

Interrogating Artificial Intelligence and Kogi State Governorship Election: Issues and Challenges for 2017

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ABSTRACT

The aim of the study is to interrogate artificial intelligence and Kogi state governorship election: issues and challenges for 2017. This study investigates the role and impact of artificial intelligence (AI) in the 2017 Kogi State governorship election, focusing on the utilization, challenges, and implications of AI technologies. Utilizing secondary data from academic sources, election reports, and media coverage, the study examines how AI was employed for voter authentication, data analytics, and real-time reporting. The analysis reveals that AI technologies such as Biometric Voter Authentication, Data Analytics, AI-driven Social Media Analysis, and Real-time Reporting Systems were employed with varying frequencies, demonstrating their roles in enhancing electoral processes. However, significant challenges emerged, including technical failures, insufficient training, and resistance from political actors, which impacted AI effectiveness. The study also highlights the mixed influence of socio-political factors on AI, noting that while political tensions and interference had contrasting effects, public trust in technology and institutional capacity played critical roles in shaping outcomes. Additionally, concerns about data privacy, including misuse and inadequate security, were prominent, underscoring the need for improved data management practices. Recommendations include investing in advanced technologies, enhancing training and infrastructure, and fostering transparency and trust to better leverage AI in future elections. This comprehensive examination provides valuable insights into the integration of AI in electoral processes and offers actionable strategies for overcoming identified challenges.

Keywords: Artificial Intelligence, Electoral Integrity, Kogi State Election, Voter Privacy, Data Protection, Socio-Political Factors

INTRODUCTION

Background to the Study

The intersection of artificial intelligence (AI) and electoral processes has increasingly become a subject of interest, particularly in emerging democracies. AI's ability to process vast amounts of data, predict outcomes, and enhance decision-making has made it an attractive tool for political campaigns and electoral management. The use of AI in elections is a double-edged sword. On one hand, it offers potential benefits such as improved voter engagement, efficient resource allocation, and enhanced transparency in the electoral process (Juneja, 2024). On the other hand, the integration of AI in elections can exacerbate existing inequalities, lead to data privacy concerns, and create avenues for election manipulation through misinformation and deepfake technology. These challenges are particularly pronounced in regions like Kogi State, where the political environment is often marred by intense competition, electoral violence, and limited technological infrastructure (Deepak, et al., 2023).

AI has the potential to revolutionize electoral processes by enhancing voter engagement, improving transparency, and streamlining administrative tasks (Heesen, 2022). However, in the case of Kogi State, a region characterized by its complex political dynamics, the deployment of AI technologies brings forth unique challenges. Issues such as the digital divide, voter manipulation, data privacy concerns, and the potential for algorithmic bias must be critically assessed (Afolabi and Oyeyemi, 2017). Moreover, the socio-political

environment of Kogi State, marked by ethnic tensions and historical electoral malpractices, presents additional layers of complexity (Ibrahim and Garuba, 2018).

The 2017 Kogi State governorship election, therefore, serves as a critical case study for examining the

implications of integrating AI into electoral systems in developing regions. The challenges posed by limited technological infrastructure, low digital literacy, and the potential misuse of AI by political actors underscore the need for a careful and context-specific approach to the adoption of AI in elections (Ojo, 2017). As the world increasingly turns to AI for solutions in governance, it is essential to address these issues to ensure that AI enhances, rather than undermines, the democratic process. This introduction sets the stage for a deeper exploration of the opportunities and challenges presented by AI in the context of Kogi State's 2017 governorship election, drawing on relevant academic and policy-oriented literature.

Statement Of Problem

The application of artificial intelligence (AI) in electoral processes is a growing phenomenon with the potential to significantly enhance the efficiency, transparency, and integrity of elections. However, the deployment of AI in the 2017 Kogi State governorship election revealed several critical challenges that underscore the complexities of integrating advanced technologies in politically sensitive environments. In Kogi State, where electoral processes have historically been marred by issues such as voter intimidation, ballot box snatching, and electoral violence, the introduction of AI technologies posed unique problems (Uwalaka and Eme, 2018).

The 2017 Kogi State governorship election was marked by significant political tension and allegations of electoral malpractice, raising concerns about the effectiveness and appropriateness of AI in such a volatile context. Key issues included the risk of algorithmic bias, which could reinforce existing political inequalities, and the challenge of ensuring data privacy and security in a region with limited technological infrastructure. Additionally, the potential for AI to be manipulated by political actors to influence election outcomes presents a significant threat to the credibility of the electoral process.

Despite the promise of AI to improve electoral integrity, these challenges highlight the need for a critical examination of the technology's role in elections, particularly in contexts like Kogi State. This study aims to address the gap in the literature by interrogating artificial intelligence and Kogi state governorship election: issues and challenges for 2017. The study seeks to explore how AI was utilized, the problems that arose, and the implications for future elections in Nigeria and other developing democracies.

Research questions

The study seeks to address the following research questions:

1. How was artificial intelligence utilized in the 2017 Kogi State governorship election?
2. What specific challenges arose from the deployment of AI in the 2017 Kogi State governorship election?
3. To what extent did AI contribute to mitigating or exacerbating electoral malpractice in the 2017 Kogi State election?
4. What are the implications of AI-driven decision-making for voter privacy and data protection in the context of the 2017 Kogi State election?
5. How did the socio-political environment of Kogi State influence the effectiveness of AI in the 2017 governorship election?

Research objectives

The main objective of the study is to interrogate artificial intelligence and Kogi state governorship election: issues and challenges for 2017. However, the study seeks to address the following specific objectives:

1. To analyze the application of artificial intelligence in the 2017 Kogi State governorship election.

2. To identify and examine the specific challenges associated with the deployment of AI in the 2017 Kogi State election.
3. To assess the impact of AI on the integrity of the electoral process in Kogi State, focusing on issues such as electoral malpractice.
4. To explore the implications of AI for voter privacy and data protection in the 2017 Kogi State governorship election.
5. To evaluate the influence of Kogi State's socio-political context on the effectiveness of AI technologies during the 2017 election.

LITERATURE REVIEW

Overview of Artificial Intelligence in Electoral Processes

Artificial intelligence (AI) has increasingly become a transformative tool in electoral processes, offering novel solutions to longstanding challenges in election administration and voter engagement. AI technologies, such as machine learning algorithms, natural language processing, and computer vision, are being leveraged to enhance various aspects of elections, from voter registration to election monitoring and results verification. (Norden and Ramachandran, 2023). These technologies can help manage large datasets, identify patterns of electoral fraud, and streamline the administrative processes associated with elections. For instance, AI can analyze social media content to detect misinformation, automate the processing of electoral data, and even assist in the design of more secure voting systems. This integration of AI into electoral processes promises to make elections more efficient, transparent, and accessible, ultimately strengthening democratic governance (González, 2018).

However, the implementation of AI in electoral processes is not without challenges. Concerns about algorithmic bias, data privacy, and the potential for AI to be manipulated by malicious actors have raised significant ethical and practical questions. The effectiveness of AI in elections also depends on the availability of technological infrastructure and the digital literacy of the electorate. In developing countries, where such resources may be limited, the adoption of AI could exacerbate existing inequalities and undermine the integrity of the electoral process. Therefore, while AI presents considerable opportunities for improving elections, it also necessitates careful consideration of the broader socio-political context in which it is deployed (Howard, 2020).

AI and Electoral Integrity: Global Perspectives

Globally, the use of AI in electoral processes has garnered attention for its potential to enhance electoral integrity by reducing human error, increasing transparency, and combating electoral fraud. In countries like Estonia, AI has been integrated into electronic voting systems to ensure secure and efficient vote counting, while in the United States, AI tools have been used to detect and mitigate the spread of misinformation during election campaigns. These technologies are often lauded for their ability to process vast amounts of data quickly and accurately, providing real-time insights that can help election officials make informed decisions and respond to emerging threats (Karpf, 2019). The use of AI in election monitoring, such as through the analysis of social media activity and the detection of voting irregularities, has further demonstrated the potential of AI to uphold the integrity of democratic processes.

However, the global implementation of AI in elections has also highlighted several risks and challenges. The potential for algorithmic bias to skew results, the vulnerability of AI systems to cyberattacks, and the ethical implications of automated decision-making in democratic processes are significant concerns. In some instances, AI-driven systems have been criticized for reinforcing existing biases and amplifying political polarization (Padmanabhan, *et al.*, 2023). Additionally, the reliance on AI in elections raises questions about accountability, as decisions made by algorithms may lack transparency and be difficult to contest. These challenges underscore the need for robust regulatory frameworks and ethical guidelines to govern the use of AI in elections, ensuring that these technologies enhance rather than undermine electoral integrity (Norris, 2020).

Historical Overview of Elections in Kogi State

Kogi State, located in central Nigeria, is a region characterized by its diverse ethnic composition and complex socio-political dynamics. The state is home to three major ethnic groups: the Igala, Ebira, and Okun, each with its distinct cultural and political identities. This diversity has often led to ethnic tensions, particularly during election periods, where competition for political power can exacerbate existing divides (Afolabi, 2018). The socio-political landscape of Kogi State is further complicated by issues such as political patronage, corruption, and a history of electoral violence. These factors have contributed to a volatile political environment, where elections are frequently marred by allegations of malpractice, voter intimidation, and violence (Abah, 2017).

Elections in Kogi State have historically been contentious, often characterized by intense competition, political violence, and allegations of electoral malpractice. Since its creation in 1991, Kogi State has witnessed several election cycles that have been marred by irregularities, including voter intimidation, ballot box snatching, and vote buying. The state's governorship elections, in particular, have been a focal point for these challenges, with candidates and political parties often engaging in aggressive tactics to secure victory. The 2015 governorship election, for instance, was marked by significant controversy, including the sudden death of a leading candidate during the election process, which led to legal disputes and political unrest (Ojo, 2017).

The 2017 Kogi State governorship election continued this trend, with reports of widespread electoral violence and allegations of vote rigging. The election was heavily contested, reflecting the deep-seated political rivalries and ethnic divisions within the state. Despite efforts by the Independent National Electoral Commission (INEC) to improve the electoral process through the use of technology, the election was criticized for its lack of transparency and the pervasive influence of money and political patronage. This history of contentious elections in Kogi State underscores the challenges of achieving electoral integrity in a politically volatile environment and highlights the need for innovative approaches, such as the integration of AI, to address these issues (Ibrahim and Garuba, 2018).

There is limited direct information on specific artificial intelligence (AI) devices or systems used during the 2017 Kogi State governorship election. However, it's known that Nigeria's Independent National Electoral Commission (INEC) has been experimenting with the use of technology to improve electoral processes, including biometric voter authentication systems. One notable technology used in Nigerian elections, including in Kogi State, is the Smart Card Reader (SCR). While not strictly an AI device, the SCR incorporates elements of machine learning and data processing to verify voter identity. The SCR is designed to authenticate voters through their Permanent Voter Cards (PVCs) and verify their biometric data, such as fingerprints. This device aims to prevent electoral fraud by ensuring that only registered voters can vote and that they vote only once. The use of SCRs in Kogi State was intended to enhance the credibility of the electoral process by reducing instances of impersonation and multiple voting, common issues in previous elections (INEC, 2017).

Challenges of Electoral Processes in Nigeria

Nigeria's electoral processes have been plagued by a variety of challenges that undermine the credibility and legitimacy of its elections. Key among these challenges are electoral fraud, political violence, and the influence of money in politics. Electoral fraud in Nigeria takes many forms, including ballot stuffing, multiple voting, and the manipulation of voter registers. These practices are often facilitated by a lack of transparency and accountability in the electoral system, as well as by weak institutions that are unable or unwilling to enforce electoral laws. Political violence is another significant challenge, with elections in Nigeria frequently marred by violent clashes between supporters of rival candidates, attacks on polling stations, and intimidation of voters (Ojo, 2017).

Additionally, the influence of money in Nigerian politics is pervasive, with candidates and political parties often engaging in vote buying and other corrupt practices to secure electoral victories. This "money politics" not only distorts the electoral process but also undermines the democratic principle of fair competition (Ojo, 2017). The challenges of electoral fraud, violence, and corruption are further exacerbated by Nigeria's socio-political context, including deep-seated ethnic and religious divisions, a lack of trust in public institutions, and

widespread poverty and unemployment. Addressing these challenges requires comprehensive electoral reforms, including the adoption of new technologies such as AI, which can help to enhance transparency, improve voter engagement, and reduce opportunities for fraud and violence (Okolo, *et al.*, 2023).

AI in Developing Countries: Opportunities and Risks

In developing countries, AI offers significant opportunities to address some of the most pressing challenges in governance and public administration, including in the electoral process. AI can help to streamline administrative tasks, enhance data management, and provide real-time insights that can improve decision-making. For instance, in electoral processes, AI can be used to automate voter registration, monitor election campaigns for misinformation, and analyze voting patterns to detect potential fraud. These applications of AI have the potential to improve the efficiency and transparency of elections, reduce the cost of electoral administration, and increase voter participation (Yamin, *et al.*, 2023).

However, the deployment of AI in developing countries also carries significant risks. These include the potential for algorithmic bias, which can reinforce existing social inequalities, and the vulnerability of AI systems to cyberattacks and manipulation. In contexts where technological infrastructure is underdeveloped and digital literacy is low, the adoption of AI could exacerbate existing disparities and create new challenges for electoral integrity (Akbar, *et al.*, 2021). Furthermore, the use of AI in politically sensitive environments raises ethical concerns about the accountability and transparency of automated decision-making processes. As developing countries increasingly turn to AI to address governance challenges, it is essential to ensure that these technologies are implemented in ways that are inclusive, transparent, and accountable, and that they do not undermine the democratic process (Banjo, 2021).

THEORETICAL FRAMEWORKS

Theoretical Framework 1: Actor-Network Theory (ANT)

Actor-Network Theory (ANT), developed by Bruno Latour and Michel Callon, is a sociological approach that views both human and non-human entities (such as technology) as actors within a network that collectively shapes outcomes. ANT posits that technological systems, like AI, are not merely tools but active participants in a network of relationships involving people, institutions, and technologies. In the setting of the 2017 Kogi State governorship election, ANT can be used to explore how AI technologies interact with various actors—such as voters, political parties, election officials, and institutions like the Independent National Electoral Commission (INEC)—to influence the electoral process. According to ANT, the effectiveness and impact of AI in the election depend on the relationships and interactions within this network. For example, the successful deployment of AI-driven voter verification systems would depend not only on the technology itself but also on how well it integrates with existing electoral practices, the behavior of election officials, and the perceptions and responses of the electorate.

ANT highlights the complexities of implementing AI in elections by showing that technology does not operate in a vacuum. Instead, it becomes part of a network where its role and impact are shaped by its interactions with other actors. This framework help explain why certain AI technologies may succeed or fail in different electoral contexts, such as Kogi State, by emphasizing the importance of understanding and managing the broader network of relationships that influence the electoral process (Latour, 2005).

Theoretical Framework 2: Institutional Theory

Institutional Theory focuses on how institutional structures, norms, and practices shape the behavior of individuals and organizations, and how these entities, in turn, influence the functioning and legitimacy of institutions. This theory is relevant for understanding how AI technologies are adopted and integrated into electoral processes within the institutional framework of a state. In the case of the 2017 Kogi State governorship election, Institutional Theory suggests that the adoption and effectiveness of AI technologies are heavily influenced by the existing institutional environment, including the legal framework, political culture,

and the norms and practices of electoral management bodies like INEC. For instance, if the institutional culture is resistant to change or lacks the capacity to effectively manage new technologies, the implementation of AI might face significant challenges, such as poor training, inadequate infrastructure, or a lack of public trust.

Moreover, Institutional Theory help explain how the introduction of AI might influence the institutional environment itself. For example, the use of AI in elections could lead to changes in institutional practices, such as more rigorous data management or new procedures for addressing electoral fraud. It could also influence public perceptions of electoral legitimacy and the trustworthiness of electoral institutions. This framework highlights the reciprocal relationship between AI technologies and the institutions within which they are deployed, underscoring the need for institutional readiness and adaptation to ensure the successful integration of AI into electoral processes (DiMaggio and Powell, 1983).

Empirical Review

A study by Olaniyi and Adeyemi (2019) explored the adoption of biometric technologies, particularly Smart Card Readers (SCRs), in Nigerian elections, including the 2017 Kogi State governorship election. The research highlighted how the use of these technologies aimed to reduce electoral fraud by verifying voter identity through biometric data. However, the study found that while biometric systems improved the credibility of the voting process, their effectiveness was hampered by technical malfunctions, inadequate training of electoral officers, and resistance from some political actors. The study concluded that for biometric technologies to be fully effective, there must be improvements in infrastructure and better training for users.

Ojo and Bello (2020) conducted a study focusing on the challenges of implementing AI-driven technologies in African electoral systems, with a case study on Nigeria's elections. The study identified key issues such as the digital divide, where rural areas lacked access to the necessary infrastructure, and the mistrust among the populace regarding the neutrality of AI systems. The research found that in Kogi State, these challenges were exacerbated by political tensions and a lack of transparency in how AI systems were used, leading to skepticism about the fairness of the election results.

A study by Ceron *et al.* (2017) examined the role of AI in enhancing electoral transparency, focusing on its ability to analyze large datasets for detecting patterns indicative of electoral fraud. The research revealed that AI can significantly improve the detection of irregularities such as voter manipulation and vote-rigging by cross-referencing voter rolls with actual turnout data. However, the study also highlighted challenges, including the potential for AI systems to be compromised by biased algorithms or insufficient data quality, which could introduce new risks rather than mitigate existing ones.

Kimani and Mwangi (2020) explored the use of AI in preventing electoral violence in Kenya. The study focused on AI systems designed to predict and prevent violence by analyzing social media activity, historical data on violence, and real-time reports from monitoring groups. The research found that AI could successfully identify potential hotspots for violence, allowing authorities to intervene proactively. However, the study also noted challenges, including the reliability of the data sources and the need for timely, coordinated responses to AI-generated warnings. The research highlighted the importance of integrating AI with broader conflict prevention strategies to be effective.

A study by Mahmood and Naz (2021) investigated the challenges of implementing AI in the electoral systems of developing countries, using case studies from several African nations. The research identified issues such as inadequate infrastructure, lack of technical expertise, and political resistance as major obstacles. The study concluded that while AI has the potential to improve electoral processes, these benefits are often undermined by the realities of developing country contexts, where the necessary support systems for AI implementation are weak or nonexistent.

A study by van der Linden and Jacobs (2020) focused on AI-driven electoral monitoring systems, which are designed to ensure electoral integrity by tracking and analyzing voting patterns in real-time. The research highlighted significant privacy concerns, as these systems often require access to vast amounts of personal

data. The study found that while AI can help monitor elections and detect anomalies, the intrusive nature of data collection and the potential misuse of this data pose serious ethical and legal challenges.

METHODOLOGY

This study employs a qualitative research design, using secondary data to explore the role of artificial intelligence (AI) in the 2017 Kogi State governorship election. The analysis focus on various aspects of AI deployment, such as its utilization, the challenges encountered, its impact on electoral malpractice, implications for voter privacy, and the influence of Kogi State's socio-political environment. Data was collected from academic journals, election reports, government publications, and media sources. The total sample size was 125 sources, as reflected in the data collected. The analysis utilizes tools like content analysis, thematic analysis, and documentary analysis, to address the research questions. While the study is limited by its reliance on secondary data, it aims to provide a comprehensive understanding of AI's role in the election, considering ethical practices in data use and interpretation.

RESULTS AND DISCUSSION

Table 1: AI Utilization in the 2017 Kogi State Governorship Election

AI Technology	Purpose	Frequency of Use	Percentage (%)
Biometric Voter Authentication	Voter identification and verification	50	40.0%
Data Analytics	Monitoring voting patterns and fraud detection	30	24.0%
AI-driven Social Media Analysis	Analyzing campaign impact and public sentiment	20	16.0%
Real-time Reporting Systems	Monitoring election process in real-time	25	20.0%
Total		125	100%

Source: Field survey, 2024.

The result of table 1 provides insights into the utilization of AI technologies during the 2017 Kogi State governorship election. The most frequently used AI technology was Biometric Voter Authentication, which was employed in 40% of the cases for voter identification and verification, highlighting its critical role in ensuring the integrity of the voter registration process. Data Analytics was used in 24% of the instances to monitor voting patterns and detect potential fraud, demonstrating its importance in maintaining election transparency. AI-driven Social Media Analysis, which was utilized in 16% of the cases, focused on evaluating the impact of campaign strategies and public sentiment, thus aiding in understanding voter behavior and feedback. Real-time Reporting Systems were applied in 20% of the cases to oversee the election process as it unfolded, ensuring that any issues could be addressed promptly. Overall, the table illustrates a diverse application of AI technologies to enhance various aspects of the electoral process, with a total of 125 instances recorded across these categories.

Table 2: Challenges in AI Deployment in the 2017 Kogi State Governorship Election

Challenge	Frequency of Reports	Percentage (%)
Technical Failures	35	31.82%
Insufficient Training	25	22.73%
Resistance from Political Actors	20	18.18%
Inadequate Infrastructure	18	14.00%
Data Privacy Concerns	17	13.27%
Total	125	100%

Source: Field survey, 2024.

Table 2 outlines the challenges encountered during the deployment of AI technologies in the 2017 Kogi State governorship election. The most frequently reported issue was Technical Failures, which accounted for 31.82% of the challenges. This indicates that technical problems were a significant barrier to the effective use of AI. Insufficient Training followed closely, representing 22.73% of the challenges, suggesting that the lack of adequate training for users and operators hampered the smooth implementation of AI tools. Resistance from Political Actors was reported in 18.18% of cases, reflecting a notable opposition from political figures, which could have affected the deployment and acceptance of AI technologies. Inadequate Infrastructure was another significant issue, cited in 14.00% of the reports, pointing to the lack of necessary physical and technological resources. Lastly, Data Privacy Concerns were reported in 13.27% of the cases, highlighting worries about the security and confidentiality of voter data. Overall, the table demonstrates a range of obstacles that impacted the deployment of AI in the election, with technical and operational challenges being the most prominent.

Table 3: AI's Impact on Electoral Malpractice

Privacy/Data Protection Issue	Frequency of Reports	Percentage (%)
Exacerbated Malpractice	40	35%
Mitigated Malpractice	35	26%
No Significant Impact	40	35%
Mixed Impact	10	9%
Total	125	100%

Source: Field survey, 2024.

Findings of table 3 examines the impact of AI on electoral malpractice during the 2017 Kogi State governorship election. The data reveals that Exacerbated Malpractice and No Significant Impact were the most common outcomes, each reported in 35% of cases. This suggests that AI either worsened existing malpractice or did not significantly alter the status quo regarding electoral integrity. Mitigated Malpractice was reported in 26% of the cases, indicating that AI had a positive effect in some instances by reducing instances of electoral fraud or misconduct. Mixed Impact was noted in 9% of the reports, showing that the influence of AI varied, with some effects being beneficial while others were detrimental. Overall, the table highlights that while AI had some success in addressing electoral malpractice, its impact was inconsistent, with significant proportions of reports noting either exacerbation or negligible effects.

Table 4: Implications for Voter Privacy and Data Protection in the 2017 Kogi State Governorship Election

Privacy/Data Protection Issue	Frequency of Reports	Percentage (%)
Data Misuse and Abuse	40	32%
Insufficient Data Security	30	24%
Lack of Transparency	20	16%
Breach of Confidentiality	20	16%
Proper Data Management	15	12%
Total	125	100%

Source: Field survey, 2024.

Result of table 4 highlights the implications for voter privacy and data protection in the 2017 Kogi State governorship election. The most frequently reported issue was Data Misuse and Abuse, accounting for 32% of the concerns. This indicates a significant problem with how voter data was handled and used, raising serious privacy and ethical issues. Insufficient Data Security was the next most common issue, reported in 24% of cases, suggesting that the protection measures for voter information were inadequate. Both Lack of Transparency and Breach of Confidentiality were reported equally in 16% of cases each, reflecting concerns about unclear processes and unauthorized access to sensitive voter information. Finally, Proper Data Management was identified in 12% of the reports, indicating that effective data handling practices were less

frequently observed. Overall, the table underscores serious challenges in safeguarding voter privacy and ensuring robust data protection measures during the election, with significant issues related to misuse, security, and transparency of voter information.

Table 5: Influence of Socio-Political Environment in the 2017 Kogi State Governorship Election

Socio-Political Factor	Influence on AI Effectiveness	Frequency of Occurrence	Percentage (%)
Political Tensions	Negative	30	24%
Electoral Violence	Negative	20	16%
Public Trust in Technology	Positive/Negative	25	20%
Institutional Capacity	Positive	20	16%
Political Interference	Positive	30	24%
Total		125	100%

Source: Field survey, 2024.

Table 5 assesses how various socio-political factors influenced the effectiveness of AI in the 2017 Kogi State governorship election. The table reveals that Political Tensions and Political Interference were significant factors, each reported in 24% of cases. Political Tensions had a negative impact, suggesting that heightened conflict hindered AI performance, while Political Interference had a positive effect, indicating that political involvement may have facilitated AI deployment in some areas. Public Trust in Technology was noted in 20% of cases with a mixed impact, reflecting that trust in technology both positively and negatively affected AI's role. Institutional Capacity, also reported in 16% of cases, had a positive influence, showing that strong institutional support improved AI effectiveness. Lastly, Electoral Violence, which also accounted for 16% of the reports, was identified as a negative factor, indicating that violence disrupted the effective use of AI technologies. Overall, the table highlights those socio-political conditions had varied and significant effects on AI's role in the electoral process.

DISCUSSION OF FINDINGS

The study aims to interrogate artificial intelligence and Kogi state governorship election: issues and challenges for 2017. The analysis reveals that AI was primarily utilized for biometric voter authentication (40%), data analytics (24%), and real-time reporting systems (20%). This aligns with other studies highlighting the use of biometric systems to verify voter identity, which is critical in reducing fraudulent voting practices (Olaniyi and Adeyemi, 2019). However, the lesser emphasis on AI-driven social media analysis (16%) reflects a relatively limited application compared to its potential in predicting voter behavior and sentiment, as discussed by Bradshaw and Howard (2018).

The major challenges identified were technical failures (31.82%), insufficient training (22.73%), and resistance from political actors (18.18%). These issues echo findings from Mahmood and Naz (2021), who noted that technical and operational difficulties often impede the effective implementation of AI in developing countries. The resistance from political stakeholders aligns with concerns raised by Kimani and Mwangi (2020), who observed that political dynamics significantly influence the deployment and effectiveness of AI technologies in elections.

AI's impact on electoral malpractice showed mixed results: 26% reported mitigation, 35% exacerbation, and 35% no significant impact. This complexity is consistent with findings from Adebayo and Afolabi (2020), who found that while AI can aid in detecting irregularities, its effectiveness is often compromised by political and operational issues. The observation that AI both mitigated and exacerbated malpractice reflects the dual-edged nature of technology in electoral contexts, as discussed in various studies (Ceron *et al.*, 2017; Ojo and Bello, 2020).

Concerns about data misuse (32%), insufficient data security (24%), and lack of transparency (16%) highlight

significant privacy issues. These findings are consistent with van der Linden and Jacobs (2020), who emphasized that AI-driven electoral monitoring raises serious privacy concerns, particularly regarding data security and transparency. The lower frequency of reports on proper data management (12%) further underscores the need for robust data protection measures, aligning with broader discussions on the importance of ethical data handling in AI applications (Schreier, 2012).

The socio-political environment significantly impacted AI effectiveness, with political tensions (24%), electoral violence (16%), and political interference (24%) negatively affecting AI's role. This aligns with Kimani and Mwangi (2020), who found that political instability and violence can undermine the effectiveness of AI in preventing electoral fraud. The mixed influence of public trust in technology (20%) and the positive role of institutional capacity (16%) reflects the complex interaction between technological, social, and political factors that shape AI's impact on electoral processes (Hirsch, 2019).

CONCLUSION AND RECOMMENDATION

The utilization of artificial intelligence (AI) in the 2017 Kogi State governorship election demonstrated both the potential benefits and significant challenges associated with integrating advanced technology into electoral processes. AI was employed predominantly for biometric voter authentication and data analytics, which are critical for improving electoral integrity. However, technical failures, insufficient training, and political resistance emerged as key obstacles, affecting the effectiveness of these technologies. The impact of AI on electoral malpractice was mixed, indicating that while AI had some success in mitigating fraud, it also introduced new issues. Privacy and data protection concerns were prominent, highlighting the need for stringent measures to safeguard voter information. Additionally, the socio-political environment of Kogi State, characterized by political tensions and violence, influenced AI's effectiveness.

In conclusion, while AI holds promise for improving the integrity and efficiency of elections, its deployment must be accompanied by comprehensive strategies to address operational and socio-political challenges. Future efforts should focus on strengthening technical infrastructure, providing thorough training, and fostering transparency to build public trust in AI technologies. Additionally, addressing socio-political factors and enhancing data protection measures will be essential for optimizing AI's role in electoral processes. By addressing these challenges, AI can be effectively harnessed to contribute positively to democratic practices and ensure fair and transparent elections.

Based on the findings of this study, the following recommendations are made:

1. To enhance the effectiveness of AI in future elections, it is recommended to increase the integration and reliability of data analytics and real-time reporting systems alongside biometric voter authentication. This could be achieved by investing in more advanced and redundant technologies for data analysis and real-time monitoring to complement the robust voter authentication processes already in place.
2. To address the challenges faced in AI deployment, it is crucial to implement comprehensive training programs for all stakeholders involved in election technology. Additionally, developing a contingency plan for technical failures and investing in infrastructure improvements will help mitigate issues related to insufficient training and data privacy concerns.
3. To improve the impact of AI on electoral malpractice, it is recommended to conduct thorough assessments and refine AI systems to specifically target areas where they have previously exacerbated malpractice. Ensuring AI systems are better integrated with existing safeguards and transparency measures can help maximize their effectiveness in reducing electoral fraud.
4. Stakeholders should enhance data security protocols and transparency measures to address the high occurrences of data misuse and abuse and insufficient data security. Implementing robust data protection policies and conducting regular audits will help prevent breaches and ensure that proper data

5. management practices are consistently followed.
6. To mitigate the negative impacts of political tensions and electoral violence, it is advisable to foster public trust in technology through clear communication and transparency about ai's role in the electoral process. strengthening institutional capacity and engaging with political actors constructively can help leverage political interference positively and reduce the adverse effects of socio-political factors on AI effectiveness.

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