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**The Faculty of Social Sciences
Usmanu Danfodiyo University, Sokoto
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Sokoto-Nigeria**

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Prof. Yahaya Tanko Baba
Editor-in-Chief

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THE FEASIBILITY OF ELECTION MANAGEMENT AUTOMATION IN NIGERIA: CHALLENGES AND THE WAY FORWARD

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Abstract

This study investigated the feasibility of election management automation in Nigeria, focusing on challenges and potential solutions. Utilizing a mixed-methods approach, data were collected through online questionnaires from 11,994 voters and key informant interviews with sixteen election stakeholders. Findings revealed significant challenges hindering the deployment of Information and Communications Technology (ICT) in election management in the country, including political interference, operational and technical issues, infrastructure inadequacies, and cybersecurity threats. Despite these challenges, the study identified key strategies to enhance the integration of ICT in Nigeria's electoral processes. These include strengthening institutional frameworks to mitigate political interference, improving technical capacity through comprehensive training programs, addressing infrastructure gaps through public-private partnerships, and implementing robust cybersecurity measures to safeguard electoral systems. The study underscored the importance of fostering public trust and confidence in ICT-based electoral processes through transparent communication and stakeholder engagement. Ultimately, by embracing innovation and collaborative governance, Nigeria could leverage ICT to enhance electoral integrity, uphold democratic principles, and ensure the credibility of future elections.

Keywords: Election, Election Management Body (EMB), ICT, Voting

Introduction

Elections serve as the cornerstone of democratic governance, facilitating peaceful transfer of power and ensuring that citizens have a voice in determining their leaders (Aniekwe & Oraegbunam, 2021). In a democratic society, the credibility of elections is paramount, as it ensures that the outcome largely reflects the will of the people. Central to this credibility is the notion of transparency, which encompasses both the process and the outcome of elections. Transparency fosters trust in government institutions and reinforces the legitimacy of elected officials (Omoleke, 2018). Without it, suspicions could arise, undermining the very foundation of democratic governance.

Nigeria, like many other countries, grapples with challenges related to the conduct of elections. Despite the establishment of the Independent National Electoral Commission (INEC) with the mandate to conduct free, fair, and credible elections, the electoral process in Nigeria has been marred by inefficiency, rigging, violence, and a lack of credibility (Ejikeme, 2016). These issues not only erode public trust but also hinder the country's progress towards good governance. For

decades, successive administrations have failed to address these challenges effectively, perpetuating a cycle of electoral malpractice and distrust in government.

Recognizing the need for reform, INEC has introduced various Information and Communications Technology (ICT) tools to modernize the electoral process (Osemwota, 2019). From Optical Mark Recognition (OMR) technology to Electronic Voter Authentication (EVA), these innovations aim to enhance the transparency, inclusivity, and credibility of elections in Nigeria. However, the effectiveness of these tools in addressing the underlying issues plaguing the electoral process remains unclear.

Drawing inspiration from experiences in both developed and developing countries, there is a growing recognition of the potential of ICT to revolutionize election management. Countries like Estonia, Switzerland, and the United States have successfully implemented digital solutions to improve the integrity of their electoral systems (Ahmad et al., 2015). In Nigeria, the deployment of ICT tools represents a step towards addressing longstanding challenges and rebuilding trust in the electoral process.

Despite the gradual integration of ICT tools into election administration in Nigeria, significant challenges persist, undermining the credibility and inclusivity of the electoral process. Past researches have highlighted the shortcomings of the traditional manual approach to election management and emphasized the potential of ICT to address these shortcomings (Ejikeme, 2016). However, existing studies have primarily focused on technical aspects such as e-voting readiness and the adoption of specific ICT tools, overlooking the challenges within the electoral process.

Moreover, while some studies have explored the influence of ICT on election management in Nigeria, they have often been limited in scope, failing to capture the evolving nature of technology and its impact on electoral dynamics (Nnamani et al., 2019). For instance, previous research conducted shortly after the 2015 elections may no longer reflect the current state of affairs, given subsequent advancements like Bimodal Voter Accreditation System (BVAS) in ICT infrastructure and electoral practices.

There is, therefore, a need for an up-to-date review of the deployment of ICT in election administration in Nigeria due to its attendant challenges, taking into account the latest developments in technology and electoral governance. By analyzing the deployment of ICT tools across the electoral cycle, from voter registration to result transmission, this study seeks to provide insights into the potential and challenges of digital management in enhancing the transparency, fairness, and credibility of elections in Nigeria. Through a nuanced understanding of the challenges and opportunities associated with election management automation, this research aims to inform policy decisions and contribute to the strengthening of democratic institutions in Nigeria.

Election Administration and the Imperative for ICT Adoption

Elections stand as pillars of democracy (Afolabi, 2014), expected to uphold principles of fairness, and credibility, and reflect the electorate's will (Akwu et al., 2021). The utilization of Information and Communications Technology (ICT) in election administration is multifaceted, with each stage demanding specific ICT requirements. While voting holds central importance in elections, other critical activities such as voter registration, accreditation, and education also demand close attention. An electoral process tainted by fraud, bias, or lacking integrity undermines democracy's core values. Hence, the adoption of ICT in election management becomes imperative to address these challenges.

The absence of integrity in the electoral process remains a global concern. Former Costa Rican President Laura Chinchilla emphasized that integrity deficits in elections herald the decline of democracy and its values (Omoleke, 2018). Ahmad et al. (2015) and Ntale & Ngoma (2021) echo this sentiment, characterizing democracy in African developing nations as weak, inefficient, and lacking credibility due to electoral transparency issues. Election administration, encompassing all Electoral Management Bodies (EMBs) activities, significantly influences the quality of elections and, consequently, democracy's quality (Pallister, 2017). Kimura (2015) notes a growing focus on election administration's importance since the mid-80s, signalling a shift from traditional electoral system analysis.

Ensuring elections are free, fair, and transparent while preventing fraud necessitates ICT adoption (Ejikeme, 2016). The neutral and transparent nature of ICT platforms fosters confidence and trust in the electoral process (Ahmad et al., 2015; Osemwota, 2019). Neglecting fair, effective, and efficient election administration jeopardizes good governance and can lead to the emergence of illegitimate governments (Ghaffar & Azhar, 2017). Thus, nations integrate emerging communication technologies into their electoral processes to defend democracy and its values (Olugbamiye, 2020).

The transition from paper ballots to electronic systems signifies a global democracy transformation aimed at enhancing electoral credibility. Engaging ICT in election administration serves as a catalyst for promoting free, fair, and credible elections (Nnamani et al., 2019; INEC, 2017). Scholars have extensively documented the benefits of ICT application in elections, citing cost-effectiveness compared to traditional methods (Ahmad et al., 2015; Hossain et al., 2015; Aniekwe & Oraegbunam, 2021). Despite initial high costs, the long-term benefits justify the investment. Key advantages include enabling secret voting, reducing spoilt ballots, expediting electoral collation and counting, facilitating access for disabled voters, and eliminating barriers for voters in remote areas (Akwu et al., 2021; Arnold, 1999; Churov, 2010; HAVA, 2002; Krimmer, 2019; Olugbamiye, 2020;).

Digital technologies have revolutionized election administration worldwide, with activities spanning constituency delimitation, voter registration, voter list preparation, voting, result collation and transmission, and announcement (Ghaffar & Azhar, 2017). Notable instances include Brazil's pioneering nationwide adoption of computerized voting systems in 2002, which streamlined the electoral process and reduced logistical challenges (José, 2010; Luiz, 2018). While acknowledging the benefits, Ghaffar & Azhar (2017) stress the importance of justifying costs with corresponding benefits, recognizing that every benefit entails associated costs. Although imperative for modern election administration, mere ICT deployment is not sufficient to guarantee free, fair and credible electoral process in the face of myriad of challenges, which are later addressed in this study.

ICT and Election Administration in Nigeria

Information is pivotal to decision-making, especially in politics, where decisions shape governance. Consequently, effective information management becomes critical in political processes. In Nigeria's democratic system, elections serve as a prerequisite for establishing a legitimate government. However, the collection and processing of data, primarily from citizens, into readable formats such as voters' registers, present numerous challenges. One notable challenge highlighted by Okechukwu (2015) is poor record-keeping, which remains a persistent issue confronting the Independent National Electoral Commission (INEC). To mitigate the risks associated with data loss or compromise, significant efforts have been dedicated by INEC to data

collection, processing, warehousing, and retrieval. Thus, the integration of Information and Communications Technology (ICT) into electoral data management has emerged as a crucial initiative in Nigeria.

In alignment with this perspective, INEC (2017) has asserted that recent advancements in ICT have significantly enhanced efficiency and effectiveness in both information dissemination and management within the electoral process. While electoral information is sensitive, it must be accessible as and when needed, particularly in resolving legal disputes arising from elections. ICT facilitates the timely availability of information, which is essential for effective management and decision-making. Additionally, the adoption of ICT in election management has been argued to be cost-effective, especially in terms of information gathering (Abayomi, 2020). The interconnectedness of government agencies has led to the establishment of data warehouses, enabling the retrieval of information through basic codes, thus eliminating the need for repeated data collection.

Several government agencies in Nigeria are leveraging digital tools to enhance information collection and sharing. For example, the National Identity Management Commission (NIMC) collects biographic and physical data of Nigerians through the National Identification Card initiative. Similarly, the Central Bank of Nigeria (CBN) gathers a significant volume of data through the Bank Verification Number (BVN) initiative. Other agencies like the Joint Admissions and Matriculation Board (JAMB) are also utilizing these initiatives to streamline information collection processes and reduce costs.

INEC, as the electoral management body in Nigeria, has embraced ICT to streamline its activities. An analysis of INEC's operations reveals a shift towards periodic voter list updates, which previously consumed significant time. However, with the deployment of ICT, voters can now update their details or conduct fresh registrations online, thereby saving time, effort, and resources (Abayomi, 2020). The importance of ICT in information management is underscored by the Data Protection Bill (2020), which mandates the use of state-of-the-art data security techniques in the processing of citizens' personal data by data controllers. INEC, being one of the primary agencies responsible for collecting and storing citizens' personal information, must adhere to these standards.

Through initiatives like the Integrated Voter Enrollment Device (IVED), INEC has significantly enhanced the security and efficiency of data capture during voter registration exercises. IVED meets the stringent security conditions outlined in the Data Protection Bill (2020), thereby ensuring the secure management of citizens' personal data. This highlights the critical connection between ICT deployment and secured information management in the electoral process.

The imperative for engaging ICT in election management in Nigeria is rooted in the country's electoral history. Nigeria's electoral journey dates back to the Hugh Clifford constitution of 1922, which introduced the elective principle to the country (Ahmad et al., 2015). Elections in the country were marred by regional politics and ethnic tensions, leading to credibility issues (Ejikeme, 2016; Osemwota, 2019). Despite occasional successes such as the 1993 presidential elections, the credibility of elections in Nigeria has remained questionable, necessitating reforms in electoral administration.

INEC, as the current national electoral umpire in Nigeria, is tasked with the responsibility of conducting free, fair, and credible elections (INEC, 2020). Its mandate is to conduct periodic elections for electable public positions in the country. Significant improvements in Nigeria's electoral ratings were observed during the tenure of Prof. Attairu Jega, who assumed leadership

of INEC in 2011. Jega's tenure witnessed the introduction of ICT initiatives aimed at enhancing the integrity and efficiency of the electoral process (Omoleke, 2018).

The adoption of ICT in the management of elections in Nigeria has yielded significant benefits, including efficiency, integrity, and credibility in the electoral process (Ejikeme, 2016; INEC, 2020). However, despite successes recorded in previous strategic plans such as the 2012-2016 Strategic Plan and Programme of Action, there is still room for improvement in the electoral process (INEC, 2017). The 2017-2021 strategic plan focuses on consolidating free, fair, and credible elections in Nigeria, with particular attention to enhancing the efficiency of data management through the deployment of improved ICT tools like the Integrated Voter Enrollment Device/Biometric Voter Authentication System (IVED/BVAS) (INEC, 2017; 2020).

In ensuring free, fair, and credible elections, INEC has drawn lessons from both developed and developing countries, introducing digital innovations to enhance various aspects of the electoral process (Akwu et al., 2021). Initiatives such as voters' registration, smart card readers, and electronic collation supporting systems have contributed to the improvement of electoral integrity in Nigeria (Ilaya, 2021). The deployment of these tools, particularly the Smart Card Reader Machines (SCRM), played a crucial role in enhancing transparency and preventing electoral malpractices in the 2015 general elections (Aniekwe & Oraegbunam, 2021).

Challenges of ICT Adoption in Election Administration in Nigeria

The integration of ICT in election administration has marked significant milestones globally. However, despite its advantages, the process is not devoid of controversies. Literature highlights numerous challenges hindering ICT adoption in election administration as discussed in subsequent sections:

Operational and Technical Issues

The utilization of innovative technologies often poses operational and technical challenges, typically addressed through extensive awareness campaigns and training programs for operators. However, in the context of ICT use in election administration, additional complexities arise due to the diverse nature of the stakeholders involved. While electoral agency staff require training, addressing the ICT literacy gap among voters, especially in populous countries like Nigeria, presents a formidable task (Adebimpe et al., 2020).

Furthermore, providing necessary technical support to election officials across numerous local government areas in Nigeria is financially burdensome and practically difficult (Adebimpe et al., 2020). Inadequacies in ICT tools can also impede voter registration efforts, potentially reducing participation levels. This phenomenon could explain the gradual decline in voter turnout since the introduction of ICT tools in Nigeria's electoral process in 2011 (Afolabi, 2020).

Inadequacy of Supporting Infrastructure

ICT devices rely on supporting infrastructure for effective operation. In countries like Nigeria, where critical infrastructure such as electricity and internet access are scarce, the functionality of ICT tools in election administration is compromised (Adebimpe et al., 2020). Reports indicate that areas with poor electricity supply experience frequent malfunctioning of electoral devices, undermining the credibility of the electoral process (Afolabi, 2020). Poor handling of ICT tools and infrastructure conditions compromise the effectiveness of election administration processes. Instances of technical challenges with electoral devices in Nigeria highlight the importance of careful handling and maintenance (Ugwu, 2023).

Sabotage by Election Officials

Human factors significantly influence the effectiveness of ICT devices in election administration. Deliberate actions by election officials, such as falsifying election results, can undermine the integrity of the electoral process. Instances of electoral fraud in Nigeria, resulting in imprisonment of some offenders, have eroded public trust in both the electoral commission and the electoral process (Afolabi, 2020).

Funding Inadequacies

Procuring and deploying ICT tools in election administration require substantial funds, posing challenges for many developing economies. Reports indicate significant financial commitments in countries like Nigeria, placing a strain on government budgets (Afolabi, 2020). In addition to device procurement costs, expenses related to training, logistics, supporting infrastructure, and replacements further strain resources, making long-term sustainability difficult.

Threat from Hackers

The increasing reliance on ICT systems for election administration exposes the processes to cybersecurity threats. Electoral servers storing vast quantity of election data become prime targets for hackers seeking to manipulate results or steal sensitive information (Olugbamiye, 2020). Reports of hacking attempts in Nigeria's 2023 Presidential elections underscore the vulnerability of electronic platforms to cyber threats, necessitating stringent security measures (Ayodele, 2023).

Programming Error

Cyber threats associated with ICT devices include programming errors that compromise system integrity. Weaknesses in device components, such as vulnerable chips, facilitate unauthorized access to voting machines, compromising voter anonymity (Adebimpe et al., 2020). Deploying sophisticated, non-reprogrammable chips can mitigate hacking attempts, although cost implications may limit adoption.

Absence of Process Transparency

While ICT adoption aims to enhance transparency, complexities associated with digital processes hinder effective monitoring and comprehension by stakeholders. In Nigeria, where ICT illiteracy is prevalent, voters struggle to interact with complex election technologies, undermining trust in the electoral process (Afolabi, 2020).

Inadequacy of Enabling Laws

Limited legal frameworks governing ICT use in election administration contribute to uncertainties and legal challenges (Adebimpe et al., 2020). In Nigeria, legal issues surrounding the acceptance of ICT evidence in electoral disputes highlight the need for robust legal instruments to support technological deployment (Nnamani et al., 2019; Aniekwe & Oraegbunam, 2021).

High Level of ICT Illiteracy

Growing ICT illiteracy among citizens in developing countries poses challenges to ICT adoption in election administration. Limited understanding and trust in ICT initiatives contribute to decreasing voter participation rates as complex technologies are introduced (Adebimpe et al., 2020).

Political Interference

The influence exerted by governments on electoral agencies undermines their independence and erodes public confidence in the electoral process (Afolabi, 2020). Political interference through funding and logistic control compromises the credibility of electoral bodies.

Vote Trading

The persistence of vote trading in developing countries presents a challenge to ICT adoption in election administration. Despite technological advancements, ICT alone cannot address deep-rooted electoral anomalies such as vote trading, necessitating broader societal interventions (Situation Room, 2022).

These challenges, as highlighted in the literature, underscore the complexities surrounding ICT adoption in election administration, limiting the extent to which electoral bodies like INEC can leverage ICT to enhance electoral processes.

Methodology

The study relied on primary and secondary data sources. The primary data were sourced from 11,994 voters across the country through online questionnaire administration, using unrestricted self-selected survey technique; and Key Informant Interviews (KII) conducted with sixteen (16) purposively selected election stakeholders in Nigeria. As shown in Table 1, the interview respondents included five (5) INEC directors (ICT, Voter Education, Publicity, Voter Registry, and Gender and Inclusivity Departments), and representatives of six leading accredited observer groups that have consistently participated in general elections in Nigeria; namely, Centre for Transparency Advocacy (CTA); National Institute for Legislative and Democratic Studies (NILDS); National Assembly; Nigeria Bar Association (NBA); International Foundation for Electoral Systems, British High Commission, and the European Union. Others were the Public Relations Officers (PROs) of five purposively selected political parties in the country, namely, All Progressives Congress (APC), Peoples Democratic Party (PDP), Labour Party (LP), New Nigeria Peoples Party (NNPP), and the Social Democratic Party (SDP). The secondary data consisted of the data released by the Nigerian Bar Association (NBA) in its interim report of the 2023 Presidential and National Assembly Elections of the Federal Republic of Nigeria. The questionnaire data and the secondary data were analysed descriptively while the data drawn from qualitative instruments were analysed using thematic content analysis.

Table 1 Socio-Demographic Characteristics of KII Respondents

Code Name	Organisation	Unit	Rank
Respondent 1	INEC	ICT	Senior Computer Analyst
Respondent 2	APC		Public Relations Officer
Respondent 3	INEC	Voter Education	Deputy Director's office
Respondent 4	PDP	Campaign Council	Director of Media
Respondent 5	INEC	Publicity	Resident Electoral Commission
Respondent 6	INEC	Voter Registry	Deputy Director's office
Respondent 7	INEC	Gender and Inclusive	Administrative Secretary
Respondent 8	LP		Public Relations Officer
Respondent 9	NNPP	Campaign Council	Member
Respondent 10	SDP	Campaign Council	Member
Respondent 11	CTA	Programmes & Communications	Member Management Team
Respondent 12	NILDS	Democracy and Governance	Deputy Director's office
Respondent 13	Nat. Assembly	House of Representative	Committee Member

Respondent 14	NBA	State Branch	Chairman
Respondent 15	IFES		Country Representatives
Respondent 16	British High Com		A Senior Member of Staff

Source: Fieldwork, 2023

Data Analysis

Table 2 shows the breakdown of responses of the 11,994 valid participants in the online survey. Out of this, 7,256 (60%) of them identified political interference as a major challenge confronting the deployment of ICT in election management in the country. This figure (60%) placed political interference as the most prominent challenge since 2011. This is closely tied to the absence of political will to implement the initiative given the associated changes it may bring to the political landscape of the country. Other challenges considered prominent in their order were: the logistical problems associated with the movement and handling of the devices which usually cause delays in the commencement of the electoral activities, especially at the polling unit level (58%); sabotage by election officials (56%); cyber-attack on INEC's server and systems (51%); and low ICT skills and knowledge by election officials (47%). Although the deployment of ICT devices to the wrong locations, given that these devices are preloaded with specific and polling unit-based data was identified by 25% of the respondents, it was not as prominent as other challenges listed above. These statistics are graphically presented in Figure 1 below. Additional challenges identified by some respondents included inadequacy of support infrastructure like electricity and internet service, low level of ICT literacy among voters, inadequate training of election officials on the use of electronic devices, and insufficient security presence at the various election centres, consequently giving rooms for intimidation and harassment of voters and ballot snatching and destruction.

Table 2: Challenges of ICT Use in the Administration of Elections in Nigeria

Challenges	Frequency	(%)
Political Interference	7256	60
Delay in setting up ICT devices for Elections	6923	58
Sabotage by Election Officials	6661	56
Cyber-attack on INEC server	6111	51
Low ICT Knowledge by INEC Officials	5615	47
Deployment of ICT devices to the wrong Locations	2998	25

Source: Fieldwork, 2023

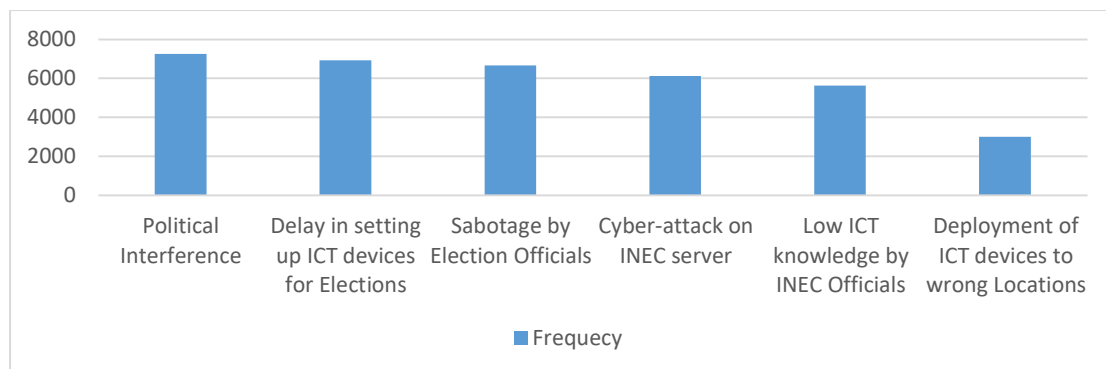


Figure 1: Challenges of ICT use in the Administration of Elections in Nigeria

Source: Fieldwork, 2023.

Interview responses also indicated that since 2011 when ICT tools were introduced for election administration, INEC hardly trains its ad hoc staff effectively and this is more often than not to the detriment of the exercise. Particularly, respondent 1 expresses disappointment with the manner in which the commission handles the motivation of even its core staff. He stressed that training for ICT staff is irregular, the incentive for performing staff is absent and due recognition has never been given to staff with epical research outputs. Respondents 2, 4, 9, 12, and 15 identified inadequacy of funds as a major challenge to the proper use of ICT in elections in Nigeria given the large voting areas to be covered with several thousands of election officials to be engaged. However, respondents 1, 3, 6, 10, and 14 argued that the commission presented a budget to the government and every penny was released for the process, so any failure in the process must not be blamed on funding but on either improper planning or mismanagement of the released fund on the part of INEC.

Another issue raised by respondents from the political parties was the absence of a quick, fair, and credible process for challenging foul play in the electoral process. Particularly respondent 4 asked that if governors could be removed from office due to court pronouncement on irregularities associated with their emergence, why is the same difficult in the presidential elections despite series of credible evidence brought before the courts since 2011? Invariably, the respondent is expressing doubt in the ability of the judiciary to dispense justice and ensure fairness in the consideration of election-related cases, especially at the presidential level.

In corroborating these findings, the data released by the NBA in their interim report of the 2023 Presidential and National Assembly elections of the Federal Republic of Nigeria is presented in Table 3 below. They showed that both the electoral officers and the voting materials arrived at the polling unit behind schedule. This is customary with INEC, most especially since 2011. These are clear indications of logistic challenges which could be from either transportation or wrong deployment of ICT tools to wrong locations. Given these delays, accreditation of voters experienced delays as reported by a large percentage of NBA election observers. Aside from these was the inadequacy of spare BVAS to back up those deployed for the election. In case any of those deployed malfunctioned, extra BVAS were not provided to replace defective ones. This significantly delayed those yet to be accredited or forced the electoral officers to result in manual accreditation of voters.

Table 3 NBA's Interim Report on the Challenges of the 2023 Presidential and National Assembly Elections in Nigeria

Time officials arrived		What time did accreditation start	
An hour late	63	An hour late	82
Did not show up	13	Did not show up	10
Few minutes late	46	Few minutes late	96
On-time	72	On-time	92
Several hours late	62	Several hours late	128
Time voting materials arrived		BVAS backup	
An hour late	65	No	237
Did not show up	13	Yes	171
Few minutes late	43		
On-time	66		
Several hours late	69		

Source: <https://analytics.zoho.com/open-view/2668635000000169824>

Discussion

The use of ICT in election administration in Nigeria is prone to several challenges despite its benefits. As found in this study, these challenges are of varied magnitude with political interference topping the list. This challenge is associated with the absence of political will to pursue ICT use in election administration. This was also found by Afolabi (2020) who noted that most EMBs in the Third World exercise independence only in name while relying on the government for funding, appointment, and logistics. These thus placed them at the mercy of politicians that may be too dominating and interfering.

Also identified was sabotage by election officials who circumvent the process either for their self-interest or to favour a particular party in the election. Also, in agreement with this was Afolabi (2020) who noted that post-voting fraud is prominent among ad hoc staff engaged by INEC in Nigeria with several instances in the number of convicted professors and other academics since 2011. Cyber-attack on the INEC server was also pointed out as a significant threat to the deployment of ICT in election administration. As found by Kassen (2020); Luiz (2018); and Olugbamiye (2020), this threat is evident in the move by countries to revert to the manual electoral procedure as observed in Kazakhstan having experienced credible threats from hackers. In tandem with this finding, Ayodele (2023) and Ugwu (2023) reported that this was the exact situation in Nigeria where not less than one hundred attempts were made at tampering with INEC's server immediately after the 2023 Presidential elections in Nigeria.

Equally identified as a challenge to ICT use in election administration was inadequate technical know-how on the part of electoral officers. This is given the rushed training given to election officers who are expected to handle technical devices for important assignments like elections. As equally found by Adebimpe et al. (2020), ineffective training of INEC staff has continued to impede the performance of ICT tools deployed for elections in Nigeria. This is given that no device is better than its handlers.

Wrong deployment of ICT tools and the reliability of the adopted ICT tools were also one of the challenges confronting the use of ICT in the administration of elections in Nigeria. This finding agrees with the studies of Ejikeme (2016) and Osemwota (2019) who held that though the use of biometric and SCRM devices has impacted the electoral process positively, several setbacks still trailed the technology. They furthered that particularly in Nigeria, Kenya, and Zambia where these tools were deployed for national elections, registration and accreditation failures were recorded in several polling units, in fact, in Nigeria the adopted accreditation technology failed to recognise and accredit a sitting president (Former President Goodluck Ebele Jonathan during the 2015 general elections).

As buttressed by Adebimpe et al. (2020), providing the needed technical support to election officials across the 774 local government areas in Nigeria for instance is grossly impossible given the amount of effort and funding required. Afolabi (2020) added that the inadequacies of ICT tools also reduce the extent to which voters can participate in the electoral process. Credibly, therefore, the finding of the study in this regard is valid given the extent to which earlier studies confirmed these challenges.

Other challenges identified in this study were inadequate support infrastructure like electricity, internet, and access road network. As found by Adebimpe et al. (2020); and Afolabi (2020), basic infrastructure necessary for the effective deployment of ICT tools for election administration is insufficient in Nigeria. Related challenges found in this study were the low level of ICT literacy among voters which was confirmed by Adebimpe et al. (2020) and Afolabi (2020), the inadequacy

of security personnel to dissuade voter harassment and intimidation, absence of rapid and credible platform for challenging election results, and technical disenfranchisement of election officials from voting.

The Way Forward

Addressing the myriad challenges facing the adoption of Information and Communications Technology (ICT) in election administration in Nigeria requires a multifaceted approach that encompasses policy reform, infrastructure development, capacity building, and stakeholder engagement.

Firstly, there is a critical need for political commitment and institutional reforms to mitigate political interference in the electoral process. Strengthening the independence of electoral bodies like the Independent National Electoral Commission (INEC) through legal frameworks can safeguard their autonomy and integrity. Clear delineation of roles and responsibilities, transparent appointment processes, and adequate funding mechanisms can insulate electoral bodies from undue political influence.

Secondly, efforts should be directed towards enhancing the technical capacity of electoral officials and stakeholders. Comprehensive training programs tailored to the specific needs of different stakeholders, including election officials, political party agents, and civil society observers, are essential. These programs should cover not only the operation of ICT tools but also cybersecurity awareness, data management, and conflict resolution skills.

Thirdly, addressing infrastructure inadequacies is paramount for the effective deployment of ICT in election administration. Investments in reliable power supply, internet connectivity, and transportation infrastructure are necessary to ensure the seamless operation of electoral technologies across diverse geographic regions. Public-private partnerships can be leveraged to bridge infrastructure gaps and facilitate the integration of ICT into the electoral process.

Fourthly, proactive measures must be taken to enhance cybersecurity and protect electoral systems from malicious activities. Robust encryption protocols, regular security audits, and the establishment of dedicated cybersecurity units within electoral bodies can bolster the resilience of ICT infrastructure against cyber threats. Collaboration with international partners and cybersecurity experts can provide valuable insights and technical assistance in this regard.

Furthermore, fostering public trust and confidence in ICT-based electoral processes is essential for their acceptance and legitimacy. Transparent communication strategies, public awareness campaigns, and stakeholder consultations can promote understanding and acceptance of ICT innovations in election administration. Engaging with marginalized communities, including rural and disadvantaged populations, is crucial to ensure inclusivity and equity in electoral participation.

Successful deployment of ICT in election administration in Nigeria requires a holistic approach that addresses technical, institutional, and societal challenges. By embracing innovation, strengthening governance mechanisms, and engaging stakeholders collaboratively, Nigeria can harness the transformative potential of ICT to advance democratic principles, enhance electoral integrity, and uphold the will of the people.

Conclusion

The deployment of Information and Communications Technology (ICT) in election administration holds immense promise for enhancing the transparency, efficiency, and credibility of electoral

processes in Nigeria. However, the journey towards realizing this potential is fraught with challenges ranging from technical issues to institutional barriers and societal concerns.

While the challenges facing the adoption of ICT in election administration in Nigeria are significant, they are not insurmountable. By embracing innovation, strengthening governance mechanisms, and engaging stakeholders collaboratively, Nigeria can leverage on the transformative potential of ICT to advance democratic principles, enhance electoral integrity, and uphold the will of the people.

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