



Use of Information and Communication Technologies (ICTs) for Customer Service Communication in Select Commercial Banks in FCT, Abuja

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Abstract

This study examined the use of Information and Communication Technologies (ICTs) for customer service communication in selected commercial banks in the Federal Capital Territory (FCT), Abuja. The study was anchored on the Expectation Confirmation Theory and adopted a mixed-methods research design, employing questionnaire surveys and interview guides to collect quantitative and qualitative data from bank staff and customers. Descriptive statistics were used to analyse the study objectives, while linear regression analysis was employed to evaluate the effectiveness of ICT tools in delivering timely and satisfactory customer service. The findings revealed that the selected banks utilise a range of ICT tools, including Customer Relationship Management (CRM) systems, mobile banking applications, internet banking platforms, chatbots, social media channels, and digital onboarding systems. Among these, CRM systems emerged as the most widely utilised because of their contribution to customer relationship management, faster response times, and improved service efficiency. It further found that ICT tools have enhanced customer convenience by enabling 24-hour banking services, faster transaction processing, personalised customer support, and more efficient communication. Regression analysis further showed that ICT tools had a significant positive effect on customer service effectiveness ($\beta = 0.712$, $R^2 = 0.468$, $p < 0.001$), indicating that increased utilisation of digital technologies improves timely and satisfactory service delivery. Despite these benefits, challenges such as technical glitches, system integration difficulties, regulatory constraints, staff adaptation issues, and cybersecurity concerns continue to hinder the optimal utilisation of ICT tools. The study concluded that ICT has become an indispensable driver of effective customer service communication and service delivery in commercial banks in the Federal Capital Territory, Abuja. The study recommends that commercial banks should continuously invest in and upgrade ICT infrastructure while addressing operational, infrastructural, and cybersecurity challenges to maximise customer satisfaction and sustain competitive advantage

Keywords: ICTs, customer service, commercial banks, customer satisfaction, customer relationship management

Introduction

Today, commercial banks are operating in a highly competitive business environment and they tend to regard satisfaction, service quality, profitability and compliance as key strategic drivers. Customer satisfaction and customer relationship management are more and more becoming a significant part of banks' strategic focus. Customers are gaining wider access to alternative financial institutions and digital financial services, making it easier for them to compare providers and change providers if their service expectations are not met (Berger & Demirgüç-Kunt, 2021; Chen et al., 2021). Therefore, banks keep looking for innovative methods of service enhancements and customer communication strengthening. A significant factor contributing to these changes is the application of Information and Communication Technology (ICT). ICT is defined as the utilisation of digital technology, including computers, the Internet, wireless



networks, mobile phones, network and software applications, and electronic systems for the collection, processing, storing and effective exchange of information (Chen et al., 2021). ICT uses in the banking environment comprise mobile banking applications, internet banking portals, Automated Teller Machines (ATM), Customer Relationship Management, chatbots, social media, emails, Unstructured Supplementary Service Data (USSD) services, etc. (Chen et al., 2021; Madu et al., 2023).

Customer service communication is the interaction and exchange of information between organisations and customers for handling enquiries, complaints, receiving information, giving updates and maintaining customer relationships. Customer service communication enhances responsiveness, trust, reduces waiting time, improves customer satisfaction and can affect customer loyalty (Olowofela et al., 2024; Mohammed et al., 2024). In the context of the banking industry, ICT has been widely adopted to carry out customer service communication as services can be delivered to customers much quicker than traditional services through various digital channels. Evidence from Nigerian banking research shows that electronic banking service quality, particularly ease of use, reliability and security, has a significant relationship with customer satisfaction (Olowofela et al., 2024).

The introduction of ICT has transformed banking activities all over the world, including Nigeria. Customers can now perform transactions, obtain account-related information, receive transaction alerts, make complaints and communicate with banks without the need to visit banks' physical branches (Madu et al., 2023). Channels such as mobile applications, chatbots, emails, SMS alerts, social media, USSD, among others, are now being increasingly used by Nigerian commercial banks to improve service access and customer engagement (Abdulquadri et al., 2021; Madu et al., 2023). Recent evidence indicates that this adoption has had a positive effect on customer satisfaction through faster, convenient and responsive service, and easy access to information, among others (Adewunmi et al., 2024; Olowofela et al., 2024). However, ICT-mediated banking customer service communication has not been without its drawbacks in the Nigerian banking industry. Customers often encounter failed transactions, service interruptions, reliability problems and difficulties obtaining timely assistance through electronic banking channels (Madu et al., 2023; Olowofela et al., 2024). The use of chatbots also presents challenges where customers require assistance beyond predefined questions or automated response paths (Abdulquadri et al., 2021). Security challenges involved in electronic banking and the need for reliable and secure digital platforms can also affect customers' confidence in digital banking services (Olowofela et al., 2024). In addition, differences in levels of digital literacy can reduce the effective use of digital banking communication tools, particularly among customers with limited digital skills.

Abuja, the Federal Capital Territory, provides an important setting for this study because it has a diverse population of civil servants, business owners, students, diplomats, and other professionals who increasingly rely on digital banking services for their daily transactions. Although commercial banks in Abuja have adopted various Information and Communication Technology (ICT) tools, there is limited empirical evidence on how effective these technologies are in communicating with customers, improving service delivery, and resolving customer complaints promptly. Recent evidence from Abuja has examined the use of digital financial innovations, including mobile financial services, online banking and digital payment systems, in relation to customer experience and loyalty in commercial banking (Ndaman & Mohammed,



2025). It is against this background that this study seeks to assess the use of Information and Communication Technologies as a tool for customer service communication in selected commercial banks in the Federal Capital Territory, Abuja.

Problem Statement

The increasing adoption of Information and Communication Technologies (ICTs) has transformed customer service delivery in Nigeria's banking sector through mobile banking, internet banking, ATMs, emails, and online support services (Ndaman & Mohammed, 2025). This transformation is evident in the growth of electronic payment transactions, which exceeded ₦1.07 quadrillion and over 11 billion transactions in 2024, demonstrating customers' increasing reliance on digital banking platforms. Despite these advancements, ICT-enabled customer service communication continues to face significant challenges. The Central Bank of Nigeria (CBN) recorded 19,988 customer complaints against financial institutions between October 2023 and September 2024, while persistent issues such as failed transactions, delayed reversals, poor complaint resolution, and service interruptions continue to affect customer experiences and confidence in digital banking channels. In addition, electronic fraud losses exceeding ₦52 billion in 2024 have heightened concerns regarding the security and reliability of digital banking systems.

Although previous studies have examined ICT adoption, electronic banking, and customer satisfaction in Nigeria (Olowofela et al., 2024; Abdulquadri et al., 2021), limited attention has been given to ICT as a customer service communication tool, particularly regarding complaint handling, responsiveness, and customer engagement. Existing studies have also focused largely on commercial centres such as Lagos and Port Harcourt, leaving Abuja relatively underexplored. This reveals empirical, geographical, and contextual gaps in understanding customers' experiences with ICT-enabled communication in Nigerian banks. The choice of Abuja as the focus of this research is strategic. As Nigeria's administrative centre, it boasts a rich diversity of residents including public servants, private sector professionals, entrepreneurs, diplomats, students, and everyday citizens – each with varied digital literacy and technology usage patterns. The city's crucial economic role, coupled with its ever-increasing reliance on digital banking services, makes it an ideal location to study how effective ICT-enabled customer service communication truly is. Against this backdrop, this research aims to meticulously investigate the effectiveness of ICT in facilitating customer service communication within commercial banks in the Federal Capital Territory, Abuja.

Objectives of the Study

This study is guided by the following objectives:

1. To find out the types of ICT tools used by select commercial banks in FCT, Abuja, to communicate with customers.
2. To ascertain how these ICT tools are applied in customer service by select commercial banks in FCT, Abuja.
3. To evaluate the effectiveness of these ICT tools in delivering timely and satisfactory customer service.
4. To ascertain the impediments affecting the effective use of ICT tools in banks

Literature Review

Concept of Information and Communication Technologies (ICTs)

Information and Communication Technology (ICT) has become a critical enabler of service delivery in the banking industry by transforming how financial institutions communicate



with and serve their customers. Although scholars broadly agree that ICT encompasses technologies for creating, processing, storing, and transmitting information, they differ in their emphasis. Adam (2020) views ICT primarily in terms of ICT development and its role in enabling the provision of services through digital technologies, whereas Kyari *et al.* (2021) highlight the application of ICT in banking through investments in digital banking technologies and financial technology platforms. These perspectives collectively suggest that ICT is more than a technological infrastructure; it is a strategic resource that enables banks to improve operational efficiency, service accessibility, and customer engagement. However, much of the existing literature conceptualises ICT from an operational perspective, with relatively limited attention to its role in enhancing customer service communication. As banking services continue to shift towards digital channels, the effectiveness of ICT increasingly depends not only on the availability of technological platforms but also on their ability to facilitate timely, responsive, and satisfactory interactions with customers.

Customer Service Communication

Customer service communication is widely recognised as a fundamental component of service quality because it shapes customers' perceptions of responsiveness, trust, and overall satisfaction. Ighomereho *et al.* (2023) describe the importance of service quality in relation to customer satisfaction, particularly through functional quality, reliability, recovery quality, and security quality. Similarly, Amin (2016) argues that customer service communication has evolved beyond traditional face-to-face interactions to encompass digital channels such as email, mobile applications, websites, social media, and live chat, enabling organisations to provide faster and more personalised services. These perspectives indicate that effective customer service communication is not merely the transmission of information but an interactive process that fosters customer engagement and long-term relationships. Abdulquadri *et al.* (2021) adds that within the banking sector, ICT has fundamentally transformed customer service communication by enabling real-time interactions, self-service platforms, and instant access to financial information. However, the effectiveness of these digital communication channels remains contingent on their reliability, accessibility, and responsiveness. While digital platforms offer convenience and reduce transaction time, they may also be constrained by network failures, cybersecurity concerns, and varying levels of digital literacy among customers.

Review of Empirical Studies

Early scholarly studies generally indicate that ICT has become central to the delivery of banking services, particularly by improving convenience, accessibility and the speed of customer interactions. For instance, Olowofela *et al.* (2024) established that dimensions of electronic banking service quality significantly influence customer satisfaction. More recent evidence from Imouokhome and Akenzua (2025) also examined electronic banking and customer satisfaction in Nigeria, reinforcing the continuing relevance of mobile and internet banking to customers' experiences. These findings suggest a broad consensus that digital banking channels can improve customer experiences, although they do not necessarily explain how effectively these channels support ongoing customer communication.

The foregoing further shows that the quality and reliability of ICT-enabled services are critical to achieving these benefits. Olowofela *et al.* (2024) discovered that electronic banking service quality is significantly influenced by dimensions such as ease of use, reliability and security, while Imouokhome and Akenzua (2025) reported that mobile and web banking



significantly affect customer satisfaction, while emphasising the need for user-friendly applications and secure web platforms. Thus, the literature suggests that the mere availability of ICT channels is insufficient; their effectiveness depends on reliability, ease of use and the bank's capacity to respond when customers experience difficulties.

A further development in recent studies is the growing attention to artificial intelligence as a customer-service communication mechanism. Irmiya et al. (2025) found that AI-powered chatbots and virtual assistants, robo-advisors and personalisation, and automated service delivery positively influence customer experience among Nigerian deposit money banks. Similarly, Graham et al. (2025) found that banking chatbots offer advantages through speed and 24-hour availability but remain subject to challenges concerning their capacity to provide effective customer service. This is particularly relevant to customer service communication because it indicates that digital automation may improve responsiveness while still requiring human intervention for more complicated customer problems. Abinabo et al. (2025) also examined selected banks in Abuja Metropolis and reported that AI applications, including chatbots and biometric technologies, influence customer engagement, with personalisation playing a mediating role. Ndaman and Mohammed (2025), in a study of Zenith Bank in Abuja, further examined digital financial innovation through mobile financial services, online banking and digital payment systems in relation to customer experience outcomes. These studies strengthen the contextual basis for investigating ICT within Abuja but also reveal that existing Abuja-based research is concentrated largely on AI, digital innovation, customer satisfaction and engagement.

Theoretical Framework

This study is based on the Expectation Confirmation Theory. Expectation Confirmation Theory was first proposed by Oliver (1980) in an attempt to generalize the conceptualization of customer satisfaction and continuance to use, by comparing customer expectations before entering the consumption process, with the actual product or service performance. When actual performance matches or exceeds customer expectations, they feel satisfied. Between above- and below-par performances customers feel dissatisfied. The theory is applicable to this study as customers press their use of ICT-enabled banking services including mobile APPs, E-banking services, Chat bots, Emails, USSD services, and a raft of automated services like complaint systems with production speed expectations, ease with simplicity, dependability, responsiveness, interactive ease, and accessibility. (Uchenna et al, 2022). When customers delivered on their early service expectations, providing responses in time, forming some transactions successfully, offering an urgent response to complainant, or getting timely information through a successful network registered by the customer, it confirms the customers' expectations, resulting in user satisfaction or continued usage and vice versa.

Despite its relevance to this study, the Expectation Confirmation Theory has some limitations. The theory focuses primarily on customers' post-usage evaluations by emphasizing the relationship between expectations and actual service performance, but it pays limited attention to the factors that influence the initial adoption of technology. (Alnaser et al., 2023). Variables such as perceived usefulness, ease of use, digital literacy, security concerns, and trust in technology, which are important in ICT adoption within the banking sector, are not adequately addressed by the theory. Furthermore, ECT assumes that customers' expectations are stable and measurable, whereas customer expectations in digital banking environments are often dynamic and influenced by technological changes, previous experiences, and competitive offerings from other banks.



Despite these limitations, the theory remains useful for this study because it provides a strong basis for explaining customer satisfaction and continued use of ICT-enabled customer service communication channels in commercial bank.

Methodology

This study adopted a mixed-methods research design, integrating both quantitative and qualitative approaches. The mixed-methods approach was considered appropriate because it enabled the researcher to obtain both numerical evidence and in-depth explanations regarding customers' experiences with ICT-enabled customer service communication. The qualitative component of the study involved the use of In-Depth Interviews (IDIs) to complement and enrich the quantitative findings. The qualitative approach was adopted to obtain detailed insights into participants' experiences, perceptions, and opinions regarding ICT-driven customer service communication. Semi-structured interview guides were used to provide flexibility for participants to express their views while ensuring that discussions remained focused on issues relevant to the study objectives. The target population of the study comprised staff and customers of selected commercial banks, specifically First Bank of Nigeria Plc (FBN) and Guaranty Trust Bank Plc (GT Bank), within the Federal Capital Territory (FCT), Abuja.

The staff population consisted of employees directly involved in ICT-enabled customer service communication, including customer service officers, digital banking officers, and ICT personnel, totaling 3,554 staff members. The customer population consisted of active customers of the selected banks who utilise ICT channels such as mobile banking applications, internet banking, ATMs, chatbots, emails, and USSD services for banking transactions and communication. Consequently, the general population of Abuja residents was excluded from the study because not all residents are customers of the selected banks. For the quantitative component, respondents were selected using purposive and convenience sampling techniques. Purposive sampling was used to select First Bank and GT Bank because of their extensive deployment of ICT facilities and significant customer presence within Abuja, while convenience sampling was used to select customers available during the period of data collection. ten participants comprising six customers and four bank staff members were purposively selected based on their experience and involvement with ICT-enabled customer service communication. The interviews lasted between 30 and 45 minutes and continued until data saturation was achieved. Data collection was conducted primarily through face-to-face administration of questionnaire, which minimised the risk of non-response and incomplete returns. Quantitative data obtained from the questionnaires were analysed using descriptive statistical tools, including frequencies, percentages, and tables to summarise responses and enhance interpretability, while qualitative data obtained from the interviews were analysed using thematic analysis.

Data Presentation

Table 1. *Showing ICT Tools Used by Commercial Banks (Staff Responses)*

ICT Tool	Frequency	Percentage (%)
Mobile banking apps	124	32.1
Internet banking portal	88	22.8
Social media platforms	64	16.6
SMS/email alerts	110	28.5
Total	386	100

The fact that mobile banking apps is the most preferred I.C.T. Communication channel highlights a move towards more customer oriented and interactive real time banking services. It demonstrates that customers now require more convenient and friendly mode of communication from banks which allow them receive updates, make enquiries and conduct banking transactions without physically visiting the bank within a specified time.

Table 2. Showing ICT Channels Used by Customers

ICT Service	Frequency	Percentage (%)
Mobile app	146	37.8
Internet banking	98	25.4
Social media chat	52	13.5
Customer service hotline	90	23.3
Total	386	100

The findings suggest that customers' ICT usage is driven more by convenience and accessibility than by a complete shift to digital-only banking. While mobile applications dominate, the continued use of hotlines and social media indicates that customers still require human support and alternative communication channels. Thus, effective ICT service delivery should combine convenient digital platforms with responsive customer support, rather than relying on digital self-service alone.

Table 3. Regression Analysis of the Effect of ICT Tools on Customer Service Effectiveness

Predictor	B	SE	t	p
ICT Tools	0.712	0.109	6.508	< 0.001

Model Statistics: $R^2 = 0.468$; $F = 42.356$; $p < 0.001$

The regression analysis revealed that ICT tools had a positive and statistically significant effect on customer service effectiveness ($\beta = 0.712$, $t = 6.508$, $p < 0.001$). The model explained 46.8% of the variation in timely and satisfactory customer service delivery ($R^2 = 0.468$), while the overall regression model was statistically significant ($F = 42.356$, $p < 0.001$).

Table 4: Showing Major ICT Challenges Faced by Customers

Challenge	Frequency	Percentage (%)
Network failure	148	38.3
App/website errors	96	24.9
Security concerns	82	21.2
Lack of clear guidance	60	15.5
Total	386	100

The prevalence of network failures highlights the importance of reliable ICT infrastructure for effective digital banking services and customer communication.

Insight from Qualitative Data

The interview findings, drawn from six respondents comprising both bank staff and customers, show that Nigerian banks particularly First Bank and Guaranty Trust Bank have widely adopted ICT-driven tools to enhance customer service delivery, operational efficiency, and customer engagement.

Theme 1. ICT Tools Used for Customer Service Communication



From the interviews, it was observed that First Bank and GTBank had an extensively usage of ICT tools to facilitate communication with customers and provide services. The major channels of communication recognised by respondents were mobile banking app, SMS alerts, email, chatbots, social media, internet banking and USSD banking. A customer respondent (P1) stated:

“I get SMS alerts and emails of every transaction I make. This means that I am able to keep track of everything occurring in my account instantly and in real time, and immediately known if somethings not right. I feel confident that the bank is communicating well with me”.

Similarly, a staff respondent (P2) explained:

Most of the customer requests are now resolved via digital channels like the mobile app, the emails, social media and chat services.

The results imply that banks should leverage digital channels to provide easier access to their services and enable customers to interact more comfortably without visiting their premises. This directly related to the first research objective about the types of ICT used to communicate at the customer interaction point.

Theme 2. Perceived Benefits of ICT in Customer Service Communication

Participants unanimously felt ICT has enhanced service delivery through making banking faster, more convenient and more accessible. Customers mentioned they can do various transactions, get daily account updates, and resolve some banking problems without going to halls. According to Participant 3 (P3):

The moment I whined on the social media that I wasn't able to see the transfer success, my bank responded within the shortest time as if I was doing it at a branch in person. Customer support team gave me response within a short period of time, gave me updates to progress and reversed my transaction. That showed I had more trust to the bank's digital communication platform.

Another participant (P4) stated:

"With the mobile banking app, I can send money, make payments, check my account balance, and track my account activities wherever I am. It saves me the stress of visiting the bank for simple transactions and allows me to manage my finances at my convenience, whether I am at work, at home, or travelling."

The responses suggest that customers perceive ICT-enabled banking services as convenient, accessible, time-saving, and less stressful than traditional banking channels. The ability to access services remotely and receive immediate feedback appears to enhance customer satisfaction and encourage greater reliance on digital communication platforms. This finding supports recent studies which argue that perceived convenience, ease of use, and service accessibility are major determinants of customers' acceptance and continued use of digital banking technologies (Laudon & Laudon, 2022; Zeithaml, Bitner, & Gremler, 2018). The findings therefore provide support for the second and third objectives of the study relating to the effectiveness of ICT in customer service communication and the benefits customers derive from ICT-enabled

Theme 3. ICT and Customer Trust and Satisfaction

Interview participants suggested that some of the major mechanisms through which ICT contributes to confidence building in the banking system include instant transaction alerts, efficient communication channels, prompt responses to enquiries, and timely updates on



account activities. Respondents explained that receiving immediate notifications following transactions reassures customers that their accounts are being actively monitored and that banking activities are transparent. Participant 5 (P5) noted:

"Having transaction notifications come through straight away reassures me that my account is safe. Whenever money enters or leaves my account, I receive an alert immediately, which helps me detect any suspicious activity quickly and gives me peace of mind."

These findings suggest that ICT-enabled communication contributes significantly to customer trust and satisfaction by improving transparency, responsiveness, and reliability in banking transactions. Immediate access to information reduces uncertainty, enhances customers' sense of control over their finances, and strengthens confidence in the bank's ability to provide secure and efficient services. This finding supports the proposition of Expectation Confirmation Theory, which argues that customer satisfaction increases when service performance meets or exceeds customer expectations regarding speed, reliability, and responsiveness.

Theme 4. Challenges Associated with ICT-Based Customer Service Communication

Interview responses also revealed several limitations associated with ICT-enabled customer service communication in the banking sector. The major challenges identified by participants include network failures, application downtime, delays in responding to complaints, and security concerns relating to cyber fraud, phishing attacks, and fraudulent messages. Respondents explained that these issues often reduce confidence in digital banking platforms and affect the overall customer experience. Participant 1 (P1) stated:

"Sometimes transactions fail and it takes a couple of days, or even longer, before the money is reversed to my account. During that period, it can be frustrating because you are unsure of what has happened to your money and getting updates from the bank is not always immediate."

Another respondent, Participant 6 (P6), explained:

"I'm always cautious with emails and text messages because fraudsters sometimes imitate banks and send fake messages asking for personal information. I usually verify any suspicious communication before responding."

Participants also highlighted the existence of a digital divide among customers. While younger and technologically savvy customers tend to embrace digital banking channels, older customers and those with limited digital literacy often prefer traditional banking methods such as branch visits and face-to-face interactions.

These findings suggest that although ICT has significantly improved customer service communication, its effectiveness continues to be constrained by infrastructural challenges, cybersecurity concerns, and differences in customers' levels of digital literacy. The results indicate that improving network reliability, strengthening cybersecurity awareness, and providing digital literacy support for less technologically experienced customers remain essential for maximising the benefits of ICT-enabled banking communication. These findings directly address the fourth



research objective concerning the challenges associated with the use of ICT for customer service communication in commercial banks.

Discussion of Findings

Objective One: To find out the types of ICT tools used by Selected Commercial Banks in FCT, Abuja, to Communicate with Customers

The study found that mobile banking applications, CRM systems, internet banking platforms, SMS alerts, emails, USSD services, chatbots, and social media platforms constitute the major ICT tools used by commercial banks in Abuja for customer communication. Quantitative findings showed that mobile banking applications emerged as the most frequently used communication tool, while interview participants confirmed that transaction alerts, mobile applications, and social media interactions represent their most common contact points with banks. The dominance of mobile applications suggests a shift from branch-based communication towards customer-controlled and real-time communication channels. This reflects changing customer expectations regarding immediacy, convenience, and accessibility in banking services. The findings therefore indicate that communication in banking is increasingly becoming digital, personalised, and available beyond traditional banking hours.

These findings support Echukwu (2026), who found that internet banking, ATM banking, and telephone banking constituted the major ICT communication channels influencing customer satisfaction in Abuja. Similarly, Umoette et al. (2026) reported growing reliance on AI-powered banking technologies such as chatbots and automated support systems for customer engagement. However, unlike Umoette et al. (2026), whose study focused primarily on AI chatbots as drivers of customer patronage, the present study demonstrates that customers rely on multiple integrated communication channels rather than a single technology platform. The dominance of mobile applications suggests a shift from branch-based communication towards customer-controlled and real-time communication channels. This reflects changing customer expectations regarding immediacy, convenience, and accessibility in banking services. The findings therefore indicate that communication in banking is increasingly becoming digital, personalised, and available beyond traditional banking hour .

Objective Two: To Ascertain how these ICT tools are applied in customer service by selected commercial banks in FCT, Abuja

The findings revealed that banks utilise ICT tools for transaction notifications, complaint management, account enquiries, balance checks, funds transfers, fraud alerts, customer feedback management, digital onboarding, and customer engagement activities. Quantitative findings indicated that customers frequently use mobile applications and digital channels for routine banking activities, while qualitative findings demonstrated that customers increasingly prefer self-service banking models. Interview participants reported that social media platforms and mobile applications often provide quicker responses to customer complaints than traditional branch visits. Some respondents indicated that failed transactions reported through digital channels were resolved more rapidly than complaints submitted physically. These findings support Tafur-Mendoza (2021), who found that ICT contributes positively to service quality by improving organisational processes and customer interactions. Similarly, Dazagbyilo et al. (2021) observed that CRM technologies improve customer responsiveness and service efficiency within financial institutions. The findings also align with ECT, which suggests that customers evaluate service quality based on the extent to which actual experiences confirm prior expectations. Customers who



experienced quick complaint resolution and real-time communication reported greater satisfaction because service performance matched their expectations regarding responsiveness and accessibility. For managers, the implication is that ICT investments should not focus exclusively on transaction processing capabilities but should equally prioritise communication functionalities such as customer feedback systems, social media engagement, and complaint management platforms

Objective Three: To evaluate the effectiveness of these ICT tools in delivering timely and satisfactory customer service

The findings indicate that ICT tools have generally improved customer service communication within commercial banks in Abuja. Quantitative findings showed that a substantial proportion of respondents expressed satisfaction with ICT-enabled services, particularly regarding service accessibility, speed of communication, and transaction notifications. Interview findings further validated these results, as participants described ICT services as convenient, time-saving, and less stressful. Participants reported that instant transaction notifications increased confidence in banking transactions, while mobile applications allowed customers to perform transactions without visiting physical branches. Such findings suggest that ICT contributes positively to customer experiences by reducing transaction costs, waiting times, and service delays. These findings support Tafur-Mendoza (2021), who found that ICT adoption significantly improves customer satisfaction through service innovation and operational efficiency. Similarly, Echukwu (2026) reported positive relationships between internet banking services and customer satisfaction among customers of commercial banks in Abuja. The findings also agree with Zeithaml, et al., (2018), who argue that responsiveness, convenience, and accessibility constitute critical determinants of customer satisfaction in service organisations. However, the present findings also reveal contradictory evidence that was largely ignored by previous studies.

While most respondents expressed satisfaction with ICT-enabled communication, a minority reported dissatisfaction arising from delayed transaction reversals, application failures, and poor network connectivity. This suggests that ICT adoption does not automatically translate into customer satisfaction unless supported by reliable infrastructure. Expectation Confirmation Theory provides a useful explanation for these mixed outcomes. Customers whose experiences matched expectations reported satisfaction and continued usage intentions, whereas customers who experienced failed transactions and service interruptions reported dissatisfaction because actual service performance fell below expectations. The practical implication is that banks should move beyond simply introducing new technologies and focus more on service reliability, network stability, and response speed, since these factors determine whether customer expectations are confirmed or disconfirmed.

Objective Four: To Ascertain the Impediments Affecting the Effective Use of ICT Tools in Banks

The study identified network failures, application downtime, cybersecurity threats, phishing attacks, delayed transaction reversals, and low digital literacy as the major barriers affecting ICT effectiveness in customer communication. Quantitative findings revealed that network failure constituted the most frequently reported challenge among respondents. The qualitative findings reinforced this observation, as participants described experiences involving failed transactions, delayed complaint responses, and application crashes during peak periods. These findings support Madu et al. (2023), who found that failed transactions and delayed reversals



remain among the major causes of dissatisfaction among Nigerian bank customers. Similarly, Akinola and Adeyemo (2022) identified cybersecurity concerns as major obstacles affecting customer confidence in digital banking systems. The findings also support Ikpefan and Agwu (2015), who observed that digital literacy challenges reduce technology acceptance among older customers. However, unlike previous studies that focused mainly on technological failures, the present study demonstrates that customer characteristics such as age and technological competence significantly influence ICT effectiveness. The interview findings further revealed a digital divide between younger and older customers. Younger customers appeared more comfortable with digital platforms, whereas older customers often preferred physical branch interactions due to concerns regarding security and technological complexity. This finding partially contradicts earlier studies that portray digital banking adoption as universal among customers. Instead, the findings suggest that technology adoption remains uneven across demographic groups. ECT explains these findings by suggesting that service failures create negative disconfirmation because customers expect ICT systems to be reliable, secure, and continuously available. When these expectations are not met, dissatisfaction and distrust emerge.

Conclusion

This study examined the use of Information and Communication Technologies (ICTs) for customer service communication in selected commercial banks in Abuja. The findings revealed that banks utilise various ICT tools, including mobile banking applications, CRM systems, internet banking platforms, SMS alerts, emails, USSD services, chatbots, and social media platforms to communicate with customers and provide banking services. The study found that these technologies are widely applied in transaction notifications, complaint resolution, customer enquiries, funds transfers, customer feedback management, and customer engagement activities. Both the quantitative and qualitative findings showed that ICT has improved service accessibility, reduced waiting time, enhanced convenience, and enabled customers to access banking services without necessarily visiting physical branches. The findings further revealed that ICT tools have generally been effective in improving customer satisfaction and service delivery by providing faster communication, instant transaction updates, and more responsive customer support. However, challenges such as network failures, application downtime, delayed transaction reversals, cybersecurity threats, and varying levels of digital literacy continue to affect the effectiveness of ICT-enabled communication. The study therefore concludes that while ICT has become an essential tool for customer service communication in commercial banks in Abuja, its effectiveness depends largely on the reliability, security, and accessibility of these technologies.

Recommendations

In line with the findings, the following four recommendations are being proffered;

1. Since mobile banking applications, CRM systems, and digital communication channels were found to be the most widely used ICT tools, First Bank and GTBank should continuously upgrade these platforms through regular system improvements and customer feedback mechanisms to meet evolving customer needs.
2. Given the extensive use of ICT for customer enquiries and complaint resolution, commercial banks should provide regular staff training on digital customer service tools to improve responsiveness, consistency, and service quality.
3. Considering that network failures, system downtime, and delayed transaction reversals emerged as major challenges, banks should invest in stronger ICT infrastructure, backup



systems, and real-time monitoring mechanisms to improve reliability and customer satisfaction.

4. Since cybersecurity concerns and low digital literacy were identified as barriers to ICT effectiveness, banks should strengthen security systems and implement continuous customer education programmes to improve trust, digital confidence, and adoption of electronic banking services.

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