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Enhancing Electoral Processes through E-governance: Opportunities and Challenges in Nigeria

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Abstract:

Nigeria's electoral processes face numerous challenges, including inefficiencies, a lack of transparency, and credibility issues. E-governance offers opportunities to address these challenges and improve electoral outcomes. This study examines the role of e-governance in enhancing electoral policy in Nigeria, focusing on the benefits, challenges, and implications of adopting digital technologies in electoral processes. By analyzing existing literature, case studies, and stakeholder perspectives, this research highlights the potential of e-governance to increase voter registration, improve voter verification, enhance result transmission, and promote transparency and accountability. However, it also identifies challenges such as infrastructure deficits, cybersecurity risks, and gaps in digital literacy. The paper adopts a documentary method, and the data obtained will be content analyzed. The study concludes that e-governance can be a game-changer for Nigeria's electoral processes, but requires careful planning, implementation, and stakeholder engagement to ensure its effectiveness. The paper recommends electronic voting as a means of conducting credible elections and accepting the election results in Nigeria.

Keywords: E-governance, electoral policy, electoral processes, transparency, accountability, digital technologies.

Introduction

Governments around the world are introducing e-government as a means of reducing costs, improving services for citizens and increasing effectiveness and efficiency at national, regional and local levels of the public sector. A report by the United Nations shows that 179 out of 192 UN members reported developing strategies to implement e-government systems. Therefore, e-government has been identified as one of the top priorities for governments worldwide, which will reshape the electoral process through e-voting (Abdullahi, 2017; UN, 2008). Since its independence, Nigeria has been seeking a credible voting system due to the irregularities that have plagued previous elections. The lack of probity, accountability, transparency, and trust on the part

of the government has been responsible for the poor turnout in elections. The adoption of an e-voting system is considered long overdue due to the abundance of human and material resources available to the country (Oyelude & Olojede, 2023). The shortcomings, notwithstanding, the system has the potential to address many of the electoral problems.

E-voting, like the introduction of any new technology, which must be adopted with caution, could be disastrous if rushed on the electorates without recourse to the associated risks. In the developed world, its adoption was preceded by pilot schemes. In Europe, trials were conducted in the UK, Denmark, France, Spain, and Ireland preparatory to their wide-scale adoption (Cardos, 2020). In the developing countries, particularly Sub-Saharan Africa and Africa in general, elections have been marred by gross irregularities leading to wanton destruction of lives and properties (Aspa 2021, Lyayi, 2022, Okoye, 2024). Thus, e-voting is seen as a saviour from the horrible experiences of the past, as it promises free, fair, and transparent elections. convenient, and confidential elections as well as the speedy processing of results (Bhatnagar, 2020).

Mobile devices have been the most widely used electronic gadgets with over two billion users worldwide; hence, they offer a good platform for enhanced participatory democracy. Mobile government, referred to as mobile e-government. It involves the deployment of the government's services and administration on mobile devices (Anna, 2023). This concept would foster a closer link between the government and the electorate with the resultant effect of enhanced participation in the polity. Similarly, on the Internet platform, several nations have experimented with adopting it, particularly in Geneva, Switzerland, where plans are in an advanced stage of implementation (Backus, 2021; Chevallier et al., 2022). With the rapid diffusion of mobile devices, alternative voting media can be explored, such as m-Voting and SMS texting, to enhance governance and administration (Baro, 2021; Daniella, 2023; Griffin et al., 2016).

E-voting will not act as a panacea for the social causes responsible for elected disengagement, nor will it remedy negative attitudes towards politics. It will, however, increase voting opportunities for elections and make casting a vote more accessible. Electronic voting overcomes the problems of the geographical distribution of voters and the voting administrators. It also reduces the chances of error in the voting process. However, for e-voting to replace conventional mechanisms, it must provide the full range of features that conventional voting systems offer. The paper, therefore, seeks to examine the impact of E-voting as an alternative/solution to the electoral irregularities associated with the manual voting process.

Statement of the Problem

The Nigerian electoral system is characterized by several challenges and shortcomings, largely due to inadequate preparations and widespread manipulation of the electoral process by the government, often utilizing law enforcement agencies, particularly the police and the Economic and Financial Crimes Commission (EFCC). The irregularities which characterized elections included the late arrival of materials and officials, stealing of ballot papers, vote buying, harassment, chanting, shooting and taunting of voters, lack of secrecy of voting, police interference, ballot snatching and stuffing, intimidation and political violence, denied access to

polling stations, partiality of electoral officials and the police, improper voting procedures, late commencement of elections, and underage voting (Ekot, 2023).

To avoid this undesirable scenario, the Independent National Electoral Commission (INEC) introduced electronic government systems, including digitalized voter registration, Biometric data capture machines, Card readers, Data verification machines, and Permanent voters' cards. This is to ensure effective and efficient service delivery and provide credible, competent, impartial, free and fair elections to its citizens, thereby enhancing citizens' participation in the electoral process.

The traditional voting process in Nigeria is plagued by several challenges. Without accountability, a system is simply not trustworthy, regardless of whether computers are involved. Manual vote counting and tabulation can lead to delays and inefficiencies in the electoral process. The manual process is prone to errors and manipulation, thereby undermining the transparency and integrity of the election. The traditional voting system is vulnerable to security threats, such as ballot box stuffing, tampering and snatching, in some cases. The cumbersome nature of traditional voting processes can discourage citizens from participating in the electoral process, leading to low voter turnout.

Conceptual clarifications

E-governance

E-governance, according to Obasanjo (2021), is the use of information and communication technologies to improve the efficiency, effectiveness, transparency and accountability of government by implementing a data warehouse and an integrated decision support system to manage the modern economy for the benefit of the government. Ojo 2014 in Oghuvbu, Gbereubie and Onu (2022) defines e-governance as “the government’s use of information and communication technology (ICT) to improve accountability, raise awareness and ensure openness in the management of governmental business”. They also claim e-governance can be viewed as a government’s political strategy for showcasing its actions to the public. In the view of Donald and Udeoba (2023), e-governance is the application of information technology for delivering government services, exchanging of information or data, communication transactions, integration of various systems between government to citizens (G2C), government to business (G2B), government to government (2G), government to employees (G2E) as well as back office processes and interaction within the entire governance framework.

E-voting

The term "electronic voting", according to Asiamah (2023), has been used for a large variety of systems, ranging from hand-held infrared devices, kiosk systems with touch screens machines used in polling stations to remote voting via the Internet. E-voting is the preferred platform for future elections in the developed and developing nations of the world. It is a system that has modernized the electoral processes and electorates are able to cast their votes through an electronic device as against the traditional manual system.

E-voting according to Qadah and Taha (2007) in Oyelude and Olojede (2023) is the “use of computers or computerized equipment to cast votes in an election”. E-voting also refers to the use of electronic means either to aid or take care of the hurdles of casting and counting votes. It makes the electoral process more efficient, enhances the security of the ballot, speeds up the process of results and makes voting easier. 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. (Umar, John & Sule, 2022). 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 can use joysticks, earphones, Sip and puff technology, foot pedals, etc. These machines have touch screens that can display 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 worth noting 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 to influence their outcome and one sure way of averting such type of occurrences is through the adoption of electronic voting.

E-voting as a Solution

E-voting has the potential to address the challenges of traditional voting by providing a more efficient, transparent, and secure voting process. However, the implementation of e-voting systems in Nigeria also raises several concerns, including:

- Technical Challenges: E-voting systems require reliable infrastructure, including internet connectivity and electricity, which can be a challenge in some parts of Nigeria.
- Security Risks: E-voting systems are vulnerable to cyber threats and hacking, which can compromise the integrity of the electoral process.
- Lack of Awareness: Many citizens may not be familiar with e-voting systems, which can lead to confusion and mistrust (Frang 2022, Olugbemi ,2023; Keller & Mertz ,2025).

E-voting utilises various technologies, such as:

- i. Electronic Voting Machines (EVMs): Machines that record and store votes electronically.
- ii. Online Voting: Voting through the internet, often using computers or mobile devices.
- iii. Mobile Voting: Voting using mobile devices, such as smartphones or tablets.

Objectives of E-voting

- i. Improving Efficiency: to streamline the voting process, reducing the time and resources required for manual vote counting and tabulation.
- ii. Enhancing Transparency: to provide a clear and auditable record of votes, reducing the risk of errors and manipulation.
- iii. Increasing Accessibility: To enable voters to cast their ballots from any location, making voting more convenient and accessible.
- iv. Improving Security: To protect the integrity of the electoral process by implementing robust security measures to prevent tampering and unauthorized access.
- v. Increasing Voter Turnout: To encourage more citizens to participate in the electoral process by making voting more convenient and accessible.
- vi. Reducing Costs: To reduce the costs associated with traditional voting methods, such as printing and transporting paper ballots.
- vii. Improving Accuracy: To reduce errors in vote counting and tabulation, ensuring the accuracy of election results.
- viii. Enhancing Voter Experience: To provide a user-friendly and convenient voting experience, increasing voter satisfaction and engagement. (Lin & Espinoza, 2022).

An Overview of the Electoral Process in Nigeria

Election is central to the existence, stability and development of democracy in any country (Esan, Ayeni, Omodunbi, Okomba & Odiase, 2020). Therefore, the electoral system of a government determines the political growth and democratic stability of that society. In Nigeria, the agency responsible for conducting and supervising elections is the Independent National Electoral Commission (INEC), which was empowered by the 1999 Constitution to conduct free and fair elections. Three methods of voting have been used in Nigeria so far. These are the Open Ballot

System (OBS), Modified Open Ballot System (MOBS), and Remodified Open-Secret Ballot System (REMOBS). Open Ballot System (OBS), also known as Option A4, is a voting method in which voters vote openly by queuing or otherwise, indicating the candidate of their choice. This is opposed to a secret ballot, where a voter's choices are confidential. The system minimizes incidences of election rigging associated with the secret ballot system, as well as other fraud-related electoral practices. This method was used for the 1979, 1983 and the June 12, 1993, election, which is regarded as the fairest and freest election in the history of Nigeria.

The Modified Open Ballot System (MOBS) is a modified version of the popular open ballot system. The difference between the two is that while the open ballot exposes to everyone at the polling booth the choice of a voter, MOBS, though open, allows voters to make their choice secretly. This method was adopted in the 1999, 2003 and 2007 general elections, respectively. Furthermore, the Re-Modified Open-Secret Ballot System (REMOBS) is an advanced form of MOBS in which accreditation and the release of ballot papers to a voter are done openly, while the voter would thereafter retire alone to a private place to exercise their franchise. Under this method, accreditation of voters commences simultaneously throughout the country, while voting takes place immediately after accreditation, simultaneously across the federation. Whoever is not accredited is disallowed from voting. After accreditation, voters are asked to queue up while the presiding officer loudly counts them. After counting, nobody is allowed to join the queue. The total number of votes cast should not exceed the number of people in the queue. Voters are encouraged to stay and ensure that their votes are counted. REMOBS was adopted for the 2011 and 2015 general elections.

INEC's modernization plan regarding the country's electoral process led to the development of the Electronic Voter's Register (EVR), which was adopted in 2007 for the registration of prospective voters. It involved the use of Direct Data Capture Machines (DDCMs) to electronically capture voter records, with the aim of eliminating the problems associated with previous elections and ensuring free and fair elections in Nigeria. Although the implementation of EVR eliminated duplication of names on the register, it subsequently minimized discrepancies in the electoral process in Nigeria. However, research shows that it was not very successful, as it was marred by poor logistics and various irregularities (Esan et al., 2020). Hence, INEC managed to modernize the process during the 2011 and 2015 elections by the introduction of smart card readers and linking its various polling locations around the country to EVR. Sadly, research reveals that the desired result was not achieved as the irregularities persisted. Therefore, this study discusses the necessary e-voting system in Nigeria and the barriers to its full implementation.

Required E-Voting System in Nigeria

In this era of information and communication technology, electronic democracy is a necessity because it enables the use of computers and computerized voting equipment in elections. Therefore, the Independent National Electoral Commission (INEC) introduced the electronic voter's register and smart card reader to improve the credibility of elections in Nigeria. Although the system mitigated some problems associated with election malpractice and was able to provide

some level of democratic dividend to about 34%, research reveals that it is yet to meet international standards for the provision of a viable, successful and generally accepted electoral system for democracy. Also, it is observed that an average Nigerian is yet to fully trust the body in the conduct of free and fair elections. In view of this, the Independent National Electoral Commission (INEC) is expected to combine electronic voters register and smart card readers with the deployment of electronic voting machines and election result transmitting devices that will be acceptable by all stakeholders such that these devices would be self-auditing and fully equipped with real time facilities, that is intermittently displaying progress reports and transmitting these reports in real time and a transparent manner. Also, the operations of these devices should be simple, understandable by an average electorate and transparent enough to alleviate fear of manipulation. In addition, the required E-voting system in Nigeria should be the one that is secure and reliable enough to be a suitable alternative to the manual system. It should also guarantee the desired transparency, credibility and acceptability by the electorates and give all stakeholders (every participating political party, relevant agencies of government, internal security services, the media and interested electorates) access to independently keep track of logs in order to make sure that it is beyond manipulation.

E-government and Electoral Reform by the Independent National Electoral Commission (INEC)

To curb these electoral vices and mitigate the adverse effects of these alarming indicators on the nation's socio-economic and political development efforts, the Independent National Electoral Commission (INEC) first introduced a new political paradigm for information and communication technology (ICT). Since 1999, the country has conducted seven elections, including the 1999, 2003, 2007, 2011, 2015, 2019, and 2023 general elections. Almost all, except for the 2011 and 2015 elections, were roundly condemned as not meeting the required global standard and therefore, not credible. For example, the 2003 general election left much to be desired. It was reported that some results were written in the private homes of individuals, and in some cases, announced even before the elections were conducted (Okoye, 2024). Furthermore, the April 2007 general elections were characterized by several challenges and shortcomings, largely due to poor preparations and widespread manipulation of the electoral process by the government, which utilized law enforcement agencies, especially the police and the Economic and Financial Crimes Commission (EFCC). The irregularities characterizing this election included the late arrival of materials and officials, stealing of ballot papers, vote buying, harassment, chanting, shooting and taunting of voters, lack of secrecy of voting, police interference, ballot snatching and stuffing, intimidation and political violence, denied access to polling stations, partiality of electoral officials and the police, improper voting procedures, late commencement of elections, and underage voting (Ndou, 2024). The Domestic Election Observation Group, after evaluating the reports of Monitors deployed throughout the country, noted that the election was marred by numerous lapses, massive irregularities, and electoral malpractices, and came to the conclusion that the whole election was

a charade and did not meet the minimum standards required for democratic elections (Varma, 2023; TMG, 2007).

Key aspects of Nigeria's electoral policy

Nigeria's electoral policy is governed by the Electoral Act, which is enforced by the Independent National Electoral Commission (INEC). The framework outlines the rules for political party operations, candidate qualifications, campaign regulations, and voting procedures.

- Electoral Process: Elections are held at various levels of government, including presidential, national assembly, governorship, and local government elections.
- Voter Eligibility: Citizens have the right to vote and be voted for, with eligible voters registering to participate in elections.
- Winner-Takes-All System: The president is elected through a system where the winner must secure the highest number of votes and at least 25% of votes in two-thirds of the states and the Federal Capital Territory.

Theoretical Consideration

This work anchored on Innovation Diffusion Theory Roger (1995) the theory aims to understand the spread of innovative ideas and technologies within a social system. This theory takes a unique perspective on change, viewing it as an evolution or "reinvention" of products and behaviors to suit the needs of individuals and groups rather than focusing on persuading individuals to change (Roger, 1995). In this framework, the primary focus is on the innovations themselves undergoing transformation rather than people changing. Diffusion, as described by Rogers in 2003, refers to the process through which innovations are communicated over time among members of a social system. Wani and Ali (2015) define diffusion as the spread of technology across a population of organizations. The concept of diffusion of innovations often involves the dissemination of ideas from one society to another or from one focus or institution within a society to other parts of that society (Roger, 1995).

Innovation Diffusion Theory can be divided into four key elements, starting with the concept of innovations. Innovations are perceived as new by individuals or other units of adoption and encompass both new products and services, as well as existing ones that present novel uses to users (Wani & Ali, 2015). Applied to technology in elections, this framework suggests that stakeholders' willingness to adopt and embrace technological solutions depends on their perception of the benefits and compatibility of the innovation with existing electoral practices. Factors such as ease of understanding, compatibility with democratic principles, and the observation of successful implementations in other contexts can influence the diffusion and acceptance of technology in electoral processes. By incorporating these insights into the design and implementation of technology solutions, policymakers and election authorities can promote successful integration that aligns with user needs and preferences.

E-Voting the world over

Countries such as Estonia, India, Brazil, and South Korea have successfully implemented e-voting systems, offering valuable lessons for Nigeria. By learning from these experiences and addressing the unique challenges in the Nigerian context, e-voting can be a valuable tool for enhancing electoral processes and promoting democratic participation.

Some countries have successfully implemented e-voting systems, providing valuable lessons for Nigeria.

- Estonia: Has been a pioneer in integrating AI into its government services, including electoral processes, and has seen significant improvements in efficiency, citizen engagement, and service delivery.
- India: Has leveraged AI to modernize its electoral processes, enhancing voter engagement, streamlining electoral logistics, and ensuring the accuracy of voter lists.
- Brazil: Has implemented AI to improve the transparency and efficiency of its electoral processes, using AI tools to monitor social media for disinformation and ensure compliance with electoral laws.
- South Korea: Has utilized AI to enhance voter registration and election monitoring, verifying voter identities and ensuring the accuracy of voter lists.

To successfully implement e-voting systems in Nigeria, it's essential to:

- Invest in AI Infrastructure and Training: Develop the necessary infrastructure and provide comprehensive training for staff to effectively utilize e-voting systems.
- Collaborate with Technology Providers: Partner with technology providers to develop e-voting solutions tailored to Nigeria's specific electoral needs.
- Address Data Privacy Concerns: Ensure the protection of voters' biometric and personal data to maintain public trust. (Nwangwu, 2015).

Challenges of E-voting

- Infrastructure Limitations: Inadequate internet connectivity and power supply can hinder the implementation of e-voting systems.
- Data Privacy Concerns: Protecting voters' biometric and personal data is crucial to maintaining public trust.
- Resistance to Change: Stakeholders accustomed to traditional electoral processes may resist the adoption of e-voting systems.
- Security Risks: E-voting systems can be vulnerable to cyber threats and hacking attempts.

Methodology

Being a qualitative study, the study relied on existing documents which were content analyzed. The countries whose experiences were reviewed namely Namibia, Brazil, India and Indonesia were carefully selected due to certain similarities with the Nigerian electoral environment. While Namibia provides insights into the pattern of e-voting experience in a conflict challenged and

developing economy like Nigeria, the choice of India and Indonesia was inspired by their huge voting population comparable to Nigeria's status as Africa's largest democracy. On the other hand, Brazil is a developed economy with a well-developed infrastructure; implementing e-voting in such a setting will be instructive in how to inspire lessons for Nigeria as it contemplates implementing this new aspect of its electoral process.

Conclusion

E-voting is strongly recommended for introduction in Nigerian politics due to the obvious advantages revealed by the study over traditional paper-based voting. The prevalence of information and communication technology (ICT) has a positive impact on almost every sphere of life in many countries, including politics. The primary aim of the study is to introduce e-voting into Nigeria's electoral system as a credible alternative to traditional paper-based voting. This enhancement has generated a certain curiosity that was previously not present among the citizens. Among the numerous benefits of information and communication technology is electronic democracy (e-democracy), which gave vent to electronic voting (e-voting). Proper implementation of e-voting can reduce electoral irregularities in the Nigerian body politic, such as manipulation of voter registration and records, manipulation during collation and counting, disenfranchisement of physically challenged voters and voters living and working abroad, etc., which have proved intractable menaces to the credibility of elections in Nigeria for decades. In view of the success of e-voting in European countries like Estonia, Finland and Switzerland, and in other countries like United States of America and The Philippines coupled with the strong positive responses of voters in preference for e-voting, it is believed that the prospect of e-voting in Nigeria is very positive. The importance of e-voting in terms of ensuring wider participation of citizens, security and credibility of election cannot be over-emphasized. For example, in Philippine it helps to deal with election fraud in the area of counting. In Estonia it ensured wider participation and voting convenience. E-voting can pose serious challenges, but proper preparation can reduce the challenges to the manageable minimum.

Recommendations

The following recommendations were made

- i. Conduct thorough risk assessments: Identify potential security risks and develop strategies to mitigate them.
- ii. Implement robust security measures: Use encryption, secure voting protocols, and audit trails to ensure the integrity of the e-voting system.
- iii. Ensure transparency and accountability: Provide clear guidelines and procedures and ensure that voters can verify their votes.
- iv. Educate voters: Educate voters on the benefits and procedures of e-voting and provide them with the knowledge and skills to use the system securely.
- v. Test and evaluate the system: Regularly test and evaluate the e-voting system to identify vulnerabilities and ensure its integrity.

- vi. Ensure accessibility: Ensure that the e-voting system is accessible to all eligible voters, including those with disabilities.
- vii. Develop clear guidelines and procedures: Develop clear guidelines and procedures for the e-voting process, including voter registration, voting, and vote counting.
- viii. Provide voter support: Provide support for voters who need assistance with the e-voting system.
- ix. Monitor and respond to incidents: Monitor the e-voting system for incidents and respond quickly and effectively to address any issues that arise.
- x. Continuously improve the system: Continuously evaluate and improve the e-voting system to ensure that it remains secure, efficient, and effective.

By following these recommendations, e-voting systems can be designed and implemented in a way that ensures the integrity, security, and transparency of the electoral process in Nigeria.

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