ASSESSING THE IMPACT OF TECHNOLOGY ON ELECTORAL CREDIBILITY IN NIGERIA

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ABSTRACT

Regular and credible elections are the cornerstone of every democracy, as the absence of such processes threatens democratic stability. However, in many developing democracies, political actors often view elections as a zero-sum contest where the winner takes all, frequently resorting to corrupt means to secure victory. In response, Nigeria has undertaken a series of reforms aimed at establishing a credible electoral system that fosters public trust in both the process and outcomes of elections. A key component of these reforms is the introduction of electoral technology. Thus, the study examines the role of technology in enhancing credible elections in Nigeria with a focus on the 2023 Bayelsa state gubernatorial election. Specifically, it examines the impact of election technologies in the November 2023 Bayelsa state gubernatorial elections, and examine the observed weaknesses or challenges in the election despite the application of election technology. This research is essential for understanding the complex intersection of technology, electoral governance, and democratic accountability in Nigeria. It offers evidence-based recommendations that can help reshape electoral reforms and promote sustainable democratic practices.

The study adopted a case study research design, a purposive sample of thirty (30) stakeholders including INEC officials, observer groups and civil society organizations (CSOs) was selected. Data were collected using interviews and analyzed through thematic analysis techniques. The study deployed thematic analysis to analyze the data gathered through interview.

In objective one, the study found that the 2023 elections, particularly in Bayelsa State, benefited significantly from improved electoral technology especially the Bimodal Voter Accreditation System (BVAS). This advancement enhanced accessibility to polling materials, reduced voting time, and boosted public trust by improving the credibility of both the process and the outcomes. However, regarding the second objective, the study identified several challenges. These included logistical and technical issues, equipment malfunctions, poor staff training, inadequate infrastructure, and concerns over data security and vote authenticity. These setbacks caused delays and confusion at polling units and posed risks to the overall integrity of the election process.

For objective one the study recommends among others that INEC should synergize with other democratic institutions to continually improve election technology to foster its efficacy and ease the voting and accreditation process. Thus, BVAS malfunction and delays in accrediting voters should be sorted out. The study recommends that INEC should base election result collation and calculation on the results snapped and uploaded to IReV as a measure towards building public trust and avoiding manipulation. For objective two, the study recommends among others that INEC should prioritize experience over cost by recruiting and retaining experienced auxiliary staff whose responsibility is to man the BVAS machines during elections instead of relying on NYSC members. The study concludes that electoral technology as introduced in Bayelsa 2023 election positively impacted the outcome and built public trust in INEC and the electoral process. Although, it encountered a few challenges, those challenges can be effectively addressed by INEC in subsequent elections.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Elections are the cornerstone of every democracy as it is impossible to have a democracy without election. Due to the importance of elections in every democratic society, the need for a free, fair, and credible election cannot be over-emphasized. Election can be said to be a means by which citizens or the electorate choose who leads or governs them in a democratic system (Zainawa, 2021). It can also be described as a process where the governed determine who governs them through the ballot (Kulachai, Lerdtomornsakul & Homyamyen, 2023). Elections also ensure the peaceful and legitimate transfer of power from one government to another peacefully.

Elections both in consolidated democracies and democratizing nations like Nigeria, South Africa, and Ghana have their challenges, hence the need for election management bodies (EMBs) across representative democracy to tackle and improve the process (Campion & Jega, 2023). Most countries before the introduction of technology or Information Communication Technology (ICT) usually conduct elections manually. This manual process of conducting elections sometimes undermines the integrity and credibility of electoral outcomes, due to human interference in the electoral processes.

Election technology was introduced as a means to minimize human interference in the electoral process and enhance the credibility and acceptability of elections. Election technology can be described as the use of computer software and hardware to process, analyze, and manage data and information during the electioneering process to enhance the quality of the election (Ogbeide-Ihama, 2022). Simply put, it is the application of scientific knowledge for practical application in

our elections. Election technology was introduced as a means to address some electoral challenges being faced in the manual process, these include multiple registration, ballot stuffing, result sheet manipulation, multiple voting, over-voting, hijacking of ballot boxes, logistics challenges, human interference, lack of acceptability of electoral outcomes, lack of efficiency and transparency on the part of the election management bodies amongst others. These issues highlighted have given rise to the introduction of technology or ICT in elections. Furthermore, the introduction of technology has also enhanced the transparency and efficiency of EMBs, improved election outcomes, improved stakeholder relationships, reduced genuine human error from polling officials, improved voter registration and identification, management of databases, and increased acceptability of election outcomes (Duenas-Cid, Loeber, Martin-Rozumiłowicz & Macias, 2024). Although the introduction of technology has brought about significant improvement in our electoral process, there are still issues of concern among stakeholders such as cyber-security and high levels of illiteracy among voters, which may affect their understanding of the technology causing room for doubt and unacceptability. Despite the introduction of technology in elections, there are still areas of concern that technology cannot do anything about, such as vote buying and selling, irregular political party primaries, and changing of the nominated candidate with another person amongst others.

This research seeks to assess the impact of election technology and its effect in enhancing credible elections in Nigeria, with a focus on the 2023 Bayelsa State gubernatorial election. The paper also examines the various technologies deployed in the electoral process such as voter registration and verification, voter accreditation, political party registration, observer and media accreditation, and the introduction of the Bimodal Voter Accreditation System (BVAS) which political observers believe contributed to reducing electoral fraud. It analyses the effect of these technologies

introduced and how it has been able to improve the overall credibility and acceptability of elections in Bayelsa and Nigeria.

1.2 Statement of study problem

Elections have become an integral part of every democratic society, and no democracy can survive without elections. The need for elections to be free, fair, and credible has led to the introduction of technology in the electoral process. Different nations apply technology in areas where it is deemed necessary, especially in countries that are deeply divided economically, socially, and culturally with a low level of technological penetration (Ibeanu, 2022). In nations where there is high trust in the election management bodies by the electorates, there is less need for technology as the entire process may be assumed to be credible (Ibid.). The introduction of technology is meant to improve the efficiency and effectiveness of the election management body, that is the Independent National Electoral Commission (INEC), ensure inclusivity, enhance the credibility and acceptability of electoral outcomes, reduce electoral malpractices and fraud, foster citizens confidence on the Election Management Body (EMB), reduce human interference in the electoral process, improve and enhance citizen participation in the electoral process, and eliminate rigging amongst others.

However, technology has not met the expectations of electorates, as elections in Nigeria are perceived not to be entirely free, fair, and credible. Electoral issues such as multiple registrations, election violence, over-voting, multiple voting, ballot stuffing, hijacking of ballot boxes, result sheet manipulation, insecurity, vote buying and selling, thuggery, voter intimidation and suppression, illegal announcement of results, voter apathy are still prevalent in the electoral process (Steve, Nwocha & Igwe, 2019). Despite huge investments in election technologies by the government, little progress has been made to achieve a credible, free, and fair election. The Bayelsa

state 2023 governorship election witnessed a high level of vote buying, pre-election and election day violence, ballot stuffing, politically motivated killings, and unacceptability of electoral outcomes which was greeted with litigations, compromised polling officials, alleged manipulation of result sheets amongst others.

This paper seeks to know why despite the introduction of technology in the Bayelsa state elections with huge resources devoted to the process, the election witnessed a lot of challenges. It also seeks to know the challenges that technology could not tackle in other to ensure a free fair credible election. If technology was meant to address some challenges faced by the manual process, why has technology not addressed those challenges?

1.3 Research Questions

Based on the problem identified, this research paper seeks to provide answers to the following questions.

I. What was the impact of election technologies introduced in the November 2023 Bayelsa State gubernatorial election?
II. What were the observed weaknesses in the election despite the application of election technology?

1.4 Research objectives

The objective of the study is to assess the impact of technology and its effect in enhancing credible elections in Nigeria with a focus on the 2023 Bayelsa state gubernatorial election. Specifically, the following objectives were addressed in the study:

I. Examine the impact of election technologies in the November 2023 Bayelsa state gubernatorial elections.
II. Examine observed weaknesses or challenges in the election despite the application of election technology.

1.5 Scope of the study

The scope and focus of this research paper is on the use of election technologies or Information Communication Technology (ICT) in the November 2023 Bayelsa State gubernatorial elections. The study was designed to assess the impact of technology in Bayelsa state and its effect in enhancing credible elections in Nigeria with a focus on the Bayelsa state governorship elections. The scope of the research was limited to the use of election technologies particularly the BVAS machine in Yenagoa and Southern Ijaw Local Government Areas of Bayelsa State. This scope is imperative due mainly to the short period and limited resource available to the researcher. Thus, extending this study to the entire state would require more time and resources, hence the limitation.

1.6 Significance of the study

The findings of this study hold significant value for a wide range of stakeholders across Nigeria's electoral landscape. Primarily, the Independent National Electoral Commission (INEC), as the

constitutionally empowered body responsible for conducting elections at both the national and state levels, stands to benefit from the insights provided. The research offers a vital resource for INEC to evaluate the effectiveness of technological innovations deployed in previous elections and to identify areas requiring further technological enhancement.

State Electoral Commissions can also leverage these findings to inform their operational strategies and optimize the integration of electoral technology within subnational elections. Political parties, as essential actors in Nigeria's democratic process, will find the study useful in shaping their engagement with electoral reforms. The evidence-based recommendations presented can serve as a foundation for policy lobbying efforts aimed at strengthening electoral laws and improving citizens' participation.

Furthermore, the electorate and the general public are expected to gain a clearer understanding of the advancements made in the electoral process through technology, as well as the persisting challenges that require redress. This enhanced awareness can foster greater trust and engagement in democratic processes.

Lastly, government agencies, policymakers, political appointees, researchers, and election technology experts will find this research an important reference point. It provides relevant data and scholarly perspectives that can inform the design of comprehensive solutions to the challenges identified, and guide the practical implementation of the study's recommendations. Ultimately, the study contributes meaningfully to the ongoing discourse on electoral integrity and democratic consolidation in Nigeria.

1.7. Limitations of the study

This study had its challenges and limitations. Most high-profile electoral officials were unwilling to give out information, hence they were uncooperative. Also due to time constraints, not all the wards in both Yenagoa and Southern Ijaw local governments were surveyed due to the deltaic nature of the local governments. Also, financial constraint was an issue because the researcher was not disposed to the availability of funds to execute some aspect of the research. Finally, there were not adequate literatures available to the researcher as at the time of carrying out the research.

The researcher navigated these challenges by deploying personal relationship and contacts to access the officials of the EMB and other critical stakeholders in the two local government areas. She also maximized the limited resources at her disposal to achieve optimum result. She however, extended her literature search to other countries and regions in order to enrich the work.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

In this chapter, the researcher focuses on secondary data on related literature such as books, journals, newspapers, magazines, online articles, and other materials from the internet on election technologies and how they impact on the credibility of elections. The research also reviews literature related to election technologies, the use of ICT in elections, e-registration, e-accreditation, BVAS machines, media, election observer's accreditation, political party and candidate nomination process, and electronic voting amongst others.

Generally, it discusses the concepts around the use of technology in elections in Nigeria, with a focus on the November 2023 Bayelsa State gubernatorial elections. It reviews its effectiveness, challenges, and prospects in future elections in the state.

2.1 Literature Review

2.1.1. Conceptual Review

A. Elections

According to IGI Global (2022, p. 22), an election is defined as "a formal group decision-making process by which the personnel can choose their representatives." Chanchai (2015) emphasizes that elections are not just procedural mechanisms but symbolic pillars of democracy, noting that "election is a part of the political process in a democracy, and every democratic system also deploys the election as a symbol of democracy" (p. 26). In a more classical sense, Mackenzie (1954) described elections as a "ritual of choice," wherein individuals participate in a collective act that bestows legitimate authority on those elected. Hague and Harrop (2010) add that

competitive elections promote essential democratic principles such as choice, dialogue, accountability, transparency, and legitimacy.

Nnoli (2003, p. 220) asserts that elections are fundamentally tied to the development of representative democratic governance, stating that they are widely considered "the single most important indicator of the presence or absence" of democratic government. Nwachukwu and Osadola (2019) highlight the centrality of elections in democratic systems, arguing that while elections are indispensable to democracy, flawed electoral processes—especially in Africa and other developing regions often undermine democratic progress. Their findings emphasize that true democracy cannot exist in the absence of free, fair, and credible elections.

The Independent National Electoral Commission (INEC, 2023, p. 57) further defines elections as "the act of choosing one candidate out of many through open-secret ballot," reinforcing its procedural and participatory essence. Egwu (2023) also underscores the democratic importance of elections, stating that they are intended to enhance citizen participation, ensure government accountability, and foster political competition. Therefore, free, fair, and credible elections are essential prerequisites for democratic governance (p. 17).

Elections serve as a key mechanism through which citizens engage in political processes and participate in the sustenance of democratic rule (Garnett & James, 2020). They facilitate peaceful transitions of power, giving citizens the opportunity to evaluate and select their preferred candidates or parties (Oriakhi, Chilaka & Oyinmiebi, 2019). From this perspective, Okolie (2005, p. 26) maintains that elections not only confer legitimacy on public officeholders but also subject them to periodic evaluation, thereby promoting accountability and good governance.

Ultimately, elections must reflect the fundamental democratic values of transparency, fairness, freedom, rule of law, and due process to be deemed credible. As various scholars have noted (Diamond, 2008; Oriakhi, Chilaka & Oyinmiebi, 2020; Okoye & Oyinmiebi, 2021), credibility in elections is key to sustaining democratic legitimacy. Shittu and Onyeukwu (2019) define electoral credibility as the degree of trust, confidence, and legitimacy that stakeholders accord to an electoral process, viewing it as a reliable and respected mechanism for leadership selection.

B. Electoral Credibility in Nigeria

Electoral credibility in Nigeria has become an increasingly critical issue within both academic and policy-making circles, particularly in the wake of repeated electoral irregularities, voter apathy, and violence that undermine democratic consolidation. Electoral credibility broadly refers to the extent to which elections are perceived to be free, fair, transparent, inclusive, and reflective of the electorate's will. In the Nigerian context, several factors determine electoral credibility, including institutional integrity, technological innovation, security, civic awareness, and stakeholder behavior.

Several scholars highlight the centrality of the Independent National Electoral Commission (INEC) in determining electoral credibility. According to Ayoade (2022), INEC's autonomy and capacity are pivotal to delivering free and fair elections. However, the institution has faced allegations of partisanship, logistical inefficiencies, and poor result management, especially during the 2019 and 2023 general elections. Udochukwu, Ojo, and Aideleje (2024) stress that electoral integrity in Nigeria cannot be divorced from institutional transparency and a consistent application of electoral laws. They argue that while technological improvements have advanced the voting process, credibility ultimately depends on the operational and moral conduct of election managers.

Technological innovations such as the Bimodal Voter Accreditation System (BVAS) and the INEC Result Viewing Portal (IReV) have been celebrated as transformative tools in enhancing transparency. Layiwola (2023) observes that these innovations, introduced by INEC, helped reduce instances of overvoting and identity fraud. Similarly, Onyambayi et al. (2024) note that the deployment of BVAS during the Kogi Senatorial by-election significantly curtailed manipulation and increased public trust. Nonetheless, other studies such as Tsokwa and Tigye (2023) contend that technical failures, inadequate voter education, and poor connectivity often erode the intended benefits of these technologies, creating further distrust.

Security challenges have also been a major threat to electoral credibility in Nigeria. Yusuf and Saminu (2023) document the recurrence of violence, intimidation, ballot snatching, and attacks on electoral officials in various parts of the country, which discourage participation and compromise election results. The 2023 elections were particularly marked by regional insecurity that prevented voters from freely accessing polling units in parts of the North-East and South-East (Oduola, 2023). The failure of security agencies to prevent or promptly respond to violence is often viewed as complicity or institutional weakness.

Vote-buying remains another barrier to credible elections. According to Tsokwa and Nwanegbo (2023), the commodification of votes distorts democratic choice and entrenches a culture of transactional politics. This undermines the legitimacy of electoral outcomes and disincentives credible candidates who cannot compete financially. Civic organizations have called for stricter enforcement of campaign finance regulations and sanctions against violators.

Moreover, the role of civil society and voter education has received growing attention. Udochukwu et al. (2024) emphasize that widespread misinformation and limited civic literacy especially in rural areas, continue to affect voter behavior and perceptions of the electoral process. The role of

organizations like the Nigeria Civil Society Situation Room and the Centre for Democracy and Development (CDD) in monitoring elections and reporting irregularities has been praised for enhancing accountability and visibility. Despite these challenges, some progress has been recorded. The 2022 Electoral Act introduced significant reforms aimed at strengthening transparency, including earlier timelines for candidate submission, stricter guidelines on vote transmission, and electronic result collation. Scholars such as Asoya (2024) argue that these reforms represent incremental progress toward electoral integrity, but warn that without robust enforcement mechanisms and political will, their impact may remain limited.

Existing literature shows that while Nigeria has made strides in enhancing electoral credibility through legal reforms and technological tools, the persistence of institutional weaknesses, insecurity, voter inducement, and poor civic awareness continue to erode public trust in the electoral process. For electoral credibility to be fully realized, a holistic approach involving electoral reform, political accountability, civic engagement, and effective oversight is essential.

C. What Constitutes Electoral Credibility in Nigeria

Electoral credibility refers to the degree to which an electoral process is perceived by stakeholders such as voters, political parties, observers, and the international community as free, fair, transparent, and representative of the people's will. In the Nigerian context, electoral credibility is particularly critical given the country’s history of contested elections, systemic manipulation, and widespread voter disenchantment. Scholarly works emphasize that a credible election is not merely one where citizens cast votes, but one in which all phases (pre-election, Election Day, and post-election activities) adhere to principles of fairness, transparency, and inclusiveness (Ojo, 2007; Ibrahim & Ibeanu, 2009; Omotola, 2010).

a. Institutional Independence and Capacity of Electoral Management Bodies (EMBs)

A foundational determinant of electoral credibility is the autonomy and operational efficiency of electoral institutions, particularly the Independent National Electoral Commission (INEC). Scholars such as Agbaje and Adejumobi (2006) argue that credible elections require EMBs to be not only legally independent but also practically insulated from political interference. The 2015 and 2023 elections, for instance, were widely debated in literature due to INEC's perceived partiality and lapses in logistics (Nwankwo, 2021; Onapajo, 2023). Electoral credibility thus hinges on institutional trust, financial autonomy, and the technical capacity of INEC to conduct seamless and timely elections.

b. Legal Framework and Electoral Laws

An effective and predictable legal framework is essential to credible elections. The passage of the 2022 Electoral Act, which institutionalized the use of technologies like the Bimodal Voter Accreditation System (BVAS) and electronic transmission of results, was seen as a progressive step toward enhancing transparency (Yusuf & Okoye, 2023). However, as observed during the 2023 general elections, legal innovations must be matched by effective implementation to have a meaningful impact on credibility (Oduola, 2023). Hence, credible elections are those underpinned by robust, consistently applied laws that reflect best practices and safeguard against manipulation.

c. Electoral Technology and Transparency

The deployment of electoral technologies has emerged as a key component of electoral credibility in Nigeria. BVAS, the INEC Result Viewing (IReV) portal, and electronic transmission of results were introduced to reduce human interference and bolster transparency (Onapajo, 2023). While

such tools were lauded for improving accreditation and increasing public confidence, their inconsistent use in some states during the 2023 elections highlighted the gap between policy and practice (CDD, 2023). As such, technology enhances electoral credibility only when it is uniformly deployed, effectively managed, and backed by institutional commitment.

d. Security and Absence of Violence

Security remains a critical factor in determining whether elections are credible. Insecurity during elections often leads to voter suppression, manipulation, and outright disenfranchisement, particularly in rural and volatile regions. According to Omilusi and Ajayi (2021), electoral violence, whether through physical attacks, threats, or intimidation erodes trust and distorts outcomes. A credible election must therefore be peaceful, allowing voters to exercise their franchise without fear.

e. Voter Participation and Inclusion

Electoral credibility is also measured by the extent of citizen participation and inclusiveness. According to Ibrahim and Ibeanu (2009), an inclusive electoral process must facilitate the participation of marginalized groups such as women, youth, persons with disabilities, and internally displaced persons (IDPs). However, Nigeria's elections have often seen low voter turnout and underrepresentation of vulnerable groups, raising concerns about the legitimacy and inclusivity of electoral outcomes (Adeniran, 2022). Therefore, a credible election must ensure that all eligible citizens can participate freely and fairly.

f. Vote Counting and Result Collation

The credibility of an election is also closely linked to how votes are counted and results declared. Several scholars highlight the manipulation of collation processes as a major flaw in Nigerian elections (Omodia & Egwemi, 2021). Delays, discrepancies between polling unit results and final declarations, and opaque collation procedures have frequently led to disputes and loss of confidence. Effective monitoring, use of real-time digital collation systems, and timely release of accurate results are essential for ensuring credibility.

g. Role of Political Parties and Campaign Financing

The behavior of political parties and the nature of campaigns also influence electoral credibility. Unregulated campaign financing, vote-buying, and hate speech have been cited as threats to free and fair elections in Nigeria (Uzochukwu & Nwanegbo, 2023). Political parties must adhere to democratic principles, respect internal democracy, and campaign within legal and ethical boundaries to strengthen electoral integrity.

h. Election Observation and Public Perception

Lastly, both domestic and international observation reports serve as indicators of electoral credibility. Observers' assessments often shape public and international perceptions of an election's legitimacy. As Ojo (2022) notes, credible elections are not only those that are technically efficient but those that are broadly perceived as free, fair, and reflective of the people's will.

Electoral credibility in Nigeria is a multifaceted construct that encompasses institutional integrity, legal consistency, technological transparency, inclusivity, and public trust. While Nigeria has made important strides, particularly through legal reforms and technological innovations, challenges such as political interference, poor logistics, violence, and lack of voter trust continue

to undermine credibility. To foster truly democratic elections, Nigeria must address these structural and operational issues holistically.

D. Technologies and credible elections

Over the past two decades, there has been a significant rise in the use of Information and Communication Technology (ICT) in electoral processes, a trend particularly evident in regions such as Africa and Asia. Electoral commissions have increasingly adopted digital technologies to facilitate key processes like electronic voter registration, voter authentication, and transmission of results (Cheeseman, Lynch & Willis, 2018). The benefits derived from these technologies include the deployment of various digital tools ranging from computer systems, software applications, scanners, barcode readers, printers, and mobile phones to SMS platforms, internet-based applications, and biometric sensors. These tools are now widely used to manage elections, political parties, voter participation, campaigns, and other democratic engagements (EU-UNDP, 2017).

Hassan (2020) attributes the rising demand for such technologies in Nigeria to persistent institutional failures in delivering credible elections, coupled with the recurrent disputes and controversies that mar electoral outcomes. With nearly half of all elections in Africa now relying on ICT for key functions such as biometric enrollment, voter verification, and electronic result collation, the role of technology in electoral reform has become prominent (Cheeseman et al., 2018). In Nigeria, electoral contests are frequently undermined by fraud, violence, and irregularities that erode public trust and democratic credibility (Inokoba & Rufus, 2021). This situation prompted the gradual embrace of technology-driven reforms, which have garnered broad support.

Historically, Nigerian elections have been plagued by allegations of rigging and malpractice. These longstanding issues gave rise to strong advocacy for reforms geared toward promoting credible electoral outcomes. The introduction of technology was seen as a strategic move to strengthen the integrity and transparency of elections (Agbu, 2016). While the deployment of technological tools in areas like vote counting, voter registration, and result collation holds great promise for efficiency and reliability, it is crucial that all electoral stakeholders are actively engaged in the reform process. Nonetheless, politicians and vested interests may still attempt to undermine or manipulate technological systems for personal or partisan gain (Omoleke, 2017).

The evolution of electoral technology in Nigeria is closely tied to broader reform efforts aimed at addressing systemic flaws within the electoral framework. According to Oyinmiebi and Inokoba (2023), the trajectory of electoral innovation in Nigeria mirrors the country's history of electoral reform centered on enhancing transparency, reducing irregularities, and building public confidence in election outcomes.

Given that elections are the cornerstone of democratic governance (Idowu, 2017), continuous improvement of the electoral process is essential. Despite the optimism surrounding technological interventions, some concerns persist regarding their limitations and vulnerabilities, which could potentially undermine democratic gains (Idowu, 2021; Cheeseman et al., 2018). The erosion of credibility in African elections has contributed to political instability, illegitimate governments, and democratic backsliding, all of which threaten governance and development across the continent (Chilaka & Oyinmiebi, 2021). Nonetheless, credible electoral processes remain vital for peace, institutional development, and democratic consolidation in both Nigeria and the wider African context (Osei-Afful, 2017). As Ifeanyi-Ajufo and Hoffman (2023) observe, Nigeria's

experience with electoral technology represents a critical test case for Africa's democratic resilience.

Recent scholarly discourse, including works by Gelb and Clark (2013), Gelb and Decker (2012), Golden, Kramon and Ofosu (2014), and Mugica (2015), suggests that technological adoption reinforces electoral institutions and supports the sustainability of reforms necessary for credible elections in Nigeria and Africa (Iremeka, 2023; Fatai, 2023; Angalapu, 2023). Consequently, an increasing number of African countries are investing in technological systems to bolster electoral credibility (Cheeseman et al., 2018). Globally, Information and Communication Technologies (ICTs) are now integral to election management. Governments have adopted these tools to foster public trust and ensure transparency. Their applications range from Geographic Information Systems (GIS) for boundary demarcation to digital platforms enabling e-registration, e-authentication, e-collation, and e-transmission of results, all of which enhance voter access and engagement (IDEA, 2014).

Nonetheless, the pursuit of credible elections remains a formidable challenge in many African democracies. Iwuoha (2018) notes that elections across the continent are often tainted by rigging, violence, and fraud. In response, several countries have turned to technological innovations to address these systemic challenges (Gelb & Clark, 2013).

Electoral credibility, as defined by Omoleke (2017), hinges on principles of equality and liberty ensuring that all citizens are treated fairly and allowed full participation, whether as voters or candidates. Expanding on this, Barkan and Okonkwo (2020) describe credible elections as those that are widely accepted, free from violence or manipulation, and trusted by all stakeholders. In

this context, electoral credibility in Nigeria entails a process that guarantees fairness, trust, equity, and transparency, while minimizing electoral violence and post-election disputes.

According to the Open Election Data Initiative (n.d.), four key criteria define electoral credibility: inclusiveness, transparency, accountability, and competitiveness. Inclusiveness entails equal participation rights for all citizens as voters or candidates. Transparency requires that each phase of the election be open to scrutiny, with information accessible to both voters and candidates. Accountability demands that all actors in the electoral process be held responsible for misconduct, and that remedies exist for those whose rights are infringed. Competitiveness ensures that citizens are free to form political parties, candidates are able to campaign without intimidation, and voters can cast their ballots without coercion.

E. Bimodal Voter Accreditation System (BVAS) and INEC Result Viewing (iReV) Portal

Angalapu (2023) observes that the Electoral Act of 2022 conferred broad powers on the Independent National Electoral Commission (INEC) to adopt technological tools for elections. Among these innovations, the Bimodal Voter Accreditation System (BVAS) and the INEC Result Viewing Portal (IReV) stand out as pivotal instruments for enhancing electoral transparency and curbing malpractice. BVAS is a digital device composed of both software and hardware components. It verifies voters' identities through fingerprint and facial recognition before they cast their ballots, replacing the vulnerable manual accreditation system. In addition to voter authentication, BVAS is also capable of capturing images of result sheets (Form EC8A) and transmitting them electronically to the IReV portal. The IReV serves as a centralized, online platform where polling unit results are uploaded in real time, allowing public access and scrutiny (INEC, 2023; Yeboah, 2023).

Odinkalu (2021) highlights that BVAS integrates several critical election functions into a single device, including voter registration, accreditation, and result management. By combining multiple biometric technologies such as fingerprint, iris, and facial recognition BVAS significantly reduces the chances of impersonation, multiple voting, and other electoral malpractices. According to Oyemike (2023), the real-time transmission of polling unit results to the IReV portal enhances transparency and builds public confidence in the electoral process. INEC Chairman, Professor Mahmood Yakubu, has reiterated the Commission's commitment to preserving the credibility of elections in Nigeria. The introduction of BVAS and IReV reflects this goal, as both technologies were specifically designed to address three key challenges in Nigerian elections: voter registration, voter accreditation, and result collation (Ogieva & Ajisebiyawo, 2023).

Research supports the view that BVAS plays a crucial role in protecting electoral integrity. It minimizes the risk of fraud, generates valuable data on voter demographics and participation trends, and informs better decision-making for election administrators and policymakers (Olusegun, 2022; Onyekachi, 2021). During registration, BVAS captures biometric data, including facial images and fingerprints of eligible voters, which is stored in a centralized database for later authentication. Olasupo (2022) notes that the combination of IReV and the electronic transmission of results enhances the openness of the result collation process and limits opportunities for tampering during physical transfer. BVAS is used both during registration and voting first to enroll voters and later to accredit them and transmit results to the IReV portal.

As Abowei (2023) and Agboke (2023) emphasize, the core objective of these technologies is to reduce electoral fraud by using two biometric identifiers (fingerprints and facial features), thereby

minimizing the possibility of failed accreditation and ensuring more credible, transparent, and inclusive elections in Nigeria.

F. Automated Fingerprint Identification System (AFIS)

The Automated Fingerprint Identification System (AFIS) is a biometric technology designed to establish an individual's identity through fingerprint recognition. It functions by capturing, storing, and comparing digital fingerprint records using sophisticated algorithms. AFIS is widely used in various sectors including law enforcement, border control, and electoral systems to verify identity and prevent duplication (Ace Electoral Knowledge Network, 2007; Innovatrics, 2024). According to Aratek (2021), AFIS employs advanced fingerprint-matching algorithms to scan fingerprints, convert them into digital templates, and cross-check them against a centralized database for rapid and accurate identification.

The origin of AFIS dates back to the late 1960s and early 1970s, a period marked by rising crime rates and social instability. This era coincided with the invention of the silicon chip, which facilitated the development of automatic data processing systems. As Moses (2016) notes, these innovations provided a timely solution to the challenges of traditional identification systems, ultimately giving rise to AFIS. In the context of Nigeria’s electoral process, the digitization of elections began more than a decade ago, with AFIS playing a foundational role. According to Fatai (2023), the Independent National Electoral Commission (INEC) first deployed AFIS in the 2011 general elections to detect and prevent multiple voter registrations. Though basic in its initial implementation, AFIS marked Nigeria’s earliest official adoption of biometric electoral technology.

This initiative evolved significantly in subsequent elections. By 2015, INEC had enhanced the AFIS platform and introduced Permanent Voter Cards (PVCs) and Smart Card Readers for real-time identity verification at polling units. Ayeni and Esan (2018) highlight that a "business rule" was also implemented, requiring the biometric capture of at least two fingers before any record could be added to the national electronic voter register. This strengthened data integrity and minimized the possibility of duplicate registrations. Further improvements were made with the integration of the Automated Biometric Identification System (ABIS) alongside AFIS. These systems were used to clean up the voter register by identifying and eliminating multiple registrations and biometric duplications (The Cable, 2024). Mokwele (2016) describes AFIS as software that encodes fingerprint data by mapping distinct fingerprint features onto a coordinate grid, which helps determine both their location and orientation. This mapping process ensures precision in matching and identification.

Overall, the use of AFIS in Nigeria's electoral system has been instrumental in promoting transparency and electoral credibility. By minimizing the risk of fraudulent registrations and enhancing voter verification processes, AFIS supports the broader objective of ensuring free, fair, and credible elections.

G. Automated Biometric Identification System (ABIS) and Its Role in Electoral Integrity

Biometrics denotes to the measurement and analysis of unique physical or behavioral traits for the purpose of individual identification and verification. Common biometric identifiers include fingerprints, palm prints, iris and retina scans, facial recognition, voice patterns, and DNA profiles (Bolle & Pankanti, 2004). In the context of modern identity management, these technologies have

become critical tools in ensuring security, efficiency, and authenticity across sectors. The Automated Biometric Identification System (ABIS) represents a sophisticated, multi-modal biometric solution designed to acquire, store, and analyze biometric data on a large scale. ABIS integrates various biometric traits such as fingerprints, facial features, finger veins, and iris scans, enabling high-speed matching against extensive databases. It is widely employed by government agencies, law enforcement institutions, and private sector organizations for identity verification and de-duplication processes (Aratek, 2021).

In Nigeria, the Independent National Electoral Commission (INEC) adopted ABIS as a strategic upgrade to the earlier Automated Fingerprint Identification System (AFIS), which relied solely on fingerprint data. ABIS, in contrast, incorporates both fingerprint and facial biometrics, enhancing the robustness and reliability of the voter verification process. According to Ayeni, Aweh, Badeji-Ajisafe, and Atachin (2023), the use of ABIS during the 2021 Continuous Voter Registration (CVR) exercise marked a significant shift from previous elections in 2015 and 2019, which used only fingerprints for detecting duplicate registrations.

ABIS played a critical role in purging invalid entries from the voter register. INEC reported that, out of the 2,523,458 individuals who completed registration between June and December 2021, approximately 44.6% (1,126,359) were identified as invalid due to multiple registrations or biometric inconsistencies (INEC, 2022). This high invalidation rate underscored the necessity of deploying advanced biometric systems like ABIS to enhance the integrity of the electoral process.

INEC Chairman, Prof. Mahmood Yakubu, emphasized during a press briefing that the deployment of ABIS significantly improved the Commission's capacity to detect and eliminate irregularities in the voter roll. He affirmed that the system would continue to be used to sanitize the voter register

and ensure that only eligible individuals were captured (INEC, 2022). Agboke (2023) further explains that ABIS replaced the older AFIS model, enabling multi-biometric authentication that combines facial recognition with fingerprint analysis. This dual-modality approach is particularly effective in detecting duplicate or fraudulent entries during voter data cleanup, prior to the final issuance of Permanent Voter Cards (PVCs).

Awotunde (2017) also supports the adoption of ABIS, noting that it addresses the limitations associated with single-modality biometric systems like AFIS. While ABIS has not yet been extended to the voting phase of elections, its implementation in the voter registration process has significantly strengthened electoral transparency and accountability. ABIS has become a cornerstone of Nigeria's biometric electoral infrastructure, significantly advancing the credibility of the voter register. Its dual use of fingerprint and facial recognition technologies allows for more accurate identification and de-duplication, thereby contributing to more credible, inclusive, and transparent elections.

H. INEC Voter Enrolment Device (IVED)

The 2023 general elections in Nigeria marked a significant shift in the technological framework of the electoral process with the introduction of an innovative and integrated device known as the INEC Voter Enrolment Device (IVED)**.** This three-in-one multifunctional tool replaced earlier systems and was designed to enhance both the voter registration and accreditation processes. During the pre-election phase, IVED served as the primary device for capturing biometric data and registering voters. On election day, however, the same device functioned as the Bimodal Voter Accreditation System (BVAS), used to accredit voters through either fingerprint or facial

recognition**,** thereby reinforcing the integrity of the accreditation process (Ayeni, Aweh, Badeji-Ajisafe & Atachin, 2023).

Agboke (2023) describes the IVED as a tablet-based device equipped with three core peripherals: a fingerprint scanner**,** a camera**,** and a printer. These components enable the device to perform multiple functions, from data capture during registration to real-time voter verification during elections. This innovation replaced the previous Direct Data Capture Machine (DDCM)**,** which relied heavily on bulkier laptop-based systems.

According to the Independent National Electoral Commission (INEC), the IVED represents a new generation of technology that surpasses the DDCM in terms of portability, efficiency, and technological sophistication. Unlike the DDCM, whose core component was a laptop computer, the IVED is a more compact and mobile Android tablet system, which facilitates easier deployment across diverse terrains and voting centers (Vanguard, 2021).

INEC Chairman, Prof. Mahmood Yakubu, emphasized this transition during a 2021 press briefing, stating: *"While the DDCMs have served the Commission well over the last 10 years, we believe that there are now more compact registration devices that will better serve Nigerians during the Continuous Voter Registration (CVR) exercise. The Commission is therefore migrating to the INEC Voter Enrolment Device (IVED), which is based on an Android tablet"* (INEC, 2021).

This technological advancement not only enhanced the efficiency of the registration and accreditation processes but also demonstrated INEC's commitment to leveraging modern innovations to improve the transparency and credibility of Nigeria's electoral system.

I. Direct Data Capture Machine (DDCM)

The lead-up to Nigeria's 2007 general elections signaled a turning point in the country's electoral history with the introduction of Direct Data Capture Machines (DDCMs). This technological innovation significantly enhanced the integrity of the voter registration process. DDCMs were introduced by the Independent National Electoral Commission (INEC) to tackle issues such as multiple registrations, double voting, and other forms of electoral fraud. The devices included components such as a laptop for capturing and storing voter information, a fingerprint scanner, a built-in camera for photographs, backup batteries to ensure functionality during power outages, an external hard drive for data storage, and a printer for issuing Temporary Voter Cards (TVCs) (Ayeni & AEsan, 2018).

These machines were capable of recording biometric data, including biodata, photographs, and all ten fingerprints of registrants. As a result, the voter register produced through this system was widely regarded as INEC's most credible to date and was subsequently used for the 2011 and 2015 general elections (International IDEA, 2017). For the 2007 elections, approximately 40,000 DDCMs were deployed over an 81-day voter registration period, enabling the registration of more than 61 million voters, thereby making the process more efficient, transparent, and less burdensome (Emmanuel, 2015).

Given Nigeria's challenges with electoral fraud and high illiteracy rates, INEC prioritized comprehensive voter identification, requiring details such as name, age, photo, and fingerprints. To facilitate this, each DDCM kit was equipped with a laptop, webcam, fingerprint scanner, and printer. Additional equipment included external hard drives for data backup, long-lasting batteries to operate in areas with unreliable electricity, and rugged, weather-resistant cases to protect the

equipment. The kits also came with software CDs, printer toner, and ID card printing materials, ensuring the registration process was robust and reliable (Kuris, 2012).

2.1.2. Theoretical Review

Legitimacy and Procedural Fairness: Insights from Procedural Justice Theory

A critical theoretical lens for understanding the relationship between electoral credibility and citizen acceptance of electoral outcomes is Procedural Justice Theory, primarily developed by Tom R. Tyler (1988, 1990, 2003). The theory posits that individuals are more likely to perceive decisions, institutions, and outcomes as legitimate and worthy of compliance when the processes leading to those outcomes are perceived as fair, impartial, and transparent. In the context of elections, procedural fairness rather than just the final results play a central role in shaping public trust, political efficacy, and democratic legitimacy (Tyler, 2006; van der Eijk & Rose, 2021).

Electoral legitimacy, therefore, does not depend solely on whether a voter's preferred candidate wins or loses, but also on whether the election process is perceived to have adhered to fair rules and standards. When citizens believe that due process has been followed such as equal access to the polls, integrity in voter accreditation, or transparency in vote counting they are more likely to accept the outcomes, even if unfavorable to them (Weatherford, 1992; Norris, 2014).

The adoption of election technologies in Nigeria, such as the Bimodal Voter Accreditation System (BVAS) and IREV (INEC Results Viewing portal), can play a transformative role in reinforcing procedural fairness. Tools like biometric voter verification reduce incidents of impersonation, double voting, and ballot stuffing historical challenges that have undermined electoral legitimacy in Nigeria (Okoosi-Simbine, 2013; Agboke, 2023). Similarly, real-time electronic transmission of

results can limit opportunities for result manipulation during collation, thereby increasing public confidence in both the process and its outcomes (van der Eijk & Rose, 2021).

Empirical studies have shown that when voters perceive election procedures to be technologically consistent, verifiable, and devoid of undue human interference, their trust in electoral institutions increases (Weatherford, 1992; Adejumobi, 2023). Conversely, when technologies are deployed inconsistently or manipulated such as through selective failure or non-transmission of results they may erode the very trust they are meant to build.

In the Nigerian context, this dynamic was evident in the 2023 general elections. While the introduction of BVAS and IREV was intended to boost credibility, their inconsistent deployment in some areas led to public skepticism and post-election litigation, highlighting that technology must be matched by procedural integrity and institutional commitment to fairness (Transition Monitoring Group, 2023; Yar'Adua Foundation, 2023).

In sum, procedural justice theory underscores that enhancing legitimacy in electoral democracies like Nigeria requires not just free outcomes, but fair and trustworthy processes. Election technologies, when effectively deployed, can serve as mechanisms for procedural fairness by minimizing human error and manipulation, but their effectiveness depends on the broader political and institutional environment in which they operate.

Technological Determinism vs. Contextual Embeddedness in Electoral Reform

The discourse on electoral technology in Nigeria is often polarized between technological determinism and contextual embeddedness. These two perspectives reflect divergent scholarly positions on the effectiveness of digital innovations such as the Bimodal Voter Accreditation

System (BVAS), INEC Result Viewing (IReV) portal, and other digital collation mechanisms in enhancing electoral credibility.

Proponents of technological determinism argue that the deployment of advanced digital tools inherently improves electoral integrity by streamlining processes, minimizing human error, and curbing opportunities for electoral malpractice. According to this school of thought, the automation of voter accreditation and real-time result transmission, for instance, can deter impersonation, ballot stuffing, and result manipulation (Cheeseman, Lynch, & Willis, 2018; Gelb & Clark, 2013; Jacobsen, 2019). These innovations are viewed not just as procedural enhancements but as transformative tools that can rebuild public trust in electoral processes and reduce conflict-prone post-election disputes.

However, critics challenge the determinist position by highlighting that technology is not a panacea. Scholars aligned with the contextual embeddedness perspective caution that electoral technologies are only as effective as the political and institutional environments in which they are embedded. In states with weak rule of law, corruption-prone political elites, and low institutional accountability, such tools can be undermined, misused, or rendered ineffective (Ifeanyi-Ajufo & Hoffmann, 2023; Odote & Kanyinga, 2021). These critics argue that the reliance on technological solutions often overlooks deeper structural challenges such as partisan control of electoral commissions, militarization of elections, or vote trading that cannot be resolved by digital tools alone.

Furthermore, poor logistical planning, insufficient training of electoral officers, inadequate funding, and low digital literacy among voters may compromise the implementation of these technologies. For instance, failures in real-time transmission during the 2023 Nigerian general

elections led to public distrust and widespread calls for electoral reform, despite the initial optimism surrounding the BVAS and IReV platforms (YIAGA Africa, 2023; TMG, 2023).

This debate underscores the importance of contextualizing technology within the broader sociopolitical and institutional ecosystem. Scholars such as Madise and Ntuli (2020) argue that for electoral technologies to function effectively, they must be supported by robust legal frameworks, transparent procurement processes, and strong political will. Likewise, civic education, stakeholder engagement, and public trust are essential to ensure that innovations are not just deployed, but are also accepted and effectively used.

In essence, while electoral technologies hold significant potential, their impact is contingent on implementation quality, logistical preparedness, electoral integrity, and the institutional culture of the state. As such, technological determinism must give way to a more integrated and context-sensitive approach, one that aligns technical innovation with institutional reform and political accountability.

Innovation Diffusion Theory and Technology Acceptance in Electoral Processes

Theories such as the Innovation Diffusion Theory (IDT), developed by Everett Rogers (1962, 2003), and the Technology Acceptance Model (TAM) by Davis (1989), provide essential analytical tools for understanding the dynamics of electoral technology adoption in Nigeria and other developing democracies. These models are particularly useful for examining how electoral stakeholders voters, electoral officials, political actors, and civil society organizations perceive and respond to the deployment of technologies such as the Bimodal Voter Accreditation System (BVAS), INEC Result Viewing (IReV) portal, and electronic transmission platforms.

According to Rogers' IDT, the diffusion of any innovation - technological or otherwise is influenced by five key attributes: relative advantage, compatibility, complexity, trialability, and observability. These variables shape how quickly and broadly new technologies are adopted by users:

a. Relative Advantage refers to the perceived benefits of the innovation over existing methods. In the Nigerian electoral context, technologies like BVAS are more likely to be accepted when voters and electoral actors believe they reduce fraud and speed up accreditation.
b. Compatibility assesses how well the new system aligns with existing values, experiences, and infrastructure. For example, if BVAS is compatible with the socio-political and institutional realities of election logistics and voter identification, it is more likely to be embraced.
c. Complexity concerns the ease or difficulty of using the innovation. Technologies that are perceived as overly technical or difficult to operate especially in rural areas with low digital literacy can deter both electoral officials and voters.
d. Trialability involves the extent to which an innovation can be tested on a limited basis before full deployment. INEC's pilot use of BVAS in earlier elections (e.g., Anambra 2021, Ekiti and Osun 2022) helped foster familiarity and trust.
e. Observability pertains to the visibility of the innovation's results. When voters and political actors can directly observe the positive impact of technology (such as real-time result viewing or reduced impersonation), confidence tends to rise (Akah, Okeke, & Ibe, 2023).

Complementing this, the Technology Acceptance Model (TAM) posits that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are the most significant determinants of user acceptance. Voters and electoral personnel are more likely to adopt a technology when they perceive it as

helpful in achieving credible elections and easy to interact with. Where these conditions are not met such as in cases of delayed data transmission, device malfunction, or lack of operator training, public trust erodes, and resistance may surface (Davis, 1989; Venkatesh & Bala, 2008).

Empirical studies have demonstrated that successful electoral technology implementation depends not only on the technical functionality of tools but also on psychological acceptance and institutional preparedness. Akah et al. (2023) found that Nigeria's 2023 general elections revealed stark contrasts: while BVAS usage improved authentication in many locations, transmission failures on the IReV portal led to skepticism about the credibility of collation. These outcomes illustrate how implementation inconsistencies can damage the perceived usefulness of even the most advanced tools.

Moreover, the role of communication channels, opinion leaders, and institutional endorsement is crucial in both IDT and TAM. When INEC effectively communicates the function, purpose, and reliability of electoral technologies and when civil society and political parties endorse these tools their diffusion and acceptance accelerate. On the contrary, politicization of technology or lack of stakeholder inclusion undermines confidence and fuels conspiracy narratives.

Therefore, the deployment of electoral technology in Nigeria must be grounded in strategic public sensitization, robust training programs, phased piloting, and transparent communication to increase perceived utility and reduce complexity concerns. By aligning technological innovation with social systems and institutional capacity, the likelihood of successful adoption and enduring trust in electoral processes significantly improves.

Institutional Theory and Organizational Readiness

Institutional theory emphasizes that the successful adoption and impact of technology are heavily contingent on the readiness and capacity of the organizations implementing them. In the electoral context, this theory implies that the Independent National Electoral Commission (INEC) and related institutions must possess not only the technical infrastructure but also the procedural, administrative, and human resource capacities to integrate new electoral technologies effectively. As Onyambayi et al. (2024) and Layiwola (2023) argue, institutional structures, norms, and routines shape how innovations are adopted, routinized, and scaled within public governance systems like election management. Without strong institutions, even the most advanced technology may fail to deliver its intended objectives.

A core element of organizational readiness lies in operational preparedness. This includes proper staff training, technical support teams, clearly defined contingency protocols, and essential infrastructure such as electricity, internet connectivity, and secure data storage systems. For instance, if INEC staff are inadequately trained on the use of Bimodal Voter Accreditation System (BVAS) or if collation centers lack reliable power supply and backup systems, the benefits of such technologies may be compromised. These implementation gaps were observed in several locations during Nigeria's 2023 general elections, where technological malfunctions and delays led to voter frustration and eroded confidence in the electoral process (Layiwola, 2023). Thus, institutional readiness is not just a technical issue but a systemic one that requires sustained investment and strategic planning.

Moreover, when electoral technologies are deployed without aligning them with institutional workflows and human resource capabilities, failures can quickly turn into public controversies, reinforcing perceptions of incompetence or even manipulation. In such cases, instead of enhancing

credibility, technology may backfire amplifying distrust and undermining democratic legitimacy. As institutional theory underscores, legitimacy is co-produced not just through outcomes but through processes that stakeholders perceive as professionally managed and competently executed. Therefore, strengthening electoral bodies through capacity building, timely logistics, internal accountability mechanisms, and scenario-based planning is indispensable to ensure that innovations like electronic result transmission or digital voter registers contribute meaningfully to electoral integrity.

Principles of Democratic Electoral Integrity (PROSeS Framework)

The PROSeS Framework emerging from electoral integrity literature outlines three foundational principles that underpin democratic electoral processes: deliberative opportunity, equality of participation, and high-quality electoral service (James & Garnett, 2020; FleuBß & Helbig, 2020). Deliberative opportunity refers to the enabling of citizens to freely form and express political preferences within an open and transparent electoral environment. In this regard, election technologies can play a transformative role. Tools such as real-time result viewing portals, electronic transmission systems, and voter information platforms increase the visibility and accessibility of electoral processes, fostering public trust and enabling informed participation. When citizens can track results, understand procedures, and verify information independently, the deliberative space expands, and elections are perceived as more legitimate.

The second principle, equality of participation, emphasizes that electoral innovations must reduce rather than reproduce or intensify existing inequalities in voter access and engagement. While technologies like the Bimodal Voter Accreditation System (BVAS) have the potential to streamline voter verification and eliminate fraud, they can also create new barriers, especially for

rural, elderly, or technologically illiterate voters. Instances where biometric devices malfunction or where power/internet infrastructure is weak often lead to disenfranchisement, disproportionately affecting already marginalized populations. To uphold democratic integrity, technologies must therefore be inclusive by design, ensuring that no group is systematically disadvantaged by their deployment (James & Garnett, 2020). This requires thoughtful attention to geographic equity, usability, language accessibility, and pre-election testing.

The final principle is high-quality electoral service, which refers to the professionalism, efficiency, and transparency with which elections are administered. Here, technology offers a critical opportunity to elevate the standard of electoral service delivery. Properly implemented, tools like electronic voter rolls, result collation systems, and geo-tracking of sensitive materials can enhance efficiency and reduce human error. However, the benefits of such technologies are only realized when they are embedded within robust institutional frameworks and supported by well-trained personnel. As Fleuß & Helbig (2020) assert, quality service in electoral administration is not just a logistical requirement but a democratic imperative symbolizing the state's commitment to fair representation, civic dignity, and procedural justice. Therefore, investing in electoral professionalism alongside technology is essential to reinforcing democratic norms and public confidence in election outcomes.

Cybersecurity, Misinformation, and New Threats

The integration of digital technology into electoral processes has ushered in a new set of challenges that threaten the integrity of democratic systems. As elections become increasingly digitized through electronic voter registration, biometric accreditation, result transmission, and online voter education the risk of cyberattacks grows exponentially. Malicious actors, both domestic and

foreign, now have avenues to infiltrate electoral systems, compromise voter databases, or tamper with transmission channels. These vulnerabilities can lead to data breaches, ransomware attacks, or system downtime on critical election days, eroding public trust in the electoral process. According to Ferrara (2024), such breaches, even when they do not alter results, can significantly undermine the perceived legitimacy of elections by creating uncertainty and suspicion among stakeholders.

Beyond direct cyber intrusions, the digital space has also become fertile ground for the spread of election-related misinformation and disinformation. Deepfakes, manipulated videos, false claims about voting procedures, and coordinated campaigns on social media can confuse voters, suppress turnout, or delegitimize electoral outcomes. In particular, misinformation targeting marginalized or rural populations where digital literacy may be low can distort democratic participation. The "information disorder" facilitated by unregulated platforms and algorithm-driven echo chambers complicates efforts by electoral bodies to communicate transparently. As reported by Wired and other media covering election interference globally, hostile narratives often spread faster than official clarifications, allowing disinformation to shape public opinion and fuel post-election disputes.

To safeguard the democratic process, it is imperative that electoral management bodies, governments, and civil society invest in strong cybersecurity protocols and proactive information governance. This includes establishing robust firewalls, end-to-end encryption, biometric protection standards, and real-time monitoring systems to detect and respond to cyber threats swiftly. Equally important are regulatory frameworks that require tech platforms to combat disinformation through transparency measures, fact-checking mechanisms, and algorithmic accountability. Voter education campaigns must also evolve, equipping citizens with the digital

literacy needed to discern credible information from manipulative content. Without such ethical guardrails and institutional readiness, the same technologies meant to enhance electoral credibility may inadvertently become tools of disruption and democratic backsliding.

Synthesis: Conceptual Framework for Nigeria

A holistic understanding of electoral technology's role in enhancing credibility in Nigeria requires synthesizing insights from multiple theoretical traditions. The theories of procedural justice, technological determinism, innovation diffusion, institutional readiness, and electoral integrity converge to suggest that the impact of technology is neither automatic nor uniform it is shaped by broader contextual variables. A conceptual framework emerges in which five interrelated dimensions condition the effectiveness of electoral technologies: legitimacy and fairness, technology adoption, institutional capacity, service quality and equality, and cyber risk mitigation. Each of these dimensions corresponds with theoretical insights that highlight both the opportunities and limitations inherent in deploying digital tools for elections.

First, legitimacy and fairness, rooted in Procedural Justice Theory, underscore the public's acceptance of electoral outcomes based on the perceived fairness and transparency of processes. Here, technologies like BVAS (Bimodal Voter Accreditation System) and IReV (INEC Result Viewing Portal) are instrumental only when they visibly reinforce procedural integrity, such as through biometric verification or real-time result transmission. Second, technology adoption, informed by the Technology Acceptance Model and Innovation Diffusion Theory, depends on whether users including electoral staff and the public perceive the technology as reliable, beneficial, and easy to use. Third, institutional capacity, drawn from Institutional Theory, is essential; electoral technologies require well-trained personnel, steady electricity, data

infrastructure, and contingency protocols to function effectively (Layiwola, 2023; Onyambayi et al., 2024). A deficiency in any of these areas compromises system reliability and public confidence.

Additionally, the principles of service quality and equality, grounded in the PROSeS framework of electoral integrity, emphasize that digital innovations must not only improve administrative efficiency but also uphold equity in voter access and treatment. Technologies that disenfranchise rural or marginalized voters through poor connectivity or malfunction reinforce distrust and widen participation gaps. Lastly, cyber risks and digital misinformation represent a critical axis in the Nigerian context. Without robust cybersecurity measures and regulatory safeguards, electoral technologies risk becoming conduits for manipulation, data breaches, or voter confusion. Therefore, in Nigeria's Fourth Republic where INEC's introduction of BVAS and IReV marked a significant step toward digitalizing elections their success depends not merely on the technology itself but on the strength of the institutions, policies, and societal conditions surrounding it. Any weakness be it in infrastructure, legal enforcement, or civic engagement can negate the credibility-enhancing promise these tools offer.

2.1.3. Methodological Review

The increasing integration of digital tools such as the Bimodal Voter Accreditation System (BVAS), INEC Result Viewing Portal (IReV), and smart card readers has spurred scholarly efforts to examine their effects on electoral credibility in Nigeria. The methodologies adopted in these studies are crucial, as they shape the reliability, validity, and generalizability of the findings. Case study designs dominate the literature, with researchers frequently analyzing specific elections like the 2015 and 2019 general polls or the more recent 2023 gubernatorial elections in Bayelsa and

Kogi States. These case studies enable deep contextual analysis of how technology functions within unique electoral settings. Meanwhile, some scholars increasingly employ mixed-methods approaches, integrating qualitative interviews with electoral stakeholders and quantitative data such as voter turnout or reports of device malfunctions. Comparative research designs, although less common, are also gaining ground, offering insights into how regional or temporal variations affect technological outcomes.

Sampling techniques play a significant role in shaping the scope and depth of these studies. Purposive sampling is most prevalent, especially in qualitative and mixed-method research, with researchers selecting informed stakeholders such as INEC officials, civil society leaders, election observers, and political party agents. For instance, Layiwola (2023) used a purposive sample of 30 participants in Bayelsa State to understand stakeholder perceptions of the 2023 elections. While this technique yields rich insights, it also risks bias by sidelining ordinary voter experiences, especially from rural or marginalized groups. Some researchers have responded to this limitation by incorporating stratified sampling strategies that capture more demographically and regionally diverse voter groups, thus broadening the representativeness of the data.

In terms of data collection, studies employ both qualitative and quantitative methods to capture the multifaceted impact of electoral technology. Qualitative tools include semi-structured interviews, often used with stakeholders to explore nuanced views, and Focus Group Discussions (FGDs), which provide insights into community-level perceptions of electoral credibility. Document analysis of INEC reports, civil society monitoring publications (e.g., EU, YIAGA Africa), and media sources serves as a supplementary method for triangulation. Quantitative tools include survey questionnaires administered to voters, polling officials, or ad hoc INEC staff. Researchers also rely on electoral datasets detailing turnout figures, rejection rates from biometric

failures, and matching success rates. However, limited public access to official INEC datasets continues to hamper data quality and comprehensiveness in some studies.

Different analytical strategies are applied based on the data type. Thematic analysis is the most common qualitative tool, identifying recurring patterns and narratives across interviews and FGDs (Braun & Clarke, 2006). Content analysis is employed when examining policy documents and observer reports. Quantitative studies often use descriptive statistics such as frequencies and percentages—to measure public perceptions of electoral technology's credibility. In more advanced designs, inferential statistics like chi-square tests or logistic regression models are used to explore relationships between technological interventions and electoral outcomes, including voter confidence, participation, or perceptions of fairness, as seen in the works of Onyambayi et al. (2024) and Akah et al. (2023).

Ethical considerations are prominently addressed in most studies. Scholars emphasize obtaining informed consent from participants, maintaining the confidentiality of sensitive information, particularly in politically charged contexts and upholding neutrality in data interpretation. This is especially important when discussing issues related to election malpractice, institutional failures, or the performance of electoral technologies. Studies like Ifeanyi-Ajufo and Hoffmann (2023) stress the need for impartiality and ethical integrity, especially in Nigeria's volatile electoral environment where data can easily be politicized or manipulated.

Despite these methodological advances, several limitations remain. There is a scarcity of longitudinal research that tracks the impact of electoral technologies across multiple election cycles. Additionally, rural voter experiences are frequently underexplored, leaving gaps in understanding how infrastructural and digital divides affect technology uptake. Furthermore, experimental or quasi-experimental research designs that could help establish causality between

technological interventions and electoral credibility are still largely absent. Addressing these gaps requires adopting more inclusive, rigorous, and temporally sensitive methodologies. A robust future research agenda should combine mixed methods, engage both elite and grassroots voices, and pursue comparative and longitudinal designs while adhering to high ethical standards. Doing so will strengthen the empirical base for informed electoral reforms and democratic consolidation in Nigeria.

2.1.4. Empirical Review

Several scholars have examined the integration of technology in Nigeria's electoral processes, with a strong consensus that while it has improved transparency and reduced fraud, significant challenges remain.

Nwangwu, Onah, and Otu (2018), in their study "*Elixir of Electoral Fraud: The Impact of Digital Technology on the 2015 General Elections in Nigeria*," argue that electoral democracy in Nigeria has historically been marred by rampant electoral malpractice, including voter intimidation, ballot box snatching, and result falsification. Their research highlights the introduction of biometric Smart Card Readers (SCRs) in 2015 as a critical step in curbing these malpractices. Relying on the cybernetic model of communication, the study concludes that digital technologies helped restore public and international confidence in Nigeria's electoral process. They recommend full adoption of e-voting as a long-term remedy for electoral fraud.

Building on this discourse, Ayeni, Aweh, Badeji-Ajisafe, and Atachin (2023) explore the influence of technology on Nigeria's 2019 and 2023 elections. Their study, "*The Role of Technology in Nigeria's 2019 and 2023 General Elections,"* evaluates innovations such as the INEC Voter Enrollment Device (IVED), Bimodal Voter Accreditation System (BVAS), INEC Result Viewing

Portal (IReV), and other ICT tools. Using expert interviews and direct election observation, they find that these technologies significantly minimized ballot stuffing, proxy voting, result manipulation, and over-voting, thus reinforcing the integrity of the electoral process.

Abodunrin, Oloye, and Alaba (2018), in their article "*Technology-Based Device and Electoral Process in Nigeria*," emphasize that the deployment of Smart Card Readers during the 2015 general elections was a pivotal reform aimed at minimizing fraud. Using secondary data and the cybernetics model, the authors assert that technology contributed meaningfully to election credibility, though technical and logistical challenges highlighted the need for better preparedness in future deployments.

Similarly, Ayeni and Esan (2018), in "*The Impact of ICT in the Conduct of Elections in Nigeria,"* demonstrate that the introduction of technologies such as the Electronic Voter Register (EVR), Automated Fingerprint Identification System (AFIS), and Smart Card Readers significantly reduced cases of multiple registrations and voting. They also note that the e-collation platform introduced by INEC helped limit result manipulation at collation centers, making elections more credible.

However, not all scholars view these technological interventions uncritically. Peter and Inokoba (2023), in their work "*Electoral Technology and Credible Elections in Nigeria: A Study of the 2023 Presidential Election,"* question the effectiveness of these tools, arguing that in Nigeria and across Africa, electoral technologies have not always translated into trust in the electoral system. They attribute this to systemic issues such as impunity, poor institutional trust, and political interference, all of which undermine technological credibility.

In a broader comparative analysis, Bello and Chukwudi (2023), in their study "*Technology and Conduct of Elections in Developing Countries: A Study of Nigeria's Fourth Republic,"* examine

how technologies like BVAS and electronic collation have improved transparency and inclusivity in elections since 1999. Using mixed methods, including interviews and qualitative analysis, the study underscores both the benefits and cybersecurity risks associated with electoral technology.

Addressing the persistent challenges, Wahab (2024), in his paper "*Challenges and Prospects of Technology Deployment for Elections in Nigeria,"* identifies issues such as inadequate training, infrastructural deficits, financial constraints, and corruption as key obstacles. His study, based on interviews with electoral technology experts and guided by the social construction of technology theory, emphasizes the importance of political will and strategic planning in technology deployment.

Further insight is provided by Duruji et al. (2021), in "*Digital Government in the Electoral Process: Implications for Elections in Nigeria*." Their paper argues that digital tools have improved election management and participation but call for sustained investment in infrastructure to ensure broader adoption and effectiveness of digital governance in elections.

Osunyikanmi (2018) provides a more socio-political perspective in "*Technology, Elections, and Democracy*," asserting that technology not only enhances electoral administration but also strengthens democratic culture by expanding political engagement and awareness through platforms such as social media. However, he warns that these same technologies can be misused to spread misinformation and manipulate public opinion. The reviewed literature presents a nuanced understanding of electoral technology in Nigeria. While digital tools like SCRs, BVAS, IReV, and e-collation platforms have contributed significantly to reducing electoral fraud and improving credibility, challenges such as technical failures, low trust in institutions, and political interference remain substantial. The way forward lies in addressing these systemic issues,

enhancing infrastructure, investing in training, and fostering public trust to fully harness the potential of technology in deepening Nigeria's democracy.

2.1.5 Gaps in Literature

Having perused the works of key scholars such as Nwangwu, Onah, and Otu (2018), Ayeni, Aweh, Badeji-Ajisafe, and Atachin (2023), Abodunrin, Oloye, and Alaba (2018), Peter and Inokoba (2023), and Wahab (2024), it becomes evident that although substantial progress has been made in understanding the intersection of electoral technology and democratic consolidation in Nigeria, there remains a noticeable gap in the extant literature. These scholars have variously examined components of electoral reform, the role of digital innovations such as the smart card reader and BVAS, and general perceptions of electoral credibility. For instance, Nwangwu et al. (2018) assessed the introduction of the smart card reader in the 2015 elections, while Abodunrin et al. (2018) focused on the legal and institutional frameworks that support electoral transparency. Similarly, Ayeni et al. (2023) evaluated the BVAS deployment during the 2023 general elections, emphasizing its potential for reducing over-voting and enhancing voter authentication processes. Peter and Inokoba (2023), in their study, highlighted the mixed reactions to IReV and BVAS among stakeholders in the 2023 elections, particularly in states like Lagos and Kano. Wahab (2024) also explored youth voter perceptions of electoral technology, revealing varying degrees of trust in INEC's digital innovations.

Despite the depth of these studies, what remains largely underexplored is a focused, context-specific analysis of the effect of electoral technologies on actual electoral outcomes and credibility in subnational elections particularly the 2023 Bayelsa State gubernatorial election. While the broader national context has received considerable attention, studies that apply empirical tools to

evaluate how these technologies operated in high-stakes, localized contests are lacking. None of the aforementioned studies, for example, provide an assessment of how BVAS and IReV specifically influenced transparency, voter turnout, error rates, or public confidence in the Bayelsa 2023 election. Furthermore, there is limited empirical disaggregation of how regional dynamics, logistical challenges, and voter demographics affect the functionality and public reception of electoral technologies at the state level.

This study tried to bridge that gap by contributing to the growing body of empirical literature on electoral reforms and technology in Nigeria. It takes a subnational approach, focusing specifically on the Bayelsa 2023 gubernatorial election, which was both politically significant and logistically complex. By narrowing the focus to Bayelsa State, the study provides a micro-level understanding of the interplay between electoral technologies and electoral credibility insights that are essential for refining broader national strategies. In particular, it evaluates the operational efficiency of BVAS and IReV, stakeholder experiences, and the extent to which these technologies enhanced transparency and reduced electoral malpractices.

Additionally, this research adds value by applying a case study approach, incorporating qualitative insights from stakeholders (e.g., electoral officials, political party agents, civil society observers, and voters). This allows for a nuanced, evidence-based understanding of whether technological interventions translated into credible electoral outcomes. While most previous studies have focused on national aggregates or generalized findings, this study's design facilitates context-sensitive conclusions that could inform future deployments of electoral technology in similar subnational elections.

Moreover, by situating the Bayelsa election within the broader framework of Nigeria's digital electoral transformation, the study complements national-level findings while highlighting regional disparities in technological efficacy and trust. It also interrogates the limitations faced by INEC in real-time result transmission, infrastructure adequacy, and voter education—factors often glossed over in broader analyses. This research thus moves beyond descriptive accounts to offer empirical validation or critique of claims surrounding the role of technology in enhancing electoral credibility.

In sum, this study fills a critical void in electoral studies in Nigeria by addressing the under-researched case of the Bayelsa 2023 gubernatorial election. Its findings are expected to enrich the discourse on electoral reforms, offer grounded recommendations to stakeholders, and serve as a reference point for future evaluations of subnational elections where electoral technology is deployed. It ultimately strengthens the evidence base for assessing whether digital innovations in Nigeria's electoral process are indeed advancing democratic consolidation or merely masking persistent structural flaws.

2.2. Theoretical Framework

This study employs the Social Construction of Technology (SCOT) Theory to analyze the role of election technologies in fostering credible elections in Nigeria, with specific focus on the 2023 Bayelsa State gubernatorial election. Originally developed by Pinch and Bijker in 1987, SCOT emerged in the 1980s as part of a broader constructivist approach within Science and Technology Studies (STS). The theory serves two primary purposes: first, as a methodological framework for

examining technological change in society; and second, as a theoretical lens to explore the dynamic relationship between society and technology.

According to Mathe (2020), technological solutions alone are insufficient to address electoral deficiencies if there is no accompanying political will on the part of electoral managers, lawmakers, or political actors. In other words, even the most advanced technology will fail to ensure credible elections in the absence of a genuine commitment to electoral integrity. SCOT aligns with this perspective by emphasizing that technology is not a panacea for electoral malpractice.

Proponents of SCOT caution against the overreliance on technology as a cure-all for electoral problems. They argue that technological tools are shaped by the social, political, and institutional contexts in which they are developed and deployed. As noted by STS Infrastructure (2018), SCOT posits that human action shapes technology, not the other way around. The meaning and use of any technology cannot be fully understood without situating it within its broader social context. Thus, SCOT stands in contrast to technological determinism, promoting instead a view sometimes referred to as technological constructivism.

This theoretical framework is particularly useful in analyzing how electoral technologies have evolved in Nigeria's democratic process and in identifying the challenges and opportunities associated with their deployment. SCOT helps to illuminate not just the technological components themselves, but also the institutional, cultural, and political forces that determine their effectiveness in enhancing electoral credibility.

CHAPTER THREE

RESEARCH METHODOLOGY

The chapter captures in significant detail the methodologies employed throughout the research. They encompass an array of research strategies, ranging from the research paradigm, sample technique, and data collection to analysis. It would, among other things, provide a plausible defense for the selected methods and establish how their application conforms to best practice, accounting for the study's high reliability and validity.

3.1 Research Design

As found in a plethora of academic literature, the procedures researchers follow to gain insight into situations are grouped into qualitative and quantitative categories. A quantitative study views a situation through a mathematical periscope and logic. Not only does this approach quantify world problems, but it also builds knowledge through a profound understanding of various variables and establishes a theory. A wide spectrum of scholars has commended the approach, emphasizing that it results in a critical appraisal of existing theories and leads to an objective answer to a given research question. According to Kelley-Quon (2018), a quantitative study formulates a hypothesis that is rejected or supported. Researchers adopt this approach due to the notion that it produces outcomes that are free from human interference or influence and can be generalized to larger populations (Cathala and Moorley, 2018). However, the quantitative approach is not without flaws despite its several merits. One of the major demerits of the qualitative approach is suggesting that there is only one accurate answer to the research question. Another shortcoming of the approach, as Westerman (2014) put forward, is how data collection instruments and analytics can be manipulated, which is likely to undermine the quality of the study's evidence. Such reasons are

why the approach is sparsely adopted in complex issues, and researchers are forewarned to conform to high standards when applying it.

On the other hand, qualitative research takes a structural approach towards understanding a phenomenon and allows for a high level of reliability. The merit of the qualitative approach and how it has been instrumental is better echoed in the work of Heller et al. (2016). They stated that this approach forays into the heart of a problem and generates essential answers, which can be easily implemented. Moreover, it provides more than one answer for a particular research question during the data collection process (Denny and Weckesser, 2019), allowing the findings of the study to accommodate different experiences and perceptions (Tenny et al., 2022). Thus, the use of this approach has proliferated in practice. Despite these advantages, the qualitative approach has received criticism. Maher and Dertandian (2018) and Neal et al. (2015) are among the famous critics of the qualitative and whose works have raised strong concerns over this strategy. They suggest that qualitative studies are imprecise, time-consuming, and narrow in scope. Nevertheless, since this study aims to broadly understand the effectiveness of the election technology during the 2024 gubernatorial election in Bayelsa state and the limitations associated with it, the qualitative approach is favoured. With it, the study can gain a deep insight into the subject by recruiting participants who can contribute meaningfully to it (Denzin and Lincoln, 2020). This study adopted the case study design of the qualitative research method and purposively selected 30 informants for the KII.

3.2 Population of Study

Research population is generally a large collection of individuals or objects that is focused on a particular study, and from which sample is drawn. Bello (2009) defines a population as “the group

about which the researcher seeks to obtain information and draw conclusions." Thus, a population can be understood as a means of identifying common characteristics shared by most members of a defined universe, allowing for the classification of each unit as part of a particular group.

Local Government	**Population**
Yenagoa	352,285
Southern Ijaw	321,808

Source: National Population Commission (2006)

In this study, the population comprises Six Hundred and Seventy-Four Thousand, Ninety-Three (674,093) individuals. However, interviews were restricted to INEC officials (resident electoral commissioner, etc.) and Commonwealth Observer Group reporters. The rationale for selecting this population stems from their extensive knowledge and experience on election management/ administration and health of democracy, which makes them a relevant group for this research.

3.3 Sampling Technique and

There are two major sampling techniques: probability and the nonprobability sampling technique. Where the former refers to a situation where all individuals have an equal opportunity to be selected, the latter represents a case where the chance of including individuals in the study is not equal (Taherdoost, 2016). Since the qualitative approach mostly works with a flexible sampling technique, this study adopted the purposive sampling technique. Besides, purposive sampling allows the researcher to select participants based on their insights about the subject that is being investigated (Sharma, 2017). Conventionally, an action of this sort will provide a broader insight or understanding of the research question.

Thirty individuals were selected to take part in the study. Ten of these individuals assumed the position of senior electoral officials during the 2023 Bayelsa governorship election, while the others were reporters from the Commonwealth Observer Group, other observer groups and civil society organization actors. These categories of individuals were selected because of their deep insight into the newly introduced election technology and their active involvement in the election process.

Sample size

To determine how to select 30 interviewees proportionally from Yenagoa (352,285) and Southern Ijaw (321,808), we will use the Stratified Purposive Sampling technique with proportional allocation. This method ensures that each stratum (in this case, each Local Government Area) is represented fairly and deliberately based on population size while still allowing for purposive selection of information-rich participants.

Total population = 352,285 (Yenagoa) + 321,808 (Southern Ijaw) = 674,093

Final Sample Allocation (Purposive within Proportion): Yenagoa: 16 interviewees

Southern Ijaw: 14 interviewees

Sampling Technique: Stratified Purposive Sampling

Stratified sampling is relevant to this study as it ensures proportional representation from each LGA based on population size. Purposive is appropriate sampling technique as it allows intentional selection of key informants (e.g., INEC officials, party agents, civil society leaders, community representatives) who are best positioned to provide insights into the electoral process and use of technology.

3.4 Research validity and reliability

While trying to ensure reliability, the researcher, under the counsel of the project supervisor, ensured that interview questions were clear, precise, and consistent. Furthermore, the project supervisor vetted and modified the questions to improve the accuracy of the study and gave it clear direction. This was followed by a triangulation exercise. The triangulation ensured that the information obtained fairly represented the case which the study investigated, which partly fulfills the validity requirement. Overall, the researcher took several precautions to prevent his opinions and emotions from influencing the findings of the study.

3.5 Data analysis

Data obtained from the participants were analyzed using thematic analysis. The technique was adopted due to its versatility and ability to handle complex data, including leading to a comprehensive and well-organized thought. Apart from this, thematic analysis reveals the truth about complex social interaction and establishes a pathway to plausible recommendations.

3.6 Ethical consideration

Ethics is an essential component of every research. It relates to the undertakings through which researchers address the conduct of right or wrong in the process of gathering and analyzing data. To ensure that no ethical requirements were neglected, the researcher made sure that the participation of the respondents was voluntarily. All identifiable information of the participants was protected by keeping them anonymous. The researcher took the necessary steps to ensure that respondents are not exposed to psychological, physical, and social harms.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

This chapter presents the analysis which is based on the data collected from the in-depth interviews conducted with 30 key informants in attempt to assess the impact of election technology on electoral credibility in Nigeria with a special focus on Bayelsa State 2023 Gubernatorial election. The analysis of data from the interview was carried out by applying a thematic analysis approach. The thematic approach allows the analysis to be presented in themes and sub-themes. Parameters for analysis are drawn from the data collected from informants in the field and help the researcher in drawing objective and authentic conclusions and making appropriate suggestions and recommendations.

4.1 Demographic Profile of the Informants

Agencies/ Committees	**Variables**	**Frequency**	**Percentages**	**SEX**
Yenagoa	RECs/ (Other INEC Officials)	7	23.4%	M (6), F (1)
	Commonwealth Observer Group Reporters	4	13.3%	M (3), F (1)
	CSOs	7	23.4%	M(2), F(5)
Southern Ijaw	RECs/ (Other INEC Officials)	4	13.3%	M (4)
	Commonwealth Observer Group Reporters	4	13.3%	M (4)
	CSOs	4	13.3%	M(2), F(2)
	Total	**30**	**100.0%**	**M(70%), F(30%)**

Source: Field Survey, January, 2025

Table 4.1 revealed the demographic profile of the informants across male and female participants shows that 21 were male, representing 70% while 9 were female representing 30%. This is just to

show a cross section of participant and not to be mistaken female opinion against male counterpart. Furthermore, a spread of participants from the three clusters shows a total of 11(36.7%) representing INEC, 8(26.7%) and 11(36.7%) representing the Commonwealth Observer group reporters and CSOs respectively. This indicated that majority of the data that were obtained from the informants were from INEC and Commonwealth Observer Group reporters.

4.2. Data Presentation and Analysis

Objective 1: Examine the impact of election technologies in the November 2023 Bayelsa state gubernatorial elections.

Theme One: Election technologies utilized during the November 2023 Bayelsa gubernatorial elections, and how they differ from those employed in previous elections.

The 2023 Bayelsa State governorship elections recorded improved election technology that impacted positively on the process and outcomes. According key informants, the INEC deployed the Bimodal Voter Accreditation System (BVAS) in the 2023 Gubernatorial Election which does the quadruplet functions of card reading/ accreditation, finger print and facial capture as well as real time capture and transmission to IREV (INEC result portal). Unlike the Smart Card Reader used in 2015 that had series of challenges with voter accreditation and finger capture, BVAS provided seamless accreditation and reduced vote manipulations.

The study observed that unlike the BVAS and IREV that required technical skills to operate hence the recruitment and training of youth corps members to have a grasp of the needed skills, Smart Card Reader (SCR) needed limited skill to operate. While the former provided for easy accreditation, the later slowed down the accreditation process necessitating the adoption of the BVAS.

According to some informants expressed that:

The deployment of the Bimodal Voter Accreditation System (BVAS) in the 2023 Gubernatorial Election as against the Smart Card Reader (SCR) in 2015 was a huge improvement in election technology adoption. (Informants V, IX, & XIV).

Conversely, BVAS was deployed as new technology for the November 2023 governorship election in Bayelsa State but it failed to impact the outcome positively. Similarly, informants III & VI believed that:

> *The new technology recorded little or no effect in improving the credibility of the election. However, the BVAS machine's efficacy in accrediting voters cannot be overlooked as the success story dwarfed the Smart Card Reader (SCR). It actually facilitated seamless accreditation.*

The finding indicates that the BVAS machine is the main new technological adoption in the November 2023 Bayelsa governorship election. It also indicates that it is a huge improvement in the Smart Card Reader in terms of accreditation and transmission of results. However, there are divergent views on its contribution to the outcome of the election as dominant views support that it positively impacted the election while a substantial minority perceived its impact in otherwise.

Theme Two: The new technologies enhance voter accessibility and the overall experience at polling stations

The 2023 Bayelsa State governorship elections showcased significant advancements in election technology that positively influenced both the electoral process and its outcomes particularly in the area of voter accessibility experience at the various polling station.

According to the informants VI, VIII & XV disclosed that:

> *The Independent National Electoral Commission (INEC) implemented the Bimodal Voter Accreditation System (BVAS) during the gubernatorial election. This system performs four critical functions: card reading and accreditation, fingerprint and facial recognition capture, as well as real-time data capture and transmission to the INEC Results Viewing Portal (IREV) that enhance voter accessibility and satisfaction in the conduct of election at various polling station.*

In another dimension, informants XII, XX, & stressed that:

> *The introduction of BVAS in contrast Smart Card Reader used in the 2015 elections, which faced numerous challenges related to voter accreditation and fingerprint capture, the BVAS facilitated a smoother accreditation process and effectively minimized electoral manipulations. These new technologies significantly enhance voter accessibility in the conduct of voting process and improve the overall experience of individual voters at various polling stations.*

Buttressing the above view, informants V, IX, XV & XX underscores that

> *The implementation of the Bimodal Voter Accreditation System (BVAS) in the conduct of election in Bayelsa Governorship polls significantly improved accessibility for voters, particularly women and persons with disabilities. Equally, other informants (III, V, &VII) noted that 88.2% of polling units were easily accessible to women with disabilities in the entire conduct of Bayelsa Governorship election 2023".*

These perception was equally confirmed by informants VIII, IX, XIV that:

> *The application of BVAS in the conduct of election in Bayelsa Governorship election enhance voter accessibility throughput the election period and, this contribute the transparent process without suspicious of either the ruling neither the opposition party due to technological advancement unlike the previous election.*

Theme Two:

3. Streamlining Election Management Processes

The adoption of information and communication technologies (ICT) can improve the efficiency of various election management processes, from voter registration to result tabulation. By utilizing electronic systems for tasks such as candidate registration and incident reporting, electoral management bodies can enhance operational efficiency and reduce human error. This technological integration not only streamlines processes but also allows for better tracking and accountability throughout the electoral cycle.

Informants III, IV and XV disclosed that:

> *The adoption of Biomoda Voters Accreditation System in the electoral cycle of Nigeria and in particular the conduct of the Bayelsa Governorship election has improved the efficiency of voter accreditation and timely transmission of result to INEC IREV portal for transparent and credibility of the entire electoral process in Nigeria.*

According to informants XV and IV:

> *The application of BVAS in Bayelsa governorship election have drastically tackled a lot of human error that always resulted to possibility of election malpractices and impersonation by majority of the voters by using multiple use of voter card for election in the various polling units.*

In a similar view, Informants II and VI highlighted that:

> *The use of BVAS into the electoral cycle of Nigeria especially Bayelsa Governorship election has increase the confidence and trust of the individual voters through the conduct of the entire election that BVAS has adequately fasten the process and assure that one man cast not more than one vote in an election.*

Theme Four

Functionality and Reliability of Election Technology

The effectiveness of technologies like the Bimodal Voter Accreditation System (BVAS) is crucial in determining their impact on election credibility. The BVAS was operationally sound, which is essential for ensuring accurate voter accreditation and result transmission. However, any failures or delays during actual voting undermines public confidence in the electoral process, as seen in previous elections where logistical issues were prevalent.

Voter Participation and Engagement

The introduction of technology had potentially increase voter turnout and engagement by simplifying the registration and voting processes.

According to informants X, XI, XXX and XXXXV also clarified that:

> *The adoption of BVAS in to Nigerian electoral landscape has increase the voter turnout and facilitate effective means of communication between among the electoral management starting from the polling units to the INEC IREV and the general public which enhance the credibility and transparent process of the entire in the conduct of Bayelsa Governorship election.*

In support of the above point, informants V, VII and II added that:

> *The used of BVAS in the conduct of Bayelsa Governorship election has shown commitment of INEC towards the functionality of the BVAS which enhance the speedy process of election. For instance, in PU 06 Agudama Market Square, election in that particular unit I done in less than 2-3 minutes, unlike the previous election when an individual voter will spend 10-15 for voter accreditation and voting. This process indicates INEC commitment in promoting the election process in the country.*

3. Transparency and Accountability in Election Processes

Technological advancements had strengthening transparency by allowing real-time tracking of votes and results through systems like the INEC Results Viewing Portal (IREV). This capability allows stakeholders, including civil society organizations and observers, to monitor the electoral process closely, thereby fostering accountability. However, any discrepancies in result reporting or technological failures could lead to disputes over election integrity, as was noted with challenges raised by opposition candidates post-election.

Informants V, III, VIII, and XXIII narrated that:

> *The application of the Bimodal Voter Accreditation System (BVAS) in the Bayelsa Governorship election has significantly enhanced accountability throughout the electoral process. By leveraging BVAS for voter accreditation and result transmission, it has ensured transparency and facilitated easy access to election results. This technological innovation has played a crucial role in bolstering public trust by providing real-time updates through platforms like the INEC Result Viewing Portal (IReV), thereby making it easier for citizens to monitor and verify electoral outcomes."*

Supporting the above opinions, informants XII and V disclosed that:

> *The used of the Bimodal Voter Accreditation System (BVAS) in the Bayelsa Governorship election significantly strengthened the accreditation process by ensuring accurate voter verification. Additionally, informants (XX and XXV) added that BVAS facilitated the efficient capture of polling unit results, which were then uploaded onto the INEC Result Viewing Portal (IReV) for public access. This enhanced transparency has bolstered confidence in the electoral process, as citizens can directly view results from polling units, thereby fostering trust and accountability*

Objective 2: Observed Weaknesses/Challenges Associated with the Electoral Technology Despite the Adoption of Election Technology.

Theme Three: Observed Weaknesses of electoral technology in Bayelsa State 2023 Gubernatorial Election.

4:2 Security Concerns and Vulnerabilities:

This sub-theme addresses the potential security risks associated with election technologies, such as online voting and biometric systems, this explores issues like data breaches, exposure of voter information, and the challenges in ensuring the authenticity of votes. Informants have raised concerns about the need for robust security frameworks to protect against hacking and other forms of electoral manipulation.

Informants V, IX, and XIII underscores that:

> *Despite the positive impacts of BVAS and its accuracy and speed in the accreditation process in the Bayelsa Governorship election but several challenges associated with the use of election technologies, such as technical glitches and human errors were encountered during the accreditation process that delayed the voting in various polling units after which was rectified by the INEC technical staff further the process and enhance the security of the polls.*

In similar opinion, informants VIII, IX, XXV disclosed that:

> *The Bimodal Voter Accreditation System (BVAS) was very effective in the accreditation process particularly in facial recognition during the conduct of Governorship election in Bayelsa but several challenges were identified such as technical malfunctions and human errors that emerged at various polling units. Such issues raised concerns about the reliability of election technologies, highlighting the need for further improvements to ensure a smoother electoral experience.*

According to informants III, IV and XI stressed that:

> *Several issues were identified like over-voting and incomplete data capture, highlighting that while technology improved certain aspects of the elections, it also revealed areas that require further refinement and support to ensure a fully reliable electoral process and security of the entire electoral process.*

In similar opinion, Informants V, XV, and XX disclosed that:

> *The challenges identified are over-voting and incomplete data capture during the electoral process. They emphasized that while technology has indeed enhanced certain facets of the elections, it has also exposed critical areas that necessitate additional refinement and support. Addressing these issues is essential to achieving a fully reliable and trustworthy electoral process.*

Technical Challenges and Implementation Issues: This sub-theme focuses on the logistical and technical difficulties encountered during the deployment of election technologies. Challenges may include equipment malfunctions, inadequate training for electoral staff, and insufficient infrastructure to support new systems. These issues can lead to delays, confusion at polling stations, and ultimately undermine the electoral process.

Informants V, VIV, X express that:

> *The deployment of election materials such as BVAS were done on time some but in some the polling units it was not effective and took some times on an individual voter before it accredited a voter which resulted to delayed and people feel discourage on*

credibility and transparency of the entire process. Accordingly, some informants disclosed that they commended the entire process particularly on the speedy of the BVAS and security that resolved the issue of impersonation among the voters by not using somebody cards to cast votes which is a very good advancement in the Nigerian election process. (Informants III, XIV, and XIII).

In another dimension, informants II, VI, XV, and XXII unveiled that,

There is operational challenges on part of INEC ad hoc officials on how to effective operate the BVAS due lack of proper training which resulted to delay of the entire poll process that makes a lot of polling began the accreditation process lately.

Public Confidence and Transparency:

This sub-theme examines how the introduction of new technologies can impact public trust in the electoral process. While technology has the potential to enhance transparency, it can also create skepticism among voters if not implemented effectively. Concerns about the complexity of new systems, lack of understanding among voters, and perceived opacity in how technologies operate can lead to diminished confidence in election outcomes.

Informants II, VI, and X are of the opinion that:

The Governorship election in Bayelsa State was very transparent in nature throughout the entire process, it shows commitment of INEC towards promoting the credibility of entire process. It further restore confidence and trust by some informants that electoral body has done best and minimize a lot of issue like delayed in the accreditation process

of an individual voter, issuance of ballot ballot papers, arrangement of polling booth and the security of operative was very impressive.

Buttressing this claim, Informant I and XII added that:

The operationalization of BVAS by the Independent National Electoral Commission (INEC) adhoc was very commendable and their expertise indicating that that they have well trained and capable of handling the BVAS in most of the polling units during the polls in Bayelsa Governorship election. This shown commitment of INEC in restoring trust by the public regarding the transparent process of election across the state.

4.2 Discussion of Findings

On the election technologies adopted in the 2023 Bayelsa governorship election and how they differ from those employed in previous elections, the study revealed that the elections recorded improved electoral technology that impacted positively on the process and outcomes. Findings shows that the adoption of the Bimodal Voter Accreditation System (BVAS) in the 2023 Gubernatorial Election which does the quadruplet functions of card reading/ accreditation, finger print and facial capture as well as real time capture and transmission to IREV (INEC result portal) brought a huge difference to election management. Contrasting the Smart Card Reader used in 2015, the BVAS provided seamless accreditation and reduced vote manipulations. The study further revealed that due to the multiplicity of functions being performed by the BVAS, INEC Voter Enrolment Device (IVED) and IREV, they required some technical skills to operate hence the need for the recruitment and training of youth corps members to have a grasp of the needed skills. This is in consonance with the findings of Ayeni and Aweh (2024) when they noted that the BVAS is a game-changer in election administration in Nigeria. According to the study, BVAS has

increased election participation, ensure equitable distribution of seats in the National Assembly, thereby fostering inclusivity and deepening democracy in Nigeria. They noted that the BVAS combines voter registration, accreditations and results transmission which made election management easy (Ofomiyoan & Ikenga, 2023).

On whether the new technologies enhanced voter accessibility and the overall experience at polling stations, the study found out that the technology adopted in the election showed some huge advancements in accessibility (access to polling materials) and eased voting duration. It positively influenced both the electoral process and its outcomes particularly in the area of voter accessibility experience at the various polling station. This substantiates Goar and Madugu (2023) who stated that the new technology eased voter registration and accreditation thereby creating room for more voters to vote.

On the how the introduction of new technologies can impact public trust in the electoral process, the study revealed that technology has the potential to enhance transparency as it reduces human manipulations and influence and increases participation. It can also create skepticism among voters if not implemented effectively. Concerns about the complexity of new systems, lack of understanding among voters, and perceived capacity in how technologies operate can lead to diminished confidence in election outcomes. It further reveals that the adoption of information and communication technologies (ICT) has improved the efficiency of various election management processes, from voter registration to result tabulation. By utilizing electronic systems for tasks such as candidate registration and incident reporting, electoral management bodies can enhance operational efficiency and reduce human error. This technological integration not only streamlines processes but also allows for better tracking and accountability throughout the electoral cycle.

The study underscores the fact that the effectiveness of technologies like the Bimodal Voter Accreditation System (BVAS) is crucial in determining their impact on election credibility. The BVAS was operationally sound, which is important for ensuring accurate voter accreditation and result transmission. However, any failures or delays during actual voting was not substantial enough to undermine public confidence in the electoral process, as seen in previous elections where logistical issues were prevalent. The introduction of BVAS and IREV strengthens transparency by allowing real-time tracking of votes and results through systems like the INEC Results Viewing Portal (IREV). This capability allows stakeholders, including civil society organizations (CSOs) and observers, to monitor the electoral process closely, thereby fostering accountability. However, any discrepancies in result reporting or technological failures could lead to disputes over election integrity, as was noted with challenges raised by opposition candidates' post-election.

On the observed weaknesses of election technology, the study also looked at the security issues associated with election technologies, such as online voting and biometric systems, it explores issues like data breaches, exposure of voter information, and the challenges in ensuring the authenticity of votes. Informants have raised concerns about the need for robust security frameworks to protect against hacking and other forms of electoral manipulation. The Bimodal Voter Accreditation System (BVAS) was very effective in the accreditation process particularly in facial recognition during the conduct of Governorship election in Bayelsa but several challenges were identified such as technical malfunctions and human errors that emerged at various polling units. Such issues raised concerns about the reliability of election technologies, highlighting the need for further improvements to ensure a smoother electoral experience. Ebegbulem (2023) in his study found that despite the obvious gains recorded through BVAS in the management of elections,

the results are still subject to human manipulations and court decisions. This brings about the issue of compromised electoral officials and the judicialization of the electoral process in Nigeria.

The study found that the logistical and technical difficulties encountered during the deployment of election technologies were the major challenges besetting the system. Other challenges according to this study include equipment malfunctions, inadequate training for electoral staff, and insufficient infrastructure to support new systems. These issues resulted to delays and confusion at polling stations, and ultimately has the potential to undermine the electoral process.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

This section provides a concise yet comprehensive summary of the major findings of the study, emphasizing the relationship between the deployment of election technologies and the credibility of electoral processes in Nigeria. It highlights the significant improvements observed during the 2023 Bayelsa State gubernatorial election following the adoption of technologies such as the Bimodal Voter Accreditation System (BVAS) and the INEC Result Viewing Portal (IReV). These innovations were found to enhance transparency, reduce manipulation, and foster greater public confidence in election outcomes. However, the findings also acknowledge operational limitations, including equipment malfunctions, insufficient infrastructure, and the inadequate training of electoral personnel, which hindered the full potential of these technologies.

Based on these findings, the study outlines practical and evidence-based recommendations aimed at improving the technological management of elections in Nigeria. These include expanding technical infrastructure, conducting regular training for INEC officials, improving voter education on the use of election technologies, and strengthening legal frameworks to support digital transparency and data security. By addressing these areas, the electoral process can be made more efficient and credible, leading to increased public trust and legitimacy. The section concludes by affirming the critical role of electoral technology in strengthening democracy, while also emphasizing that its success depends largely on institutional readiness, political will, and sustained reforms within Nigeria's electoral system.

5.1. Summary of findings

The study offers a detailed synthesis of the findings obtained through rigorous data analysis and discussions conducted in the preceding chapters. The study assessed the impact of election technology on electoral credibility in Nigeria with a special focus on the 2023 Bayelsa State governorship election. First, the study examined the impact of the electoral technologies in the November 2023 Bayelsa State gubernatorial elections. The analysis revealed that the introduction of BVAS and IREV in the election have positive impacts on the election as its efficacy in the accreditation of voters and transmission of results to the IREV increased electoral transparency. The study further revealed that the BVAS machines were very effective in registering and accrediting voters as well as in snapping and transmitting the election result to the IREV. According to findings this high level of efficacy impacted voter turnout positively as the accreditation time was reduced drastically to an average of one minute-thirty seconds. The study sought to ascertain whether the introduction of election technology enhanced the credibility of the 2023 Bayelsa State gubernatorial election. It revealed that the outcome of the procession increased public trust the electoral process as people's votes counted and the people's choice won the election.

The study further sought to ascertain the weaknesses or challenges recorded that greeted the election despite the application of electoral technology. Findings revealed that factors such as equipment malfunction, inadequate training for electoral staff, and insufficient infrastructure to support new systems constitute the major challenges. These factors created room for delays and confusion at polling stations and in a few cases availed desperate politicians and compromised INEC staff opportunity to manipulate the outcomes of the elections.

5.2. Recommendations:

Given the findings of this study the following recommendations are made in line with the objectives of the research:

For objectives one, the following recommendations are made:

i. Nigeria through INEC and other democratic institutions such as political parties, civil society organization, and judiciary should prioritize the credibility of electoral process and outcomes. This can be done through the continued improvement in election technology to foster its efficacy and ease the voting and accreditation process.

ii. There is the need for INEC to improve on the areas of BVAS malfunction and delay in accreditation to make it seamless.

iii. Findings revealed that the BVAS machines were very effective in registering and accrediting voters as well as in snapping and transmitting the election result to the IREV which impacted voter turnout positively as the accreditation time was reduced drastically to an average of one minute-thirty seconds. Finding further revealed that the BVAS recorded some hitches in some polling units. Sequel to this premise, INEC should carry out routine maintenance and efficacy checks on the BVAS machines to avoid situations where old or faulty machines are deployed to the field.

iv. The study revealed that the new technology deployed during the 2023 Bayelsa governorship election enhanced the credibility of the election. However, the litigations that greeted the outcome are testaments to the fact that there is still room for improvement to win public trust in the system, process and outcome.

v. INEC should ensure that election results are snapped and transmitted to the IREV right at the polling units to avoid issues of result manipulations during collation. Hence, the IREV should be designed to collate and record elections results. This will improve public trust on INEC and foster voter turnout in subsequent elections.

For objective two, the following recommendations are made:

vi. INEC should prioritize experience over cost by recruiting and retaining experienced auxiliary staff whose responsibility is to man the BVAS machines during elections. The practice of recruiting new set of National Youth Service Corps members on ad-hoc bases should be dropped. Thus, services of this crop of auxiliary technical staff with the skills to operate the BVAS will be need each time there is election and their remuneration should be made attractive owing to the fact that they will not be on monthly payroll.

vii. INEC auxiliary technical staff should be subjected to retraining before they are deployed to the field in every election year.

viii. Government should ensure improved infrastructure in terms of electricity and internet network in order to adequately serve as a good support base for these machines and reduce hitches and delays recorded in the 2023 Bayelsa State governorship elections.

5.3. Conclusion

Elections form the cornerstone of democratic governance, serving as the principal mechanism through which citizens participate in shaping the leadership and direction of their countries. By enabling the public to choose their representatives, elections legitimize political authority and ensure accountability. In recent times, technology has emerged as a transformative force across

various sectors of human endeavor, offering tools that simplify processes and improve efficiency. In recognition of its potential, Nigeria introduced electoral technologies as part of broader reforms to reduce the scope of human manipulation in elections and enhance the transparency, credibility, and overall integrity of the electoral process.

This study investigates the relationship between electoral technology and election credibility, with a specific focus on the 2023 Bayelsa State gubernatorial election. The aim was to understand how the deployment of technological innovations influenced the perceived fairness and transparency of the electoral exercise. In contrast to previous elections that employed the Smart Card Reader (SCR), the 2023 gubernatorial election marked a significant shift with the adoption of the Bimodal Voter Accreditation System (BVAS) and the INEC Result Viewing Portal (IReV). These technologies were introduced by the Independent National Electoral Commission (INEC) as part of a nationwide effort to curb vote rigging, reduce accreditation fraud, and restore confidence in the electoral process.

Findings from the study revealed that the deployment of BVAS and IReV in the 2023 Bayelsa gubernatorial election contributed significantly to enhancing transparency and bolstering electoral credibility. Respondents across various stakeholder groups, including voters, electoral officers, and civil society observers, acknowledged that these technologies limited opportunities for electoral malpractice, especially at the accreditation and result collation stages. The real-time upload of results to the IReV portal was particularly seen as a major improvement in election management, fostering public confidence and deterring post-election disputes.

Moreover, the study established that the use of these new technologies helped to increase voter trust in the electoral system. For many citizens, the visible use of BVAS to verify and accredit voters biometrically before casting their votes symbolized a commitment to electoral integrity. The

transparency afforded by IReV, which allowed anyone to access results as they were uploaded from polling units, was cited as a milestone in fostering inclusiveness and civic oversight. Collectively, these innovations were perceived as steps in the right direction toward consolidating democracy in Nigeria, especially in politically sensitive states like Bayelsa.

However, the study also uncovered a number of operational challenges associated with the use of these technologies. Notably, equipment malfunction in some polling units delayed accreditation and voting processes, occasionally resulting in voter disenfranchisement. Furthermore, there was a recurring issue of inadequate training for ad hoc electoral staff, many of whom lacked the technical competence to troubleshoot or manage unexpected problems with the BVAS machines. Infrastructure limitations, such as poor internet connectivity and inadequate power supply, also posed significant constraints to the seamless functioning of these devices, particularly in rural areas.

In conclusion, while the introduction of BVAS and IReV in the 2023 Bayelsa State gubernatorial election marks a commendable step forward in electoral reform, their effectiveness is not without limitations. The technologies have indeed contributed to greater transparency and credibility, yet their long-term success will depend on sustained investments in training, infrastructure, and public awareness. As Nigeria continues to refine its electoral processes, addressing these gaps will be critical in ensuring that technology fulfills its promise of enhancing democracy rather than introducing new vulnerabilities.

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Appendix 1: Interview Guide

These questions are designed to gather in-depth opinion from various stakeholders involved in the electoral process, including voters, election officials, political party representatives, and observers.

Examine the impact of election technologies in the November 2023 Bayelsa state gubernatorial elections.

1. Can you elaborate on the election technologies utilized during the November 2023 Bayelsa gubernatorial elections, and how do they differ from those employed in previous elections?
2. In your opinion, did the introduction of new technologies enhance voter accessibility and the overall experience at polling stations?
3. Were there any reported incidents of technical failures or security breaches during the election?
4. What were the perceptions of political parties and candidates regarding the role of technology in this election?
5. How do you envision the future evolution of election technologies impacting electoral processes in Nigeria?
6. How effectively did the Bimodal Voter Accreditation System (BVAS) function during the gubernatorial elections in Bayelsa State?
7. Are there any notable technical issues or malfunctions reported with the BVAS throughout the election process?
8. In what ways did BVAS impact the voter accreditation process compared to previous elections?
9. In your view, does BVAS enhance or compromise the integrity of the electoral process in Bayelsa?
10. What improvements or modifications would you suggest to enhance the effectiveness of BVAS in future elections?

11. How effective were the existing election technologies, such as the Bimodal Voter Accreditation System (BVAS) and the INEC Result Viewing (IReV) portal, in ensuring a transparent and credible electoral process during the Bayelsa gubernatorial elections?
12. Do you believe the technology utilized in the elections enhanced voter engagement and participation? If not, why?
13. What technological advancements do you think are necessary to address security concerns in future elections?
14. How adequately trained were election officials and staff in utilizing the current technologies, and what gaps did you identify?
15. Which additional technologies do you believe should be integrated into future electoral processes to improve their effectiveness?
16. How can technology be leveraged to enhance real-time result transmission and build public trust in election outcomes?
17. How do you view the role of election technology, particularly the Bimodal Voter Accreditation System (BVAS), in enhancing the credibility of the 2023 gubernatorial elections?
18. In your opinion, did the implementation of technology contribute to a more transparent electoral process compared to previous elections?
19. What lessons can be learned from the use of election technology in this election regarding its impact on credibility?
20. What improvements or additional technologies would you suggest for future elections to further enhance their credibility?
21. Do you believe that the introduction of technology helped mitigate electoral malpractices such as vote buying and manipulation?

22. What feedback did you receive from voters and political parties regarding their trust in the election outcomes following the introduction of technology?

Determine the weaknesses or challenges in the election despite the application of election technology.

23. What specific technical issues did you encounter with the Bimodal Voter Accreditation System (BVAS) during the election process, and how did these problems impact voter accreditation and overall election efficiency?
24. Were there any logistical challenges associated with deploying BVAS devices in remote areas of Bayelsa State, and how did transportation difficulties affect the timely setup of polling stations and the availability of election materials?
25. In what ways did infrastructure issues, such as unreliable power supply or internet connectivity, influence the performance of BVAS?