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Information Communication Technology (ICT) As a Tool in Deepening Electoral Process in Nigeria's Fourth Republic: Reflections on Tangential Cases

Abubakar Olanrewaju Sulaiman[1]

Abstract

The study examined information communication technology (ICT) as a tool for deepening the electoral process in Nigeria's Fourth Republic, focusing on tangential cases. Elections are essential to democracy, and ICTs play a crucial role in enhancing electoral credibility. Nonetheless, concerns over ICT's overall efficacy in Nigeria's elections arise from the persistence of cybersecurity risks, digital divide issues, and operational inefficiencies. To mitigate electoral fraud and logistical difficulties, technological advancements such as the Biometric Voter Accreditation System (BVAS) and the INEC Result Viewing (IReV) portal have been implemented. The study utilized secondary data as its information source. The data were collected from newspapers, journals, reports, articles, and gazettes, and analyzed through content analysis. The study was grounded within the framework of the technological determinism theory as its theoretical basis. The findings revealed, among others, that technology has enhanced the Nigerian electoral process by addressing critical challenges such as the high incidence of multiple registrations and voting, impersonation, long waiting times for voter registration and accreditation, ballot stuffing and snatching, tampering with election results, and prolonged result collation. The study concludes that technology has significantly improved Nigeria's electoral process by enhancing the quality and efficiency of elections in the Fourth Republic. However, some challenges have also emerged as more technologies continue to be deployed. Nonetheless, the study recommends that INEC should keep deploying more technologies in the electoral process to consolidate the substantial improvements already made and thus deepen the electoral process in Nigeria. Additionally, INEC should implement measures to conduct regular post-election audits of its personnel to identify and penalize those who manipulate elections for the benefit of certain parties or candidates.

Keywords: *ICT, Tool, Election, Nigeria, and Electoral Process.*

1 Abubakar Olanrewaju Sulaiman is a Professor of Political Science and International Relations and the Director General, National Institute for Legislative and Democratic Studies, Abuja

Introduction

The introduction of Information and Communications Technologies (ICT) into the electoral process has generated both interest and concern among scholars, voters, as well as political analysts across the world regarding its role in deepening the electoral process. Undoubtedly, ICT has touched every aspect of the electoral process, including voter and candidate registration, voter identification, voter education, voting, counting of votes, collation of election results, transmission, and complaints management. Over the last decade, multiple publications have interrogated the advantages of using different forms of technology in elections in Nigeria and the attempt to define standards for its use, as well as the role it has played in Nigeria's electoral process. The history of elections in Nigeria, without the use of technology, has been fraught with numerous challenges. Elections in Nigeria have been characterised by different levels of electoral malpractices such as vote buying, underage voting, compromised electoral officers, electoral violence, and results tampering etc.

Ibeanu (2021) and Idowu (2021), cited in Layiwola (2023), assert that these electoral malfeasances have continued to manifest in all stages of the electoral process in Nigeria. While the 1999 general election was conducted using completely manual approach, in a bid to address the challenges with electoral integrity in the country, Nigeria introduced technology into its electoral process for the first time during the 2003 general elections when the optical mark recognition (OMR) technology was adopted in 2002 for voter registration in preparations for the 2003 elections (IDEA, 2017). The COVID-19 Pandemic was a moment of reflection on the imperative to include new and more technological tools within the electoral process and some countries like Nigeria that conducted elections in 2020 and 2021 passed amendments to existing legislation, policies and deployed additional technological tools to support already existing processes for effective and smooth conduct of elections amid the pandemic.

Elections, as one of the fundamental pillars of democracy, need to remain secure and ensure integrity and trust. Failures in organizing a credible election could lead to serious disruptions of the democratic process, with long-term effects on a nation's developmental process and democratic consolidation. In support of

the above assertion, Abiodun & Akeem (2012) stated;

> that, when elections are significantly flawed, most of the democratic benefits turn into deficits or even threats to the survival of democracy. When the public faces repeated episodes of election rigging, political violence, and disorderly administration, their fundamental trust in the institutions and processes of electoral rule may rapidly dissipate. The most obvious liability of troubled elections is that political choices are foreclosed. As a consequence, many voters come to believe that their political will is being unjustly denied. The taint of misconduct in a controversial election can reduce confidence in the process and cast a shadow on the legitimacy of the ruling party or the winning candidate. Without political competition, in which there is a realistic chance that power can be handled according to the will of voters, the simplest premise of democracy is denied.

Although the role of information communication technology in deepening the electoral process is an attractive trend, it has nonetheless remained a topic of debate among scholars and other election experts. While it appears that technology has been able to improve the electoral process generally, some of the electoral challenges connected with elections in Nigeria before the information and communication technology (ICT) days persists, while other new challenges have emerged leading to some questions and doubt on the efficacy of technology in deepening the electoral process in Nigeria's Fourth Republic. Hence, the imperative of this study.

Objectives of the Study

The study is guided by the following objectives:

i. Assess the extent to which the introduction of information and communication technology (ICT) has deepened the electoral process in Nigeria's Fourth Republic.

ii. Identify the challenges connected with the use of information and communication technology in Nigeria's Fourth Republic.

Conceptual Clarification

Information Communication Technology (ICT): Various writers have defined technology from different perspectives. In this study, some of the definitions that focus on the functional dimension of technology were considered. Kumar & Persaud (1999), cited in Wahab, Rose & Osman (2012), advanced the view that technology consists of two primary components. The first component is made up of physical items such as products, tooling, equipment, blueprints, techniques, and processes, while the second component concerns the know-how in management, marketing, production, quality control, reliability, skilled labour, and functional areas. According to Grubler (2003), technology, in its narrowest sense, consists of manufactured tools and equipment. He asserted that the purpose is to enhance human capabilities or to enable humans to perform tasks they could not perform otherwise. He contended further that technology transcends artefacts to encompass things that are made and how they are made, as well as the knowledge about how to deploy them. Omoleke (2017) defined information and communication technology as "a tool (or machine); a technique; the cultural force; or a combination of the three entities, both material and immaterial, created by the application of mental and physical efforts to achieve some values."

Maskus (2003) defines technology as the information relevant and useful to the actualisation of desired outcomes in production from a given range of processes. Barak (2005) conceptualises technology as the deployment of knowledge to achieve human aims, or towards the tinkering of the human environment. By this, Barak implies that technology can cause drastic change in society, to achieve more ease, efficiency, and higher productivity. According to Reisman (2006), technology is the part of developing and applying tools, materials, machines, and processes to solve existential human and societal challenges and problems.

Election: Heywood (2013) defines an election as a tool for filling political offices. He further posits that election performs at least eight functions of recruitment, making government, providing representation, policy influence, voters' education, legitimacy building, and strengthening the elites. Election serves as the medium through which vacant political offices are filled by the entire

citizenry. It provides an avenue for citizens to participate freely in choosing their leaders and also to take part in public policy/decisions (Abdulkadir, 2015). According to Mohammed (2015), an election is a competitive process through which public leaders are selected to become accountable to the people. This portrays that the election is a competition and also beyond making the leaders, it is a means of holding political leaders accountable. According to Ononihu and Okonkwo (2020), election goes beyond the political realm to include the process or pattern of choosing leaders for non-political organisations, clubs, industrial firms, etc. Election gives legitimacy to the government's right to power, and it involves all the processes and activities in the selection of leader(s) for the state (Ononihu and Okonkwo, 2020).

Electoral Process: According to Reisman (2006), the electoral process means all aspects of the election process and all election technologies, including, but not limited to, voter registration, nomination of candidates, campaigning, polling, counting, announcement of results, and processing of complaints and disputes. David (1994) describes the electoral process as "the institutional mechanism through which individual preferences are aggregated to select representatives and make political decisions in a democracy."

Joseph (1942) viewed the electoral process as central to his concept of democracy, where it is "the method by which the people elect individuals who will carry out their will within a framework of competitive political leadership. Larry (1999), cited in Ajayi (2027), defined electoral process as "a vital mechanism of accountability, enabling citizens to select leaders and hold them accountable for their policies and conduct in office." Ajayi (2007) defined electoral process as a series of key election related undertakings encompassing, inter lia, the formulation of legislation, delimitation, conflict prevention and management initiatives, civic and education, registration of voters, development and implementation of codes of conducts, nomination of candidates, campaigning, voting, tabulation, results announcement and election adjudication.

Methodology

The paper adopts a descriptive research approach. This entails analyzing existing

circumstances, attitudes, viewpoints, beliefs, social behaviors, and relationships, and drawing up key findings based on the data collected (Ogunniyi, 1992). The study relied heavily on secondary data sourced from textbooks, journals, seminar papers, newspapers, INEC reports, and other online publications on ICT and elections around the world. To evaluate qualitative data and determine the potential advantages and challenges of utilizing ICT to conduct elections in Nigeria, content analysis was employed.

Literature Review

The term "ICT" has multiple meanings. According to academics, the phrase refers to a variety of actions that include gathering, storing, processing, and sharing information using technology and software that are specifically made for this purpose (Anyakoha, 1991; Eseyin, 1997; Akpore, 1999 & Annan, 2002). According to Hawkridge (1983), ICTs are a general term that refers to technologies that are used for gathering, storing, editing, and sharing (communicating) information in different forms. The definition above distinguishes different ICT fields while also connecting them to function as a single entity. National policy makers must address the digital divide, which is defined as extremely unequal access to and use of ICT and shows up both domestically and internationally (Annan, 2002). By using ICTs effectively and strategically in important areas like education, industry, and agriculture, the digital divide can be closed, and poverty may be reduced. ICT adoption necessitates a business climate that promotes free competition, security and trust, interoperability and standardization, and ICT funding (Nwosu, 2004).

Election management, sometimes regarded as the lifeblood of democracy (Idowu 2017), has often proven troublesome and contentious in Africa (Arnold 2014) and is rife with anomalies (Idowu 2018; Idowu & Mimiko 2020a), undermining the continent's prospects for lasting democracy. Consequently, some African nations have leveraged advancements in biometric technology to enhance election quality and work towards sustainable democracy. This is significant because, as Mumford (1964, p. 7) warns, "I wish… to persuade those who are concerned with maintaining democratic institutions to see that their constructive efforts must include technology itself." For example, while

Zambia has adopted electronic voting, or e-voting, other countries such as Ghana, Nigeria, Gambia, Kenya, and Côte d'Ivoire have implemented various technologies for different aspects of election administration, primarily to address critical issues in their electoral systems (Idowu, 2021).

Increasingly, the majority of African nations appeared to have embraced technology to enhance "biometric voter registration, database management, verify voter eligibility, automate recording and counting of votes cast, and transmission of election results," according to the Maendeleo Policy Forum (2016, p. 1). Also, Osei-Offul (2017) avers that ICT is leading the way in voter registration, authentication, and identification among the different technologies used for elections in Africa. More than half of the countries utilizing ICT globally are in Africa, and over 25 countries on the continent have implemented ICT in election administration (Genkey 2017).

Cheesman, Lynch, and Wills have also corroborated that over the past 20 years, there has been a notable rise in the use of ICTs in elections, especially in Asia and Africa. Voter verification, electronic voter registration, and results transmission are among the digital technologies used by electoral commissions (Cheeseman, Lynch, & Willis, 2018). With alleged decreases in election fraud, technology can increase voters' faith in the political process (Gelb & Diofasi, 2016). After Ghana's 2012 voter registration process, more than three-quarters of Ghanaians who were registered agreed that using biometrics was an improvement over the previous system; approximately 87% thought it was a helpful tool for encouraging peaceful and credible elections (Piccolino 2015; Gelb & Diofasi 2016).

For Nigeria, it has been discovered that a few years after biometric technology was introduced for election administration, it has continued to face formidable obstacles. Although several interventions have been made to promote innovation, McGrath and Maiye (2010a) claim that these efforts have not succeeded in institutionalizing an efficient electronic voter registration (EVR) system, due to allegations of widespread electoral misconduct for elections conducted with this register and other electronic devices. For example, the elections of 2015 demonstrated how voting equipment malfunctioned during an election, rendering SCRs unable to reliably recognize voters' fingerprints.

Manual accreditation and over-voting resulted from the awful experience in the interior localities, as neither the electronic register nor the SCR worked. In many instances where the equipment managed to work, voters in collusion with politicians refused to use the SCR.

On the positive note, however, is the impact of the use of technology on voter turnout. In the era preceding the use of technology, when registers of voters were largely bloated, turnout of voters was said to be high simply due to stuffing of ballots, impersonation, and other electoral malfeasance. Following the adoption of technology, however, voter turnout out which has drastically fallen, is seen by many analysts as a true reflection of polls. For example, in the 2015 general elections in Nigeria, when biometric technology was implemented, voter turnout fell to just 47%. compared to previous national elections, this turnout is far lower. Since the 1999 elections, the average percentage of registered voters has been 55.13 percent. Voter turnout in Nigerian general elections since the turn of the century has been as follows: 52% in 1999, 69% in 2003, 54% in 2007, and 54% in 2011.

According to Gelb and Diofasi (2016), technology solutions have a generally mixed track record. Failures may stem from inadequate implementation and logistics (kits distributed without power or without time for charging) or from technological issues (inability to read fingerprints). They could result from intentional actions, or they could be unintended. By avoiding the human processes that must function—and be perceived to function—biometric technology may contribute to the maintenance of a culture of distrust and mistrust. This is because the election's essential elements are ensconced in a "black box" that voters are unable to view or impartially assess for fairness (Evrensel, 2010). Therefore, there is little to no foundation for either greater legitimacy in the eyes of the electorate or increased trust between political parties if one does not understand how the technology operates. Thus, there is no assurance that the use of technology will lead to more democratic, cleaner, and less contested elections (Gelb & Diofasi, 2016).

Theoretical Framework

One of the most dominant features in social sciences is the adoption, discussion, analysis, and understanding of concepts and phenomena from a theoretical point of view or orientation. This paper is certainly no exception and therefore lends itself to a theoretical orientation. Many theories could be adopted for this study. These include rational choice theory, cybernetics or communication theory, general system theory, and the social construction theory of technology, etc. Notwithstanding, after a careful appraisal, the study adopts the "technological determinism theory" as its theoretical framework because it provides a better and sound framework for the analysis of this study.

Technological Determinism Theory

Technological determinism theory rests on the premise that technology is the principal initiator of society's transformation. The emergence of this theory is usually attributed to an American sociologist, Thorstein Veblen, who formulated the causal nexus between technology and society in the 20th century, but the theory was later popularised in 1962 by McLuhan. McCluhan (1962), cited in Postman (1993), argued that society is influenced and shaped by technological development. To him, a human being has to adjust and adapt to new technologies and innovations.

The theory buttresses the fact that the nature of the message humans receive from technology influences their pattern of learning, feeling, and thinking. This implies that the use of technology for election conduct has the potential to effect a change in the electoral management process, different from the manual mode of electoral management. The theory maintains that technology is the heart of every social change. Sroteau and Hoynes (2003), cited in Shinkafi (2016), opined that the theory of technological determinism is a strong force that impacts society. Technological innovations, according to the exponents, are perceived as a product of scientific progress, rather than being accidental; as such, the theory avers that advances in technology are an important feature in modernity and societal development (Shinkafi, 2016). The exponents of the theory posit that rather than the position that culture or society shapes technology,

technologies shape society (Postman, 1993). Therefore, technology drives social change, rather than the other way round. Adler (2006) averred that there is a divide among the proponents of technological determinism. According to him, while soft technological determinists perceive technology as one of the transformational forces in society, the hard technological determinists see technology as the sole transformational force and driver of societal change.

Chandler (2000), cited in Mathe (2020), however, offers criticism of the theory in the sense that it puts technology in a position of absolute power over society, and that this belief can lead people to feel helpless to change any perceived direction in which technology is driving society. Technological determinism thus becomes a "self-fulfilling prophecy." Chandler also argues that there are plenty of other issues besides just technology that drive a society's direction, including "political control, class interests, economic pressures, geographical access, educational background, and general attitudes." He argues that technological determinists are taking a "reductionist" approach in trying to isolate cause and effect, when, in fact, reductionism is never a good approach in examining social phenomena. Rather, only holistic approaches that take into account all possible factors can explain these phenomena. Despite its flaws, the theory is relevant in understanding and explaining the role of technology as a tool in deepening the electoral process in Nigeria's fourth republic.

Impact of Technology in Deepening Electoral Process in Nigeria's Fourth Republic.

Since Nigeria transitioned from military to democratic governance in 1999, the strategies used for voter registration and election administration have changed. Advanced technologies like the Direct Data Capture Machine (DDCM), Electronic Voters' Register (EVR), Smart Card Reader (SCR), e-collation, the INEC Voter Enrolment Device (IVED), and online voter registration systems have replaced typewriters in these methods (Ogunyemi, 2023; Ahmed & Usman, 2015). Voter biographical information was manually gathered during the 1999 Nigerian general election since the voter register was compiled manually with all its attendant issues and challenges (Ahmed & Usman, 2015). Voter registration since then has become more accurate and efficient as a result of the

integration of technology throughout the process. Voter data may be gathered and stored in a consolidated database thanks to electronic voter registration technologies. According to Ogunyemi (2023), the INEC Voter Enrollment Device (IVED) and the Online Voter Registration systems were developed to create a reliable voter registry. The gathering and archiving of biometric information, such as fingerprints and facial features, is one way to accomplish this. Nigeria's electoral process has advanced significantly with the use of the aforementioned technology, leading to more openness and a reduction in election fraud.

In addition, voter identification and certification during elections are made possible by technology. Before allowing voters to cast their ballots, the process involves verifying their identities. Voter identification has become more accurate and efficient because of biometric technology, which includes facial recognition and fingerprints. To make this important stage of the election process easier, Nigeria's Independent National Election Commission (INEC) introduced the Bimodal Voter Accreditation System (BVAS) (Ogunyemi, 2023). Voters' identities are verified using the BVAS before they are allowed to cast ballots. This is accomplished by comparing the voter's biometric data with information previously entered into the system during the voter registration process using fingerprint and/or facial recognition technology. The BVAS serves as an Electronic Voters Register (EVR), verifying voters' identities using facial or fingerprint verification and validating the Permanent Voters Card (PVC). Election fraud is successfully discouraged by these actions.

According to Ogunyemi (2023), using and implementing the BVAS during Nigerian elections has successfully reduced incidents of result destruction, result fabrication, and result tampering. Asiegbu (2023) asserts that a high rate of electoral violence not only interferes with the smooth operation of elections but also causes voter intimidation since those who value their lives and property will avoid casting ballots. The rate of electoral violence in Nigeria will decrease with the efficient use of ICT frameworks in election administration and conduct.

According to Wahab (2025), to a very large extent, technology has been able to address critical electoral challenges in Nigeria, especially from 2007 onwards, when technology deployment was sustained and improved upon in the

electoral process. Some of the electoral challenges that have been addressed by technology include the high incidence of multiple registration and voting, impersonation, long waiting time for voter registration and accreditation, indiscriminate replacement of party candidates by political parties without the consent of the candidates, ballot stuffing and snatching, tempering with election results, and pressure on returning officers to adjust or tamper with election results, among others.

The introduction of technology has, to a very large extent, also improved the freedom, fairness, and credibility of the electoral process in Nigeria. This feat is demonstrated, through voters' access to election results uploaded on the INEC IREV, strengthening of the electoral process and provision of mechanisms that builds public trust including provision of citizen contact centre and other social media platforms, enhanced voter registration process and electronic voter register, and shorter votes turnaround time (time it takes the INEC to announce election results). Also, the removal of bloated votes, impersonation, and multiple voting are some of the feats that technology has achieved, which has infused freeness, fairness, and credibility in the electoral process in Nigeria (Nwafor, 2015; *Premium Times*, 2022). The norms in the electoral process in Nigeria before the advent of technology are beginning to change, and more awareness has been created through the deployment of technology, and this has also contributed to infusing freedom, fairness, and credibility (Wahab, 2025).

Furthermore, to a very large extent, technology has been able to ensure the trustworthiness, believability, and acceptability of election outcomes (Wahab, 2025). This is mostly demonstrated by the opposition party's loss of the election in 2015 without challenging the outcomes in the court, which shows believability and acceptance of the election outcome. Also, between 2011 and 2015, and 2023, there has been a decline in aspects of electoral litigation that relate to the actual conduct of the elections and election outcomes when compared to previous elections in the country, which also speaks to trustworthiness, believability, and acceptability of election outcomes ensured by technology. The fact that the IREV makes it possible for citizens to have access to election results in real time, invokes trust in the electoral outcome, and the access to the voters' register by citizens makes the acceptability of election outcomes easier. The ability to see

and know the number of accredited voters on the BVAS machine also gives a boost to the believability and acceptability of election outcomes.

To a large extent, technology has also infused equality and liberty in the electoral process in Nigeria (Wahab, 2025). The fact that technology compels everyone, irrespective of class and status, to register and get accredited before voting, ensures that the one-man-one-vote principle is upheld, grants more access to citizens to participate in the electoral process, and creates a level playing field for all in the electoral process, all portray an assurance of equality and liberty in the electoral process. The study also reveals that the ability of technology to allow equal participation of people living with disability also shows equality. Nevertheless, technology may have led to more desperation of the political class, and they find new means to thwart the efforts of technology, and have therefore deepened the conflict and the temperament of elections. In fact, technology equipment themselves have suffered from electoral violence, such as snatching, burning, and destruction of technological devices deployed by INEC (Kimpact Development Initiative, 2022; 2023a).

Although technology has improved the electoral process, election litigations are still high because of the hardened and desperate nature of Nigerian politicians, glitches associated with the use of technology (e.g., the delayed upload of the 2023 presidential election results on the INEC IREV), etc. In fact, rather than reducing incidents of election litigations in the country, technology has become a tool and subject of litigations, due to weak, archaic, and incoherent legal frameworks that regulate technology deployment for elections in the country (Wahab, 2025). Kimpact Development Initiative (2023a) also avers that election litigations have been on the increase in the country since 2003, despite the deployment of technologies in the electoral process. Electoral litigations have thus remained high despite technology deployment due to the several loopholes created by the electoral laws in the country. Also, the fact that people lacked trust in the electoral process for a very long time has ensured that election litigations continue despite visible improvements in technology.

The fact that many of the election litigations are not often based on the credibility of the elections themselves, but on the eligibility of opposition parties and/ or candidates to participate in the election in the first place, also contributes

to the reason why technology has not been able to reduce election litigations in Nigeria. As such, even when politicians believe that the elections were credible, they still resort to the court on the grounds of other loopholes and the eligibility, certificates/documents, etc., of the opponent. A report by Kimpact Development Initiative (2023b) shows that the grounds for election litigation for the 2023 general elections were based on candidates not qualified to contest (31%); non-compliance with the Electoral Act (87%); and lack of a majority of lawful votes cast (63%).

Pertinent to state that even though technology has brought several improvements to the electoral process in Nigeria, acceptability, and believability is still low in some quarters, owing to the hardened and desperate nature of Nigerian politicians; the manipulation of technology by humans entrusted with handling them in favour of certain interests; coupled with the poor manner in which elections have been managed in the past (Wahab, 2025). Technological glitches, such as the one experienced during the 2023 presidential elections, which led to a delay in the electronic transmission of results, negatively impacted on trustworthiness, believability, and acceptability of election outcomes.

Also, despite the proven areas where technology has enhanced equality in the electoral process, findings show that technology has not been able to bridge the gap between rural and urban dwellers, especially in terms of access to technology facilities and information concerning these election technologies. While rural dwellers still face difficulties in those areas, urban dwellers are at an advantage (Amaefula *et al*. 2018). For instance, the opportunities afforded by technology for online pre-registration and other voter registration activities, such as voters update and transfers, and change of polling units, were mostly enjoyed in areas with good internet.

In a nutshell, just as the technological determinism theory argues, ICT is shaping the electoral process in Nigeria by improving electoral credibility, transparency, and addressing critical challenges prevalent in the electoral process in Nigeria. Technologies determine social change, so also ICT is also determining and driving the positive changes in the electoral process in Nigeria. As the theory has been criticized, it is also evident that technologies, in this case, ICTs, cannot be a quick fix to addressing all electoral challenges in Nigeria, largely due to

human handling of the ICTs. This also explains the several challenges besetting the deployment of ICTs in the electoral process in Nigeria.

Challenges and Issues Connected with the Use of Technology in Nigeria's Electoral Process

Despite the level of technologies that have been deployed and the impact in deepening the electoral process since the return of democracy in 1999, there remain some challenges, which are the main focus of this section. Uzedhe and Okhaifor (2016) identified corruption as a major challenge and the lack of, or inadequate infrastructure requisite for the deployment of technology, such as poor network coverage, lack of technical know-how, poor internet coverage, and poor and unreliable electricity, etc. are some other challenges confronting the deployment of technology in Nigeria's electoral process. Nwafor (2016) identified the that lack of commitment and political will to effectively deploy technology to drive credible elections, the failure and glitches associated with technology, and lack of, or inadequate public awareness on the technologies deployed for election, are other challenges militating against technological deployment and the deepening of electoral process in Nigeria.

Ayeni, Aweh, Bedeji-Ajisafe, Atachin (2023) in discussing the challenges of technology in elections, opined that Nigeria, like many other nations, is vulnerable to cyberattacks, data breaches, misinformation operations, language barriers, and high illiteracy levels as challenges associated with the use of technology in Nigeria's electoral process. They also identified challenges of misuse of technology for political goals, such as spreading fake news, which has damaged electoral processes in Nigeria. According to them, trust concerns have also been a problem. Technical issues, software bugs, and system failures have interrupted voting and damaged trust in technology in Nigeria's electoral process. Insufficient Training, electoral officials, poll workers, errors, and operational issues caused by poor training and issues associated with cultural and linguistic diversity.

In the Osun and Ekiti state elections, there were also reported cyberattacks of both local and international dimensions, with cyberattacks from as far as

Asia directed at the INEC portal (Ufuoma, 2022). In the 2023 elections, the Ministry of Communication and Digital Economy reported a total of 12,988,978 cyberattacks days before and during the election (Izuaka, 2023). Again, these attacks were reportedly of both local and international dimensions. Layiwola (2023) identified non-compliance with the use of deployed technologies during elections; the rushed manner in which technologies are introduced and deployed; trust deficit; lack of honest, trustworthy, and sincere individuals to handle the technologies as factors affecting the use of technologies in Nigeria's electoral process in Nigeria.

In Nigeria's electoral process, vote buying and selling have become a common feature of elections, as if it is a logo or symbol to signify elections. Nevertheless, upon examining the matter closely, electoral vote buying and selling may have attained new levels of complexity and sophistication as a result of the deployment of technology (KDI, 2023, 2024). According to Adams, cited in Davies (2022), vote buying and selling during elections have been devised either covertly or openly by political parties or electoral candidates using a nefarious design of hook or crook since other means of election manipulation have been significantly reduced. And this strategy, as a means, has been efficient and is used due to its nature and position, as well as the influence and the results it guarantees. Such practices are largely left unchecked due to political pressure to ignore these venal practices, which then exert pressure on the electoral mechanism, with the constant fear of backlashes looming in the background if pursued or investigated; thus, making it difficult to ensure a clean and fair electoral process. (Davies 2022). This represents one of the key tangential issues with the deployment of technology in the electoral process and serves to erode the gains of technology in enhancing electoral credibility.

Ndujihe & Kumolu (2015) also opined that despite the deployment of technological devices in the administration in Nigeria, the process is still fraught with fraudulent practices such as vote-buying and underage voting in some parts of the country. In the 2015 polls, underage voting was observed mainly in Kano, Jigawa, Katsina, Gombe, Bauchi, Katsina, and Kogi States (Ndujihe & Kumolu, 2015). In the 2019 elections, underage voting was equally observed in some parts of the country. According to them, these challenges are beyond

technology, as argued by the social construction theory of technology.

Muslim (2017), cited in Sibe & Kaunert (2022), further argued that one of the challenges facing the use of technology in Nigerian elections has to do with the policy and legal framework guiding the use of technologies. He stressed for instance that, despite the provision for the use of Card Reader under section 8(b) of INEC approved guidelines and regulations for the conduct of 2015 general elections, which can be regarded as a subordinate law, card reader cannot be used to determine the credibility of election, because there is no express provision of such law in the Electoral Act empowering the use of SCR in the conduct of election. Electoral Act, 2010 as amended is superior to INEC guideline, and since the Electoral Act does not provide for the use of SCR in conducting election, it then means that the guideline is inconsistent with the provision of the Electoral Act and therefore null and void, to the extent of its inconsistency. He further stressed that the same principles apply to policy guiding the use of technologies in both the Electoral Acts, that is not captured in the Nigerian constitution.

Though the Electoral Act 2022 addressed some of the concerns raised in 2015 and may have legitimized technological innovations deployed by INEC for smooth elections in line with global best practice and industry trends (Sibe & Kaunert 2022), the Electoral Act 2022 did not make it mandatory for INEC to use any of these but merely gave them the power to decide which technology they deem fit thereby providing loopholes for its use. Again, the legal framework guiding the use of the ICT is mostly not reflected in the Constitution in most cases, giving ICT a weak legal backing due to the lack of consistency with the Constitution, which remains the grund norm (Sibe & Kaunert 2022).

Summary of Findings

From data gathered and analysis made, the following findings were discovered:

- The study reveals that the introduction of technology in Nigeria's elections has been able to address some of the critical electoral challenges in the Nigerian electoral process since the inception of the Fourth Republic. The critical challenges such as high incidence of multiple registration

and voting, impersonation, long waiting time for voter registration and accreditation, ballot stuffing and snatching, tempering with election results, prolong collation of result, among others challenges validating the postulation of the technological determinism theory as one of the theories to which the study was built on. The study also reveals that despite the significant improvement made by technology in deepening electoral process in Nigeria, the study shows that litigation, electoral violence and believability is still low, owing to the hardened and desperate nature of Nigerian politicians; the manipulation of technology by humans entrusted with handling them in favour of certain interests.

- The study also reveals several challenges connected with the use of technology in Nigeria's Fourth Republic electoral process. The challenges identified are both environmental factors and human challenges. The environmental challenges as revealed by the study are weather conditions and humidity, while the manipulation of technology by humans saddled with the responsibility of handling them in favour of certain interests, also challenges of vote-buying which is now the bane of electoral challenges in Nigeria, and lack of internal democracy showing technology alone cannot deepen electoral process. Cultural diversity, languages, and a lack of proper training have negatively impacted the operations of technology in Nigeria's electoral process. The study also reveals a lack of a well-defined policy/legal framework and inconsistencies of electoral reforms in line with constitutional provisions as one of the challenges connected with the use of technology in Nigeria's electoral process.

Perhaps more significantly, the study reveals that while technology has dealt a major blow to some of the traditional challenges bedevilling the electoral process in Nigeria, the use of technology has equally brought to the fore a number of new challenges, which if unchecked may erode the benefits and gains expected with the use of technology.

Conclusion

ICT is changing how many Nations around the world conduct their elections. This is because it makes it possible for people to participate in the state's election process from even the most remote areas, thereby increasing public involvement. The inclusion of ICTs in the voting process in Nigeria opens new opportunities for Nigeria as we work to build on our democratic achievements.

Since the inception of democracy in 1999, INEC has deployed technology to tackle some challenges in Nigeria to deepen the electoral process. From digitizing the voter register to utilizing direct data capture machines, Smart Card Reader (SCR), and now the introduction of the Bimodal Voter Accreditation System (BVAS), and INEC Result Viewing Portal (IREV). Consequently, this paper asserts that the use of ICT and other technology platforms for the execution and administration of elections in Nigeria is an effective instrument that is presently improving the electoral and democratic process. ICT has the prospects to even further deepen and improve the electoral process in the country, if the critical challenges, which are both human and environmental, presently besetting the use of ICTs are addressed head-on.

Recommendations

In line with the objectives and findings discovered, the study has come out with the following recommendations.

Elections are a crucial aspect of democracy, which is itself a journey culminating in consolidation. Hence, the Independent National Electoral Commission (INEC) needs to continue integrating technology into the electoral process to further enhance the significant improvements achieved thus far and to deepen the electoral process in Nigeria. The adoption of new technologies necessitates a reevaluation by INEC regarding inter-agency consultations and public awareness initiatives, ensuring these advancements are perceived as opportunities rather than threats. Additionally, INEC should implement measures to conduct regular post-election audits of its personnel to identify and penalize those who unjustly manipulate elections for the benefit of specific parties or candidates. This approach will minimize human interference with

election technologies to the greatest extent possible.

To address the challenges posed by the absence of a clearly defined policy and legal framework, as well as inconsistencies with Constitutional provisions related to the use of technology in Nigeria's electoral process, Nigerian lawmakers, in collaboration with INEC, should establish a comprehensive policy and legal framework governing the use of technology in elections. This framework should be explicitly reflected in the Constitution of the Federal Republic of Nigeria. Doing so will mitigate post-election challenges concerning INEC policies and legal frameworks that are not aligned with Constitutional provisions, as seen during the 2015 and 2019 general elections regarding the use of SCR and the deployment of technology by INEC. Furthermore, the INEC should ensure that adequate and thorough training is provided to individuals handling election technologies before they are deployed in the field. To achieve this, short, medium, and long-term modalities should be established. This initiative can be extended to National Youth Service Corps (NYSC) members, who are key stakeholders for INEC, by creating a Community Development Service (CDS) group that enables corps members to receive ongoing training from INEC officials on the effective use of technology.

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