

Acceptance of Electronic Voting Technology and Performance of Elections in Selected States in Nigeria

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Abstract

Nigeria adopted electronic voting technology in 2011 as a redemptive electoral reform away from the perpetually vulnerable and inept traditional manual electoral system. However, acceptance of the new technology could not be taken for granted as such an electoral change could not be any fruitful unless it was well received by all primary stakeholders. As such, this study sought to assess the impact of acceptance of the electronic technology on performance of elections especially in the event of a knowledge lacuna in previous analyses of Nigeria's recent electoral progress. To ensure more recent and in-depth analysis, the study was particularly limited to the 2015 general elections and selected states in the country, namely Bauchi State, Edo State, Enugu State, Kaduna State, Lagos State and Niger State. The study adopted a quantitative and qualitative approach for the methodology designed to collect and analyse data from a study sample of 265 respondents selected from the six States. The main findings were that the level of election performance of the 2015 general elections was high in much of Nigeria ($\bar{x}= 3.34$; $s= 1.11$), despite some reservations in some parts of the country. According to statistical and qualitative reports, this was significantly attributed to the fact that the electoral technology was fairly accepted among political players, widely accepted by the electorate and attracted relative faith from the general public in most of the States of study. In light of the study findings it was concluded that increase in the level of acceptance of the technology would increase level of election performance, and vice versa. It was therefore recommended that electoral stakeholders particularly INEC and SIEC should adopt several strategies to maintain and where necessary improve on social acceptance of the technology for a consistently better election performance.

Keywords: Electronic Voting Technology; Election Performance; Technology Acceptance; Political Players' Technology Acceptance; Electorate Technology Acceptance.

Introduction

Modern electoral technology was only recently adopted in contemporary democracies following the transformation of information technology (IT) in the 1940s into what is currently electronic technology (Butler, 2012). The transformation started with development of modern computers between 1940 and 1950 in USA (Bellis, 2000; Minker, 1998). Such computer technology was first adopted in 1952 for the tabulation of the US presidential election results. The technology was not used widely until the 1970s and 1980s. That was when it began to play a significant role in election management in prominent democracies such as the United States and some Asian, South American and European countries (Laanela, Green & Alves, 2016). In 1990s more advanced electronic voting technologies were introduced such as Direct Recording Electronic voting (DREV) in the US and internet voting in countries like New Zealand (Herb, 2005; Hillygus, 2011). It should however be noted that evolution and sophistication of electronic voting vary in different parts of the world.

Compared to developed societies and democracies such as countries mentioned above, electronic voting in Africa came much later and is still evolving (Laanela *et al*, 2016). In Sub Saharan Africa, electronic voting technology is still young. Only basic systems of this technology have successfully been adopted since 2010 with the likes of Namibia and South Africa leading the way. There is for example yet to be optical scan and internet voting technologies (Iwenwanne, 2017; Sambo & Alexander, 2018). In Nigeria, electronic voting technology was first adopted ever for the 2011 elections despite her earlier return to democracy that preceded with four general elections of 1999, 2003 and 2007 (Awojobi, Ayakpat & Oladimeji, 2014). The new voting technology was adopted countywide and upgraded for the 2015 general elections with the introduction of biometric permanent voters' cards (PVCs) and smart-card reader (SCR) machines. Electronic voting was still evolving, but enough to deliver the missed electoral successes Nigeria longed for in previous elections (Sambo & Alexander, 2018). However, all this depended on the level of its acceptance.

In the context of this study, acceptance of such technology is the degree to which it is received and embraced by stakeholders (Mensah, 2017) including political players and the electorate. According to Webb, Heinz and Gibbins (2015), an election is a formal group decision-making process by which a population chooses an individual to

hold public office. Politically, it is a contentious democratic process for which electronic voting technology is sought ensure more poll credibility. The National Conference of State Legislatures (NCSL, 2016) defines electronic voting technology as computerization of the electoral process. It involves use of computerised systems to execute any election activities that successively range from constituency delimitation, voter registration, verification and identification, to vote casting, counting, transmission, and tallying as well as vote results declaration and dissemination (Zissis, 2011). There are two main types of electronic voting, namely physically supervised electronic voting (PSEV) and remote electronic voting (REV). However, for conceptual purposes of the study, more concern was be put on PSEV. This primarily involves location of electronic machines at polling stations (Zissis & Lekkas, 2011). Whichever type, electronic voting technology when widely embraced can boost election performance, which according to Kofi (2016), embodies the extent to which an election is successfully delivered, and the outcome is recognised as legitimate, free and credible.

Such election performance targets had eluded Nigeria in previous elections of the predominantly manual electoral practices (Sambo & Alexander, 2018). The gravest of manual induced election irregularities was vote-rigging with impunity. Given this habit, acceptance could not be taken for granted. Besides, it was unknown whether such redemptive electoral reform was well received and embraced. Reports on recent elections indicate the new technology significantly reduced past election abuses the country struggled to contain but even the 2015 elections did not progress without challenges (Iwenwanne, 2017; Muluzi, 2015; Osita, 2016). One of such challenges alleged was fraud and attempted electoral manipulation and maneuvers from politicians. This signaled a possibility of technology rejection, which is why this study was conducted in the event of lack of clear scholarly explanation in previous related research (Adams, 2016; Aderounmu, 2018; Awojobi *et al.*, 2014; Ayeni&Esan, 2018; Iwenwanne, 2017; Muluzi, 2015; Osita, 2016).

Statement of the Problem

Nigeria's elections were usually contentious during time of traditional manual voting systems that used to be more vulnerable to human errors and manipulations (Osita, 2016). This led to drafting of the 2010 Electoral Act and Policy both of which paved way for the electronic voting technology Nigeria adopted since 2011 and revitalised for the subsequent 2015 general elections (Sweeney, 2015). The new electoral technology attracted a lot of electoral credit than ever before (Muluzi, 2015; Ayeni & Esan, 2018), but didn't come without challenges. These were suspected to derail acceptance of the electoral technology reform, and one of which was that electricity supply had been unstable in much of Nigeria due to poor power infrastructure. There were also reports of hacking into the electoral voting systems. Politicians could have attempted to manipulate the electoral process. In addition, there was perceived lack of trust in the electoral technology process (Aderounmu, 2018; Ayeni & Esan, 2018; Osita, 2016). These electoral performance threats were presumed to faced be countrywide which is why this study covered the six states of Lagos, Bauchi, Enugu, Edo, Kaduna and Niger selected from all Nigeria's geopolitical zones, respectively. Such challenges that signaled technology rejection were however not verified in previous reports. There was no evidence on how they wrought the very electronic technology Nigeria adopted to correct past electoral wrongs. This motivated the current study to bridge the knowledge lacuna.

General Objective

The general objective of the study was to assess the impact acceptance the electronic voting technology in Nigeria adopted on performance of elections in in selected states.

Specific Objectives

1. To examine the level of political players' acceptance of electronic voting technology and its effect on performance of elections in selected states in Nigeria.
2. To assess the level of electorate's acceptance of the electronic voting technology and its influence on performance of elections in selected states in Nigeria.
3. To analyse the level of general conviction on electronic voting technology and its effect on performance of elections in selected states in Nigeria.

Research Hypotheses

1. The level of political players’ acceptance of electronic voting technology has no significant effect on performance of elections in selected states in Nigeria.
2. Level of electorate’s acceptance of electronic voting technology has no significant influence on performance of elections in selected states in Nigeria.
3. The level of general conviction on electronic voting technology does not significantly affect performance of elections in selected states in Nigeria.

Literature Review

The Technology Enactment Theory

Election automation can be linked to numerous theories but this study was particularly underpinned by the Technology Enactment Theory (TET) (Schellong, 2007) as the research framework that guided the research process. TET was advanced and has mainly been propagated by Jane, E. Fountain since early 2000s (Founatain, 2001; 2005; 2014). TET presents a framework whose principle aspect is the distinction between objective Information Technology (IT) and Enacted Technology. Objective IT includes Information and Communication Technology (ICT) elements while enacted technology embodies the use of these elements (Founatain, 2001; Schellong, 2007). Specifically, some of the ICT elements include computer related mechanisms, namely computer hardware, software and the Internet in their original state of functionality. In particular, Enacted Technology involves technology integration factors one of which include perception (Founatain, 2005). TET therefore suggests that technology innovation cannot be complete unless there is an interaction between adoption and integration, adoption may be limited to introducing a technology by providing ICT elements, which is a significant step but not conclusive. This will therefore require integration or utilisation of the elements which however depends on perception of the technology or ICT elements (Founatain, 2001; 2005; 2014; Schellong, 2007). On basis of its postulation, TET was relevant to this study because its perspectives of ICT elements could be perceived as the electronic voting systems adopted by Nigeria, while perception corresponded to acceptance of the technology. The interplay of these perspectives was perceived as a critical determinant of technology contribution to election performance, which in the theory was according to Fountain (2001) regarded as the outcome, the study sought to explain.

The Technology Acceptance Model

Mensah’s (2017) Technology Acceptance Model (TAM) was the research model adopted for this study. Mensah’s model was preferred because it was the most recent and built-up version of the original and less inclusive TAM crafted by Fred Davis in 1989. While Davis (1989) limits technology acceptance intentions to perceived usefulness and ease of use, Mensah (2017) recommends more perceptions behind acceptance of an electoral technology reform such as perceived free and fair elections, credible elections, and system integrity as well as citizens trust in the election umpire as illustrated in Figure 1.

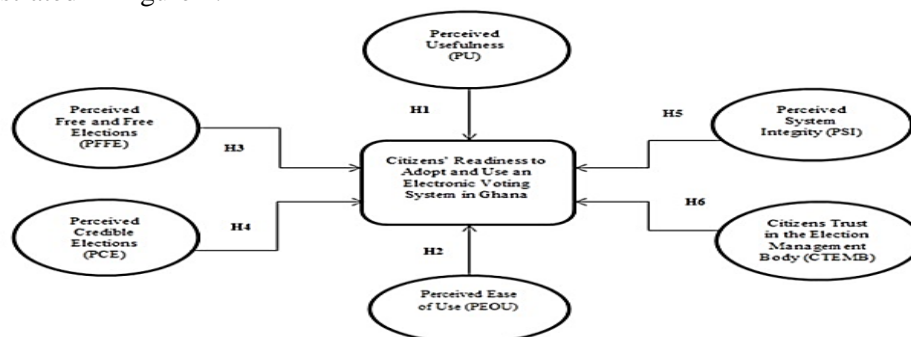


Figure 1: Mensah’s Technology Acceptance Model.
Source: Mensah (2017)

Considering its perspectives reflected in Figure 1, Mensah’ model was not only a more relevant version than Davis’ but was also the most useful model that equally underpin the research process. Mensah offered a more comprehensive

and appropriate mix of perspectives commensurate with the conceptual constructs on technology acceptance under review. Besides, the model is about electronic voting technology.

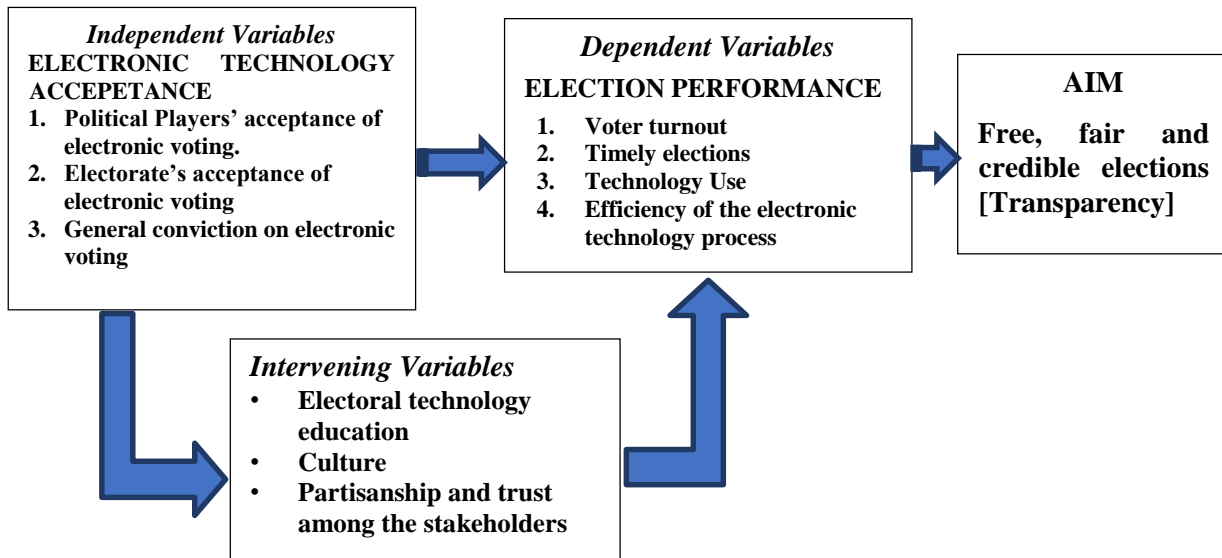


Figure 2: A conceptual framework of the impact of electronic technology acceptance on election performance

Source: Adapted from The Technology Enactment Theory (Founatain, 2001; Schellong, 2007) & Mensah's Technology Acceptance Model (Mensah, 2017).

The literature related to this study was reviewed along variable relationships consistent with specific research objectives. The variable associations included the effects of political players and electorate's acceptance of electronic voting technology and its general public conviction on election performance, respectively. Qualitative research done by Krimmer (2017) reveals that in Estonia, e-voting is sought by the elites based on promises and hope that it may make them look modern. Estonia may easily be the best example of this political move. Krimmer (2017) found out that at least ¼ of the 1,250 Estonian voters interviewed felt promises technology developers paired with electronic voting were often too high, because ICT tools are not a panacea to solve existing problems in the elections. Voters believed where there was perceived lack of trust in the electoral process, that its computerization would not improve the situation but rather further diminish voter confidence. This perception was found out to be equally shared in similar world's giant democracies.

A related experience reported by van de Water (2017) confirms such a sentiment that e-voting cannot be out rightly accepted by all even in democratic countries like the Netherlands. Through documentary analysis van de Water (2017) gathered that the Dutch government banned the use of ICT in electoral processes due to security issues detected in the software, shortly before elections. It is reported that the ICT systems were compromised by malicious actors who intended to alter the election results. Besides, it was noticed thousands of votes would not be correctly processed. Malevolent actors were associated with vendors holding a political incentive to cheat. The actors also included anti-state enemies who sought to change the election result by manipulating the voting machine. Sadly, it was noted that the technology could not reverse the harm done on the electoral authenticity. The above perceptions and experiences may have not been limited to Estonian or the Netherlands but the two societies are geographically and socially different from Nigeria, thus warranting the current study to address the perceived contextual research gap.

Previous related research by Ajayi (2014) indeed discovered electoral application of ICT was yet to become a culture in Africa. According to the study analysis, while e-voting had become a culture in the Western world such as most of Europe and Americas, it was yet to become an established ideology in Africa. This was attributed to the fact that e-voting was still at its elementary stage on the continent in which the manual voting system is equally still a fashion. Electoral processes in some countries were some respects reported to be still marred with manipulation and self-

interest, thus denying e-voting a chance to usher in the desired electoral credibility. The study indicates one of the drivers of technology rejection was high level of corruption in all spheres of life. The results were informative but the study is sweeping and a little behind recent elections on the continent, thus leaving contextual and temporal research gaps.

A related study by Mensah (2017) show that slightly over 71.1% of the respondents recommended Ghana’s Electoral Commission (GEC) to adopt an electronic voting system. Another 28.9% felt the contrary. This was attributed to individual differences with regard perceived usefulness, perceived ease of use, perceived system integrity, perceived credible elections (PCE) and above all citizenry trust in the election management body. The study provided a specifically closer context of technology acceptance on the continent but more still Ghana is contextually different from Nigeria. There was a contextual gap to address. In addition, in one of the reports on Nigeria’s 2015 general elections, Kim (2015) reports that millions of Nigerians turned out to vote in what was expected to be a closely fought election. However, throughout voting there were multiple technical glitches reported; failures of electronic smart voter card readers (SCR). This disfranchised 7.3% of over 30 million of accredited voters (European Union, 2015; Nigeria Civil Society, 2015). These technology dysfunctions happened but their effect on public trust in Nigeria had since not been explained despite its implication for e-voting in the aftermath. There was still a content gap for research.

A literature survey compiled by Unwuchola, Adinlewa and Udeh (2017) on the role of ICTs in Nigeria’s 2011 and 2015 elections reports that all the key stakeholders except security agencies, embraced ICT in the two election cycles. Despite this, the study reiterated earlier reports on the setbacks in the election process. This validates the fact that e-voting in Nigeria was not without challenges According to Unwuchola *et al.* (2017), there were low level telephone penetration many localities in the country and uneven access beside the technical glitches singled out earlier. Since the 2011 elections, this led to a perception of voter marginalization and could have potentially cause public dismay which may have dented public acceptance of the 2015 electoral technology. Electronic technology could have been useful in both elections, however the reaction of electorate in the remote and technologically inaccessible Nigeria could not be ignored in any critical research.

According to the literature review above, the theoretical framework provided the basis for a conceptual framework design that offered a diagrammatical illustration of variable relationships of study. This was in turn used to guide the review of previous empirical literature related to respective specific research objectives. Importantly, the empirical review was useful for singling out exiting research gaps, key of which included the content research gap, contextual gap, approach gap, temporal gap, locational gap and specificity gap. It was upon these gaps that this study was justifiably sought to bridge a knowledge lacuna with regard to the effects of technology acceptance on election performance in selected states in Nigeria.

Methodology

This study adopted three philosophical underpinnings as the research philosophy sought for comprehensive grounded theory used to design a methodology for data collection, analysis and interpretation (Mastin, 2008; Raddon, 2014; Uddin & Hamiduzzaman, 2009). The three philosophical compositions included phenomenological philosophy, positivist philosophy and interpretive philosophy. The study employed an exploratory, descriptive correlational research design based on the quantitative approach (Creswell, 2008; Harwell, 2010; Neuman, 2003; Van der Mescht, 2014). The study population targeted for research consisted of several categories each of which was represented in the study sample of 265 respondents from the six States of study as specified in Table 1. The study sample was determined using the Minimum Sample Procedure (Greene, 2012; Ireda, 2018).

Table 1: Study sample by category

Category	States ($\frac{c \times s}{N}$)						Total
	<u>Bauchi</u>	<u>Edo</u>	<u>Enugu</u>	<u>Kaduna</u>	<u>Lagos</u>	<u>Niger</u>	
INEC ¹	16	14	15	13	19	17	94

¹ Independent National Electoral Commission

Category	States ($\frac{c \cdot XS}{N}$)						Total
	Bauchi	Edo	Enugu	Kaduna	Lagos	Niger	
SIEC ²	16	14	15	13	19	17	94
PP ³ Executives	5	6	6	5	8	5	35
Electoral CS ⁴	3	3	3	3	5	4	21
Electorate (Social Groups)	3	3	4	3	4	4	21
Total	43	40	43	37	55	47	265

Source: Researcher (2018)

The sample size in Table 1 was selected using purposive sampling, stratified random sampling and convenience sampling techniques. Eighteen (18) INEC staff and 7 political party executives were selected using purposive sampling and asked to fill interview guides. Other 76 INEC staff and 28 Political Party Executives as well as 94 SIEC staff were selected using stratified random sampling and asked to fill the 5-Likert Scale questionnaire. The rest 21 Electoral Civil Society executives and 21 members of the electorate were selected using convenience sampling. The electorate were represented by community development associations earmarked from across the six States.

The collected raw data was presented, analyzed and interpreted using descriptive and inferential statistics based on the Scientific Package for Social Scientists (SPSS), version 20. The descriptive statistical analysis tools used comprised the arithmetic mean (\bar{x}), and standard deviation (S). The inferential statistical analysis tools adopted included Pearson’s correlation coefficient and multiple linear regression. In order to accurately interpret descriptions of the research variables and their covariance, respective interpretation scales were adopted for each of the analysis tools. The variables involved election performance, Political Players’ technology acceptance, Electorate’s technology acceptance and general conviction on the new technology. The arithmetic mean (\bar{x}) was interpreted using the following scale: 1 = ‘Very low’, 2 = ‘Low’, 3 = ‘Moderate’, 4 = ‘High’, 5 = ‘Very High’ (Kostoulas, 2013). The standard deviation scale indicated that ≥ 1.5 = more spread from the mean and <1.5 = closely clustered or less spread around the mean (Bland & Altman, 1996). The Pearson’s correlation coefficient scale was that ≤ 0.35 = weak correlation; 0.36- 0.67= moderate correlation, 0.68- 0.89 = strong correlations and ≥ 0.9 = very strong correlation (Asuero, Sayago, & Gonzalez, 2006; Taylor, 1990). Statistical significance scale for Pearson’s Correlations was $p \leq 0.01$ while for Multiple linear regression, it was $p \leq 0.05$ (SPSS, 20.0).

Results

The findings of the study were generated from 251 respondents of the initially planned 265 study sample. This represented a 94.7% response rate which according to Babbie (2007) was far above the recommended minimum rate of 70% at which the sample findings are enough to be generalized for the target population. The main findings in this section, were analysed, interpreted and discussed in a way corresponding to specific research objectives. In that case, the dependent variable was described, and its covariance with the independent variables was analysed hypothesis by hypothesis respectively drawn from the same research objectives. All this was nonetheless, preceded by findings on the background variables respondents.

Background of Respondents

Respondents’ background was ascertained to authenticate their responses (Kaya, 2013). Only questionnaire respondents (n=192) were profiled considering their perceived average status in the study. Regarding gender, 62.2% of the respondents were male and the rest 37.8% were female. About age, almost half (46.9%) of the respondents were middle aged. Stern (2016) specifies that a middle-aged person falls between 35 and 58 years. The rest 53.1% of the respondents were youths but all eligible to vote since they were above 18 years old (INEC, 2018). In terms of level of education, 6.3% of the respondents had a certificate of secondary education (CSE), while only 32.3% had a college diplomas, 37.5% had a bachelor’s degree, and 21.4% were holders a master’s degree, while 2.6% were PhD holders.

² State Independent Electoral Commission

³ Civil Society

⁴ Political Party

None of the respondents had just primary education graduates. Concerning their period of stay (or work) in the States of research, majority (60.2%) of the respondents had been there for over 10 years. Even respondents with at least half a year’s experience were conversant enough a reliable comment. For their electoral participation, almost all of respondents (99.7%) were involved in the 2015 elections. The rest had at least participated in a previous election. The profile characteristics above suggest that all respondents under scrutiny could be relied on for the questionnaire survey.

Description of the Dependent Variable: Election Performance

Performance of elections in each of the six States of study was investigated based on 3 constructs adopted as key electoral success indicators; vote casting success, collation reliability and election credibility. Both statistical and qualitative data were generated on these electoral performance indicators. The statistical findings were presented in Table 2.

Table 2: Descriptive statistics on election performance in selected States of study

Item	N	Mean	Std. Deviation
1. Vote Casting Success (‘vtcsts’)	192	3.45	1.09
2. Efficacy of vote collation process (‘efvtcolp’)	192	3.24	1.12
3. Election credibility	192	3.34	1.12
Grand Average Index (‘Lvlelperf’)	192	3.34	1.11

Source: Field survey (2018)

According to grand average indices (‘Lvlelperf’) in Table 2, the 2015 general elections in the States of study were rated as largely well performed (\bar{x} = 3.36; S = 1.11). This follows a highly rated vote casting (\bar{x} = 3.45; S = 1.09), a relatively rated vote collation process (\bar{x} = 3.24; S = 1.12) and a highly rated election credibility (\bar{x} = 3.34; S = 1.12). These statistics as well as interview and focus group discussion reports suggest that generally the level of performance of the 2015 general elections was high in much of Nigeria despite some reservations in some parts of the country. This electoral success could be partly attributed to the technology shift from manual to electronic technology which according to Laverty (2011), was for the first time adopted in 2011 following lingering great concern over electoral quality of Nigeria’s past general elections.

Basing on statistics in Table 2 and the recommended rule of thumb (Bulmer, 1979), the average skewness of data on election performance was approximately symmetric (b_{1_1} = -.381). This suggests that the data was normally distributed and could, according to the skewness principle (Sweet & Grace-Martin, 2003), be applicable to the following inferential analysis of Pearson’s correlations and multiple linear regression adopted in this study to verify the research hypotheses.

Verification of Hypothesis One: Political Players’ Electronic Technology Acceptance and Level of Election Performance

This theme covers findings consistent with research objective one and used to verify the related null hypothesis. To explicitly verify the hypothesis, the level of Political Players’ technology acceptance, as the implicit independent variable, was first described before inferential analysis could be made about its effect on election performance. The statistical descriptions of the variable were presented in Table 3.

Table 3: Descriptive statistics on the level of Political Players’ technology acceptance

Construct	N	Mean	Std. Deviation
1. Electronic voting consistent with political players’ interests	192	3.29	1.14
2. Electronic Poll managers trusted by political players	192	3.19	1.14
Average Index (‘Pptacp’)	192	3.24	1.14

Source: Field survey (2018)

The average indices (‘Pptacp’) in Table 3 suggest that Political Players’ acceptance of Nigeria’s electronic voting technology was largely moderately rated in much of the states of research (\bar{x} = 3.24; s = 1.14). This transforms from levels of political interests of the new technology highly rated at \bar{x} = 3.29; S = 1.14, and Political players’ trust of electronic poll managers moderately rated at \bar{x} = 3.19; S = 1.14. By implication, the level of Political Players’ acceptance

of the new electoral technology was relative in the States of survey. This was corroborated by qualitative reports from related interviews and focus group discussions. Although such technology acceptance was only relative, it was more prominent than its rejection by a few similar stakeholders, a trend that was earlier reported in much of previous research as being widely common especially in Africa (Ajayi, 2014; Mensah, 2017; Salimonu, 2014; Unwuchola, Adinlewa & Udeh's, 2017).

Having described the level of Political Players' technology acceptance, Pearson's correlation coefficient and multiple linear regression was computed to determine its effect on election performance in the states of study and Nigeria in general as summarized in Table 4.

Table 4: Correlation and Regression (Model Summary) Coefficients

CORRELATIONS			
		Level of Election Performance	
Political Players' Technology Acceptance	Pearson Correlation		.974**
	Sig. (2-tailed)		.000
	N		192
**. Correlation is significant at the 0.01 level (2-tailed).			
MULTIPLE LINEAR REGRESSION			
Model	R	R Square	Adjusted R Square
1	.976a	.952	.952

a. Predictors: (Constant), 1. Electronic voting technology is consistent with social interests of political players, 2. Poll workers are trusted by political players in the event of the new technology,

Source: Field Survey (2018)

The correlation results show that at $r=0.975^{**}$; $p<0.001$, there was a linearly significant association (H_A) between levels of political players' electronic voting technology acceptance and 2015 election performance in the States of study. As for the regression results, statistic $R^2=0.952$ means such e-voting acceptance predicted 95.2% success of elections in such states. The rest 4.8% (0.048) was predicted by other perceptual factors towards the new the technology. It was inferred Political Players' acceptance of the technology significantly affected election performance not only in the States of research but also the rest of Nigeria. Null Research Hypothesis One was therefore rejected.

Verification of Hypothesis Two: Electorate's Electronic Technology Acceptance and Level of Election Performance

Similarly, the independent variable about electorate technology acceptance was described before its effects on election performance could be determined and inferenced. The descriptive findings cover the extents to which the electorate fully supported and embraced the new electoral technology. The related statistics recorded on the two items were summarized in Table 4.5.

Table 5: Descriptive statistics on the level of Electorate's technology acceptance

Construct	N	Mean	Std. Deviation
1. Electorate fully behind technology change	192	3.26	1.03
2. e-Voting technology well embraced by voters	192	3.28	1.14
Average Index ('Electacp')	192	3.27	1.11

Source: Field Survey (2018)

According to average indices ('Electacp') in Table 5, Electorate's acceptance of the adopted electronic voting technology was highly rated at $\bar{x}= 3.27$; $s= 1.11$. This generates from specific descriptive statistics about Electorate support of technology change ($\bar{x}= 3.26$; $s= 1.03$) and voters' embrace of the new technology, all which were highly rated, respectively. This suggests that there a level of Electorate's acceptance Nigeria electronic voting in the States of survey and beyond.

With this known, the adopted inferential tools were administered to determine the real effect of such technology acceptance election performance. For this purpose, likewise Pearson's correlation and multiple regression coefficients were computed as presented in Table 6.

Table 6: Correlation and Regression (Model Summary) Coefficients

Correlations		Technology Acceptance	
Electorate's acceptance	Pearson Correlation		.971**
	Sig. (2-tailed)		.000
	N		192
** . Correlation is significant at the 0.01 level (2-tailed).			
Multiple Linear Regression			
Model	R	R Square	Adjusted R Square
1	.972 ^a	.944	.944

a. Predictors: (Constant), 1. The electorate fully behind electronic voting system, 2. Electronic voting technology well embraced among voters.

Source: Field Survey (2018)

Results on variable correlations in Table 6 show that performance of the 2015 election in the States investigated was at $r= 0.971^{**}$; $p<0.001$ linearly significantly correlated to the Electorate's technology acceptance. Particularly, the regression statistic $R^2= 0.944$ indicates that this kind of e-voting acceptance predicted 94.4% success of such elections. The rest 5.6% (0.056) was predicted by other perceptual factors about the electoral technology. This infers that Electorate's acceptance of the new technology significantly affected the 2015 election performance in the States of study and Nigeria as a whole. As such Null Research Hypothesis Two wasn't valid.

Verification of Hypothesis Three: General conviction on Electronic Technology and Level of Election Performance

Findings in this section include description of general public conviction to Nigeria's recent electronic voting and inferential statistics about its effect on performance of elections of interest. The description specifically covers perceived usefulness of such electoral technology, hope for its free and fair election potentials and its perceived potential for electoral integrity. The descriptive statistical results generated were presented in Table 7.

Table 7: Descriptive statistics on the level of General Conviction on the electronic voting technology

Construct	N	Mean	Std. Deviation
1. Perceived usefulness of the new technology	192	3.30	1.02
2. Electronic voting longed for free and fair election	192	3.20	1.16
3. Perceived technology potential for electoral integrity	192	3.26	1.17
Average Index ('Gcoe.vt')	192	3.25	1.12

Source: Field Survey (2018)

According to Table 7, the average indices ('Gcoe.vt') generated indicate that the general public conviction to the new electoral technology was averagely rated at $\bar{x}= 3.25$; $s= 1.12$ in the States of study. This derives from descriptive statistics about the perceived usefulness of the technology highly rated at $\bar{x}= 3.30$; $s= 1.02$, hope for free and fair election from such technology fairly rated at $\bar{x}= 3.20$; $s= 1.16$, and perceived technology potential for electoral integrity highly rated at $\bar{x}= 3.26$; $s= 1.17$. This implies Nigeria's e-Voting technology attracted relative faith from the general public in most of the country.

This realisation was proceeded with Pearson's correlation and multiple regression tests administered to determine the effect of such technology conviction on performance of the election under of interest as summarised in Table 8.

Table 8: Correlation and Regression (Model Summary) Coefficients

Correlations		Technology Acceptance	
General conviction on electronic voting	Pearson Correlation		.975**
	Sig. (2-tailed)		.000
	N		192
** . Correlation is significant at the 0.01 level (2-tailed).			
Multiple Linear Regression			
Model	R	R Square	Adjusted R Square
1	.975 ^a	.951	.950

a. Predictors: (Constant), 1. Perceived technology usefulness for credible elections, 2. Hope in the new Technology for free and fair elections, 3. Perceived technology potential for electoral integrity.

Source: Field Survey (2018)

According to $r= 0.975^{**}$; $p<0.001$ in Table 8, the 2015 election performance in the States of survey was at linearly significantly correlated to general public conviction on Nigeria's electronic voting. In particular statistic $R^2= 0.951$ connotes that this such conviction predicted 95.1% success of the elections. The rest 4.9% (0.049) was predicted by perhaps by technology conviction of none state actors. It was therefore inferred that general public conviction to the new technology significantly affected performance of such elections in the States of research and Nigeria in general. Accordingly, Null Research Hypothesis Three was not acceptable.

Grand Multivariate regression analysis of technology acceptance and election performance

This section covers overall results on how acceptance of the electronic voting technology generally predicted the 2015 election performance in the states of study in Nigeria. The results were generated a grand multiple linear regression analysis as exhibited in Table 9.

Table 9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975a	.951	.951	.22405

a. Predictors: (Constant), Political Players acceptance of e-Voting, Electorate's acceptance of the new technology, General conviction on the technology

Source: Field Survey (2018)

Results in Table indicate that at $R^2= 0.951$, acceptance of Nigeria’s e-voting predicted 95.1% success of elections in such states of research. The rest 4.9% (0.049) was predicted by other perceptual dynamics of the new the technology. This implies, increase in Political Players’ and electorate’s acceptance of the technology as well as general public conviction to it led to better election performance and vice versa in the States of research and the rest of Nigeria at large. In that case, Null Research Hypothesis One was rejected. This was consistent with the widely held narrative that acceptance of electoral information technology is a cornerstone for free and fair elections in contemporary democracies (Sisir, Mudit & Shamika, 2017). In reference to previous research (Ajayi, 2014; Mensah 2017; Salimonu, 2014), electronic voting technology in Nigeria appealed to stakeholders and propelled election success because it was usefully committed, well used, enhanced poll integrity, and was hoped to inspire election credibility.

Proposed Mamman’s Model of Electronic Voting Acceptance

This study proposes Mamman’s (2019) Model of Electronic Voting Acceptance as the new model that builds on Mensah’s (2017) Technology Acceptance Model (TAM) adopted for the research process. The proposed was designed as illustrated in Figure 2.

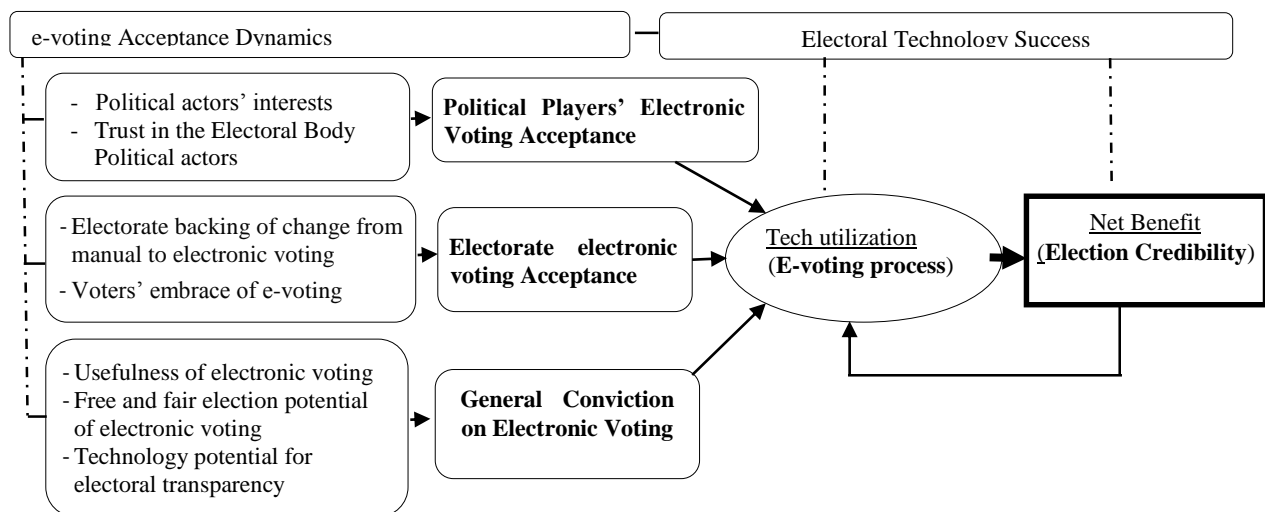


Figure 2. Mamman’s Model of Electronic Voting Acceptance
Source: Researcher (2019)

Mamman’s model builds on Mensah’s because it further identifies technology referred in Mensah (2017) as electronic technology because technology can be anything. It also restricts technology to electoral technology (e-voting) and specifies Technology Acceptance as a function of Political players’ and Electorate’s acceptance as well as general public conviction of the technology.

The findings of the study were summarized hypothesis by hypothesis. Regarding null hypothesis one, the study describes Political Players’ acceptance of Nigeria’s electronic voting technology as being moderate in most parts of the country. It particularly infers that this level of technology acceptance significantly affected the 2015 election performance in the country contrary to the null hypothesis. About null hypothesis two, the study shows that the level of electorate’s acceptance of the new technology was widely high in the country and that this also significantly contributed to better performance of the elections in question. This disproved the null hypothesis. On null hypothesis three, the study indicates that general public conviction on such electoral technology was fairly rated but equally significantly affected the election outcome. According to the study, the 2015 election outcome was credible as a result of these levels of technology acceptance.

Conclusions

It was concluded that each of the factors of technology acceptance has a significant impact on the performance of an election. Increase in Political players' acceptance of electronic voting, Electorate's acceptance of the technology and general public convention to such technology would positively propel election performance and vice versa, anywhere, be in the six States of study, the rest of Nigeria and beyond.

Recommendations

In view of the study findings, this study recommended that though majority of the general public were reported to have accepted Nigeria's electoral technology change from manual to automated elections, there was need to maintain the attitude and/or improve dissenting attitude and perception among social circles. Key of such circles included Political Players and the Electorate. Their attitude would be well sustained or improved through continuous electoral technology education by electoral management institutions like INEC and SIEC and as well as other none state partners such as Electoral Civil Society. The study also recommended that further research could be done on the following aspects to address perceived knowledge gaps: 1) other technology factors affecting election performance; 2) performance of elections in other institutional contexts, 3) other States of Nigeria or elsewhere in the world and 4) the same technology subject after a longer period.

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