Technological Deployment and its Effect on Credibility of Elections in Nigeria under the Fourth Republic

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Abstract

This paper investigates the role of technology in Nigeria's electoral process during the Fourth Republic, employing a qualitative research design and drawing on the cybernetics model of communications theory as its theoretical framework. Through interviews with ten experts in technology deployment in the electoral process, the study reveals a consistent increase in technological integration since 2003, with various technologies addressing electoral challenges. The pivotal moment in 2015 marked the introduction of technology for Election Day activities, particularly voter accreditation, and the COVID-19 pandemic further accelerated its adoption. The paper found out that despite challenges like technological glitches and political interference, technology has positively impacted the electoral process by addressing issues such as multiple registrations and manipulation of results, leading to a reduction in electoral violence. The paper recommends the need for sustained commitment to technological enhancement, including investing in advanced equipment and updating software, to address challenges and ensure trustworthy election outcomes. Additionally, comprehensive training programs and legal reforms are recognized as crucial for adapting existing frameworks to the evolving technological landscape and creating a secure, free, fair and regulated credible election for an enhanced democracy.

Keywords: Technology, Election, Nigeria, Fourth Republic

Introduction

Globally, technology has played a pivotal role in election administration processes in the last decade, aiming to enhance efficiency, effectiveness, and trust in electoral outcomes (IDEA), 2018; Maendeleo Policy Forum, 2016). The European Commission (2012) argues that the relevance of technological deployment must significantly contribute to the overall credibility and quality of the electoral process, emphasizing that the purpose should be to improve electoral credibility. To address controversial electoral outcomes in Africa, including Nigeria, many countries have turned to technology deployment in elections, viewed as a crucial solution to improve election quality (Ibeanu, 2021). Mumford (1964) even considers technology as the lifeblood of democracy, capable of sustaining it.

However, Nigeria has deployed technology in the pursuit of electoral credibility since the inception of the Fourth Republic in 1999. This is with a view to ensure Free and fair elections as integral features of electoral democracy, and credible elections, devoid of intentional manipulations and systemic errors, which are essential for the legitimacy of democracies worldwide. The absence of credibility due to inefficiencies in administration and electoral fraud undermines the essence of democracies (Nnoli, 2003).

While stakeholders like the Independent National Electoral Commission (INEC) believe that technology enhances the credibility of Nigerian elections, a lack of consensus exists on its potential to instil credibility and address malfeasance. Various studies present conflicting views, with some highlighting technology's efficacy in enhancing electoral credibility

(Osei-Offul, 2012; Golden et al., 2014; Rosset and Pfister, 2013) and others expressing pessimism (Barkan, 2013; Cheeseman, 2015; Yard, 2010).

However, despite the increasing use of technology in Nigerian elections, challenges persist. This is posing a critical question: Has the credibility of Nigerian elections improved with the increasing use of technology? This question prompts an empirical examination of technological deployment in the electoral process, evaluating its role in addressing critical challenges, ensuring fairness, credibility, trustworthiness of outcomes, promoting equality and liberty, and reducing electoral violence and litigations. The conflicting nature of existing studies necessitates a closer examination of the specific impact of technology on the credibility of elections in Nigeria which is the subject of this paper.

Conceptual Framework

I. Technology

Omoleke (2017: 362) defines technology as more than just a tool or machine; he characterizes it as a multifaceted concept encompassing techniques and a cultural force. It extends beyond physical entities to include both material and immaterial creations resulting from the application of mental and physical efforts, all with the overarching goal of achieving certain values. In essence, technology goes beyond the tangible artefacts we commonly associate with the term and also involves the intangible aspects of knowledge, methodologies, and the cultural impact of innovation.

This comprehensive definition highlights that technology is not solely confined to the physical tools or machinery but extends to the broader spectrum of techniques and the cultural influence embedded within these advancements. The term encapsulates the entire process of ideation, creation, and implementation, acknowledging the mental and physical efforts invested in technological development. Moreover, he emphasizes the intrinsic connection between technology and values, suggesting that technological endeavours are driven by a pursuit of specific principles or goals.

ii. Electoral Credibility

Omoleke (2017) defines electoral credibility as an electoral process characterized by equality and liberty, ensuring that all citizens are treated equally and can freely participates as voters or candidates. Barkan and Okonkwo (2020) further elaborate that electoral credibility entails trustworthy, believable, and acceptable elections for all stakeholders, including the electorate, without the presence of violence, intimidation, or manipulations. In the context of this paper, electoral credibility implies a free, fair, and credible electoral process that fosters trustworthy and acceptable election outcomes, upholds principles of equality and liberty, and minimizes instances of electoral violence and litigation.

Empirical Review

There is plethora of studies which offer insights into the role of technology in electoral processes in Nigeria, focusing on the period from 2015 to 2019. Chikodiri (2015) specifically investigates the card reader's impact on the credibility of the 2015 general elections, recommending the full deployment of e-voting. Lai (2017) examines the broader role of technology in curbing election-related challenges and notes the adoption of electronically generated biometric voters' rolls. Unufe and Justin (2019) assess INEC's transition from manual to electronic voting, emphasizing the importance of technology aligning with voters' preferences.

Ariyo (2020) explores the period between 2015 and 2019, scrutinizing the extent to which technology deployment enhanced electoral credibility, attributing increased technology use to the need to address electoral fraud. Enwere and Ladan-Baki (2015) focus on the 2015 general election, demonstrating how the smart card reader reduced rigging challenges. Ayeni and Esan (2018) observed that, span from the period of 1999 to 2017, where they

highlighted the positive impact of technologies like electronic voter registration and smart card readers on reducing electoral malpractices.

Abodunrin, Oloye, and Alaba (2018) concentrate on the 2015 elections, acknowledging technology's significant role in improving electoral credibility while recognizing challenges such as poor awareness. Njoku et al. (2018) delve into challenges associated with technology deployment in rural areas, emphasizing the need for proper training and more accessible card reader devices. Osemwota (2019) focuses on the impact of biometric permanent voters' cards in the 2015 elections, revealing increased transparency but recognizing existing challenges.

Kassem and Osasona (2020) appraise the smart card reader's efficacy in enhancing electoral credibility during the 2015 and 2019 elections, noting improvements while highlighting challenges like violence and technical difficulties. Oke & Atufe-Musa (2020) argue for increased ICT deployment to reduce electoral violence associated with ethnic and religious conflicts. Ejikeme (2020) credits ICT with minimizing electoral fraud in the 2015 general election.

Ogbe and Ojie (2020) emphasize the role of political education through ICT tools in eradicating electoral violence, linking the militarization of the populace during military rule to electoral malpractices. Abioro and Abiodun (2021) explore INEC's operational environment since 1999, acknowledging the positive impact of technology on the electoral process and recommending better voter education.

Njoku, Amaefula, Nwandu, and Jibri (2018): Focusing on challenges in rural areas, this study emphasizes the reduced human interference due to technology adoption by INEC. It recommends proper training for personnel and increased availability of card reader devices in rural polling units.

Osemwota (2019): This study explores the impact of the biometric permanent voters' card (BPVC) on the electoral process, emphasizing increased transparency and trust in INEC. It recommends further electoral law reforms to address challenges and integrate additional election technologies. Appraising the efficacy of the smart card reader, this study acknowledges improvements in electoral credibility but identifies challenges like violence and technical difficulties. It recommends adequate training for INEC staff and further strengthening of electoral laws. On the other hand, Oke & Atufe-Musa (2020) focusing on the role of ICT in enhancing representative democracy, advocates for increased technology deployment to reduce electoral violence associated with ethnic and religious conflicts.

Ejikeme (2020): Ejikeme's study, examining the impact of ICT on the 2015 general elections, argues for a significant reduction in electoral fraud since the introduction of ICT This research explores the role of political education and ICT in achieving sustainable democracy, emphasizing the need for continuous political education through ICT tools.

Abioro and Abiodun (2021): Investigating INEC's operational environment since 1999, this study acknowledges the positive impact of technology on the electoral process and recommends better voter education and training for technology operators. In summary, these studies collectively underscore the transformative impact of technology on Nigeria's electoral processes, recognizing improvements in credibility and transparency while also addressing associated challenges.

Theoretical Framework

The paper adopts the cybernetic model of communications theory, which originated in the 1940s and was formulated by notable scholars such as Couffignal, and von Neumann Cybernetics, as defined by Nwangwu et al. (2018), pertains to the scientific examination of systems capable of receiving, storing, and processing information to utilize such data for control purposes. Comparable to David Easton's system analysis approach, the cybernetics

model adopts an interdisciplinary perspective, aiming to elucidate the correlation between actions within a system and the resultant effect.

In operation, the cybernetics model of communication encodes incoming information, recognizes patterns, stores these patterns in a memory unit, learns from experience, recalls information upon command, recombines information into new patterns, and applies stored information for problem-solving and decision-making (Wiener, 1969: 9). This operational mechanism closely mirrors the functioning of electoral technologies, thus optimizing the election management system.

This theoretical framework proves essential for comprehending the extent of technological deployment and the role technology assumes in the electoral process. According to Wiener (1969), the escalating complexity of the world necessitates the inevitable incorporation of technologies for administrative purposes. Election management aligns with this administrative imperative, resulting in the increasing global deployment of technology. The cybernetic model is therefore posited to enhance our understanding of the pursuit of credible elections through technological means, suggesting a positive correlation between the degree of technological deployment and the improved credibility of an election However, Abdulkadir (2021) discerns a limitation in the cybernetics model, contending that the involvement of human operators in handling and operating technologies leaves room for potential manipulations and human interference.

Research Methodology

The paper employs a qualitative research design to investigate the impact of technology on credibility of elections in Nigeria. The study utilizes systematic collection, presentation, and analysis of primary data obtained through interviews, along with qualitative data from various sources such as texts, sounds, interviews, observations, and documentary evidence. The study population is purposively selected based on stakeholders' experiences and expertise related to the subject matter, encompassing officials from the election management body, democratic institutions, political parties, civil society organizations involved in the electoral process, and academicians specializing in electoral studies in Nigeria. Ten key informant interviewees (KIIs) are purposively selected, emphasizing the quality of data over quantity, with participants drawn from entities like INEC, IFES, TEI, YIAGA Africa, and political parties. The data analysis adopts a thematic analytical approach, involving the transcription of recorded interviews and subsequent categorization into thematic groups. The paper prioritizes a comprehensive exploration of the topic by integrating insights from both primary and secondary sources. The Table 1 below presents the sample size.

Table 1: KII Distribution and Sample Size

S/N	Respondents' Location/ Affiliation	Number of Selected Respondents
1.	The Independent National Electoral Commission (INEC), Nigeria	2 KIIs
2.	The Electoral Institute (TEI) of Nigeria, Nigeria	2 KIIs
3.	YIAGA Africa	1 KII
4.	International Foundation for Electoral Studies (IFES)	2 KIIs
5.	Election Monitoring and Support Centre (EMSC)	1 KII
6.	Academicians of Electoral Studies in Nigeria	2 KIIs
		Total KIIs = 10

Source: The Researcher (Interviews were conducted from October 2, 2023 to October 29, 2023)

Data Presentation and Analysis

Technological Deployment for Electoral Administration in Nigeria from 2003 to 2021

In the early 2000s, Nigeria embarked on a journey into technological advancements for electoral processes. The introduction of the optical mark recognition (OMR) system in 2003 marked a departure from manual voter registration, aiming to streamline the process, reduce duplication, and enhance the accuracy of voter rolls. The subsequent period from 2007 to 2011 witnessed the implementation of biometric voter registration and the introduction of the Permanent Voter Card (PVC) with embedded microchips, enhancing security in voter identification despite persisting challenges such as power supply issues and inadequate infrastructure.

From 2011 to 2015, the electoral landscape saw the deployment of Electronic Voter Card Readers (EVRs) to verify voters' identities and prevent multiple voting. Efforts were made to explore real-time result transmission through technology, revealing challenges like network reliability and cybersecurity concerns. The period from 2015 to 2019 marked a digital revolution in election management, refining the Smart Card Reader (SCR) for improved performance and placing a greater emphasis on technology for the transmission of election results. Despite these advancements, challenges such as technical glitches, insufficient training of election personnel, and issues related to power supply and connectivity persisted, highlighting the need for ongoing improvement and adaptation in Nigeria's electoral technology landscape.

The commitment to technological deployment during this period signals a broader shift towards more transparent, efficient, and accountable electoral practices, with valuable lessons learned shaping the future integration of technology in electoral administration. However, in terms of the level of technological deployment in the electoral process in Nigeria, all the interviewees averred that there has been an increasing and high level of technology deployment for the purpose of election administration in Nigeria since 2003 (Interviewees #1-10). A number of technologies such as the Optical Mark Recognition (OMR) form, permanent voter card (PVC), the card reader, INEC result viewing portal (IREV), the bimodal voter's accreditation system (BVAS), and EMSC, among others, have been deployed for electoral administration in Nigeria since 2003 (Interviewees #1, 2, 3, 4, 7, & 8).

The interviewee providing a rundown of the timeline of technology deployment in the electoral process in Nigeria, Interviewee 2 submitted that:

> *Beginning from 2003, the optical mark recognition form was first deployed by the commission…in 2007, the direct data capture machine was introduced…in 2015, the smart card reader and the PVC were introduced…in 2019, the BVAS machine…in 2023, the INEC voter's enrolment machine (IVED), and the IREV were introduced." While technology had been deployed in the electoral process in Nigeria, the outbreak of the COVID-19 pandemic saw an upsurge in the use of technology in the Nigerian electoral process, in a bid by the commission to reduce human-to-human interactions (Interviewee #2).*

With respect to whether the various technologies deployed for elections in Nigeria has been able to resolve critical electoral challenges in the country, all the Interviewees averred that of a truth, even though there are still challenges, technology has been able to address some critical challenges besetting the electoral process in Nigeria. For example, Interviewee #1 posited that the deployment of the Electronic Voter Registration (EVR) system in Nigeria has successfully addressed

longstanding challenges associated with manual voter registration, according to interviewees. Interviewee #1 emphasizes that the BVAS, as part of the EVR system, has brought transparency to the electoral process by ensuring the principle of one person, one vote. Additionally, technologies like the Election Management Support Center (EMSC) and the Election Day Operation Support Center (EOSC) were introduced to aid in planning and utilize integrated data for elections.

Another interviewee highlights the introduction of Optical Mark Recognition (OMR) forms and the Automated Fingerprint Identification System (AFIS) in 2003 as initial steps in addressing multiple and duplicates registrations, thus enhancing the credibility of the voters' register.

Interviewee #3 underscores the efficiency of BVAS and INEC Voter Enrolment Device (IVED) in expediting the voter registration process and minimizing human errors. The consolidation of data in the cloud is seen as instrumental in fast-tracking the clean-up of the voter registration system, marking a significant improvement in the electoral process in Nigeria.

Technology has also been able to come to the rescue of the INEC, amidst the astronomic rising population in Nigeria, as it would have been difficult to manage the electoral process manually, owing to the very large population. This is buttressed by Interviewee #4 who further added that;

> *Technology has been able to curb the challenge of indiscriminate change of party candidates by political parties, without the consent of the candidate. Technology has also been able to address challenges such as bloated register, multiple voting, ballot snatching, and ballot paper stuffing (Interviewee #4).*

For Interviewee #6, technology has resolved the challenge of people not registered in a particular polling unit yet being able to vote. According to him,

> *Because of the verification and authentication of voters using BVAS, and it started with the smart card reader in 2015, there has been significant improvement on ensuring that only people registered in a polling unit are allowed to vote (Interviewee #6).*

Technologies have also reduced the time it usually takes for voter accreditation on Election Day as against use of manual accreditation process. Now, accreditation and voting can now be done simultaneously, a feat not possible in the past.

Technology has significantly addressed critical challenges in the electoral process in Nigeria including the ability for results to be uploaded directly from polling units which thus, mitigates issues of result forgery and the introduction of fake results. Moreover, technology plays a pivotal role in improving the production and quality assurance of ballot papers, preventing difficulties associated with a manual ballot design. The smart card reader, has limited voting by proxy and reduced instances of multiple registrations, albeit not eliminating the issue entirely. Additionally, online platforms deployed by INEC have facilitated effective communication with stakeholders, providing ease compared to the challenges associated with manual processes. Overall, technology has impacted on result integrity, ballot paper quality, voter registration, and stakeholder communication thereby underscoring its positive contributions to the Nigerian electoral system. This standing corroborated with the interview result thus:

> *Multiple registrations have been reduced; multiple voting has also been greatly reduced. Results management and administration has also improved, while the distance between the polling units and the collation centres is the period politicians use to*

conduct a lot of negative infractions, but today, it has helped reduce the pressure on the returning officer from the polling units in terms of results management and administration. It has also helped reduce the pressure on human resource, also reduce the pressure on political parties. Technology has helped them to reduce the pressure, because once they conduct primaries, technology can help us to understand whether it is direct or indirect primaries they have conducted. It has also helped to assist the commission to monitor party campaign financing, because of the technology, they can be able to know where the bill boards are, they can know the number of advertisements they are making, also be able to watch other social media outlets to see whether or know the number of people that have come out in the activities that are ongoing (Interviewee #4).

Impact of Technology on Electoral Credibility in Nigeria from 2003 to 2021

The impact of technology on electoral credibility in Nigeria from 2003 to 2021 has been characterized by significant advancements aimed at enhancing transparency and efficiency. Positive aspects include the introduction of biometric voter registration, electronic voting machines (EVMs), and voter verification technology, which contributed to a more accurate voter database and reduced the potential for fraud. However, challenges such as technical glitches, cybersecurity concerns, and a lack of public trust in rapidly introduced technology led to disruptions and scepticism. The overall assessment suggests a nuanced narrative, emphasizing the need for a balanced approach to technological innovation and addressing associated challenges to ensure the credibility of future elections in Nigeria. Recommendations include improving the resilience of electoral technology, enhancing public education, and implementing robust cyber security measures while fostering stakeholder collaboration for sustained trust in the electoral system.

However, in terms of the ability of technology to infuse freeness, fairness and credibility in the electoral process in Nigeria, many of the interviewees generally acknowledge that technology has significantly contributed to achieving freeness, fairness, and credibility in Nigeria's electoral process. Interviewees #1, 2, 3, 5, 7, and 9 emphasize the positive impact, with Interviewee #5 specifically highlighting the real-time accessibility of election results through INEC IREV as a factor enhancing credibility. Interviewee #1 underscores the transformative effect of technology since the 2003 general election, attributing the improvement in the process to technology's role in building public trust. Interviewee #4 offers a more balanced perspective, noting that technology has leveraged the credibility, fairness, and inclusiveness of the electoral process, driven by increased awareness facilitated by information communication technology. Interviewee #6 adds a nuanced view, acknowledging technology's positive impact on credibility but highlighting the susceptibility to human interference. Overall, the consensus is that, when appropriately used, technology has infused positive elements into Nigeria's electoral processes.On the ability of technology to ensure trust worthiness, believability and acceptability of electoral outcomes, the interviewees also shared their views.

The consensus among multiple interviewees is that the deployment of technology has significantly contributed to ensuring and enhancing the trustworthiness, believability, and acceptability of election outcomes in Nigeria. Interviewees #1, 2, 3, 4, 5, 6, 8, and 10 emphasize the positive impact of technology on building trust in the electoral process. Interviewee #1 points to

the decline in election petition tribunal cases from 2011 to 2023, highlighting how technology has supported and strengthened people's trust in election outcomes. Interviewee #3 notes that the accessibility of real-time election results through INEC's IREV, despite challenges in the 2023 presidential election, has fostered trust among citizens.

Furthermore, the deployment of technology for voter registration is seen as a factor boosting the acceptability of election outcomes, as people can now access and verify the voters' register. Interviewee #5 reinforces this by stating that the transparency provided by technology, such as the BVAS, has increased people's confidence in the electoral system and its outcomes. Overall, the use of technology is seen as a positive force in building trust and confidence in Nigeria's electoral processes

Furthermore, in terms of liberty, technology has assisted with the issue of liberty, as the electorates see technology as providing more avenues for them to participate more; it provides that opportunity where people feel a great access for one man, one vote, and the collation of results through e-voting machines. Interviewees unanimously assert that: *technology has played a pivotal role in creating a more level playing field in Nigeria's electoral landscape. Interviewee #2 highlights the transformative impact, noting that technology, including the Biometric Verification and Authentication System (BVAS) and IREV, has eliminated the possibility of candidates manipulating results through undue influence.Interviewee #3 underscores technology's role in providing universal access, breaking down geographical and class barriers, thus fostering equality.Interviewee #4 expands on this idea, emphasizing the inclusive nature of technology that caters to the specific needs of people with disabilities, ensuring that they can participate on equal footing. Technological innovations like braille ballots and magnifying lenses are cited as examples.Interviewee #5 emphasizes BVAS's contribution to maintaining the one-person, one-vote principle, and ensuring equality in the voting process. Moreover, technology is credited with enhancing inclusiveness by capturing data on disabled individuals during voter registration, enabling the election commission to deploy necessary accommodations, ultimately fostering equal access and participation for all citizens. In spite of the equality and liberty that technology ensures in the electoral process, some interviewees*

By and large, when asked to outline the areas where technology has not been able to ensure equality, such areas are noted below. Interviewees #1 and 3 express concerns that *technology's unequal impact on access, particularly highlighting disparities between rural and urban areas. While urban dwellers benefit from better access to technology, including internet connectivity and devices like smartphones and computers, rural residents face limitations in these resources, hindering equal access. Poor internet connections and a lack of technological facilities in rural areas contribute to this disparity. Access to information on election technologies is also noted to be challenging for rural dwellers (Interviewees #1 and 3). Additionally, the registration process is deemed more accessible for urban residents, who find it easier to reach registration venues for capturing and registration, while those in rural areas face difficulties. Notably, technology has not effectively addressed the accessibility challenges faced by persons with disabilities, particularly in the process of moving to polling stations for voting, presenting a persistent challenge, according to Interviewee #1.*

On the ability of technology to reduce electoral violence and litigations, a number of the interviewees alluded to the fact that, to a large extent, technological deployment in Nigerian elections has been able to reduce incidents of electoral violence but there is still some contentions.

The impact of technological deployment on electoral violence in Nigerian elections is a point of contention among interviewees. Interviewees #1, 2, 7, and 9 argue that technology has played a significant role in

reducing incidents of electoral violence. Interviewee #1 credits tools like the Election Risk Management (ERM) tool and the IREV platform, which provides transparent and easily accessible election results, for contributing to the decline in electoral violence during elections. According to Interviewee #2, the introduction of technology and social media platforms by INEC has facilitated the rapid dissemination of information on electoral violence, voter intimidation, and suppression, thereby reducing these issues. However, contrasting views are expressed by Interviewees #3 and #4, who do not see a direct correlation between technology and the reduction of electoral violence. Interviewee #3 attributes electoral violence in Nigeria to the attitudes of the political class and their desperation for power, suggesting that technology, despite improving the electoral process, has heightened political conflicts. Interviewee #4 maintains that conflicts in various zones of the country, such as separatist movements, kidnapping, and herders-farmers conflicts, are independent of technological innovations, emphasizing that conflict is inherent in human endeavours and cannot be solely attributed to technological advancements in the electoral system.

On electoral litigations, the consensus among most interviewees is that t*echnology has not effectively curbed or reduced incidents of election litigations in Nigeria. Interviewees #2, 3, 5, 6, 9, and 10 share the view that despite the deployment of technologies by INEC, the number of litigations remains high. Interviewee #5 suggests that the persistence of litigations is due to the entrenched and desperate nature of the political class. Technology-related glitches, like the one during the 2023 general elections, where electronic transmission of results faced challenges, are also identified as potential triggers for litigations. Interviewee #3 notes that technology itself has become a subject of litigation, citing instances of legal challenges related to smart card readers and the Biometric Verification and Authentication System (BVAS). The lack of advanced and coherent legal frameworks governing electoral technology is seen as a contributing factor to these litigations. Interviewee #2 emphasizes that historical mistrust in the electoral process has fuelled a culture of challenging election outcomes in court, despite technological advancements. Although there is optimism that increased trust in the electoral process may lead to a decline in litigations in the future, Interviewee #4 is the only dissenting voice, asserting that the introduction of technology has actually reduced the number of cases going to court.*

Discussion of Findings

The paper interrogated the level of technological deployment in the electoral process, and the effect of technology on electoral credibility in Nigeria. This was done on the basis of the ability of technology to address critical electoral challenges; infuse freeness, fairness and credibility on the electoral process; ensure the trustworthiness, believability and acceptability of electoral outcomes; ensure equality and liberty; and reduce electoral violence and litigations. The following findings were made.

The study establishes a consistent and substantial increase in the level of technological deployment in the Nigerian electoral process from 2003 to the present. Various technologies, such as the OMR form, PVC, smart card reader, IVED, BVAS, IREV, and others, have been deployed to address critical electoral challenges. Notably, the introduction of technology for Election Day activities, particularly voter registration and accreditation starting in 2015, marked a pivotal moment. Additionally, the COVID-19 pandemic prompted an upsurge in the use of technology in the electoral process. Despite challenges, this finding aligns with previous research and underscores a commitment to leveraging technology to enhance efficiency and transparency in the electoral process. This finding corroborates those of *Chikodiri* (2015); Lai (2017); *Unufe and Justin (2019); and Ariyo (2020),*

who found that there has been a high and increasing rate of technological deployment in the electoral process in Nigeria. While technologies were deployed for strictly pre-election activities (voter registration) prior to 2015, the year 2015 marked a turnaround where technology was deployed for the first time, for Election Day activities (voter accreditation). The paper also revealed that the outbreak of the COVID-19 pandemic caused an upsurge in the level of deployment of technologies in the Nigerian electoral process.

ii. The paper highlights that technology has significantly addressed critical electoral challenges, notably multiple registrations, impersonation, long waiting times, and manipulation of election results. The introduction of technology, starting in 2003, has contributed to a reduction in electoral violence, voter intimidation, and incidents of election-related conflicts. Moreover, technology has positively influenced the credibility of electoral outcomes by providing citizens with real-time access to election results, enhancing voter registration processes, and ensuring the removal of irregularities like bloated votes. This finding aligns significantly with those of Alausa and Akingbade (2017); Ayeni and Esan (2018); Uzodike and Onapajo (2019); Kassem and Osasona (2020); Oke and Atufe-Musa (2020); Ejikeme (2020); Abioro and Abiodun (2021); and Idowu (2021), among others, who also found that the introduction of technology in Nigeria elections has significantly impacted on electoral credibility in the country.

However, the study acknowledges that challenges such as technological glitches, the desperation of politicians, and legal frameworks have affected the full realization of technology's potential in ensuring trustworthiness, believability, and acceptability of election outcomes.

Conclusion

In conclusion, Nigeria's journey into electoral technology from 2003 to 2021 reflects a transformative shift towards transparency, efficiency, and credibility in the electoral process. The adoption of various technologies such as Direct Data Capture (DDC), biometric voter registration, Permanent Voter Cards (PVCs), Electronic Voter Card Readers (EVRs), Smart Card Readers (SCRs), and more, has addressed critical challenges like multiple registrations, voting by proxy, and ballot fraud. While interviewees unanimously agree on the positive impact of technology on electoral credibility, fairness, and trustworthiness, there are concerns about disparities in access, particularly between urban and rural areas, and persistent challenges for persons with disabilities.

The role of technology in reducing electoral violence remains debated, with some attributing a decline to tools like Election Risk Management (ERM) and real-time result accessibility, while others emphasize the inherent nature of political conflicts. Moreover, the effectiveness of technology in reducing electoral litigations is questioned, with the desperation of the political class for power and technological glitches identified as contributing factors. Overall, the integration of technology in Nigeria's electoral landscape has been a pivotal step forward, but ongoing challenges necessitate continuous improvement, resilience, and comprehensive legal frameworks to ensure the sustained success of electoral technology in the country.

Recommendations

i. To address the challenges posed by technological glitches and the desperation of politicians, there should be a continuous commitment to improving and updating electoral technologies. This includes investing in state-of-the-art equipment, updating software, and ensuring the reliability and security of the technological infrastructure. Moreover, comprehensive training programs should be implemented for election personnel, political party representatives, and other stakeholders involved in the electoral process.

Adequate training will enhance the understanding of technology, reduce the likelihood of errors, and mitigate the impact of political interference. This recommendation aims to ensure that the full potential of technology is realized in maintaining the trustworthiness, believability, and acceptability of election outcomes.

ii. The study acknowledges that existing legal frameworks have created challenges for the effective deployment and regulation of technology in the electoral process. Therefore, there is a need for comprehensive legal reforms to align with the evolving technological landscape. This involves updating electoral laws to accommodate emerging technologies, establishing clear guidelines for the use of technology in elections, and defining consequences for electoral malpractices related to technology. Additionally, legal provisions should be enacted to address issues related to the desperation of politicians, ensuring that attempts to manipulate or undermine the electoral process through technology are met with severe consequences. Legal reforms will contribute to a more robust and secure electoral environment, facilitating the increased trustworthiness, believability, and acceptability of election outcomes facilitated by technology.

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