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**LOOK BEFORE LEAPING,
A CAUTIOUS NOTE ON NIGERIA'S E-VOTING**

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Abstract

Both institutional and procedural uncertainties have marred electoral practices and resulted into gross misconduct in Nigeria's Fourth Republic. In 2015, the Smart Card Reader (SCR) was introduced to Nigeria's elections to verify and match the voter's Permanent Voter's Card (PVC) with the holder's identity. The introduction was described as historic and avant garde by any electoral umpire in Nigeria's electoral history. The SCR foiled different previous election rigging techniques that had earlier eluded manual checks. The SCR was not perfect but its introduction had begun to instill confidence into the electorate and given integrity to the democratic process. The outcome of SCR motivated the electorate and driven them to clamour for e-voting. This paper interrogates the trend by using a two-prong approach: First, by attempting to address e-voting through the trajectory of the general elections from 1999 till 2019. Second, by doing comparative analyses of e-voting system across some developed democracies. The methods revealed that fundamental clogs to e-voting in these developed democracies cannot be downplayed. The paper then argued that as much as Nigeria is eager to embark on electoral maturity, it must exercise restraint before adopting a comprehensive electronic voting system.

Keywords: e-voting, election, SCRs, democracy

Introduction

The need to consolidate a nascent democracy is the responsibility of every stakeholder in the state. In this regard, there must be a congruence of legitimate interest and objectives to reasonably accommodate humane, civil, different viewpoints and perspectives by both individuals and institutions. To attain this political “utopia” requires a free, fair and stable Election Management Body (EMB) because Nigeria’s elections have been perennially fraught with irregularities. If the EMB injects a high level of credibility and transparency into the election process, the electorate will have confidence in the election process, a development that would eventually impact constructively on voter- turnout because once the electorate sees that its votes count, it will respond positively to civic and election responsibilities. So, the EMB holds a very high potential in procedural reliability and viability.

The democratization of politics has not been able to fully check electoral frauds often perpetuated by different political parties, politicians, and sometimes, in connivance with the EMB. Scholars have established that the collapse of Nigeria’s First Republic (1960-1966) partially led to non sustainability of electoral process. They cite the short-lived Second Republic (1979-1983); the Diarchy Experiment of 1993, election irregularity and absence of institutional records for building up democratic culture. Democracy is attacked when leaders are not produced through credible elections.

According to Nnoli (2003), “elections are so clearly tied to the growth and development of representative democratic government that they are now generally held to be the single most important indicator of the presence or absence of such government.” When a state has a culture of periodic election that is free, fair and credible, we begin to analyse such state from the lens of consolidated democracy. Diamond (2008) captures the meaningfulness of elections as:

when they are administered by a neutral authority;
when the electoral administration is sufficiently competent and resourceful to take specific precautions against fraud; when the police, military and courts treat competing candidates and parties impartially; when

contenders all have access to the public media; when electoral districts and rules do not grossly handicap the opposition; . . . when the secret of the ballot is protected; when virtually all adults can vote; when procedures for organizing and counting the votes are widely known; and when there are transparent and impartial procedures for resolving election complaints and disputes.

It may not be possible for an electoral history to produce the entire democratic character stated above but the responsible factors could be the differing political terrain, popular culture toward election, state sovereignty and other intervening variables. A way of interrogating this issue is to address the question: to what extent does Nigeria's democratic set up concur with these identified traits? The first decade of the Fourth Republic was characterized by ineffective administration attributable to the weak institutionalization of the primary agencies of electoral administration, particularly INEC and Nigerian political parties. INEC lacked institutional, administrative and financial autonomy; professionalism and suffered interference. In addition, the desperation of many Nigerian politicians encapsulated by Obasanjo's pronouncement of "do or die" (to win at all cost) political gladiators compromised election administration in the country. The procedures for organizing and counting the votes were opaque and generally not transparent (Nwangwu, 2015). The integrity of elections was so compromised that election results were known before being officially declared. This eroded citizens' confidence in the election process..

To ameliorate the problem, there were series of electoral reforms. A major reform was The Electoral Act 2010 which encouraged the accommodation of new thinking. The EMB headed by Professor .Attahiru Jega (the only Independent National Election Commission [INEC] Chairman to oversee two Nigerian General Elections (2011 and 2015). The 2011 General Elections, especially the presidential election, was a good startup point. It showed that the introduction of technology to voting was apt because it emasculated sharp- electoral-practices of different kinds. Nigeria is not an isolated case. The prevalence of electoral irregularities in many transitional democracies,

especially in Africa, has accentuated the clamour for and use of voting technologies for uncovering and reducing election frauds (Nwangwu, 2015).

A New Beginning

According to Golden, Kramon & Oforu (2014), “these technological solutions, such as electronic voting machines, polling station webcams and biometric identification equipment, offer the promise of rapid, accurate, and ostensibly tamper-proof innovations that are expected to reduce fraud in the processes of registration, voting or vote count aggregation”. Biometric identification machines authenticate the identity of voters using biometric markers (such as fingerprints) that are almost impossible to counterfeit. The technologies are particularly useful in settings where governments had not previously established reliable or complete paper-based identification systems for their populations (Gelb & Decker, 2012).

Most of the factors that necessitated the introduction of voting technology include the challenges and problems of identifying a voter from an impersonator; as well as halting the attempt of multiple voting, amidst other challenges. The biometric identification machine, as observed by Gelb & Clark (2013), were already in use for voter registration and as of early 2013, 32 of the world’s low and middle-income countries had adopted biometric technology as part of their voter identification system. African states like Ghana, Kenya, Mali, Sierra Leone, Zambia, Malawi, Rwanda, Senegal, Cameroon, and Mauritania had adopted this system with varying degrees of success and it has improved their recent elections.

Following the various degrees of success recorded in the usage of SCR in both Anglophone and Francophone countries, it became incumbent on Nigeria’s EMB as well as the voting public to devise anti-rigging biometric devices for authenticating voters’ identity to match with their corresponding polling units for the 2015 general elections. The Smart Card Readers (SCR) was introduced as a precursor to technological voting. As expected in the introduction of new innovations, glitches occurred here and there and the card SCR was criticized from different angles but Idris & Yusof (2015) saw the viability of election administration as an implication for poverty alleviation. They revealed that the right-conduct of elections would ultimately usher in credible candidates

and good governance which is the hallmark of democracy. The only way to achieving this was to further introduce technology in election administration, and if possible, adopt e-based approach for the conduct of the 2019 elections. Enwere & Ladan-Baki (2015) noted that electronic accreditation and voting will reduce the menace of voters' inducement, though it was not really demonstrated. All these galvanized the passage of the 2010 Electoral Act Amendment Bill 2017 into law which empowered INEC to conducting electronic elections as it deemed fit. No sooner had the law been enacted than INEC established a committee to ensure full implementation of this law in delivering a technology driven 2019 election. The question that this paper seeks to unravel is "Nigeria really ready for a full electronic voting in 2019?" because isolated cases of machine malfunction in some units compelled INEC to use manual accreditation for some voters in 2015.

It would also be recalled that Section 52 (2) of the Act cautioned that "the Commission shall adopt electronic voting in all elections or any other method of voting as may be determined by the commission from time to time." It continued, "The amendment mandates e-voting without ambiguity but also gives the Commission discretion to use other methods if it is impracticable to use e-voting in any election." If Nigeria is yet to get the electronic voters' verification right, how possible would full e-voting be conducted within just four years when some advanced democracies have had to retreat from e-voting due to issues bordering on transparency, In this regard, there is some level of doubt in the mind of the electorate on the continuous usage of technology and going the entire way of e-voting .

This paper attempts a cursory review of electoral practices in Nigeria with particular attention to the SCR intervention to 2015 and 2019 general elections .It assesses the challenges and shortfalls, explains the workability of man-to-computer communication with the use of control model; runs a detailed comparative analysis of e-voting system around the world, especially developed democracies, and lastly, justifies Nigeria's needs to tread cautiously in its voyage of technological involvement to voting system.

Cybernetics: A Theoretical Statement

Control model is an aspect of the generic system theory and it is

interdisciplinary. Otherwise known as Cybernetics, control science is the study of the interaction of human/machine and guided by the principle that different types of systems can be studied according to the principles of feedback, control, and communications. It underscores the implicit relationship between man and machine (in this case computer system) that prompts information creation, processing, storage and output, of which result goes to affect human environment and behavior. Mindell (2010) remarked that cybernetics has a quantitative component, inherited from feedback control and information theory but it is primarily a qualitative, analytical tool - one might even say it is a philosophy of technology. Confignal, Neuman, McCullouch, Ashbys work etc,(years) further grew the discourse but the model was fully developed by Norbert Wiener (1948), who articulated the fusion of communication and control for a generation of engineers, systems theorists, and technical enthusiasts of varied types. Cybernetics may not really exist as a concrete field of scientific discipline but its influence is felt in a wide range of academic endeavor, and therefore it is regarded as an interdisciplinary science. Novikov (2015) remarks that cybernetics has expressive relevance in a wed of fields; control theory, information theory, mathematical communication theory, data analysis and decision making, operations research, optimization, artificial intelligence, and general system theory. Wiener made a case for “systems approach” and called it a classic. In contemporary social analyses, a system consists of the process where supports and demands that are generated through the interactions between civil - civil, civil - authoritative and authoritative - authoritative societies, which are sponsored into the public decision making channel, processed and produced as a public decision in form of laws, policies, general understandings, or even inactions. Where cybernetics fits in here is the scientific philosophy of precise decision making and prediction under control black box (Mindel, 2010). One of the earliest studies on voting decisions where the cybernetics model was applied was *The American Voter* where Angus Campbell led other researchers to give sophisticated accounts of how computer technology influences electoral processes. What cybernetics tries to explain is how inputs are made into computer brain box to elucidate understanding of the desirability of achieving credible electoral democracy within the electronic womb of computer technology (Mindel, 2010).

Cyberspace now resonates everything man does. A reality which is x-rayed in citizens increased participation in public decision making process, where elections are domiciled. Public orientation in form of awareness creation, electoral education, public service announcement etc, are communicated through various social media platforms like Facebook, Twitter, Blackberry Messenger, Whatsapp, Skype, Instagram YouTube etc. Nwangwu (2015) is of the view that the youth are especially mobilized and sensitized through those mediums on the need for registering, collecting their PVCs and actual voting. It is in progressive enculturation of this that the SCR was introduced for pre-voting verification. However, whenever SCR malfunctions at a particular unit, it provokes tension and suspicion of foul play and confusion and rising tempers which could only be tamed with timely intervention. The fact that e-platforms were used to frustrate criminal attempts to disrupt elections in polling booths and collation centers cannot be discountenanced. Cases of irregularities and sharp-practices were brought to public notice through the use of technology. According to Momodu (2014), riggings are becoming obsolete because smart technologies are breaking down the wall of election *hocus-pocus* of the past years. The cybernetic input to the 2015 elections in Nigeria therefore, has restored confidence into the nation's elections and the electorate. Perhaps, the only concern that might evolve is the ingenuity that might be displayed by "Smart Alec" to bypass the computer brain box through money induced voting because money induced voting is becoming a noticeable but worrisome trend in Nigeria's democracy.

Conceptualizing E-Voting

E-voting refers to the electronic means of verifying voters, casting votes and the electronic means of tabulating votes. Ansolabehere (2006) puts a thin distinction between electronic voting and internet voting.

He stated that electronic voting is rightly seen as a transitional technology between traditional modes of voting and Internet voting. In this broad sense, most voting methods currently in use in the United States employ electronics. In a country where voting exercise has been fully automated, e-voting may evolve. Essentially, therefore it indicates that e-voting varies from democracy to democracy.

Kiosk

Kiosk e-voting consists of dedicated machines used in polling stations or elsewhere, such as shopping malls, to let electors cast their votes. Votes are cast using buttons or a touch screen and are stored in an electronic memory. If kiosk system is used in a polling place, it has the advantage of being supervised (ORG, 2007). Kiosk is common in many developed democracies around the world.

Remote Voting (Internet)

This is the system where votes are cast via computers, mobile phones, tablets or any internet enabled devices from the convenience of the voters' locations. Unlike the kiosk, it is not usually supervised by any official, and could be subject to abuse because polling can be electronically monitored to know who has voted what and from which device. Therefore, privacy and anonymity is seriously compromised and it opens the door to vote buying. According to ORG (2007), "There are technical problems too. The system is vulnerable to attacks both on the central e-voting server and on each computer used to vote." So, countries need to think twice before embarking on this option. Renowned cryptographer and computer security expert Bruce Schneier (cited in ORG, 2007) argues that "a secure internet voting system is theoretically possible, but it would be the first secure networked application ever created in the history of computers."

OMR (Optical Mark Recognition)

Optical Mark Recognition (OMR) is half-manual, half-electronic. The voter marks an OMR sheet that bears the names of the candidates with boxes to shade. Then an OMR reader will read the poll and the results will later be extracted and communicated to a central collation center through a modem but the deposited sheet will be available for audit in case of malpractices.

Short Code/Message System

Votes are cast either through a touch-tone system (similar to that used for television votes) or through SMS text messages on mobile phones. Authentication is achieved through the use of PIN and access codes that are mailed to voters ahead of the ballot (OMG, 2007)

Punch Card is another form and it has enjoyed great history in the American voting system. All these methods have been experimented, continued in some states but rejected in others with established reasons. They are far from being infallible in practice, though with great precision appeal in idea state. The shortfalls to them will be revisited in a later section of this paper.

2015 General Elections and the Smart Card Reader (SCR)

Nigeria's 2015 General Elections has been the most politically engaged election in the political history of the country. It was the closest to true multi-party democracy that Nigeria is expected to practice. In the words of Alebiosu (2016), "huge resources were used for the elections including 120 Billion Naira expended by INEC; deployment of 750,000 ad-hoc election staff and over 360,000 security personnel. The presidential election was contested by fourteen candidates from different political parties." This shows that large scale human and material resources went into the election. It was an elaborate election, it was unprecedented. Perhaps, it should be stated that 2011 had created the pathway for the 2015 elections. At the end of the voter registration exercise in 2011, INEC had claimed that a total of 73 million Nigerians had registered out of which the Automated Fingerprint Identification System had removed 800,000 persons for double registration (Aziken, 2015). It was on this basis that INEC resolved to produce a more credible election result in the 2015 election by introducing Permanent Voter Card (PVC) and Smart Card Reader (SCR) to verify and accredit voters at the polls. The SCR matches PVC with the holder identity to ascertain if he had previously registered as a voter in that particular unit. The 2011 voters' register-Nigeria's first electronically compiled register- was used in the production of the PVCs for the 2015 General Elections (Nwangwu, 2015). For the nation to prevent another "Orange Revolution" at all cost, INEC marshaled all available tactics to ground any attempt at rigging the election. It would be recalled that national security was at a precarious state (owing to insurgency in Bauchi, Adamawa and Yobe [BAY] states and a high level of insecurity in other parts) as the 2015 elections was approaching. It was against this backdrop that the SCR was introduced into the INEC Voters Authentication System (IVAS).

The INEC Voters Authentication System (IVAS) was specifically designed to

electronically authenticate voters on polling day and it adopted Dual Core Cortex - A7 CPU with ARM ultra-low power consumption. It has a single frequency of 1.2GHz and an Android 4.2.2 operating system (INEC, 2016). It has a Secure Access Module (SAM) card used to enhance security and cryptography performance on the device. It is used commonly in devices that need to perform secure transactions, such as paying terminals. Physically, a SAM can either be a SIM Card and plugged into a SAM slot in a reader or a fixed integrated circuit. The ability of the Smart Card Reader (SCR) to perform the above functions as well as keep a tally of the total number of voters accredited at the polling units and forward the information to a central database server over a Global System for Mobile (GSM) network makes the card reader suitable to the nation's electoral history (Engineering Network Team, 2015). Apart from the need for a credible, transparent, free and fair election, other reasons for the deployment of the SCR were to do a range of statistical analysis of the demographics of voting for the purposes of research and planning; to build public confidence and trust in the election; to reduce electoral conflicts; to ensure a free and fair election and to further deepen Nigeria's electoral and democratic process (Alebiosu, 2015).

On March 7, 2015 (21 days to election), INEC test-ran, for reliability, the biometric technology in 225 out of the entire 120,000 polling units and 358 out of the 155,000 voting centres used for the elections (Idowu, 2015). The test-run of the device took place in 12 states namely: Rivers and Delta (South-South); Kano and Kebbi (North-West); Anambra and Ebonyi (South East); Ekiti and Lagos (South West); Bauchi and Taraba (North East); as well as Niger and Nasarawa (North Central). The pilot revealed a number of inconsistencies but INEC remained confident that the device was good for general elections. Out of the total experimental voters that came out for the test-run, 59% had their PVCs accredited. For the remaining 41% , INEC resolved (with the political parties) to manually accredit any genuine voter whose PVC could not be accredited by the SCR. Instructively, a wide percentage of the Nigerian public remained skeptical of INEC for the introduction of the SCR. In fact, a section of the political class criticized INEC's boss for attempting to strategically rig the election by introducing the SCR. Others, however, felt it was a laudable idea; Mohammed averred:

Nigerians have sacrificed all they can to obtain their PVCs, which are now their most-prized possession. They have also hailed the plan by INEC to use the card reader to give Nigeria credible polls. Only dishonest politicians, those who plan to rig, those who have engaged in a massive purchase of PVCs and those who have something to hide are opposed to use of the machine (cited in Adeyemi, Abubakar & Jimoh, *The Guardian*, March 5, 2015).

In corroboration of the above, Professor Attahiru Jega (as cited in Oche, 2015) maintained that it was only those that hitherto nurtured plans to fraudulently manipulate the outcome of the elections that were crying foul over the introduction of the technology. Some other people also criticized INEC for postponing the elections (based on security reasons and to ensure equitable distribution of the PVCs). At the heart of this was the debate on the legality of SCR usage. Some contended that it was unconstitutional for INEC to introduce a machine to manage Nigeria's voting process since the Electoral Act 2010 directly outlaws electronic voting in Nigeria. A better comprehension of this discourse will require interrogating the statutory responsibility of INEC itself.

Under paragraph 15 of Part 1 of the Third Schedule to the 1999 Constitution (as amended), INEC is mandated to organize, undertake and supervise all elections in Nigeria; conduct the registration of persons qualified to vote and prepare, maintain and revise the registration of voters for the purpose of any election (Policy and Legal Advocacy Centre, 2015). It is also empowered to carry out the functions conferred upon it by virtue of the Electoral Act, 2010 (as amended). It would be recalled that Section 118 of the 1999 Constitution (as amended) subjects the registration of voters and the conduct of elections to INEC's discretion. (Discretion in the sense that from time to time INEC may need to change strategy to suite the demanding political environment in Nigeria). If it is true that the Electoral Act 2010 really confers on INEC the power to cause, to design, print control the insurance of voters cards to voters whose names are on the voters register, then it implies, as expressed by the Policy and Legal Advocacy Centre (2015), that INEC has express and

implied powers to design means, procedures and processes that enable it exercise the powers granted it under the Constitution including, for example, the use of permanent voter cards in the 2015 general elections.

Falana (2015), in his contribution, averred that the deployment of the card reader by INEC was not illegal. He submitted that INEC has the constitutional power to set the standards and guidelines for elections. In view of this, he argued that the card reader was part of accreditation and not voting. He maintained that what the law proscribed is electronic voting and not the card readers. Therefore, he said that the usage of the card reader in the 2015 general elections was legal and legitimate (cited in Oderemi, 2015). Banire (2015) concluded: “The basic canon of interpretation or construction of statutory provisions remains that what is not expressly prohibited by a statute is impliedly permitted.” Amidst all the debates, the elections were held and the SCRs were used.

Smart Card Readers: Matters Arising

The operation of the Smart Card Reader (SCR) did not just go without hitches on election days. A discussion of some of the challenges of the SCRs which came from its usage in the prescribed environment will suffice. Thereafter, there would be a look at the operational problems of the machine.

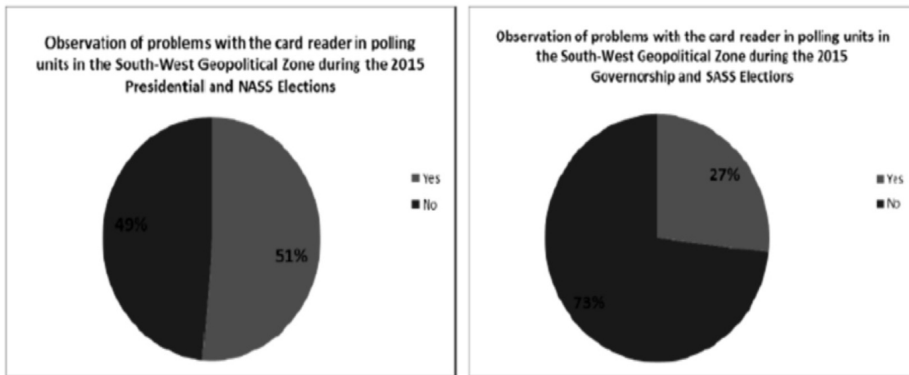
Poor public awareness: Nigeria is a country with a high level of illiteracy and restricted accessibility to modern western civilization. A large number of Nigerians especially the electorate in rural communities was completely unaware of the device. Many of them had neither seen nor heard of the card reader until the election day. Before INEC initiated something new and unique, the Commission was expected to have undertaken massive public education especially in rural areas. The urban dwellers would not have needed much re-education on the SCR because they were already familiar with electronic transactions and internet of thing (IoT). So, due to be absence of public awareness, there was a lot misconception about the device. To some electorate, the card reader was a voting device. Inadequate information dissemination and poor sensitization of the electorate on the card reader led to some poor human relations and uncooperative attitudes between some of the illiterate electorate and election officials (Alebiosu, 2015)

Inadequate Training for INEC Staff on SCR operation: INEC's field staff especially the Presiding Officers and Assistant Presiding Officers were not properly trained on the use of Smart Card Reader (SCR). Many of the ad hoc staff did not have any knowledge or exposure or orientation on e-governance before the election time. At the point of practical training, the venues were always cramped with trainees and the machines were inadequate. Sometimes, a hundred or more participants had to share just one or two machines. In other words, the trainees were inversely proportional to the machines. These resulted to inadequate training and consequently, INEC staff had little or no technical knowledge to take charge at polls. Many times, they got flustered by minor problems that they ought to have been able to handle but often resorted to calling on the technical crew. One of the most simple but embarrassing problems was that the staff did not know that they ought to remove the protective film on some the card readers before putting them to use. This prevented some of the devices from detecting thumbprints. Inability to detect thumbprints infuriated some members of the electorate and they expressed anger and embarrassment. This snowballed into tensions because the presiding officers themselves had become confounded by the scenario.

Nwangwu (2015) summarized the problems encountered by voters as well as INEC staff in the course of operating the machine. Some of the challenges include inability to read fingerprints especially the fingerprints of elderly people; some card readers were not sensitive to thumbprints; rejection of Permanent Voter Card (PVC) especially cards brought from other polling units; there were cases of card readers not working at all; there were delays in using the card readers in some polling units; there was network failure; there were cases where voters' pictures did not appear on card readers; some of the card readers functioned slowly and did not pick up on time; some card readers initially rejected their passwords; there were a few cases of low battery strength and in some instances the batteries were completely drained; there was a case where the card reader did not correspond to the manual; some card readers stated card mismatch information; some of the card readers had incorrect setting; and during the Governorship and SASS Elections, some card readers still had data from the March 28 elections on them (Election Monitor, 2015, pp. 46-47).

Most of these problems reached a crescendo at the Presidential and National Assembly elections. However, there had been marked improvement in the Gubernatorial and State Assemblies elections that followed especially in the South East. Election Monitor (2015) presented the chart as thus:

Figure I: Rate of Failure of Card Reader during the 2015 General Elections



Source: Adapted from Election Monitor (2015). *2015 General Elections observation report*. A Publication of Election Monitor.

Overall, the SCR was not short of expectation at all in its performance. In the words of Jega (cited in Oche, 2015),

we have made rigging impossible for them (electoral fraudsters) as there is no how the total number of votes cast at the polling unit could exceed the number of accredited persons. Such discrepancy in figures will be immediately spotted. This technology made it impossible for any corrupt electoral officer to connive with any politician to pad-up results. The information stored in both the card readers and the result sheets taken to the ward levels would be retrieved once there is evidence of tampering....

This above did not rule out the fact that Nigeria needed to improve its election technology. It has not been fully demonstrated that the SCR is totally secured and cannot be hacked.

The 2019 General Elections and the Smart Card Readers

There was no significant improvement between the conduct of the 2015 and the 2019 General Elections. After a laudable landmark in the 2015 election, the electorate expected a remarkable improvement in the conduct of the 2019 elections but the contrary was the case. There was no significant efficiency of delivery and this led to the waning of public confidence and accountability in the election process. Consequently, it led to all-time low voter turnout and poor logistics management. The last minute postponement of the Presidential and National Assembly elections, barely few hours to commencement was partially attributed to low voter-turnout owing to loss of interest and confidence in the process (NDI/IRI, 2019). The postponement in itself was partly attributed to delay in election budget-approval by the National Assembly. The elections were eventually held on the postponed dates.

In 2019, there was neither significant difference nor improvement in the application of the SCRs from the 2015 elections. Perhaps, the only noticeable improvement was on the introduction of electronic collation of results. While this was piloted in both Osun and Ekiti States gubernatorial elections that preceded the general elections, the Electoral Act 2010 (as amended in 2017) by the National Assembly that would have granted INEC the legal backing was not assented by the President on the ground of bad timing. Therefore, only the number of accredited voters was electronically communicated to the Resident Collation Centers. As recorded in 2015, challenges were recorded both by INEC officers and voters. As observed by Nigerian Civil Society Situation Room (2019), some of these included reports of card malfunction from Lagos, Ogun, Imo, Abia, Nassarawa, Kebbi, Kaduna states and F.C.T ; manual accreditations in Imo and Sokoto in some polling units because of system failure; Biometric failure in capturing finger prints of voters, notably YPP's presidential candidate (Prof Kingsley Moghalu in Anambra State) and then House of Representatives Speaker (Hon. Yakubu Dogara in Bauchi); disappointing performances of some INEC ad hoc members (NYSC corps members) who could not operate the Smart Card Readers properly but were purportedly adequately trained by INEC.

From the foregoing, it can be said that the blueprint of 2015 had not really been advanced. Measuring the advancement of a democracy is not directly tantamount to how sophisticated an election is electronically managed but preventing and managing preventable election problems.

Select cases of E-Voting Application in Advanced Democracies

The earlier section demonstrated the problem with Nigeria's nascent democracy. It reviewed the introduction of SCRs to the 2015 general elections. It also highlighted the attendant problems and issues with the SCRs and showed its fragility in election conduct in Nigeria. An examination of the international application of e-governance will legitimize the construction of a valid opinion on SCRs application in Nigeria.

Americas

The history of e-voting can be traced to the 19th century when the legislature roll call vote proposal was made. Extant Literature from the United States shows that it is perhaps, the very first country that experimented with e-voting in its elementary form. Generally, the punch card system debuted in the 1960s (McCarthy, 2008). The traditional e-voting technology, which is the Direct Recording Electronic (DRE) was first introduced in 1975 in Chicago, Illinois, and called 'Video Voter.' The 1994 presidential election and, by extension, the 2000 represented another bold era in machine voting in the US. The progress appeared tremendous because comparing 7.7% of American voters in 1996 who were already using one form of e-voting or the other, 28.9% in 2004 had complied with this system (McCarthy, 2008). The American experience has not always been an easier one. In 2007, Open Rights Group (ORG) reported that a group of experts, in 2004, issued a critical report on a planned internet voting system for US soldiers oversea, resulting to the project being cancelled. The vulnerability, the group says, cannot be fixed by changes or bug fixes to the system. They are software ubiquitous feature today, which cannot be eliminated in the foreseeable future without some unforeseen radical breakthrough (Serve Security Report, 2004). According to Voter Unite.org (2007), hundreds of election equipment malfunction have been reported by the media. In the 2004 General Election, more than 125 of such were reported. With all these lacunae confronting the most advanced democracy in the world, coupled with the infamous 18,000

questionable votes cast with an e-voting system that threw congressional seat into limbo in 2006/7, puts a double to the glorious failure of DRE application seat in US elections (ORG. 2007). Part of what contributed to the problems with e-voting in the United States was the decentralized nature of the American voting system. It is theoretically envisaged that since many European states practiced relatively centralized democracies, obviously with smaller geographical lay-out, e-voting system should bring better results in its experimentation, but this is rarely the case in even the most developed of these states.

Canada did not present anything too different. Venezuela had a radical turn. Though it started quite late, but up to 99.5% of polling places in the country used e-voting technologies in the 2007 election (The Carter Center, 2007). All machines would be disconnected till after polling are concluded, and then relay the votes at a go to curb transmission hacks. This was a breakthrough, but it had its own cost.

Europe

A ground breaking pilot was conducted in United Kingdom in 2003, which covered 14% of the English electorate and was funded with £18.5 million by the central government, and with complementary budget by local governments. EC Press (2007) revealed that the electorates criticized the selection and management of the exercise on the cost of e-voting compared to pencil and paper. Stratford (2003) revealed that for ordinary election, their cost were less than £1 per vote, while it cost as much as 55 and 120 for internet and kiosk votes, respectively. Inability to maintain voters' anonymity can open the way to vote buying and ballot audit difficulties arising from non-materials natures of the votes, and most importantly, network security. Schneider (2007) argued that "a secure voting system is theoretically possible but it would be the first secure networked application ever created in the history of computer." Is it worth the cost?

After a number of trials at the birth of the millennium, the Italian Interior Minister Guiulano Amato announced Italy's decision to stop machine voting. He said that "it will be triumph of our ancestors..... Let's stick to voting and counting physically because it is less easy to falsify". It would appear that

the unverifiability nature of computer black box informed Italy's decision.

The Dutch Intelligence and Security Service confirmed that from a remote end, a vote cast from the machine's radio emission could be detected. Security expert analysed this as an unpardonable flaw of the e-voting machine and subsequently the technology was repurchased by the Irish government. In view of this, Netherland government reviewed its electoral law which led to eventual withdrawal from e-voting (Wikipedia, 2017)

The Republic of Ireland bought voting computers from a Dutch company Nedap at the sum of €50 million. It was test-run for a pilot election of some constituencies in the 2002 election but could not instill confidence into the Irish. Eldelman, an Irish Statistician (cited in ORG, 2007), asserted that "scientists and statisticians presented evidence of both possibility and actuality of fraud using such machine", the scale of public condemnation rose to such a level that the machine were immediately banned in the entire Republic and put into indefinite storage. Elections are still tallied manually in Ireland. After spending €110.4 million on e-voting between 2002 and 2004, Ireland moved on with manual voting (ORG.2007)

Look before leaping

So far, the discussion has demonstrated that e-voting remains a practice and a wishful state of engagement around the world. It has revealed the nascent and incipient nature of Nigerian democracy. It has showed both fragility and the delicate nature of elections from different perspectives. The earlier section briefly addressed the exploits of e-voting in select democracies. The choice of some developed states in this is quite deliberate and purposeful. E-governance is predicated on cyber technology and it originated from the West. Therefore, the West is light years ahead of the Third World countries that often receive technology late.

The comparative account showed that e-voting has not really festered well in advanced democracies. The trajectory shows that developed democracies are growing distrustful of machine voting. Many are progressively withdrawing from its usage. Why should developing countries be eager to adopt machine voting when advanced democracies have been eager to drop it?

Brazil led the way in South America while Angola followed closely in Africa. Angola seemed to have recorded above average in her 2014 general elections. Nigeria seems success of the SCRs in the 2015 election has prompted many stakeholders into advocating the adoption of e-voting technology for the upcoming 2019 General Elections. The questions that have arisen include the following: Why are many developed democracies withdrawing from this method, falling back to pencil-paper old method, while Ireland, Netherland, Germany and some of Italy and Canada had actually totally jettisoned it? Why have all the states in the US not fully adopted this technology? The answers to these questions ought to make Nigeria weary of an uncalculated leap from a dazzling height.

Scholars have argued that e-voting could be an avenue to alleviate poverty in Nigeria. Idris & Yusof (2015) argued that popular legitimacy that a transparent process would bring though SCR can gear the incumbent leaders to think of development. While it is not too contentious that a well conducted, free, fair and credible election will likely produce the people's choice, it is not a sufficient premise to conclude that a credible election would bring good governance. This does not mean that credible election cannot engender good governance which has both the philosophical and material capacity to ensuring welfare to the greatest number. It is *argumentum ad ignorantiam* to infer that e-voting will eradicate poverty because only a terse premise can be generated from that. It is again fallacious to state that e-voting is transparent because, drawing from Nigeria's 2015 election, the SCR was not e-voting rather it was a mere means of verification and authentication of voters. It should be noted that the Electoral Act 2010 first abolished e-voting in Nigeria before the 2017 amendment cautiously "resurrected" it.

Another note of caution is the cost of running the e-voting process. The past two general elections (2011 and 2015) were executed on unprecedented heavy budgets. Each of these elections gulped more than N100 billion for its execution. The bulk of this money was used for procurement of registration and verification equipment and logistics. The Direct Data Capture Machine (DDCM) and Smart Card Readers (SCRs) for 2011 and 2015 took up a lion share of the budget. If, indeed, Nigeria will opt for e-voting in 2019, one can only imagine how much it would gulp from the national treasury. It

would be recalled that Ireland spent more than €110.4 (approximately N48 billion) on this technology between in 2002 and 2004, a figure that must have doubled by now. In the United Kingdom, it was reported that per vote, cost around £120 for internet voting and £22 for kiosk vote as against £1 for manual voting (ORG, 2007). Inferring from the precarious state of Nigeria's finance, can the country really afford the cost of e-voting?

Ireland, Netherland, Germany, Canada etc, have either fully exited or have partly implemented e-voting because of its heavy cost, but mostly due to transparency-deficit. Confidence building for any government should start right from the polls. This happens when the whole electoral process is credible. Credibility comes from the transparent nature of the election process. Here, the argument is not to suggest fraud in every computer black box processes but to demonstrate the burden of probity. In the case of malpractices, how can the ballot be subjected to audit, for instance? E-votes are nonmaterial votes so they cannot be subjected to physical audit in case of litigation. The only way this can be possible is if a printout is issued for every vote cast for future referencing and accountability.

Related to the above is the possibility of cyber security compromise. This is perhaps the biggest argument against e-voting apologists. Can it be possible to make a computer that cannot be compromised? Schneider (cited in ORG, 2007) revealed that "a secure voting system is theoretically possible, but it would be the first secure networked application ever created in the history of computers." Similarly, this criticism has been put against cybernetics as a model in the sense that if the interaction between man and machine is tampered with, it would produce an undesirable result such as leading to armed conflict. From a remote end, a programme can be written and transfused into the stream to alter the functions of the original programme and produce a different result. This was the case of the Dutch Government's experiment. The technical capacity of the Nigerian system is very fragile and incapable of such security sophistication. Where this poses a serious threat is that election results can be manipulated to an unimaginable extent and still remain untraceable. This can be done in several ways. Since there will be a central collation point where all the results are electronically sent after polling, the result can be distorted in such a way that a section of the

electoral constituency could have its result undermined while another could be inflated. This alteration would totally change the voting pattern from the expected outcome. This can bring violent response. It can also be a case where ballot is reading for a candidate while the other candidate is having negative count with a systematic sequence.

United States' 2004 elections had more than 125 cases of irregularities as the DRE machines demonstrated system failure. A perfect computer system can never be built. So when things go wrong, how do we retrieve the ballot? In the case of North Carolina and Florida, where software count to 32,767 and then counted backward, how was it handled? Obviously, a fresh election had to be conducted in such areas. In that case, where does the technology stand? Nigeria's political environmental space presents numerous reasons for computer systems to malfunction. Some of the factors include poorly educated electorates; ill-trained electoral officials who could possibly mishandle the equipment and cause system failure. Other factors include infrastructural deficit such as poor electricity, non-motorable roads for transporting sensitive and not so sensitive equipment and can cause system malfunction. The machine runs on Android 4.2.2 whereas most mobile phones run on Android 7.0. This casts doubts on Nigeria's preparedness.

"Choiceless democracy" is a serious problem. Voting without choosing has gradually crept into the Nigerian electoral culture where people's franchises are materially harassed. Enwere & Ladan-Baki (2015) argued that through media consciousness, propelled by cybernetics and through e-voting, electorates will be more informed of the associated legitimacy issues that come with inducement voting and as such resist gratifications either before, during and after polling. While it is not contestable that information liberates, it is fundamental that electorates giving in to inducement does not have a mono-causal attribution. There are several reasons for voters' inducement; chief among them is the socio-economic wellbeing and not even political awareness of the people, Where e-voting triggers inducement voting is when politicians are aware that crude rigging methods like ballot box snatching, voters' register manipulation etc are impossible because of SCRs, they will likely opt for other subtle means of influencing voters before or after polling. Money and other means have proven to be very effective. Inducement voting

is not new in Nigeria but it took a new approach after the introduction of the SCRs in 2015. The recent gubernatorial elections in Ondo, Anambra, Ekiti and Osun states clearly showed the new dimensions. A serious threat to democracy is that computers cannot read the human mind to know if it had been compromised; and it is not a menace that INEC can control or correct but a collective struggle that requires total attitudinal change on the perception of the political group. Before that correction is effected, Nigeria's democracy would be handling legitimacy crisis - voting without choosing.

Conclusion

So far this discourse has revolved around the viability of progressive deployment of machines for election governance in Nigeria. Most importantly, INEC has promised using the technology in the 2019 General Election and it would be the first ever electronic election in Nigeria's electoral history. The committee set up for this has keyed-into adopting an indigenous technology sponsored by the Ministry of Science and Technology to effect this. It is the responsibility of all to ensure a hitch free democratic transition process. Three main stakeholders will play pivotal roles to achieving this objective: the government, INEC and the people as well as political parties. Legislations must recognize the peculiarity of voters before e-voting is finally and fully implemented. Most voters in the rural areas do not have sufficient electronic proficiency to adequately fit into this scheme. Such group must be identified and sufficient alternatives be made for them before a large chunk is disenfranchised on the ground of non compliance with electronic. Apata (2017) an experienced system analyst, warned that INEC must develop a website and voting process for Effectiveness, Efficiency, Confidentiality, Integrity, Availability, Compliance, and Reliability otherwise political parties would lose confidence and trust in the whole process and those that lost out would resort to litigations for foul play. By now, one would have expected INEC to have begun pilot voting to test run the process and engender troubleshooting to combat bugs. If this is delayed till the last minute, there is the likelihood of crisis during the elections. These are some of the reservations for e-voting in Nigeria and therefore INEC is being urged to tread cautiously, indeed very slowly but steadily regarding the the introduction of electronic machines to election management.

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