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E-GOVERNANCE AND ELECTORAL INTEGRITY IN THE 2023 PRESIDENTIAL ELECTION IN RIVERS STATE, NIGERIA

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Abstract
Electoral integrity remains a core challenge in Nigeria's democracy, especially amid rapid digital changes in public administration. This research examined the role of e-governance in electoral integrity in Rivers State, Nigeria, focusing on the use of the Bimodal Voter Accreditation System and the INEC Result Viewing Portal during the 2023 presidential election. The study adopted the Technology Acceptance Theory (TAT) as its theoretical underpinning. The study relied on the triangulation method for data collection. The findings identified security concerns that directly impeded the deployment of these technologies and compromised electoral credibility. Although transparency had the strongest statistical connection with electoral conduct, it was generally rated as inadequate during the election. Key issues included poor internet connectivity, an unstable power supply, device malfunctions, a lack of personnel training, and logistical challenges. Digital literacy was not a significant barrier in this case. The study concludes that technology alone cannot guarantee electoral integrity; success depends on infrastructure, institutional capacity, safety, and clear communication. It recommends that INEC and the Federal Government invest in electoral infrastructure, improve training, increase transparency of electronic results,

Keywords: BVAS, e-governance, electoral integrity, IReV, INEC, electoral technology.

Introduction

The democratic approach centers on establishing a government of the people and for the people through popular votes in the electoral process (Ogele, 2022). The emergence of information and communication technology (ICT) has fundamentally transformed governance structures and processes globally, positioning digital platforms as primary mediators between governments and citizens. E-governance, which refers to the use of electronic means to support government operations, engage citizens, and deliver public services, is now regarded as essential for promoting transparency, accountability, and efficiency in public administration (Duru & Anigbata, 2015). The increasing recognition that effective governance in the digital era relies on the integration of web-based and mobile internet technologies has prompted countries worldwide to pursue digital transformation as a strategic means of improving public service delivery and reinforcing democratic institutions (Oni, 2023).

E-governance offers substantial opportunities to enhance democratic systems within electoral processes by improving voter registration, authentication, result transmission, and overall electoral management (Omotola, 2010). The integration of information and communication technology (ICT) into electoral administration marks a significant shift from traditional manual systems, which were frequently susceptible to manipulation, inefficiency, and a lack of transparency (Oni, 2023). As governments increasingly acknowledge the potential of technology to address persistent electoral challenges, the adoption of e-governance tools in elections has become central to democratic reform initiatives, especially in developing democracies facing electoral credibility challenges (Fukuyama, 2013).

Recognizing ICT's transformative potential, Nigeria designated ICT as a national policy priority in 2001, leading to the National Information Technology Policy and the establishment of NITDA that same year (Nchuchuwe & Ojo, 2015). The National Assembly enacted the NITDA Act in 2007, empowering NITDA to develop a framework for planning, growth, standardization, and oversight of IT practices nationwide. The policy aimed to reform governance by using IT to re-engineer public administration and to create a transparent Government Wide Information System (GWIS) at all levels to improve coordination, accountability, and service delivery (Tiamiyu & Ogunsola, 2008). Its objectives included transitioning from traditional systems to electronic governance, promoting SMART governance-Simple, Moral, Accountable, Responsive, and Transparent-streamlining procedures, increasing productivity, and enhancing citizens' access to government information and services.

Drawing on insights from the 2015 and 2019 elections, the Independent National Electoral Commission (INEC) refined and expanded its technological infrastructure. The 2023 presidential election used two main systems: the INEC Result Viewing Portal (IReV) and the Bimodal Voter Accreditation System (BVAS) (Udunze, Nnaji & Edokobi, 2022). The BVAS, an upgrade from the Smart Card Reader, authenticates voters using fingerprint and facial recognition, improving voter integrity and reducing malpractice such as multiple voting and impersonation (Abubakar, 2025). The IReV allows real-time online upload of polling results, promoting transparency and reducing manipulation during collation (Oni, 2023). These technologies addressed Nigeria's longstanding issue of discrepancies between polling unit results and final results, increasing transparency and accountability by providing immediate results to citizens, parties, and observers (Tsokwa & Nwanegbo, 2024).

The 2023 presidential election, held on February 25, 2023, was marked by substantial controversy over the performance and effectiveness of e-governance systems. Numerous reports documented BVAS malfunctions at polling units, delays in voter accreditation, and technical issues that disrupted voting in several states (Oni, 2023). The IReV portal also faced significant challenges, including delayed result uploads, incomplete data transmission, and periods of system unavailability, which hindered real-time access to results (International Crisis Group, 2023). These operational difficulties prompted extensive debate among electoral stakeholders, including political actors, oversight institutions, monitoring groups, and the public, about the ability of technological interventions to ensure electoral integrity (Kasera & Juma, 2025). Opposition parties challenged the election results in court, citing irregularities linked to the deployment and operation of these e-governance systems and arguing that the technological shortcomings undermine the integrity of the electoral process (Madueke & Enyiau, 2024).

The 2023 presidential election in Nigeria presented a paradox: advanced e-governance tools were implemented with high expectations, yet significant concerns about electoral credibility

persisted. This situation highlights critical issues regarding the role of technology in electoral administration, the conditions necessary for its effective use, and the gap between expected technological advantages and actual outcomes (Oni, 2023). Examining these factors is crucial for improving future electoral processes in Nigeria. Accordingly, this paper examines the role of e-governance on the administration of the 2023 presidential election, with a focus on Rivers State.

Conceptual Review

E-governance

E-governance has garnered considerable scholarly focus in recent decades, leading to a substantial body of literature that emphasizes its multidimensional characteristics and diverse applications within contemporary public administration (Eze, Oranekwu & Udeoba, 2023). While definitions vary in emphasis and scope, there exists widespread consensus that information and communication technology (ICT) has profoundly transformed governmental operations, citizen participation, and the preservation of democratic values and institutions (Fukuyama, 2013).

E-governance refers to the strategic use of information technology to deliver government services, facilitate data exchange and communication networks, execute transactions, and integrate systems across various governmental sectors and levels. It encompasses multiple dimensions of interaction, including government-to-citizen (G2C), government-to-business (G2B), government-to-government (G2G), and government-to-employee (G2E) relations, as well as internal administrative back-office processes that support the broader governance framework (Eze, Oranekwu, & Udeoba, 2023). This comprehensive perspective emphasises that effective e-governance requires not only the adoption of technology but also the systemic transformation of governmental processes and mechanisms for citizen engagement.

Fukuyama (2013) defines governance as the capacity of a government to formulate and enforce rules and deliver public services, regardless of the governing system's democratic status. This definition emphasises the capacity dimension of governance, prioritising institutional effectiveness over the type of political regime. Within the Nigerian electoral context, e-governance serves as a vital mechanism for enhancing governance capacity by ensuring transparent enforcement of electoral rules and effective delivery of essential services, such as voter accreditation, result transmission, and election monitoring, through technological innovations (Fukuyama, 2013). The Bimodal Voter Accreditation System (BVAS) and the INEC Result Viewing Portal (IReV) illustrate how digital technologies can improve electoral integrity and bolster public confidence in democratic processes.

E-governance involves the strategic deployment of digital tools and technologies to improve the efficiency, effectiveness, and responsiveness of public sector operations. Heeks and Bailur (2007) describe digital governance as the systematic use of information and communication technologies (ICTs) to enhance transparency, accountability, and citizen participation in government activities. This framework includes interconnected components such as e-government (digital service delivery), e-democracy (online civic engagement and participation), and e-governance (the broad digital transformation of governance systems). Each element plays a vital and interconnected role in transforming public administration and strengthening democratic institutions (Nchuchuwe & Ojo, 2015).

Electoral integrity

Electoral integrity has become a foundational concept in contemporary political science and democratic theory, providing both an analytical framework and a normative standard for

assessing the quality and legitimacy of electoral processes (Resimić & Bergin, 2024). "Election integrity is a central feature of modern democracy" (Ogele, 2021,p.24). Elections are widely recognised as the cornerstone of democratic governance, serving as the primary mechanism through which citizens select representatives to exercise authority on their behalf (Igbuzor, 2011). The legitimacy of democratic governance depends on the conduct of free, fair, and transparent elections that accurately reflect the electorate's preferences and will. This review analyses the conceptual foundations, theoretical debates, and multidimensional perspectives that inform current understandings of electoral integrity, tracing its development from foundational principles to contemporary scholarly discourse.

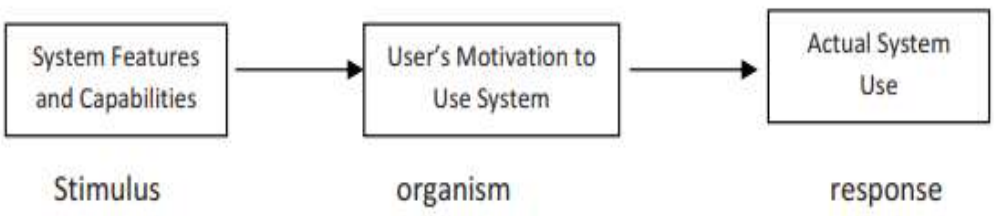
Electoral integrity is intrinsically linked to the electoral systems through which it is enacted. Andrew (2005) asserts that electoral systems constitute a fundamental institutional component of democracy, serving as the mechanism by which citizens' votes are translated into political representation (Resimić & Bergin, 2024). Electoral systems determine how votes are converted into seats for parties and candidates, thereby shaping the nature of political competition, inclusivity, and the legitimacy of governance. This relationship demonstrates that electoral integrity is embedded within the representational logic of institutional design (Norris, 2012). Various electoral systems, including proportional representation, majoritarian, and mixed models, generate distinct incentives, opportunities, and constraints that influence the maintenance and contestation of integrity (Ibrahim & Egwu, 2016). Electoral integrity refers to the extent to which elections adhere to international and domestic democratic standards, including transparency, inclusiveness, accountability, and equality before the law. The political context in which elections occur significantly affects both electoral outcomes and perceptions of legitimacy.

Theoretical framework

Technology Acceptance Theory

This study is grounded in the Technology Acceptance Theory (TAT) originally developed by Davis in 1986 (Davis, 1989). The theory argues that an individual's acceptance of an information system is primarily shaped by two key determinants, perceived usefulness and perceived ease of use, which together influence users' attitudes towards the system and subsequently determine their behavioural intention to adopt and utilise it (Davis, 1989). The Technology Acceptance Theory has been extensively applied in studies examining user adoption of emerging electronic technologies and digital services. It is conceptually rooted in the Theory of Reasoned Action (TRA) advanced by Ajzen and Fishbein, which explains human behaviour as a function of attitudes and behavioural intentions (Davis, 1989). Within this framework, Davis' model (1989) refines the TRA for information systems by specifically addressing technology-related beliefs, and it remains one of the most widely employed theoretical models for explaining the acceptance and utilisation of technological innovations among users (Davis, 1989).

Technology acceptance theory was derived from the Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen (1975), which posits that individual behaviour is guided by



behavioural intentions influenced by personal attitudes and subjective norms (Davis, 1989). Davis (1985) posited that user motivation in technology adoption can be explained through three principal constructs: perceived ease of use, perceived usefulness, and attitude toward using a system. He further argued that a user's attitude toward a technological system serves as a critical predictor of actual system usage or rejection (Davis, 1989). In this model, attitude is shaped primarily by two underlying belief structures, perceived usefulness and perceived ease of use, with perceived ease of use also exerting an indirect influence on perceived usefulness. Ultimately, both beliefs are conceptualised as being influenced by the design features and characteristics of the system itself.

In subsequent refinements of the model, Davis (1985) expanded the Technology Acceptance Theory by incorporating additional variables and adjusting some of the original relational pathways initially proposed. Over time, other scholars further extended and modified the framework, contributing to its evolution into one of the most influential models for explaining and predicting technology usage behaviour. Consequently, the theory has been widely referenced in studies examining user acceptance of technological systems (Lee, Kozar, & Larsen, 2003). Nonetheless, some scholars have argued that the widespread adoption of the model has, in certain cases, encouraged repetitive and convenience-driven applications, thereby limiting deeper engagement with the broader complexities of technology acceptance phenomena (Lee, Kozar, & Larsen, 2003). Despite such criticisms, research in this area continues to expand, making it necessary for scholars to critically engage with the assumptions, strengths, and limitations of the Technology Acceptance Theory when investigating user adoption of technological innovations.

Perceived Ease of Use (PEOU): Perceived Ease of Use (PEOU) constitutes a central construct within the Technology Acceptance Theory. Davis (1989) conceptualises Perceived Ease of Use (PEOU) as the extent to which an individual believes that using a specific technological system will require minimal effort (Davis, 1989). It reflects the user's assessment of how easy, intuitive, or straightforward a system is to operate (Davis, 1989). When a system is perceived as simple to navigate, requiring minimal mental or physical effort, users tend to develop a positive attitude toward adopting it. Conversely, when a system is perceived as complicated, characterized by technical difficulties, complexity, or the need for extensive training, PEOU decreases (Davis, 1985). Within technology acceptance theory, PEOU not only shapes the user's attitude toward the technology but also directly influences perceived usefulness. This means that a system believed to be easier to use is more likely to be viewed as beneficial, making PEOU a foundational element in predicting user acceptance and eventual usage patterns.

Perceived Usefulness (PU): Perceived Usefulness (PU) represents the second central construct of TAM and refers to the degree to which an individual believes that using a technological system will enhance their performance (Davis, 1987). PU reflects the user's belief that the technology will help them achieve tasks more effectively, efficiently, or accurately (Davis, 1989). A system with high perceived usefulness is considered valuable because it improves productivity, supports better decision-making, reduces errors, or generally enhances task outcomes (Davis, 1989). In technology acceptance theory, PU is regarded as the strongest predictor of behavioural intention to use a technology (Davis, 1985). Even if a system is not particularly easy to use, users may still adopt it if they believe that the benefits significantly outweigh the challenges. As such, PU plays a crucial role in shaping both user attitudes and actual usage behaviour (Davis, 1985).

Actual System Use: Actual System Use is the outcome variable in the Technology Acceptance theory and represents the observable behaviour of individuals when they engage with a technological system. Davis (1987) argues that actual usage is the most concrete measure of user acceptance because it reflects real, rather than intended, interaction with the system. Actual system use encompasses the frequency, duration, quality, and consistency of technology usage in performing relevant tasks. In technology acceptance theory, actual use is influenced indirectly by external variables through perceived usefulness and perceived ease of use, which shape attitudes and behavioural intentions (Davis, 1989). While intention to use is typically the immediate predictor of actual use, Davis's empirical findings show that perceived usefulness is often the strongest determinant of whether individuals ultimately adopt and repeatedly use a system (Davis, 1989). Thus, actual system use represents the final behavioural expression of the user's perceptions, motivations, and attitudes toward the technological innovation (Davis, 1989).

Several scholars have highlighted the limitations of the Technology Acceptance Theory. Maruping, Bala, Venkatesh, and Brown (2016) argue that a thorough understanding of technology acceptance requires both theoretical and practical insight into how technology is adopted and utilized within organizations. One key limitation of the Technology Acceptance Model lies in its dependence on subjective constructs such as behavioural intention (BI) and interpersonal influence, which may not adequately account for the multifaceted nature of user behaviour within institutional contexts. Interpersonal influence, or the subjective norm, refers to an individual being persuaded by friends or colleagues to use a system (Davis, 1985). However, in formal work environments, such as electoral institutions, employees' behaviour is guided by organizational policies and directives rather than peer influence. As such, behavioural outcomes are shaped by compliance expectations rather than social persuasion (Maruping et al., 2006).

Furthermore, the behavioural aspects of technology acceptance are difficult to quantify empirically due to the influence of cultural norms, social values, and individual personality traits. Scholars such as Ang, Ramayah, and Amin (2015) and Shan and King (2015) argue that while social factors can influence technology adoption in personal contexts, they are less relevant in institutional environments where rules and formal structures dictate use. As organizational information systems mature, processes become more standardized and rule-bound, leading to increased formalization of information management (Ajibade, 2016; 2017). Therefore, in settings such as electoral management, the use of technological tools like the Bimodal Voter Accreditation System (BVAS) and the INEC Result Viewing (IReV) Portal is often mandated by institutional policy rather than driven by individual attitudes (Davis, 1989). Consequently, compliance expectations may serve as a more reliable predictor of technology use than personal behavioural intention.

Moreover, the assumption that perceived usefulness and ease of use alone can explain technology adoption may oversimplify the dynamics at play in public institutions. For instance, electoral officials are required to use designated systems as part of their official duties, regardless of their individual attitudes toward the technology. This mandatory use undermines the predictive validity of technology acceptance theory in such contexts. In addition, several scholars have criticized technology acceptance theory for its limited scope. Bashange (2015) contends that much of the literature treats technology acceptance theory as a dependent variable rather than a theoretical tool for understanding behavioural influences. Similarly, Zahid, Ashraf et al. (2013) argue that technology acceptance theory fails to account for key demographic and contextual factors, such as age, education, and institutional culture,

that may affect technology acceptance. While the theory acknowledges the existence of external variables, it provides little guidance on how these factors interact with core constructs to shape behaviour.

The Technology Acceptance Theory provides a useful theoretical lens for understanding how electoral actors, voters, electoral officials, and political stakeholders, responded to the deployment of e-governance tools such as the BVAS and the IReV Portal during the 2023 Nigerian presidential election (Davis, 1989). Since technology acceptance theory emphasizes the importance of Perceived Usefulness and Perceived Ease of Use in shaping technology acceptance, the theory helps explain the extent to which these digital innovations were trusted, adopted, or resisted in practice. Where stakeholders perceived BVAS as accurate, efficient, and capable of reducing fraud, its perceived usefulness increased, thereby strengthening confidence in the electoral process and enhancing electoral integrity. Conversely, challenges related to system failures, network disruptions, or difficulties navigating the IReV platform likely reduced perceived ease of use, which in turn undermined trust in the technology and fuelled doubts about the election's transparency. Hence, the study systematically links user perceptions of election technologies to broader concerns about credibility, trust, and integrity in Nigeria's e-governed electoral system (Davis, 1985).

Methodology

The study adopted triangulation as a data-gathering technique. Primary data were collected directly from the field through structured questionnaires administered to selected respondents, including staff of the Independent National Electoral Commission (INEC), members of the Inter-Party Advisory Council (IPAC), representatives of Civil Society Organizations (CSOs), security personnel, and registered voters in Rivers State who participated in or observed the 2023 general elections. The questionnaires were designed to elicit responses on the effectiveness, challenges, and perceived impact of e-governance mechanisms on electoral integrity in Rivers State. A total of 400 questionnaires were distributed to respondents, and 327 were retrieved, representing **81.75** per cent. This study focuses specifically on two Local Government Areas within the River East senatorial district: Obio-Akpor Local Government Area and Port Harcourt Local Government Area (PHALGA). These two LGAs were purposively selected because they represent contrasting yet complementary urban and semi-urban electoral environments that together provide a rich and analytically meaningful context for examining the deployment and performance of e-governance tools during the 2023 presidential election. Secondary data were drawn from relevant existing literature, including textbooks, journal articles, government reports, official INEC publications, conference papers, online databases, and previous empirical studies on governance, e-governance, and electoral processes. Descriptive statistics, including frequency distributions, percentages, means, and standard deviations, were used to summarize respondents' demographic characteristics and to describe their perceptions of e-governance practices and electoral integrity in the 2023 presidential election in Rivers State. The study also employed content analysis to analyse the secondary data.

Data Presentation

Table 1

Analysis of the distribution and Collection of Questionnaires

S/N	Respondent	Questionnaires Administered	Questionnaires Returned	Percentage of Returned Questionnaires (%)
1	IPAC Members	17	14	82.4
2	CSOs Representatives	20	16	80.0

3	INEC Staff	43	37	86.0
4	Security Personnel	50	44	88.0
5	Registered Voters	270	216	80.0
	Total	**400**	**327**	**81.8**

Source: Researchers field survey, 2026.

According to table above, 327 of the 400 questionnaires that were distributed were recovered and deemed useable, yielding a response rate of 81.8%, which is deemed sufficient for statistical analysis in survey research. Strong institutional participation in the study was demonstrated by the greatest response rate among security personnel (88.0%), followed by INEC staff (86.0%). The response rates of IPAC members and CSO representatives were 82.4% and 80.0%, respectively, indicating a moderate but satisfactory level of participation from political and civil society actors engaged in governance oversight and election monitoring. Although significantly lower than some institutional categories, registered voters accounted for the largest share of replies in absolute terms (80.0%), perhaps due to differences in accessibility and engagement during data collection.

Demographic Characteristics of Respondents

Table 2. Personal Data of Respondents

Variable	Categories	Frequency	Percentage
Gender	Male	**235**	71.9
	Female	**89**	27.2.
	Prefer not to Stay	**3**	0.9
	Total	**327**	**100**
Age	18 – 25	17	5.2
	26 – 35	110	33.6
	36 - 45	95	29.1
	46 – 55	65	19.9
	56 - above	40	12.2
	Total	**327**	**100**
Educational Qualification	Primary School Certificate	-	0.0
	Secondary School Certificate	7	2.1
	OND/NCE	100	30.6
	HND/Bachelor Degree	140	42.8
	Postgraduate Degree	70	21.4
	Others	10	3.1
	Total	**327**	**100**
Occupation/Role	IPAC Members	14	4.3
	CSOs Representatives	16	4.9
	INEC Staff	37	11.3
	Security Personnel	44	13.5
	Registered Voters	216	66.0
	Total	327	100

The results presented in table 2 provide insight into the demographic composition of respondents and its implications for the study. In terms of gender, 71.9% of respondents were male, 27.2% were female, and just 0.9% said they would prefer not to reveal their gender. This suggests that men were over-represented in the survey, indicating a significant gender imbalance. Given that men are frequently more visible in electoral activities, this discrepancy may be a reflection of larger patterns of political involvement and participation in the research area. According to the age distribution, the bulk of respondents are between the ages of 26 and 35 (33.6%) and 36 and 45 (29.1%). This suggests that the majority of responders belonged to economically productive and active age groups, which are more likely to be involved in political processes and have a deeper comprehension of governance concerns. The age group with the lowest representation was 18–25 years old (5.2%), whereas respondents 46–55 years old (19.9%) and 56 years and older (12.2%) also made significant contributions. This implies that younger people participated in the poll at a comparatively lower rate. The results show that a sizable percentage of respondents had postsecondary education. In particular, 21.4% held postgraduate credentials, and 42.8% held HNDs or bachelor's degrees. Furthermore, 30.6% had OND/NCE credentials. Only 2.1% of people had completed high school, and none had only completed primary school. This suggests that most of the respondents were educated, which strengthens the validity of their answers, especially when it comes to technical matters like electoral integrity and e-governance. According to the occupational distribution, the majority of respondents (66.0%) were registered voters, which reflects their dominance in the sample and their crucial involvement in the political process. Strong institutional participation was also demonstrated by the significant amounts of security personnel (13.5%) and Independent National Electoral Commission employees (11.3%). In the meantime, smaller but noteworthy groups were created by CSO representatives (4.9%) and IPAC members (4.3%) due to their responsibilities in election monitoring and political participation.

Data Analysis

Table 4: Role of E-Governance in the Conduct of Free and Fair Election

Variables	SD	D	A	SA	∑X	∑FX	Mean	RII
The use of biometric voter registration technology by INEC improved the accuracy and reliability of the voter register used for the 2023 presidential election.	66	87	51	123	327	885	2.71	0.68
The electronic voter registration system adopted by INEC effectively eliminated duplicate registrations and ghost voters in the study area in the 2023 presidential election.	46	67	62	152	327	974	2.98	0.74
INEC's digital voter registration process gave eligible citizens	61	45	87	134	327	948	2.90	0.72

sufficient opportunity to register, verify, and update their details before the 2023 presidential election.								
The deployment of the Bimodal Voter Accreditation System (BVAS) improved the accuracy of voter authentication and reduced impersonation during the 2023 presidential election in Rivers State.	60	95	85	87	327	853	2.61	0.65
E-governance tools used in the 2023 Presidential Election contributed to the conduct of a free and fair election in Rivers State.	83	66	101	77	327	826	2.53	0.63
The electronic transmission of results reduced opportunities for manipulation of election outcomes in Rivers State during the 2023 Presidential Election.	56	78	94	99	327	890	2.72	0.68
Citizens and political party agents were able to independently verify election results through the IReV portal during the 2023 Presidential Election in Rivers State.	70	90	85	82	327	833	2.55	0.64
The introduction of e-governance tools by INEC strengthened public trust in the electoral process in Rivers State during the 2023 Presidential Election.	45	70	95	117	327	938	2.87	0.72

Source: Field Survey, 2026.
SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree; ∑X = Total Respondents; ∑FX = Weighted Score; RII = Relative Importance Index.

The findings shown in Table 4.3 show that, rather than being overwhelmingly positive, the role of e-governance in conducting free and fair elections in Rivers State during the 2023 presidential election was viewed as moderate and somewhat limited. The mean ratings, which mostly lie between 2.53 and 2.98, show only a slight degree of agreement among responders. The employment of biometric technology in voter registration yielded a mean of 2.71 (RII = 0.68), showing a moderate level of trust in its capacity to enhance the voter register's correctness and dependability.

Similarly, a slightly higher average of 2.98 (RII = 0.74) was reported for the effectiveness of the computerised voter registration system in eliminating duplicate registrations and ghost voters. This indicates that respondents saw some progress, but with reservations. The digital registration process received moderate agreement (Mean = 2.90), suggesting that while registration was generally accessible, it may not have been fully inclusive or efficient. Conversely, opinions on the performance of key election-day technologies were relatively lower. The deployment of the Bimodal Voter Accreditation System (BVAS) scored a mean of 2.61 (RII = 0.65), raising questions about its ability to improve voter verification and reduce impersonation. This suggests that operational challenges, such as delays or technical issues, might have undermined its perceived effectiveness.

In the same vein, a low average score of 2.53 (RII = 0.63) was observed regarding the overall contribution of e-governance tools to ensuring a free and fair election. This indicates that most respondents were not convinced that digital technologies significantly enhanced electoral legitimacy. Views on the electronic transfer of results (Mean = 2.72) and the use of the IReV portal for independent verification (Mean = 2.55) — both showing moderate to low agreement — support this impression. These findings suggest that, although these technological advances aimed to boost transparency, their actual implementation may have been inconsistent or perceived as unreliable. The rollout of e-governance tools yielded a mean trust score of 2.87 (RII = 0.72), implying some level of confidence, but not enough to foster widespread trust in the electoral process.

Discussion

The findings from the first research objective reveal that the role of e-governance in the conduct of free and fair elections during the 2023 presidential election in Rivers State was moderate and mixed, rather than decisively positive. From the perspective of the Technology Acceptance Theory (Davis, 1986), this finding is theoretically instructive. The theory postulates that the adoption and effective use of any technological system is fundamentally determined by two core constructs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). In this study, the moderate mean scores recorded for BVAS performance (Mean = 2.61) and IReV verification (Mean = 2.55) suggest that respondents' perceived usefulness of these tools was insufficient to generate strong confidence in their electoral outcomes. Where a technology is perceived as failing to deliver its promised benefits, whether through operational breakdowns, delayed uploads, or accreditation errors, its perceived usefulness declines, and with it, public trust in the integrity of the electoral process it was designed to safeguard. Davis (1989) emphasizes that actual system use is ultimately the most concrete measure of technology acceptance, and the evidence from this study suggests that the actual deployment of BVAS and IReV fell short of the performance benchmarks that would have been necessary to significantly elevate perceptions of electoral fairness.

The principle of accountability necessitates that governmental institutions be answerable to citizens regarding the quality of their performance (UNDP, 1997). The observation that e-governance tools did not conclusively enhance perceptions of electoral fairness reflects an accountability shortfall: INEC allocated substantial technological resources with the explicit commitment of bolstering credibility, yet the operational performance of these systems did not entirely meet the expectations established among stakeholders. As Kaufmann, Kraay, and Mastruzzi (2010) contend, the quality of governance is shaped not solely by the presence of formal institutional mechanisms but by their effective and consistent implementation. In Rivers State, the disparity between the formal deployment of e-governance tools and their

actual operational effectiveness signifies a significant governance performance shortcoming that compromised the legitimacy of the electoral process.

This finding is broadly consistent with the empirical literature. Udunze, Nnaji, and Edokobi (2022) found that INEC's adoption of card reader technology in the 2019 elections enhanced transparency and reduced multiple voting, but noted that device breakdowns, inadequate staff training, and poor public sensitization limited optimal implementation. Apalowo, Osigwe, and Adejumo (2023) similarly found that public awareness of BVAS and IReV positively influenced voter confidence but noted that the technologies' full potential was contingent on effective deployment. The current study's findings are also consistent with Kasera and Juma's (2025) cautionary argument that ICT in African electoral processes has largely digitized existing weaknesses rather than eliminated them, a perspective that resonates strongly with the mixed perceptions recorded in Rivers State.

Conclusion

This study examined the role of e-governance in enhancing electoral integrity during the 2023 presidential election in Rivers State, Nigeria. Based on empirical data, it is apparent that while e-governance mechanisms have introduced significant procedural improvements into Nigeria's electoral process, their overall contribution to electoral integrity remains limited by substantial operational, institutional, and infrastructural challenges. The findings demonstrate that e-governance exerts a statistically significant influence on electoral conduct. However, this influence is neither sufficiently robust nor consistently positive to ensure free and fair outcomes. Although digital voter registration has contributed to reducing electoral irregularities such as multiple registrations, the effectiveness of election-day technologies-specifically the Bimodal Voter Accreditation System and the INEC Result Viewing Portal-was compromised by technical inefficiencies and inconsistent performance. This underscores that the deployment of digital tools alone does not automatically enhance electoral credibility; their impact depends on reliability, functionality, and institutional support.

Recommendation

1. Enhancing the operational reliability of the Bimodal Voter Accreditation System

Respondents' low satisfaction with BVAS and weak e-governance contribution highlight Nigeria's critical issue with BVAS's operational reliability. The study suggests INEC establish mandatory pre-election certification to simulate actual conditions for device performance. Devices not meeting benchmarks should be replaced, and INEC should create a technical support system with trained technicians and spare devices nationwide to address malfunctions swiftly. BVAS failures threaten electoral legitimacy and demand high-level institutional commitment to fix.

2. Improving the IReV Portal's Operational Transparency and Technical Capabilities

The study finds that respondents rated the INEC Result Viewing Portal's real-time upload as poor and the election transparency as unsatisfactory, showing the portal failed its transparency role. It recommends INEC invest in server infrastructure, ensuring it can handle simultaneous uploads nationwide without failures or delays during critical times. The legal framework should be amended to specify timing, format, and penalties for result uploads. INEC should also add a public real-time upload dashboard for transparency, allowing stakeholders to monitor result transmission at the polling unit level, transforming IReV into a tool for democratic accountability.

3. Institutionalizing ongoing and comprehensive capacity development for electoral staff

The study highlights that inadequate training of INEC ad-hoc staff caused accreditation issues and voter disenfranchisement in the 2023 election, exposing systemic HR failures. It recommends replacing the ineffective pre-election orientation with a formal, tiered, continuous capacity-building program for all personnel involved in digital electoral systems. The programme should include technical modules on BVAS device operation, maintenance, troubleshooting; procedural modules on IReV upload, documentation, chain-of-custody; and supervised simulated exercises mirroring actual election-day conditions. Training must be certified, and those below competency thresholds should be barred from deployment. Evidence confirms that deploying advanced electoral tech without trained personnel cannot ensure credibility and effectiveness.

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