



**ELECTRONIC VOTING AS AN INSTRUMENT  
FOR FREE, FAIR AND CREDIBLE ELECTIONS IN NIGERIAN  
POLITICAL SYSTEM: ISSUES AND CHALLENGES**

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**Abstract:**

Electoral management is one of the recurrent discussions in emerging democracies across the globe. Issues of electoral fraud are most times predicated on the nature of electoral management since most elections in the affected countries are done manually. Improving on the electoral management has therefore become a focus of concern that the Nigerian state also aligned itself with in order to better its course of the democratic enterprise. Automation of electoral processes from the manual practice is primarily to address noticeable negativities associated with the manual system. This paper is an explanatory one that seeks to analyze the incentives, setbacks and challenges of the electronic voting system. The paper utilized secondary sources through careful analysis of literature on the subject matter in addition to personal observations and discussions among intellectual colleagues. The incentives of E-voting include but are not limited to reduction of electoral fraud, delays, manipulations of results and other irregularities including cost. The paper also maintains that the e-voting system has its own drawbacks in the forms of IT logistics, infrastructure, lack of trust, issues of transparency among other challenges. It concludes that there should be a pilot test at the micro level for an experiment before adopting on a large-scale national election, networking of government agencies to be fully IT compliant, inter alia.

**Keywords:** e-voting, fraud, management, violence, Nigeria

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## 1. Introduction

Poor electoral system is a major cause of insalubrious political competition among power contenders and consequently leads to electoral violence (LeVan & Ukata, 2012). The election circle in Nigeria is characterized by numerous problems. Major among these problems include missing names of some registered voters, intimidation which leads to disfranchisement of voters, multiple and under-aged voting, snatching or destruction of ballot boxes, miscomputation and falsification of results (Alabi, 2009; Ogbaudu, 2011). A poor electoral system stimulates election-related violence with far-reaching consequences of eroding peoples' trust and confidence in the democratic process (Alemika 2011). Mischief politicians and some partisan electoral officials who exploit the weaknesses of the traditional voting system to perpetrate electoral frauds have been the cause of the electoral misfortune (Ogbaudu, 2011; Abdulhamid, Adebayo, Ugiomoh, & Abdul Malik, 2013). The cumulative effect of the irregularities including but not limited to severely flawed voter lists, misuse of incumbency power, and lack of transparency; the actual or perceived bias of election officials resulting in real or perceived fraud stimulate election-related violence with far-reaching consequences of eroding peoples' faith and confidence in the democratic process (UN, 2012). The scenario explains the incident of increasing spate of violence including killings and maiming (Alemika, 2011; Nwagu, 2011). It is indicative that the existing traditional paper ballot system of voting lacks the essential ingredients of credible election such as transparency, accountability, free and fair play, and is vulnerable to human error and manipulations (LeVan & Ukata, 2012).

A better method of voting in Nigeria has been a major concern that instigated a need for improvement and most recently the use of electronic devices was employed. Information System (IS) scholars and democrats advocate the use of various technologies to improve electoral management.

The great need for transparency, equal opportunity and rule of law as major tenets of democratic institutions cannot be over-emphasized. The exercise of the franchise is the fulcrum on which democracy revolves. Unfortunately, despite huge sums of money being spent by the federal government of Nigeria in adopting various techniques for a free, fair and credible election in the country, anti-democratic practices such as wide rigging of elections, multiple registrations and voting, late arrival of ballot boxes, stealing of ballot boxes, under-aged voting, illegal voting by non-Nigerian nationals, rioting and fighting at election venues due to an insufficient number of security personnel, disenfranchisement of those in the diaspora as well as the physically handicapped by virtue of election distances to them, prolonged delay in the accreditation of voters for the election, cancellation of votes due to improper voting, prolonged counting of votes and delay in determining the result of an election, falsification of voters' register and a whole lot of others issues have tremendously and irredeemably bastardized the democratic procedure. The need to salvage the country out of this worrisome situation and to attain confidence in the electoral process led to the introduction of electronic voting in Nigeria.

This paper, therefore, seeks to examine the impact of the electronic voting system on electoral management in Nigeria. The second objective is to know how e-voting can be a solution for the electoral irregularities associated with the manual voting process.

## 1.2 Conceptual Clarifications

### 1.2.1 Electronic Voting

Electronic voting seems to be one of the most interesting examples of the application of security-sensitive information technology in contemporary democracies. In recent years, governments in many countries including Nigeria have embraced the idea of using modern technologies (ICT) to improve services, *"a trend known as e-government"* (Moynihan 2004). So, it is no wonder that the introduction of new technology into the domain of the electoral process has raised a considerable amount of discussion (Pieters 2006). This is proved by the fact that every year in more and more countries possibility of implementing electronic voting systems in elections is discussed. Additionally, the good experiences of Estonia, Switzerland, Brazil, the United States, the United Kingdom etc. has propelled other countries around the world to adopt this new method of voting. The idea to implement e-voting into elections and referenda is widely discussed not only by members of parliaments and governments throughout the world but also by regular voters, IT specialists, engineers or people who work in organizations/associations supporting the application of electronic voting.

To understand the concept of electronic voting, it is convenient to consider four basic steps in an [election](#) process: Ballot [composition](#), in which voters make choices; ballot casting, in which voters submit their ballots; ballot recording, in which a system records the submitted ballots; and tabulation, in which votes are counted. Ballot casting, recording, and tabulation are routinely done with computers even in voting systems that are not, strictly speaking, electronic. Electronic voting in the strict sense is a system where the first step, ballot composition (or choosing), is done with the aid of a computer.

Electronic voting is a type of vote which is done through electronic systems also known as e-voting, it includes optical scanning vote systems, punched cards and voting kiosks which include transmission of ballots and votes via Telephone, Internet or Private computer networks.

It is when a voter casts a ballot through a digital system instead of on paper. Until the beginning of the 21st century, electronic voting did not exist, and paper ballots were the sole means of recording votes. However, since the late 1990s/early 2000s, electronic voting has become more popular and made advances, despite many concerns around auditing and transparency. Often seen as a tool for making the electoral process more efficient and for increasing trust in its management, if properly implemented, e-voting can increase the security of the ballot, speed up the processing of results and make voting easier. Although the challenges are considerable, if not carefully planned and designed, e-voting can undermine confidence in the whole electoral process.

Nowadays, Electronic vote has become more popular around the world. Some of the countries which use electronic and vote online include: the United States, Brazil,

Australia, Canada, Belgium, Germany, Romania, France, Venezuela, Philippines, the European Union, Switzerland, Italy, Norway, Romania and the United Kingdom. With this system, electronic voting is very accessible for individuals with disabilities. They have the ability to use joysticks, earphones, Sip and puff technology, foot pedals, etc. These machines have touch screens that can display the information in several languages and voting choices in audio for visually impaired voters. These features make voting easier and more comfortable for people with disabilities. Electronic voting technology can include [punched cards](#), [optical scan voting systems](#) and specialized voting kiosks (including self-contained [direct-recording electronic voting systems](#), or DRE) and is able to perform most of these tasks while complying with a set of standards established by regulatory bodies, and is also capable to deal successfully with strong requirements associated with [security](#), [accuracy](#), integrity, swiftness, [privacy](#), [accessibility](#), [cost-effectiveness](#), [scalability](#) and [ecological](#) sustainability. It can also involve the transmission of [ballots](#) and votes via telephones, private [computer networks](#), or the [Internet](#).

It is worthy to note that elections allow the populace to choose their representatives and express their preferences for how they will be governed. Naturally, the integrity of the election process is fundamental to the integrity of democracy itself. The election system must be sufficiently robust to withstand a variety of fraudulent behaviors and must be sufficiently transparent and comprehensible that voters and candidates can accept the results of an election. Unsurprisingly, history is littered with examples of elections being manipulated in order to influence their outcome and one sure way of averting such type of occurrences is through the adoption of electronic voting.

### **1.2.2 Types of Electronic Voting**

There are various methods and types of electronic voting and this may include any or all of the followings:

#### **A. Punch-card Voting Systems**

With punch-card voting systems, the ballot is a card (or cards) and the voters punch holes in it (with a supplied punch device) next to their candidate of choice. After punching the hole(s), the voter may place the ballot in a ballot box, or the voter may feed the ballot into an electronic vote tabulating device at the voting place.

Two common types of punch-cards voting systems are the "Votomatic" and the "Datavote" system. With the Votomatic card, the locations at which holes may be punched to indicate votes are each assigned number. The number of the hole is the only information printed on the card. The list of candidates or ballot issue choices and directions for punching the corresponding holes are printed in a separate booklet. With the Datavote card, the name of the candidate or description of the choice is printed on the ballot next to the location of the hole to be punched.

## **B. Optical Scan (Voting) Systems**

These systems use an optical scanner to read and count marked ballot papers. Various systems can be defined as optical scan (voting) systems including:

- a) Marksense systems whereby an optical mark (e.g. made with a graphite pencil on the ballot paper) can be recognized by a scanner
- b) Electronic ballot markers (EBM) that can be used to fill out optical scan ballots. The systems look like traditional DREs, but they record votes on paper ballots instead of internal memory. EBM can aid a disabled voter in marking a paper ballot; it can allow for audio interfaces
- c) Digital Pen: these systems use ballots on digital paper. A small camera in the pen is able to recognize where the voter marks the digital ballot paper. The ballots are collected in the polling station and the digital pen has to be returned to the elections staff for tabulation.

Optical scan voting systems combine paper with electronic devices. All the systems keep a tangible ballot paper which serves as a tangible record of the voter's intent. By that, optical scan systems allow for manual recounts of ballots. The big advantage is that the counting process can be done in a central place and that the counting is much faster. The system is easily understandable by the voter.

## **C. Direct-Recording Electronic (DRE) Voting Machines**

With a DRE machine, voting can be done on Election Day or it can be used as an advance voting device in polling stations. It is easily understandable: the voter just pushes a button next to his/her favourite candidate or choice. Or the DRE machines have a touch screen displaying the ballot. After the election or referendum, the DRE machine produces a tabulation of the voting data stored in a removable memory component and/or as a printed copy. The system may also allow for the transmission of individual ballots or vote totals to a central location. The result can then be consolidated in one central place.

DRE voting machines started to be massively used in 1996 in Brazil. They were also used on a large scale in the US after the Florida 2000 experience. Vision-impaired voters benefit from DRE machines because they can cast their vote without help from another person. DRE machines were also deployed in Europe, e.g. in the Netherlands, where the company NEDAP provided their own DRE machines since 1989. They were used in the Netherlands until 2006.

## **D. Voter-Verified Paper Audit Trail**

A voter-verified paper audit trail (VVPAT) or verified paper record (VPR) is not an e-voting system itself, but refers to a component that can be combined with various forms of non-document ballot voting systems. VVPAT means that a paper ballot for each vote is printed by the electronic device that was used to cast the vote. A VVPAT is intended as an independent verification system for voting machines designed to allow voters to verify that their vote was cast correctly, to detect possible election fraud or malfunction, and to provide a means to audit the stored electronic results.

## **E. Internet Voting**

Internet voting refers to the use of the Internet to cast and/or transmit the vote. Internet voting can take various forms depending on whether it is used in uncontrolled environments (remote Internet voting) or not (Polling Site Internet Voting, Kiosk Voting). With remote Internet voting neither the client machines nor the physical environment is under the control of election officials. Voters can cast their vote at practically any place (at home, at the workplace, at public Internet terminals etc.). The vote is then transmitted over the Internet. This method offers the most advantages to voters, but at the same time it suffers from the most security concerns. They include doubts about the Internet as a means of transmission of confidential information, fear of hacker attacks and anxiety about the possibility of undue influence being exerted on the voter during the voting process (e.g. 'family voting').

The other options (polling site Internet voting or kiosk voting) refer to systems where voters cast their ballot from client machines that are physically situated in official polling stations or in public places that are controlled by election officials. In both cases, hardware and software components are controlled by election officials. The difference is that with polling site Internet voting, the authentication of the voters may take place by traditional means and with kiosk voting (in public places), the physical environment and voter authentication are not directly under the control of election officials.

## **2. Methodology**

### **2.1 Historical Antecedent of Electronic Voting in Nigeria**

Nigeria's quest for electronic voting dates back to the Second Republic when the chairman of the defunct Federal Electoral Commission (FEDECO), the late Justice Victor Ovie-Whiskey, mooted the idea for the 1983 general elections. The plan was vehemently opposed by the late sage, Chief Obafemi Awolowo, the leader of the defunct Unity Party of Nigeria (UPN). He threatened to call out his supporters to smash the machines, because he had lost confidence in the electoral body to conduct a free and credible election. Again, in 2006, when the former INEC Chairman, Prof. Maurice Iwu, proposed electronic voting for the 2007 polls, it was greeted with criticism. The pan-Yoruba socio-political group, Afenifere, rejected the innovation, saying that the country was not ripe for it. The organization cited a low literacy level and lack of time to ascertain its worth and workability. Besides, it alleged that Iwu had a hidden agenda. Afenifere described e-voting under Iwu as an electronic rigging mechanism.

### **2.2 INEC Technologies from 1999 to 2017**

The methods used in registration of voters and conducting elections in Nigeria from 1999 to 2017 range from the use of typewriters to Direct Data Capture Machine (DDCM), Electronic Voters' Register (EVR), Smart Card Reader (SCR) and e-collation. The steps taken by Gen. Abdulsalami Abubakar after the death of Gen. Sani Abacha in June 1998 paved the way for the historic 1999 general election in Nigeria.

The 2003 election witnessed a technological leap with the introduction of Optical Magnetic Recognition (OMR) forms. While still retaining the manual approach as back up, INEC incorporated computerization, using the Optical Mark Recognition (OMR) technology. This involves the compilation on the form EC.1A of the names and particulars of all prospective voters (also known as Prospective Registrants) who present themselves physically for registration at the Registration Centers. The information so obtained is then transferred and shaded on computer readable OMR Forms, which were later scanned into database on completion of field operation, and processed to produce the Register of Voters. Each OMR Form has a unique number, which is assigned to the registered voter who is then issued with a new Temporary Voters Card (TVC) bearing the same number and his/her particulars including his/her thumbprint.

The build-up to the 2007 general election marked the beginning of a new era in the history of Nigeria electoral system. The procurement of the Direct Data Capture Machines (DDCM) for the registration of prospective voters introduced some level of credibility to the system. DDCM was introduced to eliminate double registration, double voting and other electoral malpractices. The DDCM components include a computer system for capturing and storing voters' information, scanner for taking fingerprints of registrants; camera for taking pictures; back up batteries to forestall power failure, External Hard Disk Drive (HDD) for data backup and printer for printing Temporary Voters Card (TVC).

The 2015 general election marked yet a new era in the deployment of sophisticated Information Communication technologies in the history of Nigeria elections in addition to existing technologies. Improved Automated Fingerprints Identification System (AFIS) was introduced to identify similar fingerprints on the register used for the 2011 election. The business rule was also applied in addition to further cleaning the register. The business rule required that at least two fingers must be captured for a voter to be included in the register. For the first time, INEC adopted technology for accreditation of voters with the aid of INEC Voters Identification System (IVAS) popularly called the Smart Card Reader (SCR). Temporary Voters' Cards (TVCs) which were issued to voters for the 2011 election were replaced with Permanent Voter Cards (PVCs). The PVC replaced the Temporary Voter Card (TVC) According to INEC, quality, security; durability and cost-effectiveness were underlying factors in the production of the Permanent Voter Cards by INEC.

Interestingly, on the 31<sup>st</sup> of March, 2017, the Nigerian Senate passed the Electoral Act No. 6 2010 (Amendment) Bill 2017 into law. This bill gives the Independent National Electoral Commission (INEC) the power to conduct Electronic Voting (E-voting). The passage of this Bill in the Senate is a bold, innovative and common-sense step on Electoral Reforms designed to guarantee free, fair and credible elections in Nigeria.

### **2.3 Impact of Electronic Voting on Election Outcomes**

The use of electronic voting in elections remains a contentious issue. Some countries like Netherlands and Germany have stopped using it after it was shown to be unreliable,

while the Indian Election commission recommends it. The involvement of numerous stakeholders including companies that manufacture these machines as well as political parties that stand to gain from rigging complicates this further. A 2017 study of Brazil found no systematic difference in vote choices between online and offline electorates.

However, it has been also argued that the rigging of EVMs influenced the results of elections in India in 2017 to a large extent. It has further been argued that political parties which have more support from the less privileged voters that are not familiar with the Internet maybe de-emphranchise but the upper class who are ICT compliant will have a free day.

#### **2.4 Expected Benefits of Electronic Voting in Nigeria**

Electronic voting presents numerous advantages over traditional paper ballot voting. In the initial stage, there may be of course, significant costs for planning, adoption and infrastructure. But in the long run and with a widespread awareness, the electronic voting system will lead to many cost savings. Onu and Chimogu (2012) urged that adopting robust IT policies and programs will be the most effective solution to the problems of electoral management in Nigeria. The comparative advantage of e-voting over the conventional voting system is obvious. Kozakova (2011) upholds that convenience is an attribute of e-voting that enhance participation and remedy fatigue associated with traditional voting methods. Using e-voting makes it easier for people to make their views known and cast their votes, an important requisite for a constructive democratic process. e-Voting system has some inherent advantages over paper-based voting in that besides being robust, secured and safe, it decreases voting errors substantially. Abu-Shanab, Knight and Refai (2010) confirmed that using e-voting improve the convenience, efficiency and effectiveness of the election process; reduces the cost of organizing election, increased participation and provide an alternative option as it improves the integrity of the election process in general. Limitations associated with accuracy, security and verifiability inherent in the conventional paper-based methods make e-voting system an appealing option. This is owing to the manual operations of the former concerning casting and counting votes. According to Kozakova (2011), modern democracies would maximally benefit from the effective implementation of electronic voting technology. If complemented with traditional methods, the e-voting system increases the chance of counting each vote and broaden the number of potential voters.

The voting system that has the acceptance of a massive majority of the electorates tends to be more effective than the one with low acceptance of the electorates (Olaniyi, et al., 2011). "*Voting is not a cost-free activity*" as the cost of registration, searching for polling booth and travelling on election day are tangible costs that entail spending time and effort (Kozakova, 2011). Assessing the tangible cost of voting vis-a-vis immediate benefits of same often guides the decision of the voter to either vote or not. The easier voting becomes for citizens especially among the younger age the more likely they are to participate in elections. Hence, voting system that requires less effort such as punching



butting or clicking a computer mouse is likely to gain more acceptances. Such voting system increases voters' conveniences and confidence in electoral procedure, and is capable of improving decline of voters' turnout and perceived political apathy (Burmester & Magkos, 2003). In view of the forgoing, the question of whether e-voting could be a solution to lack of transparency and accountability; loss of confidence and trust in electoral process and other electoral related problems that define Nigerian electoral system could be answered with a positive nod.

### **2.5 Challenges in the Use of Electronic Voting in Nigeria**

Various factors have been challenging the performance of the existing traditional paper ballot system of elections in Nigeria, and render it less relevant. Difficult topographical terrain of some communities is among the biggest challenges of the existing traditional voting system in Nigeria (LeVan & Ukata, 2012) in that effective distribution of electoral materials is not only difficult but also challenging. Traditional paper ballot election involves movement of people (electorates and electoral officials) and election materials to the polling units and collation center for casting vote, tallying and results (Ogbaudu, 2011). Moreover, communicating election results through traditional means of transportation expose the results to numerous risks such as attack by political thugs, aggrieved party members; or manipulation by corrupt motivated officials. These constraining factors negatively affect the performance of the traditional paper ballot system and put into question, the credibility of its continual adoption. It also open-up a window for e-voting options (Jega & Hillier, 2012) for the simple reason that result is compiled and communicated electronically. Voting freedom for a large number of immigrants living in foreign countries poses serious constrain because they are required to obtain absentee voter identity to enable them to cast votes from their foreign host countries (Kozakova, 2011). In addition, electoral officials, security personnel on duty during elections posted to places other than their polling units find it difficult to exercise their voting rights. Weaknesses of the existing voting system do not support absentee voting. Hence, pockets of agitation from various quarters of citizens within Nigeria and abroad to explore a viable voting system that allows voting right for those categories of citizens (Adebowale, 2014).

The inadequate transparent mechanism is the problem of the existing voting system in Nigeria in which electoral officials enjoy overdo privilege to manually collate, count and announce election results. Hence, the method is prone to the danger of human error and deliberate manipulations. The susceptibility nature of the method allows electoral officials with corrupt motives and their accomplices to easily rig election at every stage of the process unnoticed. Furthermore, the system allows for multiple voting, voting by non-eligible persons; and intimidation of voters by scaring them away from casting vote or forcing them to vote candidates against their wishes. The above circumstances inspired for exploration of robust election methods through information technology (Olaniyi, Adewumi, Oluwatosin, Arulogun, & Bashorun, 2011). The

aforementioned challenges set in augment for the automation of voting process to ensure credible election.

However, despite the acclaimed success of e-voting in other parts of the world, that of Nigeria is most likely to face some obvious challenges. In other words, most ICT development projects and initiatives in developing countries Nigeria inclusive are greeted with implementation lag owing to lack of critical evaluation of social and environment processes within which the projects are framed (Avgerou & Walsham, 2001). This view has stressed the need to address the challenges that arise from the contextual diversity of ICT in the voting process. In Nigeria, the transition to the e-voting system is likely to face wide-ranging challenges that are considered crucial for successful adoption. Understanding the implication of these factors as mentioned below would abound policymakers and democratic practitioners with the wherewithal to effectively commit to the acceptable yet reliable voting system.

## **2.6 Legal Framework**

Constitutional provisions or Acts providing legitimacy for the use of e-voting remains blatant challenge to adoption in Nigeria (Ajayi, 2003). Paradoxically, the Nigeria Vision 2020 program distinguishes ICT as the central nerve to lift the country to a greater height. The program stressed government readiness to exploit ICT as a strategic transformation lever. Nevertheless, INEC Chairman is unequivocal that Section 52(1)(b) of the Electoral Act 2010 is the major impediment for e-voting adoption. The impending contradictions depict inconsistent ICT policy that failed to augur well with the transition to e-voting.

## **2.7 Complementary ICT Infrastructure**

Poor ICT infrastructure as an inherent characteristic of Nigeria, poses serious challenge for transition to e-voting adoption. This is owing to the fact that in developing countries, Nigeria inclusive, advanced technologies are often proposed without prerequisite complementary infrastructure. Maiye and McGrath (2008) conclude that "*The decision to adopt certain systems should be reviewed to take account of the available infrastructure, in addition to issues of power and politics, literacy levels, culture and religion*". Challenges confronting Nigerian pre-adoption of e-voting technology include inadequate funding, lack of IT specialist, erratic electricity supply, growing level of cybercrime and gender imbalance access to ICT (Onyekwelu, 2010).

## **2.8 Viable Electoral Management Body (EMB)**

From the institutional viewpoint, a viable Electoral Management Body is a major stake in the electoral process saddled with among other responsibilities, organizing the election. Robust, transparent and effective EMB, as well as honest electoral officials, are preconditions for a credible election that can enhance public confidence in the electoral process (UN, 2012).

## **2.9 Technological and Managerial Expertise**

Infrastructures, including hardware and software; their complexity and adaptability are the basic components of technology that can effectively be utilized to realize the goal of modern public administration (Brown, 2005). In Nigeria, comprehensive biometric data for identification and monitoring election, a basic requisite for e-voting adoption is lacking (Umoru, 2012). What is more challenging is that whether the country has the required professional technologists capable of handling sophisticated technology such as e-voting remains unclear. Given the dismal state of requisite ICT facilities, logistics and expertise, some pessimist contests that e-voting is not ripe for Nigeria (Iferi, 2011).

## **2.10 Security and Reliability of the Technology**

Citizens' perception of e-voting security to protect individual identity from exposure or temperament as well as ensuring votes cast are counted correctly would guarantee confidence and trust to adopt e-voting, otherwise, it dissuades voters from participation (Olaniyi, et al., 2011). Therefore, famous risk of e-voting adoption concern with program error, software attack or system hacking, risk of fake voting sites and eventual submission of the electronically altered result as a result of computer virus (Kozakova, 2011). Caution must be applied in designing the technology to ensure security, confidentiality and convenience to avoid losing public confidence in the technology (Fernandez, Red, & Peláez, 2013).

## **2.11 Social Security**

Social security as an important factor in voting process continues to remain a critical issue in Nigerian election (Jega & Hillier, 2012). An effective voting system must ensure adequate protection of the voting clients and votes cast including other election materials. In polling place e-voting system, physical presence of stakeholders comprising of voters, electoral officials, election observers etc. demand for adequate security to lives and property without which the system is prone to the danger of desertion. The rising profile of security challenges in Nigeria such as the activities of "Boko Haram" insurgence, Movement for the Emancipation of Niger Delta (MEND) militias and incessant kidnap is very critical to the adoption of polling place e-voting (LeVan & Ukata, 2012). The ugly practice of drafting large contingents of military and paramilitary security outfits on election day by the incumbent powers to harass perceived opponents and intimidate voters in the pretence of counter-terrorism can only stand a risk of portraying the country as a "garrison democratic state" or what commentators called "militarized democracy" (Premium Times, 2014; Niyi, 2014). In either way, it is uneasy for average citizens to risk their lives for what they considered 'uncertain democracy election to thrive amidst fear of bomb blast and other intimidations. Either of these potential threats to social security affects voters' turnout and therefore an essential determinant for voters' participation.

## **2.12 Technology Acceptance**

Identification of election technology that meets the public acceptance is as important as the election itself (Burmester & Magkos, 2003). Given the numerous potential benefits of e-voting adoption, the technology is of less important if voters are not willing to accept or use the technology. That is to say, in planning for the adoption of new technology, the robust nature of the technology is not as important as the risk of accepting it. Therefore, the task is to measure the risk, better understand it and appropriately manage it (Navarra, 2011).

## **3. Discussion, Conclusion and Recommendations**

Recent development of ICT and its wide spread across the globe is significantly influencing public organizations towards paperless operations to improve managerial efficiency, service delivery and enhanced citizens' participation. If properly exploited, e-voting technology can be a viable alternative capable of turning around the voting process of emerging democracies particularly that of Nigeria. However, despite the potential of e-voting to address problems of the existing paper ballot system in Nigeria, numerous factors as mentioned above earlier continue to pose serious challenges for transition to the e-voting system. In addition, policy processes in which the policy design evolves through effective participation of stakeholders as against a top-down approach is imperative. This point underscores the need for an in-depth qualitative study to understand election participation and policy process involving e-voting technology in Nigeria. To achieve the above-mentioned goal, INEC and other relevant government agencies in Nigeria should invest more in research and development to grasp the in-depth challenges to ensure the development and sustainability of the new voting system. The essence is to enable strategic planning to build confidence in the people and lay a good foundation for successful adoption (Erubami, 2012).

There is the need to practically test the technology on non-public elections platforms before the full-scale countrywide adoption. The pilot project would guarantee citizens' involvement in the design and policy formulation concerning the adoption. Opening opportunities for citizens' participation through piloting increases government chances to obtain feedback concerning capacity building, infrastructure upgrade, technological design, voter participation and of course suitability of the technology. Hence, ensure sustainable application of the technology to public elections.

As part of long-term strategy, effective networking of government offices for both internal and external transactions otherwise known as e-administration and e-government respectively is a springboard to enhance sustainable e-voting adoption. A society that has its public administration using electronic devices to carry out its internal routine and establish a presence online for external interactions has more potential of using advanced technology in its election. This is because of a relatively large number of technology-savvy among citizens compared with a society with manual administrative practices. Therefore, government ministries and agencies at all levels including schools

and institutions of higher learning should ensure effective incremental digitalization of its services delivery to enhance technology savvy among citizens. In complementary, on-the-job computer training of personnel should be encouraged at all levels and cadre in both private and public sectors. Moreover, theory and practice of elections should be encouraged in both private and public schools. These efforts would enhance better platform for sustainable e-voting adoption.

On the whole, the incorporation of ICT in the Nigerian electoral system will really modernized the system and improved election management in the country. Results revealed that the introduction of Electronic Voters Register (EVR), Automatic Fingerprints Identification System (AFIS) and Smart Card Reader (SCR) have reduced the incidence of multiple registration and multiple voting to the barest minimum while the introduction of e-collation support platform has drastically reduced incidence of manipulations at collation centre's because results are transmitted in real-time. Hence, the incorporation of Information communication Technology in election management in Nigeria will curb excessive electoral fraud to the barest minimum, foster credible elections and added credence to INEC transparency.

It is recommended that more sophisticated electronic machines that would easily capture potential voters' fingerprints in a jiffy just as the ones used for the recent banks' verification numbers (BVN) exercise. A licensed AFIS should be procured to rid the new registers of any occurrences of multiple registrations.

Register update and voters' revalidation exercise should be done before any general election. This will enable INEC to detect and remove dead voters from the register. In addition, enough time should be allocated to ICT-based activities e.g.: computer purging and installation for Continuous Voters Registration (CVR); Smart Card Reader purging and configuration; and printing of registers. Eleventh-hour rush will always give room for avoidable mistakes which might generate unnecessary tension and problems. It will also reduce the stress of technical support staff.

Furthermore, ICT staff of INEC should be made to undergo certification courses and training both in Nigeria and overseas. This will reduce the cost of outsourcing ICT-related tasks to consultants. It will also minimize security risks. It is also recommended that the operating system on card readers should be upgraded or another set of devices should be procured which will be able to detect and authenticate fingerprints easily.

### **Conflict of Interest Statement**

The authors declare there are no conflicts of interests.

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