey (2017), and Roberts (2020) also included considerations such as the researcher's personality, mannerisms, physical appearance, and dressing that need to be restrained and filtered to conscious neutrality so that participants' responses are not affected.

Furthermore, Harvey (2107) cautioned on situations where researchers and participants share particular identities and experiences. This circumstance may result in participants not responding candidly or outspokenly due to the perceived *espirit de corps* (Harvey, 2017). Ultimately, being knowledgeable of the conscious and subconscious aspects of the researcher and participant relationship inevitably assists researchers in establishing the most trusting and impartial relationship for the most reliable and valid data collection (Self & Ryazantsev, 2021). Virtual platforms could also create a false sense of distance and improve the relationship (Ali et al., 2022; Dwivedi et al., 2022).

Initial contact with potential participants was through an introductory email to the bank's Chief Executive Officer. The email provided a cursory explanation of the study, a brief background of the researcher, and a request to use their banks for this data collection. The bank sent a site agreement to use their banks with a list of prospective participants. After potential participants affirmatively responded to the email invitation to participate in the study and an initial agreement for a meeting had been established, efforts shifted to establishing relationships with the participants. I had at least one voluntary introductory phone call, or WhatsApp chat to create a stronger foundational relationship with the listed participants, along with emails to them addressing

clarification questions, a general interview timeline, and a data collection plan to set expectations. Yin (2018) recommended establishing protocols that provide an introductory overview of the study and set expectations for the participants. Once the potential participants met the established criteria and agreed to be engaged in the study, I obtained a signed consent form from each participant in addition to answering any further questions that they may have, which is a best practice according to Walden University's IRB (see Walden University, 2021). I assured each participant of strict confidentiality and safeguarding of the study's data, which helped establish a more trusting relationship with the participants and alignment with the overarching research question.

Research Method and Design

Research philosophy deals with ways of developing knowledge in research concerning a phenomenon. The research philosophy helps precisely understand the researcher's assumptions (Kenaphoom, 2021). According to Saunders et al. (2016), philosophy could be positivism, critical realism, interpretivism, post-modernism, or pragmatism. The development approach could be inductive, deductive, or abductive (Liew et al., 2018). Saunders et al. (2016) classified the assumption concerning knowledge as epistemological, the realities as ontological, and the extent of the research as axiological. There is a linkage between these assumptions, and they impact different research aspects, such as the method and design (Al-Ababneh, 2020). The research method and design serve as a comprehensive road map for the researcher to progress from a problem statement to a conclusion reliably and validly (Sileyew, 2019). Although

the research method and design are closely intertwined, both are necessary for a successful research study.

Research Method

The *research method* defines how the research is conducted. Research methods refer to the techniques and procedures used to collect and analyze data (Saunders et al., 2016). Researchers must decide between using a qualitative, quantitative, or mixed method. (Saunders et al., 2016)

This study applied qualitative methods to describe strategies retail bank managers use to leverage fintech to improve the quality of retail banking services. The qualitative method enables in-depth exploration of the phenomena on related research questions (Pitari et al., 2020; Reis et al., 2019). I used the qualitative method because the research purpose is to produce a rich description to answer the overarching research question: What strategies bank managers use to leverage fintech to improve retail services? I used the qualitative method to provide substantial evidence for leveraging fintech to improve the quality of retail banking services to answer this research question.

Researchers use the quantitative method to examine the relationships and differences between and among variables (Ahmad, 2020; Inegbedion et al., 2019). Therefore, the quantitative approach is not applicable because the purpose of the study was not to determine the extent and nature of the relationship and differences between variables but to describe improvement strategies bank managers use to leverage fintech in improving retail banking services. Mixed methods research comprises quantitative and qualitative approaches in a single study (Agu, 2021; Radia et al., 2022; Windasari et al.,

2022). Thus, the mixed method is inappropriate because the study did not require an analysis of quantitative variables.

Thus, in this study, I started with the DOI as a conceptual framework concerning the factors influencing consumer acceptance of various banking technologies. Then, I used the DOI theory to explain bank managers' behaviors and strategies for leveraging fintech as an alternative banking channel. I also examined the behavior of customers and users of financial services regarding fintech solutions. A conceptual framework also provided a foundation for data collection and further analysis (Ridder et al., 2014; Snodgrass et al., 2020). Finally, in this study, I inductively analyzed the data collected, identifying themes and patterns in the data and, at some point, locating this in the existing literature to refine, extend my findings in line with the research philosophy, designs, strategies, methodology, and data analysis techniques.

Research Design

Research design provides the framework and reasoned justification for the data collection approaches and analysis techniques to answer the research question effectively. Qualitative researchers could choose from five types of designs: case study, grounded theory, ethnography, narrative inquiry, and phenomenology (Tomaszewski et al., 2020; Yin, 2018). In this study, I considered four commonly used research designs: case study, phenomenology, ethnography, and grounded theory. I used the case study design for this study.

Researchers use the case study design to address the "what," "how," and "why" research questions (Ahmad, 2020; Inegbedion et al., 2019; Mishra & Dey, 2021; Pitari et

al., 2020; Reis et al., 2019; Yin, 2018). In this study, I used a case study to address the "what" research question: What strategies do bank managers use to leverage fintech to improve their retail services? Although single-case studies can yield invaluable insights, multiple-case studies are likely more rigorous than single-case studies (Yin, 2018). The multiple-case study design met the needs of this research because this study explored strategies managers from different banks use to leverage fintech in improving the quality of retail banking services. The multiple-case study design was appropriate to obtain sufficient and relevant information from bank managers about leveraging fintech to improve the quality of retail banking services across different banks and situations (Agyapong, 2021; Ebenso et al., 2021; Sohn & Kwon, 2020; Yin, 2018).

Other qualitative research designs that I did not select include phenomenology, ethnography, and ground theory. Researchers use *phenomenological* designs to describe a phenomenon's shared meanings, feelings, and lived experiences (Olani et al., 2022; Song et al., 2020). The phenomenological design did not meet the needs of this study because the purpose of this study was not to study the feelings or meanings of participants' lived experiences. Researchers adopt the *ethnographic* design to focus on groups and communities' culture and cultural issues (Ejimabo, 2015). Thus, an ethnological study design was not appropriate because the research purpose is not to study the cultural phenomenon. A *grounded theory* design focuses on discovering new theories (Charmaz & Thornberg, 2021). A grounded theory design was not appropriate because the purpose of this study does not include discovering a new theory.

I ensured data saturation in this study. From the number of participants purposively identified from the partner banks, I planned to interview 11 participants and to continue with additional participants until there was no new information or theme. After the eighth participant, I started getting little information but had to continue the interview to meet the defined number of participants. However, the 11th interview yielded no new information.

Population and Sampling

Defining a study's population and the choice of sampling is critical for research. According to Bougie and Sekaran (2019), sampling is selecting sufficient elements from the population to generalize them to the target population. The significant steps in sampling include defining the population, determining the sampling design, the appropriate sample size, and executing the sampling process (Bougie & Sekaran, 2019). Qualitative researchers use samples within a distinct population to provide critical insight, rich descriptions, and an understanding of the research phenomenon (Boot & Bosma, 2021). Hamilton also noted that qualitative researchers should take two considerations to guide their sampling methods: appropriateness and adequacy. The target population for this study comprised bank managers in Nigeria who have at least 5 years of work experience as a bank manager and have successfully implemented strategies to leverage fintech to improve the retail banking experience.

Sampling Methods

Sampling means selecting the group for data collection as a fair representation of the research population. Choosing an appropriate sampling method enhances the

trustworthiness of research (Alam & Miah, 2021; Bernstein & Youssef, 2019; Kocabaşoğlu & Şahin, 2021; Rathore, 2022; Torkzadeh et al., 2022)). In this study, I used purposive criterion sampling, a non-probability sampling method. Participants were purposively recruited and selected based on specific criteria.

Sample Size

The sample size for this study includes 11 participants with knowledge and experience of the phenomenon under investigation (i.e., in this case, the leveraging and implementation of fintech platforms). Thus, the participants can provide information that is both detailed (depth) and generalizable (breadth) during the interview process. There are no practical guidelines for estimating sample sizes for purposively sampled interviews (Hamilton, 2020; Hennink & Kaiser, 2022; Li, 2022). Nevertheless, the selection criteria helped to ensure the participants provided rich-in-depth descriptions of the emerging themes to answer the overarching research question: What strategies bank managers use to leverage fintech to improve retail services? This study's participants' eligibility was bank managers who have at least 5 years of work experience as a bank manager and have successfully implemented strategies to leverage fintech to improve retail banking experience. I collected data from six bank managers from two banks. Data were also collected from five purposefully sampled customers from these two banks in Lagos and Abuja. The customers were from each of the two banks and one from a non-bank customer using fintech platforms for at least 1 year. Understanding the industry enabled easy identification of two customers from each bank and non-bank customer user

of the fintech platform. These 11 participants provided sufficient data to answer the research question.

Yin (2018) asserted that for replication and compelling support to strengthen the research findings, researchers should conduct six to 10 individual case studies. However, other researchers, such as Morse (2015), argue that the sample size is more subjective and relies on the phenomenon's disposition, longevity, and complexity. Additionally, Morse (2015) stated that the researcher's experience, background, and analytic skills, together with the robustness of the overall interview, can make a predetermined sample size superfluous if adequate saturation is achieved with a smaller number of individual cases. Vasileiou et al. (2018) and Li (2022) also concurred and maintained that sample size in qualitative research stereotypically tends to be modest in numbers due to the focused efforts to select cases with much information pertinent to the specific study phenomenon. I identified, recruited, and selected 11 individual cases from partner organizations as participants for this research study.

I ensured data saturation in this study. According to Moura et al. (2021), little value is achieved when a researcher begins to hear and see the same patterns in data. This phenomenon, also known as *data saturation*, results when no new findings occur and theoretical data sufficiency has been attained (Moura et al., 2021; Saunders et al., 2016). I expected that, from the number of participants purposively identified from the partner banks, data saturation could be reached with 11 individual cases. To achieve data saturation, I conducted 11 interviews initially. If data saturation is not reached, I intended to continue with additional interviews until no new information is obtained. After the

eighth participant, I started getting little information but had to continue the interview to meet the defined number of participants. However, the 11th interview yielded no new information. Interviews were conducted using the Zoom online service, with recording options available if the participant consented.

Ethical Research

Research ethics refers to the standards of behavior that guide conduct and the rights of those involved in the study. In planning for research work, Saunders et al. (2016) advised anticipating all possible ethical issues at the design stage. Researchers ensure that research work does not cause any harm to anybody involved (Saunders et al., 2016). In this study, ethical issues relating to access and pressure were dealt with appropriately by ensuring participation is of free will with appropriate consent obtained and confidentiality of data collected guaranteed (Saunders et al., 2016). These ethical considerations could affect the quality of data and feedback used in the problem analysis. They may lead to wrong or skewed findings, results, and conclusions. I dealt with it as postulated by Saunders et al. (2016) by addressing the design stage, the nature of the research, the clarity of what it takes to participate, the rights and privileges of the participants, the definition of how to use the data collected and clarity on the contact person for any clarification.

The Informed Consent Process

In this study, I maintained high ethical standards in every research stage. Ethics are entrenched in the methodology, conduct, procedures, and perspectives regarding how a researcher designs the research, collects data, and analyzes the data (Dawson et al.,

2019; Yin, 2018). All researchers must faithfully adhere to the strictest ethical standards in all aspects of their research endeavors, protect all human subjects, and abide by the dictates of beneficence, which directs *primum non-nocere* (first, do no harm) (Ayodele et al., 2019; U.S. Department of Health and Human Services, 2017; Yin, 2018). To fulfill the ethical principles for using human subjects for research, I applied the ethical requirements of respect for persons, beneficence, and justice in this study. Thus, before inviting subjects to participate, the necessary permissions to conduct the study from the bank's management and the IRB of Walden University's approval number (**04-25-23-0487989**) were obtained. Researchers commit themselves to respecting the rights of the study's participants. I obtained the site partnership agreement and informed consent forms from participants using the approved templates, while the participants were informed at the beginning that they could exit at any point or were free not to answer any questions as part of the introduction. The use of informed consent ensures that research participants understand their rights. Furthermore, I encouraged open and honest participant responses to ensure I could draw valid conclusions based on reliable data.

Ethical Protection of Participants

Ethics in research are acceptable and unacceptable norms in which participants and researchers are morally and professionally bound and enforced by IRB. Saunders et al. (2016) also noted that the research method or technique might not raise ethical issues, but the nature of the questions and the intended participants. A research ethics committee helps to manage ethical issues (Saunders et al., 2016). For instance, evidence that ethical issues have been considered and evaluated at the design stage is among the critical

criteria for evaluating the research proposal by the IRB (Bloomberg & Volpe, 2019; Saunders et al., 2016; see Walden University, 2021). In obtaining the informed consent, I addressed all ethical concerns associated with data protection and data management affecting the collection, processing, storage, and use of personal and confidential data upfront in the introduction of the research/interview. This assured the participants of compliance and respect for the highest data protection and privacy.

Participants' and Organizations' Confidentiality

Researchers get the optimum cooperation from the participants when the interviews are conducted with high confidentiality. Confidentiality represents the responsibility to protect the privacy rights of all individuals and groups participating in the study and not disclose any identifying information to anyone not directly associated with the research (Colosi et al., 2019). These measures include protecting personal information from unauthorized access and use with intentionally established physical and technological protections, redaction, and non-attributional codes for each participant's covert identification (Colosi et al., 2019). Colosi et al. noted that researchers should (a) respect every individual who enters into a research program, (b) maintain the confidentiality of the study participants, (c) accept their answers without any prejudice, and (d) report their responses without any judgment. Participants were freely allowed to respond, and their confidentiality was guaranteed, with no socially embarrassing questions or questions about trade secrets. I also assured the participants of the confidentiality of the interviews and that their identity and privacy would be protected by using a participant identification number instead of their name, company, or any other

uniquely identifying information in the study. All data collected during the interview will be stored in a safe location in my library for at least 5 years before being permanently deleted. These measures ensured the safeguarding of all research data and the confidentiality of the participants.

I correctly labeled, safely, and securely maintained all research data on USB portable media (i.e., thumb drive) and in a folder on my laptop, which will be kept for 5 years after the study. This datasafe and folder are only accessible by me and are secured further with a password. I did not discuss the participants' confidential and personal information or the data collected with anyone outside of this study. Upon conclusion of the 5-year storage, all data on the USB thumb drive will be destroyed by electronic shredding, and the thumb drive will be entirely reformatted to wipe any attributional metadata remaining on the drive completely. While each research endeavor carries a set of distinct ethical requirements, all researchers must conduct each study to the highest moral, ethical, and professional standards (U.S. Department of Health and Human Services, 2017) to the best of their abilities. These standards guided the conduct of this study without exception.

Participants Incentive and Withdrawal

In ensuring ethical research, researchers adhere to specific standards. The right of voluntary participation is one of the most basic and essential for all research (Trochim et al., 2016). Voluntary participation in research efforts entails all participation in the process at the participants' will and not under the influence of any coercion (M. Davis et al., 2021; Trochim et al., 2016; Verhaeghe, 2021; Yin, 2018). I obtained formal email

consent before any data collection began from every participant, without exception. I informed each person about the study's objectives, procedures, and risks to ensure that all identified individuals were comfortable participating. I also informed the participants that this research inquiry would offer no incentives. In line with the *Belmont Report* instigated by Health and Human Services (HHS) (1979), participants were informed that they could withdraw from the study at their convenience through phone call or email, without repercussions or other negative ramifications or consequences. Participants were also notified that they could review their responses provided during the study at any time.

Data Collection Instruments

Data-collection instruments are tests, questionnaires, inventories, interview schedules, or any other forms used to collect information substantially from participants. Miguel (2022) stated that the most common research instruments used in qualitative research are observation, interview, and document analysis. In this study, I developed an interview protocol (see Appendix A) and was the primary data collection instrument to address the specific problem and purpose of the study.

The interview protocol is to uncover information and the participants' perspectives on a chosen topic; therefore, interviewers should learn to interpret participant cues to improve the interview process (Bloomberg & Volpe, 2019). I was keenly observant of each participant's language, voice control, tunes, and expressions. Semistructured interviews were used, though they may also have a constrained outcome depending on how the questions are asked. Soetan et al. (2020) used semistructured interviews with 26 bank customers and seven top bank managers to examine Nigeria's

financial services experience and consumption. This was from the perspectives of both the customers and managers- service maintenance, service technology, and service dynamics.

Similarly, Mogaji et al. (2021) used semistructured interviews to collect data from the banks' managers and from the bank's published annual reports and archival images to explore how banks in Nigeria are marketing financial services to financially vulnerable customers. Ahmed et al. (2021), through semistructured interviews of 22 customers, explored the effect of web-based information and the Shariah board on the branding of Islamic banks as a good way to address the research question. Mahat-Shamir et al. (2021) also highlighted general interview guidelines to assist researchers in achieving quality interviews in qualitative studies. In this study, I used a semistructured interview for 11 participants in exploring bank managers' strategies to leverage fintech to improve their retail services. The data included responses to the interview questions and organization documentation provided by participants regarding their strategies to leverage fintech to improve their retail services.

Interviews

In addressing the problem and purpose of the study, the design of each target interview question was determined by the intended data to be collected. The interviews were conducted based on the interview protocol designed for this study. Christensen et al. (2022) and Yin (2018) advised that following an interview protocol is a significant step to ensure that the data collected by the researcher can answer the initial research question. With these in mind, I used this interview protocol (as shown in Appendix A) and

interview questions (as listed in Appendix A) to explore practical strategies for leveraging fintech to improve the quality of retail banking services. In this study, the interview questions targeted two key groups: bank managers who deploy these platforms and users/individuals who use the fintech platforms. Researchers must ensure that interview questions align with the conceptual framework (Ebenso et al., 2021; Hendrikse et al., 2020; Pitari et al., 2020). All interview questions related to the conceptual framework to ensure the central research question in the study is addressed, ensuring complete ethical research standards. In line with this, most questions were short, at most 20 words, excluding possible answers, and aligned to the research question. This approach helped improve the interviews' validity (Hartwell et al., 2019).

Documentation

The documentary source is a valuable data source for a researcher. A document is anything in writing, a record, files, or diaries, published or unpublished, which can be extracted and used in research. Researchers stated that, in case studies, secondary data sources such as websites, annual reports, and organizational documents might be beneficial in adding depth to the analysis (Aburaya et al., 2021; Chávez-Martínez, 2022; Owor, 2022)

I retrieved and reviewed information from the bank's annual reports and websites, in this study. I also used secondary data sources from banks' internal reports (not publicly available). The data collected were statistics showing the growth of the different retail banking channels, customer usage information, and evidence of leverage of technology to improve the quality of customer experience. I collected primary and secondary data

publicly available from CBN, Nigerian Interbank Settlement Systems (NIBSS) and Interswtich, a switching company that aggregate all such technology-enabled transactions (see Gozman et al., 2018; Ohiani, 2021; Onah et al., 2021). Using these documentary data from annual reports, websites, organizational internal sources, and CBN and NIBSS published reports enhanced the quality of the research findings.

Instrument Validity and Reliability

Validity and reliability are critical to ensure the data quality of a doctoral research study. Jesmi et al. (2020) and Langenfeld et al. (2020) listed conventional content analysis, skills-based cognitive modeling, and psychometric methods as some tactics for enhancing the reliability and validity of the data collection instrument/process in research. Yin (2018) advised that descriptive and exploratory study involves inferences, pattern matching, and logic models for explanation building to improve internal validity, while effective use of the conceptual framework enhances external validity. Also, as S. W. Chong and Reinders (2021) suggested and Yin (2018) supported, triangulation improved the data's reliability and the study's quality by using a suitable study protocol, evidence database, and chain of evidence. Guba and Lincoln (1985, 1989) added that prolonged engagement, persistent observation, peer debriefing, negative case analysis, referential adequacy, and member checks (process and terminal) for creditability (i.e., internal validity) are suitable for research quality. In this doctoral study, I improved instrument validity and reliability by using multiple sources of evidence, key informants to review the report, and reasonable control of the chain of evidence. I also enhanced the reliability and validity of the instruments by using peer debriefing to validate interview

questions, use of established interview protocol, member checking follow-up after semistructured interviews and data collection, triangulation of multiple data collection methods, and transcript review of identified themes and codes.

Data Collection Technique

Primary and Secondary Data

The data collection technique could be through a primary source (the researcher is the first person to obtain the data) or a secondary source (the researcher uses the data already collected by other sources, such as websites, annual reports, organizational documents, and data disseminated in a public journal. Researchers stated that, in the case of studies, secondary data sources might be beneficial in adding depth to the analysis (Owor, 2022). To enhance the reliability and validity of this study, I collected primary data through interviews and secondary data in the form of social media reviews of the banks using Facebook, Twitter, and LinkedIn primarily to examine customers' comments and the annual reports of each bank. The interview protocol (see Appendix A) guided the data collection.

The interview protocol focused on bank managers and heads of digital and retail banking who have at least 5 years of work experience as a bank manager and have successfully implemented strategies to leverage fintech to improve retail banking experience. The participants also included customers who have used the bank's fintech retail platforms for at least 1 year. The protocol started with brief initial greetings and introductions between the researcher and participant, including exchanging names, preferred names, and the need for special accommodations. It provided the participants

with an explanation of the purpose of the study and the interview. The protocol also assured the participants of their confidentiality by explaining the terms of informed consent and confidentiality. The protocol elicited participants' concerns or questions and explained how participants could exit at any time during the interview. The protocol also explained electronic recording via Zoom and handwritten notes during the interview session. I explained the interview format and the timing expectations of the interview session. An explanation of the process and timeframe for following up with the participants after the initial interview session to obtain additional information (if required) and member checking or transcript review was provided. The interview length lasted approximately 60 minutes. Participants took a break if the interview lasted long. The interview protocol consisted of 10 open-ended semistructured interview questions: six for the bank managers and four for customers (see Appendix A). The six questions for managers were made up of five "what" questions and one "how" question, while the four customer questions were two "what" and two "how" questions. The These interview questions guided data collection to address the following research question: What strategies do bank managers use to leverage fintech to improve their retail services?

All such data collected explored effective retail banking strategies that bank managers use to improve the quality of retail banking services. I retrieved and reviewed information from the bank's annual reports and websites in this study. The data collected were on statistics showing the growth of the different retail banking channels, customer usage information, and strategies for leveraging technology to improve the quality of customer experience. I also collected and reviewed primary and secondary data from the

websites of Interswtich, CBN and NIBSS that aggregate all such technology-enabled transactions (see Ebere et al., 2020; Ohiani, 2021; Onah et al., 2021).

These data collection techniques help to provide detailed descriptions of the data collected and help with triangulations. A researcher can ask probing questions, capture emotions, and screen the accuracy of the information through interviews. The document review enables ease of data collection as document review does not require the technical skills of the researcher, and there is no need to search and motivate respondents to participate. Interviews could be disadvantageous as the quality of the data collected depends on the ability of the interviewer to gather the information well, and it is also time-consuming. Document review could be time-consuming; the researcher has minimal control over the accuracy of the data as information could be outdated, and some documents may be private.

Data Collection Tools

Data collection followed the four principles of data collection. The data collection tools include interview questions, secondary data sources such as websites, virtual meeting platforms like Zoom, social media, collaborative platforms, and annual reports (Buck & Ralston, 2021). Also, interpretation was derived from substantive explanations from the collected data (see Yin, 2018). The interview questions were pre-tested with other scholars experienced in designing the research questions and peer groups before use. The instruments were modified accordingly to guarantee dependability, creditability, transferability, and trustworthiness. I assured the respondents of the secrecy and confidentiality of their responses and that the interview was conducted based on the

approved interview protocol. The data collection was on integrity, objectivity, respect, harm avoidance, privacy, voluntary participation, right to withdraw, informed consent, and anonymity. In this study, I obtained the official authorization of retail bank leaders to guarantee the voluntary participation of appropriate staff and the sharing and collection of organization documentation. I composed a letter sent to prospective participants, informing them about my identity and the research project's purpose. I assured them their responses to each question will be seen and used only for the research.

After the transcription of each interview recording, I interpreted the participants' responses and conducted member checking and transcript review by requesting personal feedback from each participant during and after the interview to enhance the validity of the results.

Data Organization Techniques

Data organization in qualitative research is the designed structure for systematizing, categorizing, and filing the research materials to make them efficiently retrievable and duplicable. Yin (2018) noted that this documentation consists of evidentiary data from interview transcripts, notes, and company documents. Creating a case study database dealt with organization, documentation, and effective retrieval of data collected for the case study (Yin, 2018). The creation could be with computer-assisted qualitative data analysis software (CAQDAS) or MS Excel/word (Corbin & Strauss, 2008; Erick, 2019; Ghasia et al., 2019; Miles & Huberman, 1994). S. W. Chong and Reinders (2021) noted that effective data organization techniques help eliminate all biases and ensure high confidentiality and ethical standards. As Yin (2018) indicated, a

well-organized database served external readers and made later analyses in the study more straightforward.

In this study, I used MS Excel and Word to organize the articles, dissertations, reports, books, visual forms, and data collected regarding the quality of technology-based financial services. The study used annotated bibliographies, cross-references, or other classifications to organize the other materials in the database for easy retrieval. The second type of narrative material would compile the evidence dealing with particular themes or ideas that might emerge during or after data collection. In line with Corbin and Strauss (2008), the compilations help to sort evidence more methodically to determine the strength of the empirical support for these themes and ideas. Furthermore, I maintained a reflective journal during interviews to minimize personal biases and obtained all proper approvals to conduct the interviews from the partnering organizations. I also ensured participants' confidentiality by implementing an alphabetical and numeric coding system. All raw data collected during the interview were stored in a safe location in my library for at least 5 years before being permanently deleted.

Data Analysis

The data analysis in qualitative study identifies and exposes patterns and themes in the data collected relevant to answering the central research question. Data analysis helps clarify the participants' perspectives of the phenomenon and answer the research questions (Houghton et al., 2019; Saunders et al., 2016). The data are triangulated in analysis to obtain additional informed insights from the data gathered and its relationship to the research question (Gelling, 2020). Triangulation is recommended as good practice

in case study research and is traditionally envisaged as offering validity through the convergence of findings, sources, or methods (Farquhar et al., 2020). Farquhar et al. (2020) also noted that triangulation is a widely accepted process of improving the analysis and interpretation of research data. Denzin (2012) identified four basic types of triangulations:

1. Data triangulation: the use of multiple data sources in a single study
2. Method triangulation: the use of multiple methods to study a situation or phenomenon
3. Investigator triangulation: the use of multiple investigators/researchers to study a particular phenomenon
4. Theory triangulation: the use of multiple theories or hypotheses when examining a phenomenon

I used data and methodological triangulations for this study. Yin (2009) noted the following ways of ensuring triangulation in data analysis: (a) compiling, (b) disassembling, (c) reassembling, (d) interpreting, and (e) concluding. I followed these five steps in the data analysis for this study. To gain insight into this case study, I utilized this Yin's (2009) five technique for data analysis.

In compiling, I looked at the data sources, compiling the data collected from interviews, websites, and bank documents to develop groupings using data analysis software. For step 2, I disassembled the data sources to reduce and eliminate inconsistent patterns of the phenomenon and identify the appropriate codes that relate to the research question using the appropriate data analysis software. In step 3, I reassembled the data

and clustered core themes, using context analysis to isolate patterns and negative instances, make comparisons, identify rival thinking, and form tabular forms where necessary. For step 4, I checked and interpreted the patterns against the interview transcripts for attribute, completeness, fairness, empirical accuracy, value addition, credibility, description, and visual/vocal display during interviews to extract the meaning of the data to arrive at the themes. Finally, in step 5, I used these themes and summarized the data into an individual structural description of the experiences for future needs, new concepts, theories, human and social behavior, substantive propositions, and generalizing to the broader set of situations in answering the research question to arrive at my recommendations.

Process of Data Analysis

Analyzing the collected data is critical in arriving at informed and credible outcomes and findings of a study. According to Yin (2018), a combination of procedures, such as examination, categorization, tabulation, testing, or otherwise combining narrative and numeric evidence, could be used in data analysis. There are different approaches to analyzing qualitative data. As Saunders et al. (2016) discussed, some are thematic analysis, template analysis, explanation building and testing, grounded theory method, narrative analysis, discourse analysis, content analysis, and data display and analysis. All these used with tools, formulas, or application software like computer-aided qualitative data analysis software (CAQDAS) can be practical, but they must be based on analytical strategy (Lochmiller, 2021).

I used thematic analysis for this study. This data analysis approach allowed the creation of different meanings from different perspectives of lived experiences of technology-enabled financial services in line with the conceptual framework for the study (Hajirasouli et al., 2022; Lochmiller, 2021). In this study, I used DOI as a guiding framework for defining the coding structure and conducting the thematic analysis around relative advantage, compatibility, complexity, trialability, and observability(visibility) with a focus on user experience, ease of use, usefulness, and consumer behavioral intent to adopt technology-enabled services. I ensured triangulation and early data saturation by collecting data from 11 interviews and various documentations from banks and public sources to address the research question.

This thematic method of data analysis allows researchers to group the text, transcriptions, observation notes, recordings, and all other applicable data into themes or parking lots of categorizations (Bloomberg & Volpe, 2019; Saldana, 2016). Data analysis began with participant interviews, which I recorded and later transcribed. For the interviews where participants do not permit audio recordings, copious notes were taken by the researcher and transcribed. I uploaded the data collected into NVivo software, and the data analysis began by establishing codes. *Codes* are short phrases or expressions that capture some transcribed data and serve as the researcher's analytic lens for qualitative inquiry (Saldana, 2016). These codes should serve as an appropriate filter for the phenomenon being studied (Saldana, 2016). For this study, the inductive analysis was done using NVivo software to assist with coding and identifying themes. According to Saldana (2016), coding is rarely done right the first time. To aid coding, the researcher

pays attention to the participants' language during the interview to correctly capture their accurate reflections, or else recoding is likely to occur (Saldana, 2016). Once good coding is established, the data is synthesized, divided, and grouped into categories. I compared and combined the categories to determine if logical relationships exist and patterns emerge. These approaches used with tools, formulas, or application software such as computer-aided qualitative data analysis software (CAQDAS) such as NVivo help with data analysis.

Data Analysis Software

Researchers in qualitative studies use a coding system to isolate and manage common perspectives and patterns to enhance the validity and reliability of data analysis (Saldana, 2016). I used a coding method to ensure the privacy of the partnering banks and the individual participants and to isolate common perspectives and patterns from the semistructured interviews. Qualitative researchers also use NVivo software to analyze content by classifying, sorting, and arranging collected data (André, 2020). The NVivo software is a valuable facility for examining the relationships in the data by isolating common patterns and themes. I transcribed the data into a Microsoft Word document and analyzed the emerging common themes using the NVivo software. I also focused on major themes that consistently emerged from the interviews, extrapolated the significant themes and perspectives in the interview, and addressed the research question to achieve the study's primary purpose. Finally, I related the significant themes from the data with DOI, TPB, and TAM as the conceptual frameworks and literature.

The data collection, analysis, and interpretation are an interrelated and interactive set of processes in qualitative research. The thematic analysis (pattern-matching) is one of the different analytical techniques for qualitative data (Saunders et al., 2016; Shkolnikov et al., 2020). The analysis could be manual or with software (André, 2020; Mattimoe et al., 2021). I performed thematic data analysis in this study using NVivo software. This thematic analysis occurred during the collection of data as well as after it, and all collections were based on a criterion purposive sampling technique to make for easy analysis. Also, I used interpretation and transcription to derive substantive explanations from the collected data.

Transcription and Coding

Transforming spoken words into written text in qualitative research is a vital step in familiarizing and immersing oneself in the data and is the first stage of qualitative data analysis (Oluwafemi et al., 2021). All transcripts are selective, and the analysis process adds another layer of selectivity (Fearnley, 2022; Hill et al., 2022). I adopted selectivity as the data features that did not connect to the strategies of leveraging fintech to improve retail banking services or the conceptual framework were omitted while transcribing. Finally, I kept the meaning and flow of the original texts during translation and data analysis. Qualitative researchers constantly reflect on interview transcripts and improve their transcription skills by involving skilled interviewers (MacDonald et al., 2020; Smith et al., 2022). As the primary interview instrument, I used my industry knowledge to manage the interview process and assist with the transcription.

Typically, interviews are transcribed to enable coding and further data analysis to establish the research findings. In line with Yin's 5 steps, coding identifies matching patterns and themes that give meaning to the research questions and objectives (Chung et al., 2020; Lawani, 2020). I addressed considerations for scalability and confirmability in the thematic analysis of participant-provided data. A network approach that provides a consistent means of coding that scales with the size of the dataset and is verifiable using standardized methods was adopted. I used this approach to maintain an understanding of the transcripts and aid in interpreting latent constructs.

Theme Identification

A *theme* is a broad category incorporating several codes that appear to be related to one another, indicating an essential idea to the research question (Saunders et al., 2016). A theme is an extended-phrase or sentence identifying a unit of data and its meaning (Ekaterina et al., 2022; Gomez et al., 2021). As Saunders et al. (2016) and Yin (2018) noted, these themes are discerned during data collection and initial analysis and are subject to further reviews as the study progresses. Themes are at the heart of any qualitative research approach, and researchers encouraged showing the themes extraction process (Mishra & Dey, 2022). Snodgrass et al. (2020) and UmaMaheswaran et al. (2022) noted that, aside from frequency, the themes ultimately developed and selected for analysis resonate with personal or other related concerns to the research question.

I applied the above context in extracting critical codes from the transcriptions in this study. Codes develop a theme from the interviewee's responses (see Lemon & Hayes, 2020; Lochmiller, 2021). I exported the code list from NVivo software into an

excel worksheet. Created a table and sorted the codes for the research question into categories or patterns based on similarities and relationships, starting with the dominance codes. Each category was labeled based on the contents and aligned to a DOI construct before importing the identified themes to NVivo software. This approach helped to develop themes and analysis concerning the strategies for leveraging fintech to improve retail services and support the research findings. Hajirasouli et al. (2022) noted that the conceptual framework for a qualitative study has a significant relationship to the data analysis. I analyzed the data through the lens of F. D. Davis' (1989) TAM and Rogers' (1995) DOI conceptual frameworks to understand the phenomenon. Furthermore, during the data collection and analysis process, the key emerging themes were continuously related to recently published studies at the time of the study. Finally, the internal bank documents and information from CBN and NIBSS websites helped fine-tune the themes.

Reliability and Validity

Reliability and validity are vital characteristics of research rigor, and researchers must map out strategies for addressing them. Reliability looks at the degree of accuracy, replication, and consistency of the research methodology tools used, while validity is the appropriateness of the measure, accuracy of the analysis, and the generalizability of the findings (Heale & Twycross, 2015; Saunders et al., 2016). Data saturation refers to the sufficiency of collected data. In a qualitative study, a researcher uses reliability to demonstrate the research outcomes' dependability and validity to demonstrate the research findings' creditability, transferability, and confirmability (Amin et al., 2020; Resnik & Elliott, 2019). Since these criteria are not measurable, I validated them using

qualitative methods such as member checking, transcript review, and triangulation in this study.

Research Reliability

I used member checking, transcript review, and data triangulation in this study to ensure dependability. In qualitative research, researchers use dependability to measure reliability. Dependability is the consistency of the research findings and the degree to which research procedures are documented, allowing someone outside the research to follow, audit, and critique the research process (Balane et al., 2020; Collingridge & Gantt, 2019). To ensure dependability, researchers use transcript review, member checking, and triangulation (Jesmi et al., 2020). Transcript reviews and member checking help extract the meanings and insights from the data collected as validation. Validation is one of the crucial components for bringing confidence to qualitative studies (Pham, 2022). The member checking and transcript review are critical validation tools, allowing participants to discuss the preliminary findings and assess data adequacy and accuracy (Courduff & Moktari, 2022; Young et al., 2021). There is value in ensuring the clear verbatim recording of interviews and thematic coding of responses (Courduff & Moktari, 2022; Wishnia & Goudge, 2021). Each participant received explicit instructions on reviewing the transcripts and making necessary corrections through tracked changes. I gave participants 7 days to respond to changes to the transcript content.

Researchers use triangulation to establish relationships between various research methods and data sources and converge on numerous lines of inquiry to extract themes (Janis, 2022; Mazerolle et al., 2018). This study's findings will be strengthened and

ultimately more credible by establishing intersection lines with robust data sources. Reliability was further enhanced with the use of data and methodological triangulations from the four types of triangulations initially identified by Denzin (2012): (a) data triangulation, (b) investigator triangulation, (c) theory triangulation, and (d) methodological triangulation. I also used pattern identification and coding to aid interpretations. I collected data from six bank managers of two banks for data triangulation. To achieve this data triangulation, I used multiple sources of evidence from the interview data, documented data across two different banks, and data from regulatory agencies such as CBN and NIBSS. Despite different data collection methods, these approaches ensured consistency or dependability and extraction of similar meanings and interpretations.

Research Validity

I established creditability, transferability, and confirmability of the process and findings to ensure the validity of this study. Validity addresses that research measures what it intended to measure (Collingridge & Gantt, 2019). With validity, researchers promote a thorough understanding of the impact or context of the research (Collingridge & Gantt, 2019). In determining the validity of qualitative research, Amin et al. (2020), relying on the research trustworthiness work by Guba (1981); Guba and Lincoln (1985, 1989) established creditability, transferability, and confirmability of the process and findings to measure internal validity, external validity, and objectivity respectively. Researchers also need to ensure data saturation.

Creditability

Researchers establish credibility criteria to ensure that the results of qualitative research are credible or believable from the perspective of the participants in the research. Creditability is the stability and consistency of the data, and it is parallel to internal validity (Goei et al., 2021; Pham, 2022). Using multiple methods to explore and collate data bolsters creditability (Mazerolle et al., 2018). Case study findings could strengthen and ultimately be more credible by examining shared ground lines with various data sources (Farquhar et al., 2020; Jesmi et al., 2020). Combining different approaches to data collection also helps a researcher gain in-depth insight and completeness into the case and its context (Courduff & Moktari, 2022; Young et al., 2021). Member checking is another strategy to ensure creditability (Courduff & Moktari, 2022; Fusch & Ness, 2015; Young et al., 2021). The creditability of the data analysis depends on inclusiveness and representativeness when only one researcher is analyzing the data (Mazerolle et al., 2018; Pham, 2022). Yin (2018) recommended having critical informants review the draft case study report to ensure creditability. Additional contacts after collating the participants' feedback to appraise the intended meaning of the participants' responses would be helpful (Hadžiomerović et al., 2021). The transcript review enables a thorough reading of the interview transcripts and allows the researcher to establish creditability (Mashamba & Ramavhoya, 2021). In line with Fusch and Ness (2015), I took three steps to conduct member checking: (a) interpreting the interview transcripts, (b) writing the synthesis and providing a copy of the synthesis to the participant, and (c) asking participants if the synthesis represents the answer or if there was additional information.

To ensure credibility, I used member checking and transcript review in this study. I conducted a preliminary analysis of the data collected, highlighting all the major themes in the summary report. I sent a copy of this summary report to the participants seeking feedback. I also applied triangulation to ensure creditability in this case study. I conducted interviews and document reviews (i.e., strategy, plan, reports, and business model) to confirm findings from each source's perspective. In parallel, I reviewed the strategic plans and reports related to the bank's fintech strategy and compared its consistency with the interview responses.

Transferability

Transferability is the applicability of one study's results to another (S. W. Chong & Reinders, 2021). J. Buckley et al. (2022) suggested that researchers should encourage participants to respond to the interview with concentrated, rich descriptions to ensure transferability in a similar context by using procedures to ensure accurate information. Courduff and Moktari recommended using audit trials to ensure research transferability. According to Wishnia and Goudge (2021), information regarding the researcher, population studied, sampling, and coding decisions assures the transferability of the study. Morse (2015), in line with Guba and Lincoln, also noted that good description is essential when dealing with study findings' transferability (external validity or generalizability). In line with Courduff and Moktari's suggestions, I focused on selecting appropriate study participants, providing detailed demographic information, performing extensive data analysis, and presenting results intuitively to increase the study's transferability. I recorded and maintained comprehensive notes related to the contextual

background of the case as well as the rationale for all methodological decisions. As this study was an exploratory case study, the goal of the analysis was not to generalize the study but to develop ideas for further research.

Confirmability

Confirmability refers to the degree to which others can confirm or corroborate the results. Confirmability is also the researcher's ability to show that the research data is the actual interpretation of study participants without biases (Langtree et al., 2019). According to Langtree et al.(2019), researchers must consciously listen to each interviewee and record their thoughts, insights, and biases. Triangulation helps qualitative researchers strengthen their case study's construct confirmability (Chung et al., 2020; Yin, 2018). Data triangulation involves multiple data collection techniques to confirm study findings (Courduff & Moktari, 2022; Young et al., 2021). Confirmability of qualitative data is assured when data are checked and rechecked throughout data collection and analysis to ensure results are repeatable (Galli et al., 2021; Langtree et al., 2019). Galli et al. stressed that researchers use an audit trail to show that findings are not influenced by conscious or unconscious bias but accurately portray the participants' responses. To ensure confirmability, I used a data and methodological triangulation strategy, data saturation, literature review, transcript review, and member checking.

I ensured confirmability by providing clear communication, avoiding misinterpretations, and contributing to a scholarly discussion on the use of fintech. Confirmability aims to increase the researcher's credibility and provide the appropriate steps and instructions to determine the results and conclusions (Bahrami et al., 2022).

Participants may have clarifying questions; therefore, the interview protocol (Appendix A) was used as the foundational entrance to obtain rich textual data. I clarified questions to avoid misinterpretations and rephrased questions when needed.

Data Saturation

Researchers attain data saturation when there is enough information to replicate the study when it is impossible to obtain additional information, and when further coding is no longer feasible (S. W. Chong & Reinders, 2021; Guest et al., 2020; Hamilton, 2020). The research findings and validity are affected by the inability to reach data saturation (Moura et al., 2021; Quintão et al., 2020). The need to be explicit regarding achieving data saturation was stressed and demonstrated by S. W. Chong and Reinders (2021). When and how to reach saturation levels will vary with study designs. However, some general principles and concepts, such as no new data, no new themes, no new coding, and the ability to replicate the study, provide an excellent guide to researchers in this direction (S. W. Chong & Reinders, 2021; Fusch & Ness, 2015; Guest et al., 2020). It is critical to note that data saturation is not all about the number of interviews or thickness of the data but the depth and richness of the data. LaDonna et al. (2021) and Fusch and Ness (2015) listed different interview methods centered around the number of perspectives on a given topic to reach data saturation from a large pool of potential participants and data triangulation. Qualitative researchers must account for multiple data sources and perspectives to ensure the study results demonstrate validity through data saturation (Langenfeld et al., 2020). Walden University (2021) and Grande et al. (2021) also recommend collecting data for case studies from at least two sources, interviews

being one of those mandatory sources. In ensuring the validity and reliability of the evidence, I followed Yin's (2018) recommendations. I used the following four data collection principles to optimize documentation and interview sources: use of multiple sources of evidence, creation of a case study database, maintenance of a chain of evidence, and exercising due care with data from social media sources. Researchers could achieve data saturation by providing rich, thick, and deep descriptions that best answer the research question (Johnson & Rasulova, 2017; Moura et al., 2021). Morse (2015), in line with Guba and Lincoln, also noted that good descriptions are essential when dealing with study findings' transferability (external validity or generalizability). Due to the finite number of participants purposively identified from the partner banks, I expected data saturation with 11 individual cases. In this study, I interviewed the 11 participants to achieve data saturation and conducted a preliminary analysis of additional interviews for new information, but I found no new information. The goal was to avoid redundancy but obtain sufficient data to address the research question.

Transition and Summary

Section 2 comprehensively summarized the study's purpose, the researcher's role, study participants, population and sampling, and ethical research. I described the research methods and designs with descriptions of the approaches used and the rationale for selecting the specific approaches. Section 2 also included explanations of data collection instruments and techniques. Section 2 ended with thorough descriptions of the data analysis procedures, the reliability and validity of the interview instruments, and a plan

for data saturation. Furthermore, I indicated how the study complied with the ethical requirements established by the IRB.

In Section 3, I analyze and report on the data collected. Section 3 also covers the application to professional practices and offered an overview of the study. Finally, Section 3 consists of the findings, the social change implications, recommendations, identification of further research needs, reflection, and conclusions based on the study results.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative multiple-case study was to explore strategies that bank managers use to leverage fintech to improve their retail services. Using semistructured interviews, I collected data from six bank managers who have deployed fintech to improve their retail services. Data were also collected from five customers who have used fintech platforms in the last 1 year to achieve data triangulation. I transcribed the interviews before applying Yin's (2009) five steps of data analysis: (a) compiled, (b) disassembled, (c) reassembled, (d) interpreted, and (e) developed a conclusion. I used the qualitative data analysis software NVivo to store and interpret the data to complete the five steps.

In this study, I used thematic analysis as the data analysis process for the various data collected. Methodological triangulation helped to establish validity and consistency for the data obtained during this study. The research question for this study was: What strategies do bank managers use to leverage fintech to improve their retail services? Thematic analysis helped to identify relevant patterns and themes related to bank managers' strategies to leverage fintech to improve their retail banking services. Five themes emerged: relative advantage strategies, fintech compatibility strategies, strategies for overcoming fintech complexity, trialability, and observability strategies. These themes helped to determine the findings and conclusions of this study.

This section consists of the presentation of the findings of this study with appropriate references to the participants' responses regarding their strategies. In

presenting the findings, I describe the findings' connection to the conceptual framework of this study and the extant literature. Also, I discuss the implications of the findings regarding how to leverage fintech to improve retail banking services in Nigeria. Lastly, I discuss the implications for social change, recommendations for action, recommendations for further research, reflections, and finally, the conclusion.

Presentation of Findings

Participant Descriptions

I obtained relevant data for the study by interviewing six commercial bank managers and five bank customers who met the eligibility criteria. The selected six managers have successfully implemented strategies to leverage fintech to improve the retail banking experience and had at least 5 years of experience working in the local Nigerian banking environment as a manager. The five selected customers have used the bank's fintech retail platforms for the last 1 year, two from each bank and one from a non-bank customer. All the participants were based on the nominations from the partner banks, and all live in Lagos and Abuja, Nigeria (see Table 2). The study's sample size and method triangulation helped to achieve data saturation.

In this study, I reviewed internal documents from the banks and publicly available data from Interswitch, CBN and NIBSS websites for further triangulation. I also reviewed related information from the bank's annual reports and websites. The participants provided secondary data from banks' internal reports (not publicly available). Interswitch, CBN, and the NIBSS that aggregate all such technology-enabled transactions in Nigeria provided primary and secondary data. (see Gozman et al., 2018; Ohiani, 2021;

Onah et al., 2021). The data collected were statistics showing the growth of the different retail banking channels, customer usage information, and evidence of leverage of technology to improve the quality of customer experience. I reviewed the statistics of the banks' fintech platform performances for the last three years and their strategic plans for the platforms. NIBSS also sent the 10 years' trends of the various fintech channels. The nominated staff from these organizations sent these pieces of information via email (see Appendix D). Using these documentary data from annual reports, websites, Interswitch, CBN and NIBSS published reports, and internal organizational sources enhanced the quality of this research findings.

Table 2

Summary of the Participants' Demography

Participant	Bank	Job title	Education level	Banking experience	Sex
P1	Bbank	CDO	Post graduate	Over 15 years	M
P2	Abank	Chief auditor	Post graduate	Over 25 years	M
P3	Bbank	HOD	Post graduate	15 years	M
P4	Abank	HOD	Post graduate	16 years	M
P5	Abank	HOD	Post graduate	15 Years	M
P6	Bbank	Unit head	Post graduate	Over 10 years	F
P7	Abank	Customer		3 years with the bank	M
P8	Bbank	Customer		3 years with the bank	F
P9	Abank	Customer		13 years with the bank	M
P10	Bbank	Customer		2 years with the bank	F
P11	Bbank	Customer		10 years with a bank	F

Below is a summary of the participants based on notes and observations during the interview and available public information on their LinkedIn pages.

Participant 1

P1 holds an MBA and MSC in Computer Science. He is a certified information system auditor and certified in risk and information systems control. P1 has over 15 years

of hands-on experience delivering digital and fintech solutions in the banking industry. He was an integral part of the growth of the fintech industry in Nigeria, serving as an executive member of the Committee of e-banking Heads. P1 also served on the bank's executive management and was responsible for leading his bank in the leverage of fintech as a tool for service improvement and profitability. P1 is a fintech and digital transformation leader with a track record of team leadership to deliver innovative, fit-for-purpose solutions. P1 was interviewed from his office after regular work hours and was calm, collected, and expressive.

Participant 2

Participant 2 (P2) has worked in the banking industry since 1997 in various capacities across four banks. He headed operations, compliance, and internal control and is currently the Chief Audit Executive of Abank. P2 has participated in developing strategies for leveraging fintech in some banks. P2 has an excellent understanding of Nigeria's fintech banking system and the banking industry at large. P2 was interviewed on a Monday from his home after working hours and was calm.

Participant 3

Participant 3 (P3) is a Lagos-based banker. P3 is a self-starter, entrepreneurial, and result-driven mind with experience in the media, entertainment, and IT industries. He has an MBA specializing in Advanced AI and the Future of Automation. He has been the Head of the Fintech Partnership & Ecosystem at Bbank since October 2021. At this bank, P3 defines policies and strategies to increase the reach and impact of the bank's business and digital efforts. Before this, he was the coordinator of 3PA & New Partnerships,

Direct Sales Executives & Cooperatives Business at Sterling Bank Plc for 3 years. His responsibilities include developing the strategy material for engaging cryptocurrency/digital asset entities in Sterling Bank. As a commercial banking relationship manager at First Bank and Union Bank for 10 years, P3 was responsible for building and managing existing and new commercial customer relationships, ensuring customer retention, identifying customer needs, and seeking to match bank products and services to such needs. P3 was interviewed from his office on a Thursday during the break period and was calm and expressive.

Participant 4

Participant 4 (P4) started banking in 2007. He has gone through all bank departments in the last 16 years, with the last few years being in the electronic business of banking, which covers the deployment of electronic products, POS, agency banking, and other electronic channels. He started by developing and managing products. He is currently the head of the electronic business in Abank. P3 was interviewed from his office on a Friday after office hours and was relaxed.

Participant 5

Participant 5 (P5) is currently the head of channels at Abank. He previously worked at a couple of other banks and has about 15 years of experience in the banking sector. He worked as the switch and electronic channel support officer. He worked on several projects, including Mastercard implementation, Visa implementation, ATM deployments, NIP deployments, USSD, Mobile and Internet banking solutions. He pioneered several fintech projects that banks still leverage today. P3 was interviewed

from his home on a Saturday and was not feeling well but remained calm and collected during the interview.

Participant 6

Participant 6 (P6) has been in the industry for over 10 years. P3 has worked mainly in the digital department since the beginning of her career. She managed digital channels such as ATM, Mobile, POS, and the rest of the digital channels, but her primary focus has always been ATM and POS. She is also in the partnership department, a fintech partnership where she contacts fintech service providers to discuss open banking, AI, and Application Programming Interface (API).

P6 works with fintech to offer them things the fintech cannot get either because CBN did not fully license them or did not register for them. So P6 is practically combining the background in the POS acquiring in partnering. P6 was interviewed from home on a Wednesday during her holiday and was calm and expressive.

Participant 7

Participant 7 (P7) is a customer of Abank and lives in Abuja. He has been using the bank fintech platforms for 3 years. P7 was interviewed from his home on a Sunday and was calm and well-relaxed.

Participant 8

Participant 8 (P8) is a Bbank customer living in Lagos. He has been using the bank fintech platforms for 2 years. P8 was interviewed from his home on a Sunday and was calm, passionate about fintech platforms, and very expressive during the interview.

Participant 9

Participant 9 (P9) is a Bbank customer living in Lagos. P9 has been using the bank fintech platforms for 13 years. P9 was interviewed from his home on a Tuesday evening and was relaxed, passionate about fintech platforms, and insightful during the interview.

Participant 10

Participant 10 (P10) is a customer of Abank and lives in Abuja. P10 has been using the bank's fintech platforms for 2 years. P10 was interviewed from her office on a Tuesday evening and was calm.

Participant 11

Participant 11 (P11) uses banks' fintech platforms and has been using them for 10 years. P11 was interviewed from her office on a Tuesday at 3 p.m. and expressed her view of fintech platforms based on experiences with different fintech platforms.

In the following subsections, I present the key themes and the findings concerning the themes, supported by further discussions, details, and direct interview quotations from the study participants regarding the research question. Five themes identified in this study are (a) relative advantage strategies, (b) fintech compatibility strategies, (c) strategies for overcoming fintech complexity, (d) trialability strategies, and (e) observability strategie. Table 3 presents an overview of the identified themes.

Table 3

Themes and Descriptions

Themes	Descriptions	Quote example
Relative advantage strategies	Strategies that bank managers used to ensure the bank and its customers gain additional benefits from using fintech	"We also strongly focus on creating customer benefits and distinct customer values. … Sometimes we have many lessons … to ensure the features and functionalities are targeted at creating distinctive value and benefits to customers." (P1, Bbank)
Fintech compatibility strategies	Strategies for ensuring fintech fits the bank's existing service delivery processes and customer activities.	"We also partnered with others like churches and microfinance banks to extend our fintech platforms like ATM and POS beyond our locations but close to the customer's normal activities. … We have vast network of fintech platforms that align with several customer devices using our agents and merchants." (P6, Bbank)
Strategies for overcoming fintech complexity	Strategies that bank managers use to minimize the difficulty in using fintech by customers and bank operators.	"We overcome the difficulty when we successfully deploy these APIs so that third-party and outsourced partners can develop their application and integrate with our system to increase customer value through ease-of-use interfaces." (P1, Bbank)
Trialability strategies	Strategies for establishing a trial period for the usage and demonstrability of fintech.	"We do minimum viable product (MVP), test it in the market, and continue the iteration until we get better and achieve what we wanted. So, once we are done with conception and development, we go through user testing alpha review and introduce it to the market through the betta testing phase. We use the feedback to refine the product till we are satisfied with the market performance." (P1, Bbank)
Observability strategies for fintech platform.	Strategies for providing opportunities for customers to see others use the fintech-based banking services.	"We created awareness locally in the language that they best understood. … We also carry out awareness via media, our website, and our offices and created product flyers using customer testimonials." (P2, Abank)

Theme 1: Relative Advantage Strategies

The relative advantage strategy theme comprises strategies that bank managers use to ensure fintech delivers relative benefits to the customer and a superior value advantage for the bank. The participants indicated that ensuring relative advantage is critical in formulating a strategy for leveraging fintech to improve the retail banking experience in Nigeria. Five of the six bank managers who participated mentioned cost reduction initiatives aimed to create cost savings for customers. P2 said, "I am also creating value and reducing the cost of transactions for them using fintech. ... With fintech, we are creating empowerment and cost savings to customers relative to what they are used to." P3 said, "So when you have your strategy focused on the overall business goals of the organization, you will be able to implement and also improve your customer experience through enhanced features and functionalities, drive revenue, and also reduce cost." In collaboration, P11 said, "I no longer need to spend money and time to go to any of my bank branches because of the fintech platforms deployed." P11 added,

> Fintech makes things easier. …The time spent to locate the banking hall and to queue up for services is gone. … I cannot recall when I last went to the banking hall to perform transactions. Okay, unless to receive forex. … To deposit or withdraw funds, I go to the phone, get the receiver's account numbers, and pay. … It reduces the time and effort to search for a brick-and-mortar location. So those are the benefits I have. … I can perform more transactions quickly, pay utility bills such as GoTV, and buy electric power.

Another significant relative advantage of fintech was expanding bank's market and reach. P1 said,

> Financial muscle is less significant compared to the days of brick and mortar; with fewer branches, you can compare and compete with those with large branches. … Thus, with technology and just an app in the API world, you can talk to the entire country. … I have seen it. We have seen how many organizations grew rapidly, so for example, because of our fintech approach and our mobile app today, we have customers across this country in every state of the federation, even though we do not have branches in more than five states. … So with appropriate incentives and promotion, and digital or fintech products, we can acquire a lot more customers in places where we do not have branches because we have provided them a digital alternative to access service.

Most bank managers that participated in this study (five out of six) indicated that they sought to achieve cost differentiation and improvements by leveraging fintech as an alternative market and reach with a strategy for (a) reducing retail transaction cost, (b) ensuring convenience and ease of use, (c) partnering or resourcing for reduced delivery cost, and (d) ensuring services availability and reliability. Responses from participants showed that the respective perception of value by customers and the linkage to the corporate strategy impacts these strategies adopted by banks. P1 said, "This is about what we do to take advantage of the technology to deliver improved services to our customers." All bank managers interviewed also indicated their banks wish to be seen as

an organization embracing emerging technology to achieve cost differentiation and improvements. For example, P3 explained,

> The right technology is the bedrock of most service delivery, especially in retail banking. … When you have to invest in cloud computing, invest in data analytics and AI that enable you to process data in real-time and also provide personalized customer experience and efficient operations to your customers. It gives an edge.

Furthermore, four out of six bank managers also wanted to improve their fintech platform's convenience, ease of use, and improved features and functionalities, such as those associated with cheques, cards, and mobile platforms. For example, P8, P9, and P11 noted the fintech platforms as "valuable innovations" that would provide banking services at will and be easy to use all day and night. Fintech offers customers alternative platforms that reduce check settlement times and improve functionalities. Additionally, by partnering with a third-party fintech company such as Interswitch, Paystack, and Fluterwave and deploying agency banking platforms, banks could extend their banking services to citizens who would have been financially excluded. P2 said, "We started an agency banking that allowed low-income people to open an account with as few as one thousand or two thousand Naria." Participants noted that the impact of fintech platforms on service delivery was an ideological following of customers eager to do their banking at their convenience and at any time. P8 said, "I rarely go to banks for transactions these days." The other bank managers shared similar experiences regarding their efforts at leveraging fintech, with their primary goals being to become organizations that utilize appropriate technology to provide secured quality banking services to their customers at

lower transaction costs and improved user experience. All participants showed excitement and passion for innovation, eagerness to embrace emerging technology, and a belief that fintech as an alternative banking platform could create cost savings for customers and help with features and functionalities improvements to provide differentiated value to their customers and stakeholders. P1 said, “This is about what we do to take advantage of the technology to deliver services to our customers.” Technology, good thinking, and good product design today have reduced the size’s impact. P1 said as follows:

> The focus is to have complete delivery of banking services in the digital touch points. … Our customers still do transactions with much cash. They can access the cash by going to the banking hall between 8 a.m. and 4 p.m. To improve that, we deployed teller machines at our branches and some selected offsite locations where they could get cash 24/7. We also realized that banking halls are located in major cities rather than remote areas, so we developed and deployed agency banking platforms.

Theme 2: Fintech Compatibility Strategies

Fintech compatibility strategies address how fintech fit within established organizational service delivery mechanism and aligns with the bank’s retail customer’s current activities. The participants highlighted that the strategy for the fintech service delivery mechanism should allow customers and critical bank managers to readily use a fintech platform as part of their current activities. For example, ATMs should be compatible with mobile phones. P8 said, “ I would like to initiate transactions from the

existing platform and continue the same transactions from other fintech platforms." P3 said that "integration of legacy systems is a critical barrier to the leverage of fintech."

A pattern emerged from the analysis of participants' perceptions and responses regarding the strategies of making the fintech platform compatible with existing internal technology and the devices that customers are already used to. As P1 said, "Our strategy has been to adopt a digital-first approach with omnichannel capabilities. … The focus is to have a complete delivery of banking services in all the digital touch points." The bank's mission statement captures the place of technology in the bank. The mission is: "We leverage the best talent and technology to deliver unparalleled user experience to all our stakeholders." In the case of P1, finding a compatible service model for fintech was a challenge. P1 said, "When we successfully deploy these APIs so that third party and outsourced partners can develop their application and integrate with our system to increase value for the customers through ease access for use."

Most bank managers that participated in this study (five out of six) indicated that they sought to achieve suitable fintech compatibility focusing on the strategies for (a) striving to meet customers changing needs and entering into partnerships where appropriate, (b) ensuring the appropriate footprint to bring the fintech platform closer to the people, (c) targeting the right customer-centric fintech products and services, and (d) building reputation and trust. On aligning fintech to meeting current customer activities, P6 said as follows:

> We also partnered with others, such as churches and microfinance banks, to extend our fintech platforms like ATM and POS beyond our locations but close to

> the customer's activities. … Our vast network of fintech platforms align with several customer devices using our agents and merchants. These enhanced our capacity to deploy point-of-sale terminals and ATMs throughout the country that are compatible with existing infrastructure, such as mobile phones.

Participants noted that some customers are reluctant to use fintech platforms because of unclear consumer protection laws incompatible with their lifestyles. CBN issued clear ethical guidance on the matter, but there needs to be more momentum in that direction. Several customers are interested in using fintech platforms only when they can be assured of no financial loss if there is no fallback to the banks. P7 said, "My dad does not use any of these platforms for these trust issues."

Theme 3: Strategies for Overcoming Fintech Complexity

The theme strategies for overcoming fintech complexity comprise strategies that bank managers use to minimize the difficulty in using fintech platforms by customers and bank operators. Typically, the complexity of innovation functions as an inhibitor for successful implementation; it is usually negatively associated with PEOU. PEOU is a critical consideration for the acceptance and adoption of fintech platforms. Participants indicated that bank managers generally applied six major approaches to dealing with difficulty in leveraging the fintech by (a) using appropriate human skills and standard operating procedures (SOP), (b) optimizing cost advantages through a partnership, (c) collaborations with fintech companies, (d) complementing existing channels with shared ecosystems, (e) creating customer awareness, and (f) using cost-effective infrastructure.

Six participants emphasized the criticality of human skill in overcoming fintech service complexity. P1 said, “We used appropriate talents and skilled manpower to minimize the difficulty in using fintech platforms, and the non-availability of key human resources is a critical barrier.” P3 said, “Skill and following procedure are critical. … It is challenging to get people with the right skills.” P5 said, “So we consider our human resources as a key to capacity building and education of customers and staff.” While P5 said in support, “So, you need much staff to be able to run.” P3 also said, in addition to the skill discussion, “So I think these are the major challenges and sometimes competition for human resources with other tech organizations in such a way that you might not be able to pay as much as organizations are willing to pay to get quality hands.”

Concerning convenience and customer experience, P1 said, “We overcome the difficulty when we successfully deploy these APIs so that third-party and outsourced partners can develop their application and integrate with our system to increase value for the customers through ease-of-use interfaces.” P1 said,” Our SOP focused on the organization’s overall business goals, and this helped to implement and also improve customer experience through enhanced features and functionalities, drive revenue, and reduce internal bottlenecks and difficulty.” P4 said, “If your product is challenging to use, you will not get repeat usage. It will be a turn-off when it is difficult to access any product. Ease of use is very, very important.”

Participants noted using existing fintech ecosystems to reduce the difficulty concerning ease of users’ accessibility of fintech platforms, user-friendly interfaces,

service availability, and ease of use. The data from the bank's annual report (see Table 4) is congruent with the responses of the six participants on the bank's multichannel growth trend. As can be seen in Table 4, Bbank started its fintech banking initiative using five ATMs and 100 POSs 3 years ago but has grown its footprints. Their mobile and internet banking initiatives started 2 years after the ATM initiative. Regardless of the edge in the market, among all channels, the adoption of mobile app-based banking is growing exponentially, and internet (WEB) banking follows based on the data collected from the NIBSS and CBN websites (see Appendix B). This view was also collaborated with the internal data collected from NIBSS, showing the 10-year trends of e-payments across critical channels in Nigeria (see Appendix C). The data from the Nigeria Communication Commission (NCC) website shown in Table 5 shows that the high penetration of mobile phones, increased internet provision, and increased teledensity in the country encouraged the use of fintech platforms. When it comes to the USSD, however, its adoption could be faster. Therefore, banks needed to show a clear strategy to leverage the USSD better.

Participants noted awareness as an excellent way to reduce difficulty using fintech platforms. P2 said, "The first barrier is the fintech platform awareness level of the society." This awareness was shallow." P5 said in support, "So we develop a targeted strategy to move our customers from cash focus to cashless focus. …We invested a lot to educate our customers on the benefits of electronic banking systems rather than using cash." In line with this, P2 said, "We created awareness locally in the language that they best understood." P6 said as follows:

> Awareness will help you achieve what you want as a bank, which is income and top-mind awareness for the bank. … We mainly employed a strategy to sensitize many people, both the merchants and the customers, via text messages.

The absence of quality infrastructure and the bank managers' dependability on third-party service providers creates disruption and immense difficulty, discouraging fintech platform usage. Nine participants indicated that the availability of quality infrastructures such as telecom networks and power is critical to overcoming fintech platform complexity. Most participants in this study indicated the following three approaches used by bank managers to address this challenge: (a) stakeholders and partnerships management, (b) alternative and backup sources, and (c) internal maintenance capabilities. P9 said. "Apart from signing a service level agreement (SLA) with network service providers, both banks and the service providers have established a common technical team." P9 said, "Banks procured and deployed power generators as a backup during the power interruption. … Banks also train, organize, and deploy an operation and maintenance team for business continuity." According to five participants and information from Abank's 5-year e-payment plan, continuous improvement in service efficiency is one of the highest priorities in the management's agenda to ensure undisrupted services. On using cost-effective technology, P2 said that "the technology we deployed created seamless support of the internal functions, and the bank procured the latest state-of-the-art core banking platform and interfaced with all processes, including the fintech systems." The participants' view on complexity aligns with accessibility, PU,

PEOU, PCRED or service trust, and social influence as determinant factors that significantly impact users' attitudes towards fintech service.

Table 4

The Number of Channels Deployed Abank and Bbank

Channels	2020	2021	2022	2023
		Abank		
ATM	5	5	10	15
POS	100	150	400	1,000
Mobile				
Web				
USSD	1,000	10,0000	30,000	45,000
Agency	1,000	1,000	1,500	3,000
		Bbank		
ATM		5	13	25
POS		150	1,500	2,200
Mobile		2,000	6,271	16,275
Web			500	1,000
USSD			500	1,500
Agency		1000	3,500	4,200

Note. Sources are internal banks' documents. Bank started operation in 2021.

Table 5

The Number of Channels Deployed in Nigeria as of 2023

Channels	2018	2019	2020	2021	2022	2023 (May)
ATM	17,449	19,459	19,459	19,355	22,500	23,000
PoS	303,162	459,285	915,519	1.6M	1.8M	1.9M
Mobile (subscribers in million)	172.8	184.6	204.6	195.4	222.5	223.3
Web (internet access in million)	112.1	126.1	154.3	141.9	154.2	158.1
WhatsApp (smart phone in million)	51.8	55.4	61.4	58.6	66.8	67.0
Non-smart phone in million	121.0	129.2	143.2	136.8	155.8	156.3
Teledensity (%)	123	96.7	107	102.4	116.1	117.2

Note. Sources are Interswitch, CBN and NCC websites.

From available internal documents, bank managers are also overcoming fintech complexities by leveraging and complementing the existing national ecosystem infrastructure to reduce the cost of deployment, manage skills, and overcome other complexity-related barriers. For example, in the Bbank's strategic plan, the bank set a target to partner with other third-party fintech service providers and national infrastructure such as NIBSS, Interswitch, Paystack, and Fluterwave in leveraging fintech to improve their retail banking services. Although the growth of ATM numbers, as can be seen from Interswitch websites and shown in Table 5 from 17,449 in 2018 to 22,500 as of December 2022, is phenomenal, the growing number of bank customers and the queues experienced at ATMs suggest that the current 22,500 ATMs are insufficient to meet the cashless policy initiative of the CBN (Okonji, 2023). The review of the statistics from CBN websites on channel growth and as reported by Okonji (2023) shows that in emerging markets where cash accounts for at least 80% of transactions and the annual rate of decline of cash is less than 1%, the growth in cash transaction volume and value coincides with growth in the number of ATMs.

According to the NIBSS website and shown in Table 5, there is a significant increase in POS numbers year in and year out. The POS terminals in Nigeria grew from 303,162 in 2018 to 1.8 million as of 2022. POS is also filling the gap created by the shortage of ATMs, as many customers now use POS agents for transactions. The profitability of POS transactions for both banks and agents has encouraged the growing deployment of POS. The customers often bear the transaction cost, creating profit for the POS operator and the bank but convenience for the customer. It has recently served as a

means of employment for youths building businesses by offering POS services as bank agents. In line with this, P2 said, “We looked at what they need or require in some localities, like a corporate social responsibility to support the teaming unemployed youths. We made them agents in our agency banking channels.”

Banks seized the mobile phone and internet access penetration nationwide as an opportunity to expand their mobile app, web banking, and e-commerce services. According to the NCC website, mobile phone penetration grew from 172 million in 2018 to over 223 million as of May 2023, while internet access moved from below 112 million in 2018 to over 158 million as of May 2023 (see Table 5). Now, banks strive to introduce agency banking to access the unbanked population in rural areas via agent banking. This is encouraged by the increased teledensity from 100% as of 2018 to over 117% as of 2023 (see Table 5). P5 said, “Using the ATM with traditional branch channels is a complimentary service, but it creates duplication and encourages customers to continue with the face-to-face service habit rather than transition to the cashless state.” In many areas, banks deployed the bricks-and-mortar channel, POS, and ATM at the same point in a duplicative manner without being able to share critical infrastructure such as power and data connections with other banks. In that case, customers prefer to continue with the branch. P11 said, ”Why should I use the ATM when the branch is there? … Why should I use the mobile bank when the ATM or the branch is there?” This view shows that the bank’s fintech product mix in terms of location could be more coherent with its overarching business strategy.

Theme 4: Trialability Strategies for Fintech

Trialability strategies for fintech products focus on establishing a trial period for fintech usage and the innovation's demonstrability. The trialability refers to the relative ability of a system to be tried and tested before being put into use. The participants indicated, and the documents reviewed highlighted, (a) structured product introduction, (b) promotion and incentives, (c) enhanced user experience, (d) customer participation and feedback, and (e) adoption or usage.

P1 highlighted the importance of structured product introduction and incentive program and said as follows:

> We do minimum viable product (MVP), test it in the market, and continue the iteration until we achieve what we want. … So, once we are done with conception and development, we go through user testing and alpha review and introduce it to the market through the betta testing phase. We use the feedback to refine the product till we are satisfied with the market performance. We do a significant launch to the market only after trial usage by select customers. … We introduce the product through press releases and, in some cases, through media engagement.

The Bbank's 5-year strategy captures the need for an integrated and interactive promotional campaign based on target customer needs with a combination of various marketing strategies and digital media plans to support the trial use of fintech platform products and channels. P5 mentioned that: "Abank also uses a lot of contract staff as direct sales agents to promote consumer trial of its fintech products." P3 said: "All our branch staff and the tech-savvy community leaders are also essential in explaining and

offering this product to the public/customer for a trial period." Further, on incentives, P3 said, "Customers do not need to pay for a delivery, so wherever I am, the card gets to for free. … allowed five inter-bank transfers daily at no cost during the trial period." P8, as the customer said, "Some strategies adopted by my bank today to encourage trial use include issuance of free debit cards, free delivery of debit cards, increasing use of virtual debit cards to test convenient payments and free charges on some transactions."

Participants also indicated that they incentivized people to try their fintech services. P3 said, "The bank introduced a loyalty program with a prize-linked mechanism on first users, like using cards thrice a month for the first six months and winning some prizes." P8, as a customer, said, "There is also a monthly cashback incentive policy for use of any new bank's channel, a loyalty program, and free-of-charge transfers from my bank during the trial period." P3 supported introducing a loyalty program and said, "Free card issuance is a powerful tool to recruit customers and draw more funds into the banking stream through fintech platforms."

On user experience as a strategy, P3 said, "Another strategy I have talked about is the user-friendly interface and user experiences." P1 said, "We must minimize downtime to achieve a good customer experience." P7, as a customer said, "When you try to log in or go into your bank platform for that interface to come out, it takes time." In this case study, all participants stressed that the bank's acceptance and usage strategy is rooted in understanding customers' needs, customer participation, and feedback. For instance, P4, P6, and P11 mentioned it. P4 said, "Understanding the market and customer needs is another barrier." P6 said in support that "a strategy that ensures regular market analysis

and reviewing customer needs was adopted." P4 further said, "Sometimes, we also need to speak to the unsaid needs of these customers."

All participants compared to the bankable population and the penetration of mobile phones, which is more than 67 million with the fintech platform adoption rate and usage. Compared to other banks, the two banks under this study registered remarkable outcomes – above two million fintech platform users within the first 3 years of operations. According to the participants, the laggards in the adoption process are older, while the young generation and extensive international business firms are early adopters. Thus, the young generations (Gen Z) and those educated are the most important customers of fintech platform businesses. In summary, as P3 said, "Bbank puts three phases of the fintech platform adoption strategy, which starts from recruitment or customer acquisition, then activation, then usage level." Right now, Bbank's management assumes it is in phase one, focused on recruitment and customer onboarding phases. Accordingly, P3 said, "Phase one is going very well, and the bank managed to recruit many customers, but the other three phases are at an early stage." Nonetheless, I could not find a written and well-communicated formal fintech platform adoption framework. Banks' management might need a comprehensive framework to use as a decision-making tool to manage the adoption process.

Five participants indicated that the trialability of fintech platforms as an alternative banking channel presented very few barriers or obstacles. The customer participants described the process of trial of these fintech products as *a relatively easy thing to do, useful, effortless,* and *easy to integrate.* P7 said, "The decision by her father

to stop fintech usage was also not difficult when he stopped all alternative banking channels." In other words, the trialability was reversible without any inconvenience. Three participants claimed that having an integrated national drive-through regulation, such as the new CBN policy, is crucial for the trialability of fintech platform services. The participants stated that the adoption of fintech channels in Nigeria suffered due to a lack of sound regulatory framework and the absence of orchestrated effort among the stakeholders to build an integrated dispute resolution system that encourages the self-trialability of fintech platforms.

Theme 5: Observability Strategies for Fintech Platform

The observability strategies for fintech platforms are the actionable plans put in place by a manager to provide opportunities for customers to observe others use the fintech-based banking services. All six bank managers who participated said they employed methods to promote the observability of the fintech deployment. P2 said, "We created awareness locally in the language that they best understood, and we also carry out awareness via media, our website, our offices and created product flyers using customer testimonials." P5 said, "Abank also uses many contract staff as direct sales agents to promote its fintech products. All our branch staff and the tech-savvy community leaders are essential in explaining this product to the public/customers."

On enhanced observation, P2 said,

> So that our customers and society will have the confidence to use our fintech systems, the national ID and BVN are required for some people to access banking services as a KYC requirement. Our bank does not bother customers by asking

these KYC questions. However, partners with agents to provide NIN and BVN were unavailable, enhancing the opportunity to use our Fintech for electronic businesses.

From the available organization documents, the two bank's managements are revising their fintech platform strategies based on the observability of lessons drawn from experiences, market research assessment, and observation of best practices. Some best practices mentioned by participants are India, where the ID ecosystem became a complete digital economic tool, and Kenya, where fintech companies drive the digital economy riding on mobile infrastructure called Mpesa. The observation of the financial inclusion publicity by CBN is another driving factor pushing the bank's management to devise a new strategy. CBN publicized a new national strategy (cashless policy) to develop a national retail payments system to promote financial inclusion. With this, retail banking services digitalization is in full public discourse and has become a mandatory national agenda for banks. Hence, all banks and financial institutions are fine-tuning their fintech strategies to address these CBN directives. Eleven participants mentioned the social impact as critical to addressing the objective of this financial inclusion and, in the long run, the ability for others to observe fintech platforms. This view is in line with Ashiru et al. (2023) conclusion regarding the impact of Fintech on bank's performances. All the participants believed agency banking and mobile app use would increase the opportunity for people to observe fintech platforms. P2 said, "We hope to make our fintech services known to the country's unbanked segment through the mobile app."

I also reviewed the bank's new fintech strategic draft documents. In their draft document, Bbank's management identified six strategic issues: (a) increasing accessibility, (b) acceptability, (c) availability, (d)literacy of fintech services, (e) enabling the creation of national dispute resolution system, and (f) creating unique customer values. The new strategic draft document continues the previous strategy except with a few incremental changes in customer focus, integrating CBN-directed dispute framework into its fintech platform services, focus on agency banking, and strategic partnership with third-party fintech companies. From Abank's draft strategic document and the interview with the participants, I observed that banks need to push aggressively in line with their past strategies. Expanding the adoption of fintech channels and ensuring quality service are the central points in these strategies. In the previous strategy, the bank managers had targeted recruiting and mobilizing merchants and business firms (high-value customers), old customers, and employees to adopt the fintech channels. As a result, most channels are in the major cities, Abuja and Lagos. From the CBN and NIBSS websites, this is a general practice in the industry. For example, according to the Central Bank of Nigeria (2023), out of the 22,500 ATMs and 1.8 million POS, over 12,000 ATMs and 800,000 POS are deployed in the two cities (see Table 5).

Regarding mobile banking, however, out of 222 million mobile phones, about 50 million live in Abuja and Lagos (GSMA, 2022). This data shows a need to target the unbanked masses in rural areas. Banks introduced new fintech products, namely agency banking and mobile apps, as an intermediary through advertisements and billboards to address the unbanked population requirements. These targeted marketing campaigns

highlight their acceptance of Fintech as an alternative banking channel. With these, other customers can observe the demonstration of the use of these fintech platforms.

Connections to Conceptual Framework

The findings from this multiple-case study demonstrate that the constructs of the DOI theory (Rogers, 1962) manifested in the bank managers' strategies for leveraging fintech to improve retail banking services. Although this theory began in the communications discipline (Rogers, 1962), researchers and practitioners have applied the theory to study the diffusion of technologies in many fields. The result of this diffusion is that people, as part of more extensive social systems, formally adopt an innovative idea, behavior, or product when the value is clear (Min et al., 2019; Rashki et al., 2021; Rogers, 1962). The relevance of the DOI theory to this study was that it is the foundational premise to explain bank managers' behaviors and strategies to leverage fintech as an alternative banking channel in the emerging digital global economy. Rogers (1995) pinpointed five constructs that catalyze the DOI: (a) relative advantage, (b) compatibility, (c) complexity, (d) trialability, and (e) observability.

Relative advantage is the degree to which new technology or innovation provides more significant intrinsic benefits or values than others (Yoon et al., 2020). Regarding strategy for ensuring relative advantage, the bank managers embraced fintech in six cases and believed it would provide a competitive advantage for their business and customers. During the interviews, participants used expressions such as *great technology, enabler, commitment to innovation, game changer, customer connector, and fascinating concerning their views about fintech.* Additionally, all six bank managers also desired to

improve their retail banking services and reduce costs, thus creating a cost advantage for both the banks and customers in alignment with theme one: Relative advantage strategies and construct one: Relative advantage.

Fintech compatibility strategies refer to how the manager plans to ensure the innovation fits within the organization's established service delivery mechanism, accomplishing the defined corporate goals and meeting the bank retail customer's current activities. According to Rogers (1995), compatibility is the degree of perceived strategic fit and congruence or consistency of innovation with existing values, prior experience, and needs of potential customers. High compatibility would likely enhance the adoption of an innovation (Yoon et al., 2020; Yuen et al., 2021; Yusuf et al., 2019). In five cases, participants indicated that fintech strategy is compatible with the business mission, vision, and goals and aligned with theme two: Fintech compatibility strategies and construct two of DOI.

Strategies for overcoming complexity are the appropriate plans to ensure the fintech platform is easily understood and used by both employees and customers without difficulty. Rogers described the extent to which innovation is perceived as relatively easy to deploy, understand, and use as complexity (Yoon et al., 2020). All managers considered the strategies for overcoming fintech complexity as crucial. No fintech leverage occurred without adequate skills, SOPs, enabling ease-to-use infrastructure, training, and awareness for customers, which was evident in theme 3: Strategy for overcoming the complexity of fintech and connect to construct three of DOI.

Trialability strategies for fintech products focus on establishing a trial period for the use of fintech and the demonstrability of the innovation. Trialability refers to the degree to which an innovation is triable before its adoption (Rogers, 1995). It focuses on the triable quantifiable outcome or benefits of using the innovation (Yuen et al., 2021). The more effortless the trial of an innovation can be, the more the acceptance (Venkatesh et al., 2003). Trialability is also the extent to which the fintech acceptance decision is reversible or managed in stages (Rogers, 2003; Thomas et al., 2019; Yuen et al., 2021). Concerning observability, in this study, I looked at bank managers' strategies for providing opportunities for customers to observe others use the fintech-based banking services. In all the five customer cases, the fintech platforms were well received. As demonstrated in themes four and five, trialability strategies and observability strategies, all participants established a trial period for using fintech as a banking practice and employed methods to observe the success or failure of the adoption in alignment with DOI's constructs four and five.

The results of this study reinforced the appropriateness of the DOI theory as a conceptual framework and how it applies to strategies for leveraging fintech to improve retail services. The five theoretical constructs of the theory manifested within the realities of the context of leverage of fintech and its use by customers and, through summative validity, demonstrated how bank managers might likely apply these constructs in conceptualizing and planning for the leverage of fintech as an innovation tool in the emerging and restructured banks in the future (Füller et al., 2021; Lech et al., 2020). Nguyen (2022) noted that strategy trust for ensuring relative service or product

advantage, managing technical compatibility and complexity, trialability and observability strategies to ensure organizational readiness, regulatory and customer involvement, managing market uncertainty, and partnership are significantly related to the technology leverage strategies. In summary, the identified themes discussed above showed that no one best strategy could lead to the leverage of fintech to improve the retail banking experience. With the concept of the DOI framework, retail bank managers may implement the actions outlined in the recommendation section of this study to leverage fintech to improve the retail banking experience for customers on a sustainable basis.

Connections to the Literature

As an essential component of this study, I used a literature review to appreciate the existing works and concepts about leveraging fintech to improve the retail banking experience. In the literature review, I highlighted the critical factors influencing customer acceptance of various financial technologies and their effects on the quality of retail services. In localizing it to Nigeria, I reviewed the common retail fintech platforms: mobile banking, MM, USSD/Chat banking, internet banking, self-service terminals, social media banking, and e-commerce. The literature review listed some of the common factors that affect the behavioral intention of consumers to adopt these platforms and viewed through the lens of the five DOI constructs, including perceived self-efficacy, PU, PR, PEOU, social influence, and the availability of information regarding the use of IT systems. In line with this, Yuen et al. (2021) also revealed that cost and the perceived characteristics of innovation (PCIs, i.e., relative advantage, compatibility, complexity,

trialability, and observability), as captured in DOI, impact PU and PEOU. These connect with the five themes identified in this study.

Ensuring the relative advantage of DOI is typically based on the strategic choice that determines the market participation and positioning (concepts closely aligned with the market-based view) and what capabilities or competencies are required to pursue the chosen strategic focus (which aligns with the resource-based view) (Greve, 2021; Nayak et al., 2021; Varadarajan, 2020). Flor et al. (2021) and Lech et al. (2020) also noted that management's commitment, integration of technology strategy with the firm's corporate strategy, and ability to develop and exploit internal capacity for innovation create a relative advantage for the customer and a superior competitive advantage for the firm. While there is a sundry of ways to achieve a competitive advantage in the marketplace, there are two basic types: cost and differentiation advantage (Ngo, 2023). All the bank managers in this study indicated that they sought to achieve a differentiation advantage by leveraging fintech as an alternative service delivery platform. These participants' views and all various relative advantage pieces of literature connect to the study findings concerning theme one: Relative advantage strategies.

According to Yuen et al. (2021) and Yusuf et al. (2019), the compatibility of a system influences the consumer's willingness to accept and adopt a given technology. Customers will readily accept a system compatible with other technological devices (Aduba, 2021; Bernard-Azolibe et al., 2022). For example, ATMs should be compatible with mobile phones. All the participants noted that ensuring internal fintech compatibility with existing infrastructure and procedures and aligning fintech with customer's current

activities is crucial to leveraging fintech. Various compatibility pieces of literature support these participants' views and connect with this study's identified theme two: Fintech compatibility strategies. Using fintech infrastructures in the financial service industry has brought new complexities to banks and customers. It is critical to understand the drivers and implications of these complexities from in-house provisions of fintech solutions, the collaboration with external fintech firms, and the ability of the customers to use these fintech platforms. The participants' view on complexity matched the view of Akinwale and Kyari (2022), who identified accessibility, PU, PEOU, PCRED or service trust, and social influence as determinant factors with significant impacts on users' attitudes towards fintech service. This literature and other works of literature connect to this study's identified theme three: Strategies for overcoming fintech complexities.

Concerning trialability, in investigating the influence of trialability on the actual fintech usage and adoption, literature by Essel (2022) showed that effort expectancy, enabling infrastructure, social influence, and performance expectancy exhibited significant influence on fintech adoption through trialability and reduced perceived risk. Understanding the main determinants of customers' ability to trial fintech services is critical for banks' leverage strategy (Aduba, 2021; Akinwale & Kyari, 2022). According to Aduba (2021) and other researchers, the sources of customers' acceptance of fintech platforms depend more especially on customer preferences, satisfaction, and ability to try the products. This literature connects well with this study's theme four: Trialability strategies for fintech. The observability strategies for fintech platforms are the actionable plans put in place by a manager for the fintech-based banking services to observe the

usage process socially. Previous studies noted that the product PU, PEOU, and social learning impact the ability to observe (A. Fan et al., 2021; Ghazali et al., 2020; Huang et al., 2020; Yuen et al., 2021). In line with these studies, participants agreed with this assertion. The participant's perception of the need for the integrated national approach that creates opportunities for consumers to observe the use of the fintech platforms is congruent with the view of Aduba (2021), who noted that establishing a clear set of the legal framework for the resolution of failed fintech transactions in the Nigerian banking industry is one of the critical solutions to address slow diffusion of fintech platforms services in the country. This view connects to this study's last theme five: Observability strategies for fintech.

According to the participants and pieces of literature, usage and adoption of fintech platforms are value-driven. Owuamanam et al. (2022) noted that perceived value strongly influences customer satisfaction and the usage of fintech platform services. Adopting fintech platforms also depends on cultural context and personal compatibility with current activities. National culture impacts key antecedents such as complexity and the trialability of fintech platforms and enhances the ability to observe the usage (Essel, 2022; Nam et al., 2023; L. Wang et al., 2022; M. Wang et al., 2017). The bank managers need a fintech platform trial and introduction framework tailored to the market context. The participants in this study, in line with Nwankwo et al. (2021) and Al-Tarawneh et al. (2023), agreed that the most critical factors in the leverage of fintech are expectancy-value, compatibility with lifestyle, effort expectancy, and ability to do trail and observe the usage. These pieces of literature connect well with the study's five themes.

Applications to Professional Practice

This qualitative multiple-case study explored strategies that bank managers use to leverage fintech to improve their retail services in Nigeria. This study's findings apply to bank managers who aspire to leverage fintech in the future as an alternative banking platform in the following ways: (a) identifying and understanding the relative advantages of leveraging fintech or technology generally, (b) ensuring compatibility of the fintech with the organizations and the operating ecosystem, (c) overcoming the complexity of fintech as an alternative banking channel, (d) establishing a trial period for fintech adoption to determine the success or failure of the trial and (e) enabling consumers to ascertain whether potential customers can observe and participate in the innovation usage process.

The first application to professional practice is for bank managers to identify and understand the relative advantages of leveraging fintech. All of the bank managers interviewed expressed that leveraging fintech was partly a response to the excitement surrounding the emerging digital economy in Nigeria and meeting their customers' needs. While many bank managers have this passion for emerging technology, it is prudent also to understand what relative advantages fintech can provide. For example, according to Presthus and O'Malley (2017), the profile of the average fintech user is 32.1 years of age, male (95.2%), and full-time employment (44.7%). Most early adopters embrace fintech out of technical curiosity or limited options rather than for potential value (Wahab et al., 2021). Further, research and efforts should determine if this group aligns with the bank's current or future business strategy.

The second application is determining if the complexity of a fintech platform as an alternative banking channel is compatible with a business. Determining fintech compatibility requires a comprehensive evaluation of the organization's capability. It also requires reviewing the degree to which the innovation is consistent with prevailing values, prior experiences, existing infrastructure or devices, and customers' needs or preferences (Rogers, 1995). The alignment of fintech platforms with the existing internal and external infrastructure is critical to accelerating usage. Innovation must also be socially acceptable to be implemented (Rogers, 1995). The cultural mindset affects the complexity of fintech platforms. In this case study, all bank managers noted that education and knowledge about fintech for employees and customers are essential to overcome complexity. According to P5: “There was a learning curve for our development team and the customer support team to understand the nuances of managing and using fintech and the fact that you do not touch or see the physical instrument.”

Finally, the last application to professional practice is establishing a trial period for fintech adoption to determine the success or failure of the trial as well as ensure other potential customers can observe and participate. According to Presthus and O’Malley (2017), significant deterrents toward adoption can significantly influence the target customer base during a trial period. For example, the switching costs between the cost of internet data and the device and the perceived non-value of using the fintech platform could deter trial. In line with this, P4 said that “testing and customer feedback are critical in determining the success of fintech leverage for most banks.”

Implications for Social Change

Technology has completely and irreversibly changed how people meet, interact, learn, work, play, travel, worship, and do business. Technology has a substantial social impact on most communities (Ioannou & Serafeim, 2023; X. Liu et al., 2017; Serafeim, 2020). The results of this study would be helpful for bank managers to facilitate social change by understanding how the leverage of fintech is influencing global financial intermediation. Bank managers could also use the information presented in this study to financially and politically support global digital economic reform. Finally, the results of this study would also catalyze social change by encouraging more bank managers to leverage fintech as an alternative banking channel to extend banking to the world's most disenfranchised, impoverished, and financially excluded individuals and subsequently be players in the emerging digital economy (see Chinoda & Kapingura, 2023; Leong et al., 2022).

The study findings also highlighted how innovations such as fintech help with the social inclusion of women and the less privileged members of society. Inclusion has a substantial positive impact on society as it helps enhance the ecosystem and gives everyone a good sense of belonging. Technoentrepreneurs use fintech to enable financial inclusion, bridging the inequality gap in the ecosystem (Ji et al., 2021; Leong et al., 2022). This inclusion would impact the UN's SDG ten's inequalities component. Financial inclusion for small and medium enterprises and individuals who do not need to go to a financial institution to do transactions will help with the inequality situation and bring them into the digital economy. Cukier et al. (2022) demonstrated how women's

entrepreneurship could drive innovative inclusiveness. This inclusive entrepreneurship policy to unlock the entrepreneurial potential among groups such as women, immigrants, youth, seniors, the unemployed, and people who experience disabilities positively impact society.

This study's findings would improve the banking services in Nigeria, while improved banking services will facilitate the community's economic development. The enhanced economic growth may result in increased economic activities that decrease unemployment and enhance living standards. The findings may help managers to leverage fintech to improve retail banking services. Helping banks improve retail banking services is vital because accessible and easy-to-use banking services are essential for the communities' economic development and eradicating poverty and hunger. These are the objectives of United Nations SDGs 1 and 2 (Hudaefi, 2020). The findings from this study may also impact SDG 10's inequalities with improved technology-enabled services and financial inclusion for small and medium enterprises and individuals in Nigeria. Applying this study's findings can help structure the fintech industry to create employment opportunities. One of the expectations of improvement in financial services through the leverage of fintech in Nigeria is decreased unemployment. Leveraging fintech in Nigeria is projected to have a similar impact on unemployment as such innovations did on unemployment figures in Canada, as reported by Reynolds (2019). J. Liu et al. (2020) also identified a list of the possible social impact of improved technology-enabled services in the financial sector on standards of living and an enhanced digital economy.

Recommendations for Action

Five themes emerged from this study on strategies bank managers use for leveraging fintech to improve retail banking services in Nigeria. Table 6 contains the recommendations for strategic actions based on these emergent themes of this study.

Table 6

Recommendations for Action

Recommendations	Related themes
Strategy for creating a framework to capture the customer needs and structure for sustainably meeting these needs by minimizing cost and enhancing fintech benefits.	1, 2 and 3
Financial inclusion strategies must be enhanced to capture disadvantaged and less privileged customers.	1, 4 and 5
Strategic use foundational digital ID systems to strengthen participatory trust and usage of fintech platforms.	4 and 5
Strategic partnerships to leverage fintech in improving retail services is essential.	2 and 3
Open interoperability strategies with other banks to reduce duplications and save costs.	1 and 3
A clear strategic definition of the acceptable posture to new technology is essential.	1, 2, 3 and 4

Below are explanations of the suggested actions for bank managers.

Technology has become a key change driver with disrupting technologies such as blockchain technology, AI, mobile computing, cloud computing, big data analytics, and the Internet of Things (IoT), changing banks' financial intermediation role. Banks require more research to determine fintech platforms' right/valuable features and usability. Most businesses use IT to innovate and transform a firm's business model over time

(Bellalouna, 2021). Bellalouna (2021) also highlighted the realism of deploying IT to digitalize business operations. Financial innovations are known to have improved bank's performance (Ashiru et al., 2023). Banks must ensure that fintech platforms respond to people's needs and conform to international standards in a sustainable manner. In competing in a developing country such as Nigeria with emerging markets abroad, there is the need to ensure relative customer advantage by minimizing cost and enhancing the benefits of fintech by creating new business models with collaborations. With the excellent use of the value creation wheel to strategically align such innovative activities, this new model will help entities remain competitive.

The fintech platform should be designed for the inclusivity of all diverse groups to improve the banking services and facilitate economic development, decrease unemployment and enhance living standards in local communities. Organizations such as banks use fintech to enable financial inclusion, bridging the inequality gap in the ecosystem (Ji et al., 2021; Leong et al., 2022). Issues of exclusion of specific community segments have been litigated in Africa, with the courts and central banks directing that financial intermediation be approached inclusively. Banks should take an inclusive approach to the fintech platform rollout and reconsider the mandatory requirements for onboarding and the means of accessing the services. Using biometric fingerprint authentication, which is always with the customer and cannot be forgotten or stolen, needs to be considered in addition to using a Personal Identification Number (PIN) and password. Proper use of foundational identification is one such means of comforting participation in the fintech industry. To this, banks should build their fintech services on

the back of the National Identity Number (NIN) in addition to BVN and work on establishing a digital public infrastructure (DPI). This approach provides a trusted fintech ecosystem and will position Nigeria to play a vital role in the emerging digital opportunity in Africa through the Africa Continental Free Trade Area (AfCFTA) agreement that aims to use digital ID systems to establish a single market across the continent. The focus on agency banking and the use of mobile apps also needs to be strengthened to offer other financial services apart from payment for services and cash-related transactions.

Banks need strategic partnerships to leverage fintech in improving retail services. For example, Antunes et al. (2023) noted that in dealing with the multiple centrality assessment (MCA) method of measuring centrality indices of retail business, the three rules were location, location, and location. In the fintech, however, they are partnership, partnership, partnership. Thus, banks need to create a mesh of partnerships covering various networks of relationships. They also need to work out strategy for interoperability with other banks and how to share common noncompetitive infrastructures such as power, connectivity, and platform supports. Interoperability of digital fintech infrastructure and support framework across banks and platforms will help improve fintech leverage. One app that connects all banks with the flexibility to customize would be to minimize multiple apps and make the apps more useful and easier to access all the bank accounts from one app. The new CBN policy on open banking is worth exploring.

Defining competitive advantage cannot be a *me-too* approach or a *knee-jerk* reaction, mainly when using IT as the tool. Sheth et al. (2020) highlighted a framework

for predicting emerging technology adoption to check such reactions. Sustainable competitive advantage should be value-driven based on the market or customer needs and the company's internal capability or resources to acquire the required implementation capacity. Obeidat et al. (2021) and Porter noted that following the three competitive cost leadership, focus, and differentiation strategies must be profitable in the long run. Although it could be a short-term defensive strategy to increase the barrier of new entrants and protect a niche, the long-term benefits must be clear. From the bank's internal documents, the way banks define their credit appetite, banks should also define their acceptable appetite for technology. New technologies in retail marketing, such as AI, NFC, USSD, and Bluetooth LE, offer a wide range of opportunities for reaching consumers in various creative ways (Tanase, 2020). Disruptive use of multi-functional devices, smartwatches, and smartphones in end-point delivery of services to consumers across all sectors is emerging strongly. (Yoon et al., 2020; Yuen et al., 2021). Targeting this cutting-edge technology may not be suitable for one bank but a differentiator and source of competitive advantage for another. Therefore, retail banks must strategically define their appetite for technology change: Whether to be a shaper of the future, a fast-smart follower, manage defensively, or ignore the change in their innovation journey. Banks should be agile, open, and ready to explore different options in leveraging fintech to improve retail services.

I intend to disseminate the results of this study through multiple channels. I will submit the findings to fintech research journals for publication, plan to present these findings at fintech workshops and conferences, engage with professionals in the digital

banking sector, and aspire to author a book to assist bank managers in effectively utilizing fintech. This study contributes significantly to research on the importance of optimizing the common strategies used by commercial banks in emerging markets to leverage fintech to address the needs of the unbanked populations and ensure financial inclusiveness.

Recommendations for Further Research

This study contained several limitations that could demonstrate a variety of future research topics. This study focuses on fintech adoption using the DOI as a central framework. Future studies could examine other aspects of fintech use from different theoretical perspectives, such as Actor-Network and Evolutionary theoretical frameworks, Porter's five forces, and IT governance models. In this study, I applied qualitative methods to provide detailed descriptions. Future studies could follow up using quantitative methods to provide broadly generalizable findings. Considering the significant role of fintech in the emerging digital economy, further study on the impact of culture on the adoption of fintech banking channels may be necessary. Future researchers could also examine the impact and influence of enabling conditions, such as the role of regulations, infrastructure, and industry structure, on the bank's managers' strategies to leverage fintech banking services.

Reflections

As mentioned in the earlier sections of this study, prior experience and knowledge were in deploying back-end technology applications. I have extensive knowledge of the financial application. However, the knowledge of fintech leverage from a customer

perspective was limited to cursory back-end support to the fintech business team. I was aware of possible personal biases and took exceptional care not to influence the responses from the participants of this study. The personal challenges faced during this doctoral journey were extensive. The lessons from this journey include the value of self-discipline, persistence, taking feedback, balancing work, family, and this academic endeavor, and knowing much could be achieved with little sleep. I have realized that attaining a doctoral degree would likely be one of life's most demanding and ambitious academic ordeals but also the most self-rewarding. The knowledge attained has provided exposure to the global phenomenon of entrepreneurial innovation and what is possible with emerging technology. I am grateful to be present for its evolution and to witness the plethora of possibilities for using fintech in the future.

Conclusion

As an emerging IT trend, fintech has brought a new paradigm in IT and innovation in the financial industry. It has changed the game's rules and managed to move traditional financial markets with disruptive innovation. Given recent technological advances, access to cost-effective infrastructure, and the introduction of emerging applications, fintech is leading the way among competitors. Fintech has brought fundamental changes across all aspects, from the conduct of banking activities to the organization of the capital market and even the form that money or instruments assumed (I. Lee & Shin, 2018). As noted by I. Lee and Shin (2018) and Ohiani (2021), the usage and scope of fintech in the financial sector will continue to increase dramatically with the introduction of AI and blockchain innovations. As fintech continues to shape the

financial industry, Dias (2022) and Sopin (2022) noted that enhanced market extensions via online portals and fintech platforms, open banking, buy now and pay later via online aggregators, blockchain/cryptocurrencies, and the availability of 5G as emerging technologies that organizations can explore to create a sustainable competitive advantage. New topics emerge in IT almost every day. Businesses need to organize to leverage emerging trends to sustain a competitive advantage and explore the opportunity for new products or services and new markets. Businesses should note that the world has become a global village and explore how to extend their products and services beyond their immediate environment. By recognizing and implementing new technologies, companies can achieve a substantial competitive advantage, a greater return on investment, and high productivity.

With all these revolutions, technology has also made our lives easier, faster, better, and more fun in modern times. There is a significant and central role for IT in today's world. It is impacting every sector. Most businesses are a network of computer delivery services. IT has become the core of most companies, not just as a supporting tool or *nice to have*, but as a critical business driver. Thus, in defining a sustainable competitive strategy, the business should have a technology framework or roadmap to support attaining the business objectives.

Throughout this academic journey to understand the business strategies of leveraging fintech to attain improved retail services, I have uncovered information that will assist other bank managers in the future. The findings from this study will provide guidance and foundational knowledge for businesses to leverage fintech for social

impact. Using the DOI theory as the conceptual framework, bank managers can follow a defined strategic approach that addresses fintech relative advantage, ensures fintech compatibility within the bank, manages fintech complexity, and enables trialability and observability of fintech platforms. The results of this study will bring about a better understanding of fintech strategies and their potential to harness emerging technologies for improving retail services, boosting national economies, influencing society, and enhancing the lives of bank customers globally.

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Appendix A: Interview Protocol

Date: _____

Researcher Name: _____

Participant Name: _____

Organization: _____

Virtual Interview Method: Zoom/Skype/Whatsapp/Other: _____

A. Introduction

Initial greetings and introductions between the researcher and participant to include the exchanging names, preferred names, and need for any special accommodations.

B. Purpose of the Interview

Provide participants with an explanation and purpose of the study.

C. Confidentiality

Explain the terms of informed consent and terms of confidentiality and ask participants if they have any questions or concerns.

D. Expectations

Explain the use of electronic recording via Zoom or Skype as well as handwritten notes during the interview session. Review the format of the initial interview and the timing expectations of the interview session. Explain the process and timeframe for following up with the participants after the initial interview session concludes to obtain additional information (if required) and member checking or transcript review.

E. Participants

The populations and participants to be interviewed will include Six bank managers from retail banks with Nigeria in which have deployed or deploying fintech for retail services. All participants must have a tenure of at least five year at their organization, and have intimate knowledge of why some fintech platforms was adopted, and how it contributed to the overall business strategy.

F. Duration

Interview length will last approximately 60 minutes. Participants will be offered a break if the interview extends further.

G. General Research Question

What strategies do bank managers use to leverage fintech to improve their retail services?

H: Interview Questions

As you already know, this interview is part of a larger study aimed at exploring strategies managers adopt to improve the quality of retail banking in Nigeria. I just want you to assist in this research program. If you look through you will see the brief introduction. I have a few questions to guide you in providing some insight on what you have implemented or are about to deploy to leverage fintech in improving the retail banking experience. I will like you to answer all the questions as much as you can but you are free to stop or exit at any point. Your responses will be used only for the purpose of this study.

Bank Managers

1. What strategic plans have been adopted in deploying the fintech platform to enhance your retail services?
2. What are the critical barriers to your strategies in leveraging fintech to improve retail banking experience?
3. What strategies did you adopt to address and overcome these critical barriers?
4. How can you, as a business leader, assess the effectiveness of the strategies your organization developed to address the entrance of fintech services providers into the retail banking service?
5. What is the effectiveness of the strategies adopted as a business leader in meeting the needs of your retail customers?
6. What other information would you like to add regarding the strategies that your organization uses to leverage fintech to improve retail banking services?

Customers

1. How do you use the fintech platform provided by your bank?
2. How do these fintech platform improve your retail banking experience?
3. What are the critical challenges with these fintech platform?
4. What additional information would you want to share about the strategies adopted by your bank to leverage fintech to improve retail services?

I. **Wrap-up and Closing**

Thank each participant for their time and effort during the interview and request permission to follow-up for additional information, if necessary, and member checking.

Appendix B: Industry E-Payment Figures for 2018 to 2022

A: Volume

Channels	2022	2021	2020
Cheques	16,907,129	18,257,340	11,612,206
ATM	1,506,991,903.00	1,599,187,337.00	968,433,479
POS	3,885,782,065	2,743,555,841	382,845,859
Internet (WEB)	14,063,927,436	10,321,579,925	3,432,692,730
NEFT	88,468,437	172,792,505	125,273,977
RTGS	288,216	1,042,115	11,083,961
USSD	516,080,595	552,911,557	292,969,790
Mobile APP	1,861,362,984	831,540,635	249,076,105
Direct Debits	151,011,103	103,275,936	1,756,353
MMOs	1,926,293,135	1,201,541,158	449,745,924
TOTAL E-PAYMENT	22,073,912,739	16,325,885,851	5,081,286,395

Channels	2,019	2,018
Cheques	7,275,237	9,019,278
ACH/NAPS/PMS	47,311,582	26,760,852
ATM	839,819,922	875,519,307
PoS	438,614,182	295,890,167
Internet (WEB)	103,497,007	50,815,901
Mobile Money	377,265,208	87,086,260
NIP	1,145,785,229	663,124,139
EBillsPay	1,099,805	1,053,342
Remita	48,481,208	44,461,846
m-Cash	251,490	229,328
Central Pay	663,163	1,260,380
TOTAL E-PAYMENT	3,010,064,033	2,055,220,800

B: Value

Channels	2022	2021	2020
Cheques	15,250,724,091,469	15,606,837,993,096	9,113,317,397,877
ATM	32,648,023,588,216	21,230,934,547,927	12,004,067,823,108
POS	41,035,801,320,927	24,455,416,207,820	2,806,304,086,834
Internet (WEB)	783,660,029,415,336	545,039,685,403,942	235,617,811,325,903
NEFT	477,366,944,460,363	410,171,471,820,963	172,541,642,685,671
RTGS	73,706,479,398,538	588,206,008,267,591	338,885,171,481,012
USSD	4,494,448,168,094	5,179,896,509,758	2,975,572,689,715
Mobile APP	111,122,110,680,403	53,208,272,485,554	19,377,841,240,553
Direct Debits	26,409,371,273,656	23,011,791,142,706	1,766,400,251,382
MMOs	32,599,014,785,038	15,395,017,340,242	9,428,512,332,832
TOTAL E-PAYMENT	1,550,443,208,305,530	1,670,503,476,386,260	783,168,507,497,344

Channels	2019	2018
Cheques	4,481,668,348,494	5,035,334,949,690
ACH/NAPS/PMS	25,131,998,130,797	11,030,961,545,925
ATM	6,512,612,259,811	6,480,085,899,670
POS	3,204,749,863,644	2,383,108,901,148
Internet (WEB)	478,140,101,693	404,600,990,713
Mobile Money	5,080,961,536,595	1,830,701,111,108
NIP	105,222,562,871,372	80,423,025,698,377
EBillsPay	652,586,389,583	500,214,507,608
Remita	20,724,633,755,093	18,495,987,427,571
m-Cash	600,921,460	1,198,731,322
Central Pay	5,476,055,244	8,101,555,613
TOTAL E-PAYMENT	171,495,990,233,786	126,593,321,318,746

Note. Source is the CBN website

https://www.cbn.gov.ng/Paymentsystem/ePaymentStatistics.asp

Appendix C: 10 Years Trends from NIBSS internal documents

A VOLUME

Products /Year	NIP	PoS	NEFT/NAPS	Mobile Money Operators	Cheques	TOTAL
2023 (May)	4,091,741,394	644,411,775	9,974,197	1,175,217,655	399,276	5,921,744,297
2022	5,140,092,246	1,149,954,780	23,900,377	714,597,984	4,073,613	7,032,619,000
2021	3,473,194,197	982,833,267	21,356,959	281,781,108	4,454,352	4,763,619,883
2020	2,033,552,096	655,748,348	20,025,060	129,167,789	4,925,246	2,843,418,539
2019	1,145,785,229	438,614,182	23,026,088	40,419,760	7,812,548	1,655,657,807
2018	729,437,055	285,887,468	22,794,463	7,046,168	9,019,278	1,054,184,432
2017	370,870,672	146,267,156	23,711,801	4,836,261	10,808,983	556,494,873
2016	154,504,034	63,715,203	25,292,938	3,584,402	11,719,847	258,816,424
2015	71,223,545	33,720,933	28,935,605	1,172,910	13,466,461	148,519,454
2014	40,829,854	20,817,423	29,690,765	403,546	15,283,933	107,025,521
2013	17,112,158	9,418,427	29,834,317	51,869	14,211,078	70,627,849

B VALUE

Products /Year	NIP	PoS	NEFT/NAPS	Mobile Money Operators	Cheques	TOTAL
2023 (May)	211,103,897,299,319	4,922,790,650,297	9,800,850,271,397	16,460,700,259,961	3,205,035,805,630	245,493,274,286,603
2022	387,075,954,681,899	8,390,446,819,871	18,886,981,922,481	19,418,466,029,984	3,220,424,269,309	436,992,273,723,544
2021	271,959,625,679,318	6,433,449,249,499	16,964,401,766,691	7,996,973,958,020	3,220,424,269,309	306,574,874,922,838
2020	158,146,282,210,029	4,727,076,813,501	13,477,482,395,889	2,941,619,444,103	3,178,135,510,262	182,470,596,373,784
2019	105,222,562,871,373	3,204,749,863,643	12,818,279,303,956	808,350,292,509	4,481,668,348,494	126,535,610,679,974
2018	80,423,025,698,377	2,322,730,590,144	11,593,791,725,381	273,622,435,922	5,035,334,949,690	99,648,505,399,514
2017	56,165,666,312,858	1,409,813,091,608	11,953,463,092,273	176,824,193,125	5,381,909,711,667	75,087,676,401,531
2016	38,214,621,790,755	758,996,505,703	12,454,968,222,832	140,686,920,510	5,829,549,268,628	57,398,822,708,429
2015	25,540,842,563,780	448,512,548,726	13,087,085,484,769	40,692,353,354	6,195,461,481,268	45,312,594,431,897
2014	19,921,499,572,670	312,071,736,903	14,563,804,544,654	12,659,580,274	7,269,079,332,312	42,079,114,766,813
2013	10,848,734,178,262	161,212,840,665	14,367,950,496,617	1,340,081,615	7,708,669,754,031	33,087,907,351,191

Source: NIBSS internal document

Appendix D: Sample email for the internal documents

To:

Peter Iwegbu

Cc:

- p_iwegbu2000@yahoo.com;
- Wooyoung Chung

Wed 6/7/2023 8:32 AM

E-PAYMENT DATA REQUEST.xlsx
Saved to OneDrive

Dear Peter,

Please see attached Year on Year data for the txn types below that are within our visibility in NIBSS, thanks !

NIP
PoS
NEFT/NAPS
Mobile Money Operators
Cheques