

# Issues and Challenges of Transition to e-Voting Technology in Nigeria

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## Abstract

For over a decade of democratic experimentation in Nigeria, political leaders have been emerged through supposedly free and fair elections. Election as an essential component of democratization process remains weak and undeveloped in the country with the biggest challenges of transparent voting system. Consequent to the dilemma and in the quest for effective system of voting, policy makers in Nigeria begin to advocate for e-voting adoption as an alternative to lack of transparency, loss of confidence and trust in electoral process and other electoral related problems that encapsulated Nigerian voting system. Countries across the globe are increasingly exploring electronic voting and counting technologies as a viable alternative to traditional ballot paper method of voting that is criticized of being vulnerable to human related errors and manipulations. Various factors account for the reasons for e-voting adoption by different societies. However, general paucity of literature on challenges affecting e-voting adoption in developing democracies such as Nigeria is evident. While the challenges are enormous, critical appraisal of the challenges is strategic to sustainable e-voting adoption. Understanding implications of these factors would abound policy makers and democratic practitioners wherewithal to effectively commit to acceptable yet reliable voting system. This paper examined challenges that affect transition to e-voting adoption in Nigeria and recommended way forward.

**Keyword:** Election, e-voting adoption, domain specific, Independent National Electoral Commission, Nigeria.

## 1.1 Introduction

Poor electoral system is a major cause of insalubrious political competition among power contenders and consequently leads to electoral violence (LeVan & Ukata, 2012). Election circle in Nigeria is characterized with numerous problems. Major among the problems include missing names of some registered voters, intimidation and disfranchisement of voters, multiple and under aged voting, snatching or destruction of ballot boxes, miscomputation and falsification of results (Alabi, 2009; Ogbaudu, 2011). Poor electoral system stimulates election related violence with far reaching consequences of eroding peoples' trust and confidence in 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, & AbdulMalik, 2013). The cumulative effect of the irregularities including but not limited to severe flawed voter lists, misuse of incumbency power, and lack of transparency; actual or perceived bias of election officials resulting to real or perceived fraud stimulate election related violence with far reaching consequence of eroding peoples' faith and confidence in 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 ingredient of credible election such as transparency, accountability, free and fair play (Alemika), and is vulnerable to human error and manipulations (LeVan & Ukata, 2012).

Acceptable method of voting in Nigeria has been a clarion call that set in motion efforts for improvement and most recently through exploring the use of electronic devices. Information System (IS) scholars and democratic practitioners advocate the use of various technologies to improve democratic practices. Permutation of ICT in electoral processes such as e-voting adoption and diffusion leads to significant improvement of democratic practices in various democracies around the globe. The phenomenon profoundly influenced Nigerian policy makers to explore the viability of adopting e-voting in the public elections. The chairman, Independent National Electoral Commission (INEC) asserts that “. . . the whole world is moving in the direction of increasing the use of technology in order to have credible elections” (Jega & Hillier, 2012).

However, Nigeria like other developing countries is caught by the notion of modernity without careful harnessing the needs and challenges involved. Maiye and McGrath (2008) faulted attempts to take for granted parallel assessment of institutional intervention concerning ICT adoption in developing countries such as Nigeria with the western countries. They argued that differences of contextual environment and socio-economic and political antecedents must be considered. Efforts to evaluate the requirement for transformation to modernity using ICT in democratic processes and other sectors hinges on the nexus of 'supply – push' and 'demand – pull' rather than based on unrealistic measuring scales of blindfolded leapfrog (Maiye & McGrath). While research studies on using modern technology in voting have reached advanced stage in America and Europe (e.g. i-voting), e-voting is an emerging area of research in Africa. In addition to novelty of e-voting research in Africa, available literature mostly focused on technicalities and adoption of the technology while effort to analyze potential challenges of transition is receiving little attention. Although, e-voting adoption is important, understanding the challenges of transition is imperative for democratic decision to adoption. It is argued that simply making decision to purchase technological gadget without careful scrutiny of the requisite conditions will only make the technology disabling rather than enabling (Rajesh, 2003).

## 2.1 Challenges of Existing Voting System in Nigeria

Various factors are bound to challenge 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 the corrupt motivated officials. These constraining factors negatively affect the performance of the traditional paper ballot system and put to question, credibility of its continual adoption. It also open-up a window for e-voting option (Jega & Hillier, 2012) for a simple reason that result is compiled and communicated electronically.

Issues bordering around franchise continue to heat Nigerian political discourse. Voting freedom for large number of immigrants living in foreign countries pose serious constrain because they are required to obtain absentee voter identity to enable them cast vote from their foreign host countries (Kozakova, 2011). In addition, electoral officials, security personnel on duty during election 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 viable voting system that allows voting right for those categories of citizen (Adebowale, 2014).

In another dimension, it has been argued that political pressure to adopt new voting system is a major driver to adopting (Moynihan & Lavertu, 2012). The role played by political actors including government agencies, civic and media groups, religious organizations and student movement in entrenching democracy through election is pertinent (UNDP, 2011). Given that e-voting has potential to increase policy inclusion of marginalized groups, especially the disabled and residents overseas by making it easier for them to cast their votes in a more convenient and user-friendly way (Kozakova, 2011), cross section of organized groups of elites including individuals have been intensifying campaign for the adoption of e-voting to rise to the challenge of technology savvy.

Inadequate transparent mechanism is the problems 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 danger of human error and deliberate manipulations. The susceptibility nature of the method allows electoral officials with corrupt motives and their accomplice to easily rig election at every stage of the process unnoticed. Furthermore, the system allow 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 IT (Olaniyi, Adewumi, Oluwatosin, Arulogun, & Bashorun, 2011). The aforementioned challenges set in augment for the automation of voting process to ensure credible election.

## **2.2 E-Voting, a Potential Remedy to the Problems of Traditional Paper Ballot System of Voting in Nigeria**

Onu and Chiamogu (2012) urged that adopting robust IT policies and programs is the most effective solution to the problems of weak democratic institutions 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 constructive democratic process.

e-Voting system has some inherent advantages over paper based voting in that beside being robust, secured and safe, it decreases voting errors substantially. Abu-Shanab, Knight and Refai (2010) conformed that using e-voting improve the convenience, efficiency and effectiveness of the election process; reduces cost of organizing election, increased participation and provide alternative option as it improve integrity of election process in general. Limitations associated to accuracy, security and verifiability inherent in the conventional paper based methods makes e-voting system an appealing option. This is owing to manual operations of the former concerning casting and counting votes. According to Kozakova (2011) modern democracy would maximally benefit from effective implementation of electronic voting technology. If complement traditional methods, e-voting system increases chance of counting each vote and broaden the number of potential voters.

Voting system that has acceptance of 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 cost of registration, searching for polling booth and traveling on Election Day are tangible cost that entail spending time and efforts (Kozakova, 2011, p. 4). 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 (Kozakova). Hence, voting system that requires less effort such of punching button 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 encapsulate Nigerian electoral system is at stake (Adetula, 2008).

## **2.3 Challenges of Transition to e-Voting System in Nigeria**

E-government concerns with democratic decision-making using electronic technologies such as e-voting to enhance legitimacy of the state and its relationship with citizens guided by the rule of law (Brown, 2005). Polling place e-voting and remote or i-voting systems of election have been used in different democratic societies, which indicate their friendliness to use. For example, USA, Australia, Estonia, Japan, Brazil and India are at various stages of e-voting adoption and diffusion. Wide-ranging factors such as land mass and sparsely distributed population, availability of complementary technology, technological advancement, increase participation, or political will to ensure credibility are varied antecedents of e-voting adoption (Goldsmith, 2012). While these factors are far from being homogenous, nevertheless, understanding their implications is strategic to adoption of sustainable e-voting technology. Most ICT development projects and initiatives in developing countries 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 arise from contextual diversity of ICT comprising of organizational, national and sectoral aspects implicated in the development and use of IS. Selection of voting system is one of the sensitive tasks capable of endangering loss of confidence and trust in the system (Hall, 2012). Given its sensitivity and complexities, discretion must be applied when selecting a particular voting system. In Nigeria, transition to e-voting adoption is likely to face wide-ranging challenges that are considered crucial for successful adoption. Understanding implication of these factors would abound policy makers and democratic practitioners with wherewithal to effectively commit to acceptable yet reliable voting system

### **2.3.1 Legal Framework**

Constitutional provisions or Acts providing legitimacy for the use of e-voting remains blatant challenge to adoption in Nigeria (Ajayi, 2003), nonetheless applauding ICT in the policy document. 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 (This Day Live, 2012). The impending contradictions depict inconsistent ICT policy that failed to augur well with transition to e-voting. Legal framework as an indispensable condition is a catalyst for INEC and other stakeholders to prepare financial, infrastructural, logistics, human and capital resources required. While it is important to review the constraining electoral acts to allow adoption, it is equally important that such a reform be supported by structural changes in other spheres of the socio-political relations to advance the course of sustainable democracy in Nigeria (Alabi, 2009).

### 2.3.2 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, advanced technologies are often proposed without prerequisite complementary infrastructure. Maiye and McGrath (2008, p 90) 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). Development of robust technology such as e-voting system is closely associated with electricity supply (Onyekwelu & Akomolafe, 2010; Onu & Chiamogu, 2012). Adequate provision of electricity is required to operate polling place (client) voting machines whereas internet connectivity is required for internet (i-voting). However, in Nigeria, power outage is a common phenomenon with only about 40% of the population having access to electricity (Library of Congress – Federal Research Division, 2008). In addition, comprehensive biometric data for identification and monitoring election, a basic requisite for e-voting adoption, is lacking (Umoru, 2012).

### 2.3.3 Viable Electoral Management Body (EMB)

From the institutional view point, viable EMB is a major stake in the electoral process saddled with among other responsibilities, organizing election. Robust, transparent and effective EMB as well as honest electoral officials are preconditions for credible election that can enhance public confidence in the electoral process (UN, 2012). As an indispensable stake, EMB involves in the process of selecting electoral system. Basically EMB has tripartite quality to effectively organize and supervise election using e-voting technology.

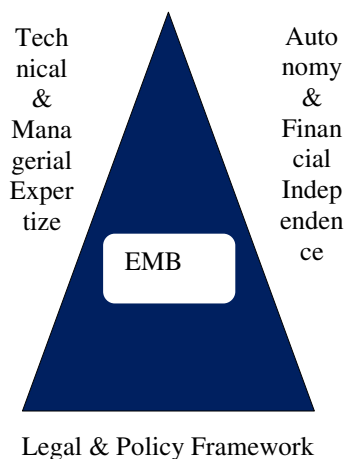


Fig.1.1. Tripartite dimensions of credible EMB

Figure 1.1 above depicts a tripartite dimension of credible EMB to effectively handle elections. In Nigeria, general problems of election manifest by the manipulation of the electoral provision, violation of electoral process and corrupt inducement of officials and electorates emanate as a result of ineffective EMB (Alemika, 2011). Weak institutional capacity of INEC, which can be trace to lack of independence and financial autonomy, inadequate technical and logistic preparation, lack of appropriate organizational and managerial capacities to handle the elections is responsible for electoral flaws (Adetula, 2008). Furthermore, limited technical competency and corrupt tendencies manifest among various calibers of its staff. Sheer lack of ‘capabilities’ of the INEC predisposes elections to numerous rigging techniques and consequent loss of confidence and integrity

in the eyes of the electorates. It is evident that viable, independent and effective EMB as well as honest electoral officials responsible for enhancing public confidence in the electoral process is lacking in Nigeria. Succinctly put, only a credible EMB breeds credible elections.

#### 2.3.4 Technological and Managerial Expertise

Infrastructures, including hardware and software; their complexity and adaptability are the basic components of technology that can effectively utilize 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).

#### 2.3.5 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 count correctly would guarantee confidence and trust to adopt e-voting otherwise, it dissuade 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 electronically altered result as a result of computer virus (Kozakova, 2011). Caution must be applied in designing the technology to ensuring security, confidentiality and convenience to avoid losing public confidence in the technology (Fernandez, Red, & Peláez, 2013).

#### 2.3.6 Piloting e-Voting Technology

Application of open and transparent voting system is an essential determining factor for accepting election results and legitimization of the electoral institution. Piloting e-voting system has the potential to enhance trust and confidence of stakeholders that pave way for assessing adoption decision. Piloting involved understanding mandate of the project, legislative backup, developing requirement and technical specification and acquisition of funding required for the implementation. Such atmosphere can generate dialogue and debate among stakeholders and policy makers regarding not only viability of the technology but also feasibility of adoption. By piloting, feedback about cost benefits of e-voting technology can be obtained (Goldsmith, 2012). Hence, there is need to practically test the technology on non-public election platforms before the full scale, country-wide adoption.

From the voters' point of view, Kozakova (2011) argues that in a democratic setup, voting is a significant indicator for active participation into the public affairs in which through effective application of crowd-sourcing technology such of e-voting, countries around the world can improve on citizens' participation in public decision making.

#### 2.3.7 Tension from Political Environment

e-Voting adoption is determined significantly by political breath prevalent in a society. Political system with ICT proficiency tends to frame favorable policies and conditions for crowd sourcing technology such as e-voting to thrive and flourish. For example, one major implication of e-government phenomenon in Nigeria is the creation of virtual communities where people from diverse sociopolitical background and interest share information within and outside the country through various means of interactions-internet. In such circumstances, technology savvy among the youth, elite and immigrants living abroad are exposed to operational proficiency of modern voting system in various countries. Those categories of people at individual capacities and under the aegis of civil societies, and other Non-for Profit Organizations have been exerting pressure for the adoption of e-voting in order for them to quench their spirited computer/internet skills and to rise to the challenge of modernity. Buttressing the idea, Moynihan and Lavertu (2012) postulate that though rarely exploit, political pressure for or against a voting system is a major driver for adapting particular pattern of voting policy and practice.

#### 2.3.8 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 danger of desertion. The rising profile of security challenges in Nigeria such as the activities of “Boko Haram” insurgency, MEND militias and incessant kidnap is very critical to adoption of polling place e-voting (LeVan & Ukata, 2012). However, caution must be exercised in taking measures to ensuring social security. 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 pretense of counter terrorism can only stand a risk of portraying the country as “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.

### 2.3.9 Behavioral Change

Although successful adoption of e-voting requires availability of ICT infrastructure, legislative framework and strategic organizational design and technological design, attitudinal mindset of citizens towards the technology are central drivers to adoption (Mohammed & Bashir, 2010). The negative tendencies of the election stakeholders undermine the underlying rules and procedure guiding the elections (Adetula, 2008). Hence, the quest for viable electoral process in Nigeria is not about changing voting system, rather about addressing corrupt tendencies and unethical behavior of electoral officials and other stakeholders involved. When asked about the possibility of adopting e-voting in 2015, Jega replied, “It is just that we have not addressed our minds to it and all politicians and other stakeholders are not really joining hands in order to ensure the success of the process” (Naijalog, 2014).

### 2.3.10 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). In line with this idea, Hall (2012) distinguishes two main procedural strategies for voting technology adoption, namely pre-voting technology adoption and post-voting technology adoption. Pre-voting system adoption concerns mainly with sampling opinion of the stakeholders on perceived preferred voting system through empirical research and piloting. Post-selection of voting system focuses on providing effective training to electoral officials about technicalities involved in operating the novel voting system to ensure electorates confidence through effective delivery. Baiyewu (2012) recapitulated that transition to e-voting is beyond mere application of electronic voting to improving election process rather more importantly, willingness of citizens to accept the technology. Based on the foregone highlighted domain specific factors, challenges of e-voting adoption in Nigeria nonetheless numerous, can be summarized thus:

1. Absence of legal framework
2. Ineffective means of national identification
3. Inadequate database of voters
4. Inadequate requisite ICT infrastructure including electric power supply
5. Lack of participatory policy process
6. Inadequate trial of the technology in non-public election
7. Apprehension by electorates over the motives behind the proposed e-voting system
8. Loss of trust and confidence on the electoral officials
9. Digital divides
10. Low level computer literacy and technology phobia among the electorates
11. Inadequate technical and managerial capacity to handle sophisticated technology
12. Security and reliability of the technology
13. Lack of adequate information on the procedures involved in the e-voting system
14. Capital intensive nature of e-voting project versus cost effectiveness/value for money

## 3.1 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 enhance citizens'

participation. If properly exploit, e-voting technology can be a viable alternative capable of turning around the voting process of emerging democracies. However, despite the potentials of e-voting to address problems of existing paper ballot system in Nigeria, numerous factors continue to pose serious challenges for transition to e-voting adoption. This analytical paper highlighted on domain specific challenges of e-voting adoption in Nigeria. Although not all encompassing, the least these challenges are considered the more complicated and tough the adoption.

In addition, policy processes in which the policy design evolves through effective participation of stakeholders as against 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 on research and development to grasp the in-depth of the challenges to ensure development and sustainability of the new voting system. The essence is which to enable strategic planning to build confidence in the people and lay good foundation for the successful adoption (Erubami, 2012).

There is the need to practically test the technology on non-public elections platform before the full-scale countrywide adoption. The pilot project would guarantee citizens' involvement in the design and policy formulation concerning the adoption. Opening opportunity for citizens' participation through piloting increases government chances to obtain feedbacks 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 presence online for external interactions has more potentials of using advanced technology in its election. This is because of relatively large number of technology savvy among citizens compare 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. This paper is library based that pave way for quest for more in-depth scientific inquiry on e-voting adoption and participation in Nigeria. Having highlighted domain specific factors causing impediment to successful adoption of e-voting technology, investigating discrete or combinations of information system theories and socio-psychological theories will provide holistic understanding of specific degree of acceptance in relation to various interactions between personal traits, technological characteristics, environmental factors and demographic variance.

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