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AUTOMATING ELECTION MANAGEMENT IN NIGERIA: A REVIEW OF THE INDEPENDENT NATIONAL ELECTORAL COMMISSION'S (INEC) READINESS

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Abstract

The study reviewed the activities of the Nigeria's Independent National Electoral Commission (INEC) in deployment of Information and Communications Technology (ICT) for election management in Nigeria. This was with a view to assessing INEC's readiness for transition to electronic election management. The study relied on qualitative primary data collected through key informant interviews, and secondary data from INEC's database and academic literature. The study found that INEC successfully deployed ICT tools in the areas of constituency delimitation via GPS, registration of political parties, observer groups, and political aspirants using e-Portal; voter education, voter registration, voter accreditation and results transmission, while voting remained in the country. It further found the challenges limiting ICT deployment to include inadequate supporting infrastructure, skills gap of election officials, and manufacturing errors in devices among others. The study recommended provision of adequate and up-to-date required infrastructure for integrating ICT into election management by the government and skill upgrade for INEC staff.

Key Words: Election Management, Information and Communications Technology, Independent National Electoral Commission, Nigeria, E-voting

Introduction

Different forms of governance systems exist worldwide and over time, among them is democracy, which is citizen-centric. This attribute is apparent both in the emergence and running of democratic governance. Democracy appeals to citizens and countries based on its value of inclusiveness. This value bothers not just on the servicing aspect of government but equally in its emergence. These inclusive dimensions are better captured in Lincoln's definition of democracy as "the government of the people, by the people and for the people" (Pasquino, 2008). The prepositions 'of', 'by', and 'for' are symbolic of understanding the core values of democracy. While 'of' and 'by' refer to the systematic process leading to the emergence of government, the preposition and 'for' focuses on the service delivery aspect of government. Inclusiveness in a democratic dispensation starts from the point of setting up the government through a balloting process. Even the arrangement of the prepositions explains the successive importance of government emergence ahead of public service delivery. The process of putting the government in power as enshrined in democracy is referred to as an election.

Elections are central to ensuring that citizens are allowed to elect their leaders through a free, fair, and credible process. These features breed transparency, both in the electoral process and outcome. Other important characteristics of well-conducted elections are inclusive participation, fairness, and access to information. However, over the years, the conduct of elections in third-world countries, especially in Nigeria has been characterised by several problems among which were inefficiency, rigging, violence, and absence of credibility. Stressing this, Omoleke (2018) opined that third-world countries have continued to wallow in varied social, economic, and political challenges due to gross misconduct that has continued to gain prominence in their elections. As this is not peculiar to developing countries only, Election Management Bodies (EMBs) are now faced with the problem of finding viable platforms for ensuring that elections are free, fair, participatory, and credible.

Emanating from this search is the integration of Information and Communications Technology (ICT) in election management. The opportunities in the use of digital tools in revamping the electoral process can help in balancing the trust deficit between governments and their citizens as it guarantees the establishment of transparency, inclusiveness, and fairness in the electoral process. The use of ICT in

election management required that EMBs be prepared and ready to make the needed arrangements and adjustments necessary for automating electoral activities. It is given this background that this paper investigates the readiness of the Nigeria's Independent National Electoral Commission (INEC) in domesticating the use of ICT for election management in Nigeria.

ICT and Election Management

In a democratic state, legitimacy is earned through the institutionalisation of fair and credible electoral process given that elections are the prominent civil process of setting up governments in the world today. However, the traditional (manual) process of conducting elections has been considered unfit for the current times given the increasing loopholes that have characterised the process (Aniekwe & Oraegbunam, 2021). These loopholes have led to the loss of confidence in the governments that have emerged through the process. In Nigeria, for instance, successive elections have been beguiled with several court litigations, year in, and year out (Ejikeme, 2016), to the extent that the renewed commitment to democratic governance in the country since 1999, has not witnessed a national election in the country whose results were not followed by a plethora of legal cases, right up to the Supreme Court.

In redressing the legitimacy challenge, the adoption of technological tools in the management of elections has assumed prominence (Osemwota, 2019). Efforts in this direction were first observed among developed nations where constituency delimitations, voters' registration, accreditation of voters, actual voting, result transmission, collation, and eventual announcement of the results were digitalised. Krimmer (2019) submitted that feedback from these nations experiences varies as countries like Belgium, Russia, France, and the USA succeeded in the electronic voting revolution, while for political reasons Ireland, Germany, Kazakhstan, and the Netherlands have not gone through with the deployment of ICT tools in their elections. Despite these discrepancies, Ahmad et al. (2015) observed that several developed countries like Estonia, Switzerland, Austria, Norway, the USA, and the UK have advanced their electoral processes beyond e-voting to internet voting (i-voting). The use of ICT in election management is, therefore, a growing development among EMBs, given the emergence of sophisticated and technologically driven modern citizens where these digital citizens are time and cost-conscious, and yearn for efficiency in public service delivery.

Historical Development of Election Management in Nigeria

The Independent National Electoral Commission is the public agency responsible for election management in Nigeria, although INEC is not the first of its kind in the country, as several EMBs with varied nomenclature have existed before it (Odeyemi & Mosunmola, 2015). These were the Electoral Commission of Nigeria (ECN); Federal Electoral Commission (FEC); the Federal Electoral Commission (FEDECO); National Electoral Commission (NEC); and the National Electoral Commission of Nigeria (NECON) (INEC, 2017). Regardless of the differences in the names, their mandates have remained the same and it is to conduct free, fair, credible, and periodic elections for electable public positions in the country. This includes elections into states and local government councils (Odeyemi & Mosunmola).

Elections in Nigeria took their roots from the Sir Hugh Clifford constitution of 1922. The constitution introduced the elective principle to the political landscape of Nigeria by allowing African participation in the administration of the then colony. Despite the assumed inclusiveness portrayed in the principle, only four Nigerians (i.e., three from Lagos and one from Calabar) were allowed to be elected to the legislative council, even as unofficial members. This arrangement improved rapidly till the independence of Nigeria in 1960 after which subsequent elections were characterised by regional politics with a shade of ethnic coloration. Ejikeme (2016) and Osemwota (2019) have submitted that given the prevalence of ethnic bigotry in the politics of the country, the 1959 elections leading to the attainment of independence in the country were infested with rigging, violence, and ethnic clashes. So, credibility issues in the elections in Nigeria have been foundational and the situation has continued to

nosedive during and after military incursions in the Nigerian politics (Omoleke, 2018; Osemwota, 2019; Abayomi, 2020). Therefore, except for the 1993 presidential elections that were adjudged to be the freest, fairest, and most credible thus far by both local and foreign election observers, no election has improved the legitimacy situation in the country. The adoption of what was called Option A4 could be explained as the reason for the success of the process, but in the end, the results were nullified (Ejikeme, 2016). That singular nullification placed that election into the same failure box as those before and after it. Prevailing understanding of the scenario showed that EMBs have been failing in their mandates, despite the acclaimed restructuring that have been embarked on by different regimes. The only thing different in the commission is the constant change of names, while the procedure and efforts remained unsatisfactory to voters, political parties, and election observers. It is given this scenario that Afolabi (2014); Ejikeme (2016); and Omoleke (2018) concluded that Nigeria has experienced turbulent elections from 1922 till date, with just the 1993 election receiving a fair pass on integrity and credibility from local and international observers.

ICT and Election Management in Nigeria

In the conduct of elections, a huge volume of data is expected to be collected from the citizens and processed into readable format usually tagged voters' registers. Within this activity, a lot can go wrong. For instance, Okechukwu (2015) noted that poor record-keeping remained one of the several challenges confronting EMBs. It is from this background that ICT integration into electoral data management assumes prominence. At first, it was the filing cabinets; it was efficient in its time but not any longer, considering the availability of more efficient technological approaches. Several agencies of government in Nigeria are leveraging digital tools to promote information collection and sharing. Among the agencies exploring the opportunities embedded in digital tools is INEC.

Voters can personally update their details or conduct fresh registrations online and then proceed to the INEC office for biometric capturing. This initiative saves time, effort, and money and it has further confirmed the position of Abayomi (2020) that ICT reduces the cost of information collection. In recognition of the relative importance of ICT in information management, the Data Protection Bill (2020) in Nigeria, Part viii 34(2)a, provided that, "state-of-the-art data-security techniques and technology in the field of data processing, commensurate with the seriousness and probability of the potential risk" be engaged in the management of citizens personal data by a Data Controller. Aside from the NIMC, and the CBN (BVN), INEC remains the next public agency that has the legal right to collect and store the personal information of Nigerians.

Emanating from this mandate is the power of INEC to capture the details of eligible voters with their pictures and biometric information that if released to unauthorised persons, could compromise national security. The need for engaging ICT in the management of elections in Nigeria is rooted in the history of elections in the country (Osemwota, 2019), as relating the adoption to the need to join the prevailing modern trend would not be correct, though scholars as Ahmad, et al. (2015) argued. To buttress this position, INEC (2017) opined that recent advancements in ICT have brought about increased efficiency and effectiveness in both information dissemination and management. Electoral information, although sensitive, must be made accessible as and when due. ICT ensures that crucial information usually needed after elections by interested parties is readily available, and this is what constitutes effective management of the information. ICT adoption in the management of information has also been argued to be cost-effective (Abayomi, 2020). Efforts were made by the Maurice Iwu-led National Electoral Commission (NEC) (as it was called then) to engage ICT in the conduct of the 2007. But general improvements in electoral ratings for Nigeria were observed during the first election under tenure of Prof. Attairu Jega who became INEC Chairman in 2011. However, the same Prof. Attairu Jega capitulated under pressure in not forging forwards with the intended reforms of the electoral process to completely digitize it. He deferred under the said pressure from political stakeholders against the project, and his next efforts began the present nosedive. Immediately after the 2011 elections, the commission launched the 2012-2016 Strategic Plan and Programme of Action

(INEC, 2017). The plan was to overhaul the activities in the management of elections in Nigeria through five strategic objectives. Among these objectives was the introduction of digital tools into the management of elections in Nigeria (Omoleke, 2018), such as the use of Smart Card Reader Machines, and electronic collation of election data (INEC, 2017).

Despite the strategic move to incorporate ICT into election management in Nigeria, INEC still conducted quasi-e-elections in 2011, 2015, 2019, and 2023 general elections in Nigeria, in which some important election activities were still conducted manually. Although indications showed that the persistent double/multiple voting syndrome, impersonation, and quoting of incredulous vote figures were made difficult (Ejikeme, 2016; INEC, 2017; Akwu, et al., 2021; Aniekwe & Oraegbunam, 2021; Ntale & Ngoma, 2021). With adequate infrastructure and enabling laws, however, the entire electoral process can be overhauled with the use of ICT, and this not only prevents the outburst of violence at polling booths where voters and party agents meet physically but equally enables continuity in the electoral process during the outbreak of highly infectious diseases like Covid-19 Pandemic.

Given the various efforts of the Nigerian government in funding the commission to integrate ICT into election management, there is a need for an independent study into the readiness of the commission for elections using technology in the country. It is in view of this that this study assumes relevance.

Methodology

This paper investigated INEC's readiness for electronic election management in Nigeria. This was done using a combination of qualitative primary and secondary data. The primary data were sourced using Key Informant Interviews (KIIs) conducted with sixteen (16) purposively selected respondents. As shown in Table 1, these 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 (PRO) 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). Secondary data were obtained from literature, principally, election records across countries. This is to create a fair platform for situating INEC's readiness among her foreign counterparts. The qualitative primary data were thematically analysed as presented in Figure 1.

Data Presentation and Analysis

Table 1 shows the socio-demographic details of the KII respondents interviewed for the study. Sixteen respondents were purposively selected for KII out of which five were staff of INEC purposively selected from departments relevant to the study. In addition, a combination of six local and international accredited election observers in the 2011, 2015, 2019, and 2023 general elections were selected and interviewed. The study also elicits information from public Relations Officers of five purposively selected leading political parties regular in national elections since the inception of ICT deployment in election management in Nigeria in 2011.

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 and Communications	Member of the Management Team
Respondent 12	NILDS	Democracy and Governance	Deputy Director's office
Respondent 13	National Assembly	House of Representative	Committee Member
Respondent 14	NBA	State Branch	Chairman
Respondent 15	International Foundation for Electoral Systems		Country Representative's office
Respondent 16	British High Commission		A Senior Member of Staff

Source: Field Work, (2023)

In the analysis of the interview response, a thematic approach was adopted. This approach allowed the categorisation of the responses into themes and sub-themes. Responses obtained from respondents were transcribed from the recording and forwarded to each respondent for confirmation of their stance on each of the questions asked. This method is often referred to as member checking. The responses as classified into themes and sub-themes are as depicted in Figure 1 below:

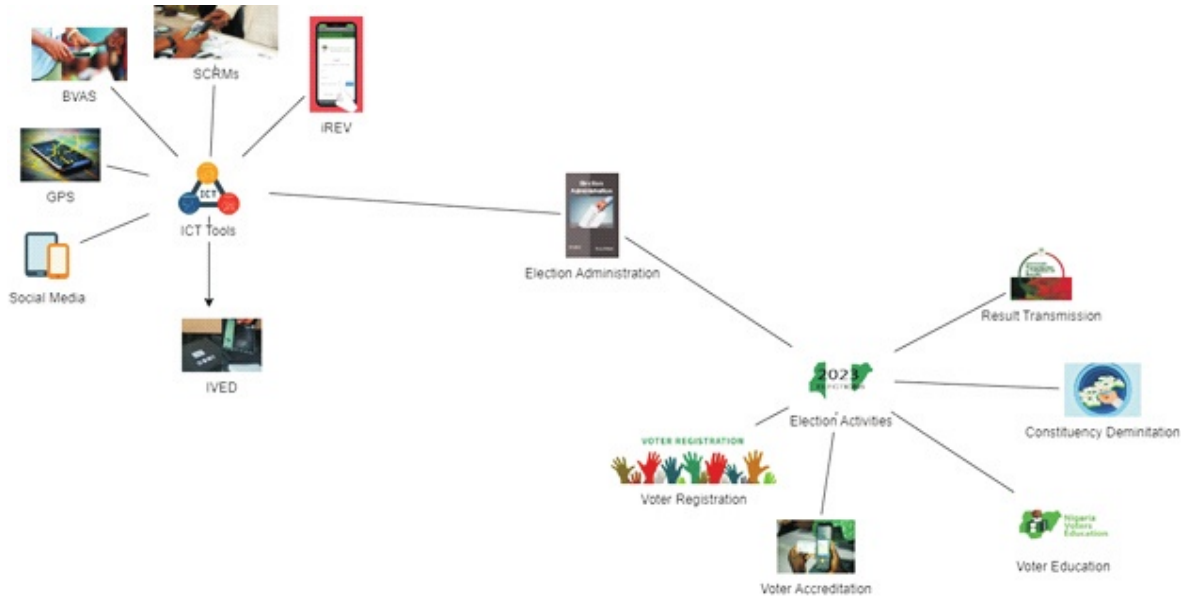


Figure 1: Thematic Analysis of KII Responses
Source: Field Work, (2023)

ICT Tools Deployed in the Management of Elections in Nigeria

In the management of elections in Nigeria since 2011, some ICT tools have been deployed. As observed by respondents 1, 3, and 5, the sensitivity of the tools determines the categories of election officials who are given access to the tool. More assertively, respondent 5 noted that:

.....ad hoc staff are allocated devices that are not sensitive, given the possibility that they can compromise, while the core staff of the commission handles sensitive devices required for election result uploading.

While all respondents attest to the use of ICT tools in election management, there was no consensus on the exact commencement date of ICT deployment in election management in Nigeria. While respondents 3, 5, and 7 attributed the use of ICT by INEC to 2015 when PVC and SCRM were deployed, respondent 12 posited that ICT use started in 2002 when the manual preparation of voter lists was replaced with the use of computer devices to generate the list. In synthesising their view, the ICT devices deployed in election management in Nigeria since 2011 are as discussed below.

i Pre-Election Activities

- a. GPS: This is a location-mapping technology that is used to identify landmarks. GPS has a few additional functions that support constituency delimitation. Candidly, respondents 1 and 6 stated that for the first time, INEC used this technology in the recent conversion of polling points to polling units in preparation for the 2023 general elections. This was to guard against undue trespassing among neighbouring constituencies. The GPS interface as adopted by INEC in the exercise is depicted in Figure 2 below.



Figure 2: GPS Software Interface used for Constituency Delimitation by INEC

Source: <https://apkpure.com/utm-geo-map/info.yogantara.utmgeomap>

b. Online Portals: Respondent 6 stated that in the registration of political parties, observer groups, and even political aspirants, INEC deployed an online portal for these stakeholders to submit their documents for consideration. This demonstrated the use of ICT in the process to replace the submission of physical papers to the commission in the 2019 and 2023 general elections.

c. Social Media: Voter education is one of the activities that lasts through the entire electoral process, and it deals with the dissemination of information necessary to understand the electoral process. Given the opportunities embedded in social media use, INEC massively utilised the platform to reach out to a significant number of voters quickly, easily, and cheaply. Since 2015, the commission has leveraged its social media accounts on YouTube, Facebook, Twitter, Instagram, and a host of others to educate voters on the dos and don'ts of elections. All interview respondents attest to the use of social media as a significant contributor to the conduct of 2015, 2019, and the recent 2023 general elections. This is given the massive coverage of the voting process on social media by different actors which thereby provided multiple perspectives on all issues reported.

ii. Voter Registration

a. Voter List Preparation: In the preparation of voter lists, manual compilation is usually adopted but by 2002, according to respondent 12, computer systems were adopted for generating the list. This period can be captured as the first attempt by INEC to deploy ICT in election management in Nigeria.

b. Computer Devices: In upgrading the use of computers for voter list preparation, the commission acquired laptops for her staff for voter information capturing, storing and warehousing in 2006. The laptops were used in addition to face-capturing devices to take photographs of eligible voters. Respondent 12 commented specifically that these face-capturing devices were abused as some images captured were those from calendar almanac and even inanimate objects. It is in correcting this anomaly that a more advanced voter registration device (AFIS) was introduced.

c. AFIS: This was an automatic fingerprint identification system that integrated the biometric fingerprint of voters into the voter registration process. The device was deployed in the 2015 general elections and the system captured the prints on the ten fingers of every registrant. One of the high points of this device was its ability to detect and prevent double registration. In specific terms, respondent 14 commented that:

AFIS was a good initiative in sanitising the voter registration process, like detecting and preventing double registration, but its design failed to blend with the reality of Nigeria, where the fingerprints of most peasant Nigerians have been distorted by the nature of their job.

This caution as noted by the respondent indicated that with this device, several Nigerians were disenfranchised in the 2015 general election for reasons not caused by them. To avoid further erosion of an important fundamental human right of having the right to vote, INEC introduced IVED in the 2019 general elections.

d. IVED is a registration device that captures both the face and fingerprints of voters. Aside from having more facilities to read deformed fingerprints, it is also a bi-modal device embedded with features capable of accrediting voters through their facial characteristics when reconfigured to BVAS.

e. Online Voter Registration Portal (OVR): As unanimously submitted by all respondents, the need to create convenience in the voter registration process while decongesting INEC offices, especially as occasioned by the Covid-19 pandemic was the push for an online voter registration platform. This portal was activated for use in preparation for the 2023 general elections and among other things, it processes new voter registration, enables voters' data editing, and changes of polling units. To regulate the platform, biometric capturing was to be completed physically at designated INEC offices. This initiative, as opined by respondent 12 was an important step towards institutionalising electronic voting.

iii. Voter Accreditation

a. TVC/PVC: Voter accreditation is an important activity in ensuring free, fair, and credible elections. Accreditation regulates voter participation in voting as it is an activity that ensures that only those legally permitted by law to vote take part in voting. It is a systematic verification of the suitability of electorate to vote as noted by all interview respondents. One of the earliest ICT-related tools used was the PVC in 2015, which was an advancement on the TVC first introduced in 2011. This is given that PVCs have embedded microchip that accommodates data storage. This card is a replica of what obtains in ATM cards.

b. SCRM: This is a handheld electronic device that accredits voters with their fingerprints and cards. The device according to all interview respondents has all information of registered voters in each polling unit loaded into it. It is therefore polling unit specific, and was deployed in the 2015 and 2019 general elections. If wrongly deployed, lost, or damaged, just any card reader machine cannot be adopted, until the data of the concerned polling unit is loaded into it. Reports

on the performance of this device in the 2015 and 2019 elections in Nigeria were far below expectations as the device failed to recognise the fingerprints of several voters despite the repeated upgrades of the device. As noted by respondent 1, even the then sitting President, Goodluck Ebele Jonathan could not be accredited by the device.

c. BVAS: This device according to respondents 2, 8, 9, and 10 was "the game changer" in the 2023 general elections in Nigeria. It is the accreditation aspect of IVED that is applied in verifying voters before voting. Just like SCRMs, it required that data of polling units be preloaded into it before use. In accrediting voters, the device uses a combination of facial and fingerprint recognition software, and it was the first test run in the Anambra State gubernatorial election in 2020. As asserted by respondent 6, "while BVAS was effective for fingerprint verification, it was rather slow in accrediting voters' faces". The device was upgraded and used again in the Ekiti State's gubernatorial election in 2021 where it recorded 98% accuracy in accrediting voters with both fingerprint and facial features. To ascertain its effectiveness, BVAS was also deployed in the Osun gubernatorial election in 2022 where all stakeholders confirmed that the device was effective for engendering credibility in the electioneering process.

iv. Election Results Transmission

a. e-Collation: This is the transmission of election results from the polling unit to the designated INEC server for collation. Previously, this was observed manually where election results were taken physically to designated collation centres for processing to Local Government, State, and National collation centres. This initiative according to respondent 1 was introduced by INEC in the 2015 general elections, even though it was not stated in the electoral act as of then. It was a mere internal arrangement of the commission to facilitate efficiency in the electoral process. The device works by capturing the photograph of duly signed election results at polling units and then upload it into the device which then transmits it to the designated INEC server from where it is downloaded for collation. Due to the inconsistencies and unavailability of internet services in a significant number of places in Nigeria, especially in rural areas, the initiative did not record much success in the 2015 and 2019 general elections. Even after several efforts to upgrade the device, it failed to record the desired result again in the Anambra gubernatorial election in 2020.

b. e-Transmission: In 2022, an offline mode was integrated into the initial platform for transmitting election results and its nomenclature was changed from e-Collation to e-Transmission. This offline mode eliminated the initial challenges associated with the internet network. The offline mode works by allowing election results to be uploaded in areas without an internet network and once the device is within areas where a network is available, the result would be transmitted to the designated INEC server, automatically. Even if the paper results are destroyed or tampered with, the copy already uploaded into the cloud suffices. The transmission of election results is in levels as there is the polling unit uploading, local government (LGTech) upload, and so on. This transmission is handled by the commission's core staff given that it is a sensitive assignment. It was this initiative that translated to the development of IReV which provides the platform for the public to access and monitor election results as they are being uploaded.

c. IReV: This is the latest upgrade by INEC in transmitting election results. For the first time, the commission created a public view of election results where voters and interested election stakeholders can view election results in real time. More particularly, respondent 16 observed that "all election results uploaded on BVAS needs to be approved by designated INEC staff before it can be reflected on the IReV portal". As noted by respondents 11, 13, 14, 15 and 16,

election officials used their mobile phones as hotspots for providing internet reception for the BVAS machine. In addition, respondent 12 added that mobile phones were also used to take pictures of signed election results at polling units before uploading the same to the designated INEC server especially when the BVAS machine is slow or not responding. Invariably, BVAS and Mobile Phones are components of the e-transmission process.

However, the interview respondents added that several ICT tools suitable for election management yet to be deployed in Nigeria include:

a. Electronic Voting Machine: All the respondents claimed that the e-voting machine is the ultimate all-election-related technology that Nigeria has yet to adopt in her general elections. Respondent 2 hinted that with an electronic voting machine in place, voters can cast their vote effortlessly in any polling unit of their choice. Despite its benefits, respondents 1, 3, 5, and 7 observed that adopting this technology in voting is open to cyber threats and that the technical know-how of the commission cannot match those of hackers.

b. Virtual Voter Cards: According to respondents 12, and 14, there is also the need for INEC to desist from the production and distribution of physical cards to voters. Aside from its financial cost aspect, the exercise is also time-consuming for the commission. Instead, virtual cards can be printed by voters themselves and even if physical cards are unavoidable, then a channel needs to be created on the commission's portal where voters can apply for the delivery of their cards to their doorstep at a token. This would facilitate convenience in the card distribution process in addition to generating a steady income for the commission. ICT illiteracy was cited by respondent 14 as one of the reasons why this initiative may not work given the absence of critical support infrastructure required to pull this through.

In complementing this finding, secondary data released by INEC on registered voters and PVCs collected for the 2023 general elections in Nigeria indicated that 93.3% of the total registered voters collected their cards as and when due. This indicated that Nigerians understand the value of the card and they would be willing to endure the required stress to pick it up. If the commission creates a platform either for card delivery or virtual card printing, a significant number of uncollected cards would be delivered to the doorsteps of the owners at a token which can cover the associated logistics in the delivery. This is given the likely influence of 6,259,229 uncollected PVCs on the outcome of elections, especially given the close margin among the presidential candidates in the 2023 elections in Nigeria. Depicted in Table 2 below is the report of PVC collection in 2023 as released by INEC.

Table 2: Registered Voters and PVCs collected for the 2023 General Elections

Registered Voters	PVCs Collected	%	Uncollected PVCs	%
93,469,008	87,209,007	93.3%	6,256,229	6.7%

Source: https://inecnigeria.org/?page_id=11312#collapseOne-31

Internet and Mail Voting: In the opinions of respondents 4, 8, 9, 10, and 12, Nigeria is yet to bring flexibility into her election management as with the current arrangements, eligible voters in the diaspora or those outside their polling units are disenfranchised. More particularly are the ad hoc election officials that are posted to areas far from their polling unit of registration. To curtail this, INEC can tap into internet voting to enable people to vote from wherever they are, and their vote would reflect at their respective polling units. This arrangement according to respondent 12 is called *kiosk voting*. In addition, voting can also be done using mail. However, these respondents identified insufficiency of funds and the size of the country to be a few of the reasons why Nigeria cannot venture in this direction.

In conclusion, respondent 1 asserted that indiscipline is the major bane of Nigeria as both the rulers and the ruled are grossly insincere to the Nigerian project. Voters expect those vying for political offices to *settle* them before getting their votes. The same goes for election officials and the rest. So, the problem according to him is not that of technology but that of those in charge of it. Succinctly, he noted that "no technology is better than its handlers". In a similar stance, respondent 12 opined that the absence of political will on the part of the government is another challenge to the use of ICT in elections. According to him "no amount spent on consolidating democracy is too much". Impliedly, the political class fears these devices given that it is difficult to manipulate. The respondents stated, for instance, that:

It took Prof Jega a lot of time and effort to convince members of the national assembly to allow the use of SCRM in the 2015 general elections as they were unwilling to approve the technology for fear that it may disrupt the status quo.

As equally observed by the researcher, gross misconduct on the part of election officials is rampant and unchecked as one form of gratification or the other has been arranged for election participants. While election candidates compete to impress voters with money, INEC staff and security agents expected to dislodge such arrangements equally seek gratifications. It is therefore important that all election stakeholders acknowledge the implication of this practice on the Nigerian democratic system, otherwise, achieving free, fair, credible, and participatory elections may be difficult to achieve anytime soon.

Discussion

There is no unilateral reason for the increased popularity of ICT application in election management in the contemporary political space across the world, nor was there uniformity in the extent to which ICT tools have been adopted across countries. There are several activities in the management of elections. Among these were constituency delimitation, voter registration and accreditation, voting, vote sorting and counting, vote transmission and collation, and then result declaration. A critical examination of INEC's reports and several works of literature concerning the use of ICT in the management of elections in Nigeria indicated that only a few activities in election management have received consistent ICT use in Nigeria. These areas were as discussed below:

a. Constituency Delimitation

In the conduct of elections, there is a need for a comprehensive delimitation of constituencies into manageable sizes for EMBs. These constituencies are the basic units of representation in the legislative arm of government. In Nigeria and most democratic countries, the agency in charge of election management usually embarks on periodic adjustments of these constituencies to ensure maximum representation of the various groups and constituents in the country. Over the years, several democratic countries have leveraged the opportunities embedded in the Global Positioning System (GPS) for the effective division of the country into constituencies (Kimura, 2015). In Nigeria however, significant ICT commitment in this regard is lacking and this has limited the extent to which proper population balancing among the constituting constituencies in Nigeria is achieved.

b. Voter Education

Adequate sensitisation of voters is a natural requirement before the commencement of any electoral process (INEC 2017). Regardless of whether digital tools are to be deployed or not, voters are to be briefed on the election timelines and the basic activities therein. Basic information on the registration requirements, places of registration, etc. are supposed to be made available through the various mass media outlets available to the commission. In the submissions of Afolabi (2014), EMBs do not need to teach voters, rather, they are to educate voters on technicalities associated with participating in elections. This caution indicated that adequate platforms must be made available to the voters for regular and effective learning.

In furtherance, Van de Donk & Tops (2015) posited that unlike traditional media (like TV, radio, and newsprints), social media made possible with ICT creates the chance for immediate and effective

learning. In Nigeria, it is only recently that ICT has become prominent in information sharing that INEC launched its social media accounts. The presence of the commission on Twitter, Facebook, Instagram, and several other social media sites is made possible by technological advancement and this has advanced information sharing and broadcasting, and thus engender effective voter education.

c. Voter Registration

Voter registration is a daunting task for both the voters and the EMB as it is characterised by personal data mining of the electorates (Pallister, 2017). The process is often made more complicated by several rules and regulations such as the registration points hours of operation and the number of repeated visits before the process is completed. All of this can deter prospective voters from registering or even voting, considering the associated stress. This concern and many more were the reasons behind the use of ICT in the management of elections in Nigeria.

In the registration of voters, several EMBs across the globe deploy ICT to make the process effective and free of errors while pursuing efficiency. This move according to Kimura (2015) was to combat inaccuracies associated with manual voter registration. While the use of digital tools for voter registration in Nigeria commenced in 2011 during the chairmanship of Prof. Attahiru Jega, the Philippines adopted the same in the 2010 and 2013 general elections. The focus of the initiative was to lay the foundation for a credible voter register. This is given the importance of this register in checking and preventing over-voting during elections. Similarly, Zimbabwe according to Afolabi (2020) tapped into the digital initiative in 2017 as a credible way to promote voter turnout while curtailing electoral fraud.

d. Voter Accreditation

The accreditation procedure is equally an important aspect of an election that if not properly organised can mar the entire electioneering process (Kimura, 2015). The use of ICT tools for accrediting voters has received acceptance in many democracies. Among these countries is Nigeria, where BVAS was introduced in the 2023 general elections. This bimodal device can accredit voters with their biometric data using both fingerprint and face recognition software. As noted by Ntale & Ngoma (2021), a similar device was adopted in the 2021 general elections in Uganda by the name Biometric Voter Verification System (BVVS).

According to Olugbamiye (2020), after voters have been duly registered and the register generated and publicised for voters to cross-check and ensure that their data are correctly captured, the next stage should be voters' accreditation. In readiness for voting, voters are expected to physically present themselves for accreditation at their various polling units. Nnamani, et al. (2019) held that the SCRM was deployed for the verification and authentication of the voter's details as embedded in their respective PVCs. Ilaya (2021) noted that at this stage, SCRM is used to check the authenticity of the PVC. Given its invaluable relevance to preventing electoral fraud, Nnamani, et al. (2019) describe the SCRM as a critical component of the 2015 general elections in Nigeria. As one of the technological innovations introduced during the 2015 and 2019 general elections in Nigeria (Omotayo & Adekunle, 2020; Aniekwe & Oraegbunam, 2021), the PVC according to INEC (2015) and Osemwota (2019) is equipped with the base substrate, microchip, and lamination to ensure its security and durability.

e. Voting, Sorting, Counting, and Transmission/Collation

The overall well-being of a democratic government is weighed by the extent of citizens' turnout during voting (Johnson & Powell, 2019). It is after the successful prosecution of the earlier stages in election management that voting commences. As Funmilola & Olasubomi (2021) posited, voting refers to the political process through which citizens express their political opinions and leadership choices. When incorporated with digital tools, e-voting is born. According to Ejikeme (2016), e-voting is the use of electronic means to cast votes and count the same. He extended e-voting beyond just voting, regardless, Olugbamiye (2020) buttressed that after voting, votes were then transferred to a central

server where the sorting and counting occur. More subtly in the Philippines, Kimura (2015) reported that Precinct Count Optical Scanners (PCOS) were installed in each of the 76,347 (in 2010) and 77,913 (in 2013) for ballot scanning, counting, and result transmission to the city/municipal board of canvassers, and then to the central server of the EMB in the country.

Kimura (2015) furthered that digitalising these activities prevents overvoting, voter intimidation, and disenfranchisement of voters. In the year 2000, Switzerland opted for an electronic voting system to eliminate the voting bias that eliminated the disabled and citizens living abroad from participating in voting in the country (Olugbamiye, 2020). In the quest to increase voter turnout, Estonia adopted e-voting, just as Brazil did in the 2002 national election (José, 2010) which according to Luiz (2018) placed Brazil as the pioneer country to computerise their ballot system nationwide. In advancing the benefit of e-voting over its traditional counterpart, Ahmad, et al. (2015) placed convenience, security, eliminating errors, and efficiency at the forefront.

In response to the global lockdown occasioned by the COVID-19 pandemic, Uganda resulted in the use of ICT in the administration of her elections in 2021 (Ntale & Ngoma, 2021). Prominent among the activities where ICT was deployed were voting, sorting, counting, collation, and transmission of the voting result to the central server of the EC. As noted by Kimura (2015), the convenience and transparency guaranteed by using ICT for voting were the main motivations for the adoption of ICT in voting in the Philippines. This is given the established fraud that has trailed electioneering procedure in the country since the 80s.

In Nigeria, most especially in recent years, effort has been dedicated by INEC to automate voting, vote sorting, collation and counting. However, a number of domestic factors prominent among which is the established distrust for election conduct in the country, has been responsible for retaining manual vote collation, sorting and counting.

Electronic Voting Dynamics across Countries

Several arguments have emerged recently on the inability of electronic voting to solve most of the problems it was designed to address. José (2010), for instance, posited that the use of ICT in voting has failed to curtail the menace of vote-buying popular in Brazil. He alluded to the significant increase in the case of vote-buying in the country during the 2002 and 2006 national elections. Luiz (2018) complemented this stance by stating that the re-emergence of the party that has remained in power for more than a decade in the 2014 presidential election in the country, contributed to the suspicion of irregularities in the electoral process. This suspicion, Luiz stressed, was directed at the adopted electronic voting system. It is this suspicion that José (2010) concluded that ICT adoption in voting in Brazil is built on fabricated trust fueled by expensive marketing propaganda. He, therefore, noted that electronic voting has failed in its mandate of facilitating public trust in Brazil.

Luiz (2018) analysed the reason behind the adoption of ICT in the management of elections in the first place. He attributed the enthusiasm to adopt it to the trustworthiness reposed in ICT by Brazilian citizens. This trust, he furthered, emanated from the familiarity of the citizens with ICT as the positive force for the achievement of service efficiency in the 80s when hyperinflation ravaged the country. Invariably, the citizens trusted the technology without trusting the electoral regulatory agency. In the end, the trust appears to be betrayed. This analysis further gave credence to the trust and suspicion model by Kee & Knox (2018). The theory placed the perceived trustworthiness of ICT and that of the electoral authority as the prerequisite for complete trust in the use of ICT in the electoral process.

Investigating the Pakistan election is important given the strategic issues regarding the 2013 Pakistani election. The election is the first that led to the transfer of political power from one civilian administration to another (Ghaffar & Azhar, 2017). A series of complaints have continued to trail the election and thereby put government legitimacy under suspicion over the years. The complaints revolved around the loopholes in the traditional voting procedure popular in the country. In curtailing further legitimacy issues in subsequent elections, therefore, Ghaffar & Azhar (2017) embarked on the academic quest of identifying the basic ICT tools required for an effective and efficient electoral process.

In addition, they aimed to explore the likely challenges that may hinder the successful use of ICT in the management of elections. These, they achieved using discourse analysis which is an aspect of exploratory research from surrounding countries like India, Bangladesh, and Sri Lanka. Despite the concerted effort of INEC in redefining the electioneering process through digital tools in Nigeria, a number of factors have limited the extent to which this aspiration is achieved. These factors are as captured below.

Challenges of Deploying ICT in Election Management in Nigeria

Several factors have been advanced to explain the inability of INEC to extend ICT use in voting in general elections in Nigeria. Ilaya (2021) submitted that one of the factors that limited ICT deployment in the gubernatorial elections across the states where it was demonstrated was the erratic power supply. The inconsistency in the supply of electricity within the period of the elections led to the inability of the electoral officers to deploy electronic card readers. At some point, manual voters' accreditation was reverted to. This compromised the transparency agenda of INEC in the election. Inadequate ICT skills is another issue that calls for concern as most of the Ad hoc staff engaged in elections lack the basic knowledge and skills to operate the digital devices deployed for elections. This problem transcends INEC staff as several Nigerians lack the digital skills to effectively use different ICT facilities made available by INEC.

Other challenges observed were manufacturing errors in the card readers, inadequate preparation on the part of INEC, etc. The consequences of all these on realising free, fair, and credible elections are enormous. Sequel to the foregoing, INEC thus limited her ICT deployment campaign to non-sensitive activities in election management which can be effectively supported by the infrastructural facility at the disposal of the commission, as Luiz (2018) posited that researchers and scholars alike are sceptical about the security of electronic voting, owing to its susceptibility to failures and frauds. Conclusively, therefore, ICT has not been deployed for voting in any general elections in Nigeria.

Conclusion

INEC has succeeded in introducing digital technologies to election management in Nigeria, however, a few important election activities are still managed manually. Prominent among these is voting. As noted by IDEA (2014); Krimmer (2019); Olugbamiye (2020); and Ilaya (2021), electronic voting is not fully deployed in Nigeria, as voting using ICT tools was only confirmed in a few isolated states of Edo in 2020 (Aniekwe & Oraegbunam, 2021); and Kaduna in 2018 and 2021 (EmpTech, 2021). Subsequently in Ekiti, Anambra, and Osun State where elections were also conducted, only BVAS and IReV were deployed in voter accreditation and result declaration, respectively. The basic stages where ICT was consistently deployed in Nigeria were voter registration and data capturing; voters' authentication which comprises voter verification and accreditation, and then voter information management which comprises voter education.

Recommendations

In line with the issues raised above, this study thus recommends that:

- a. Adequate and up-to-date infrastructure required for integrating ICT into election management must be invested in by the commission. This may require that the government increase the allocation to the commission to enable her to get the required technology and more importantly, adequate provision must be made to ensure that stable power is available to operate the devices.
- b. The commission must be willing to invest in skill upgrading of her staff. This is to enable them to handle and maintain the devices effectively. In addition, ad hoc staff must be given the needed training to enable them to complement the staff of the commission in election management. This may require that their training period be extended to about two weeks to allow for proper familiarity with the technological devices to be deployed for election.

- c. There is also the need for the commission to ensure that the manufacturer supplying the devices is using standard components to enable the durability of the tools. Effective security measures must also be considered in the design and operation of the devices.

Ensuring that elections are free, fair, inclusive, and credible is the major preoccupation of INEC in Nigeria. The commission must therefore position herself strategically in the conduct of elections to uphold these values. Digital technologies have proved helpful in this regard and a would-be effective EMB must be willing to tap into the digital opportunities that abound. It is given this background that this paper investigated the readiness of INEC in domesticating ICT for election management in Nigeria.

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