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Integrating Artificial Intelligence in Nigeria's Legislative Process: Opportunities and Challenges for the Niger State House of Assembly

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Abstract: This study addresses the lack of comprehensive research on the integration of Artificial Intelligence (AI) in sub-national legislative processes, particularly in Nigeria's Niger State House of Assembly (NSHA). The motivation for the study arises from the growing global use of AI in governance, with limited exploration of its potential in Nigeria's state assemblies. The study's objectives are to investigate existing legislative practices and technological infrastructure in the NSHA, analyse AI's perceived benefits, and identify challenges to its adoption. A mixed-methods approach was employed, combining quantitative surveys and qualitative interviews with NSHA members. The Technology Acceptance Model (TAM) and Institutional Theory (IT) provide the theoretical framework, focusing on individual perceptions and organizational pressures that influence AI adoption. Findings reveal that AI could improve decision-making and accountability in legislative processes. However, technical expertise and infrastructure need enhancement. Recommendations include targeted capacity-building and infrastructure investments.

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1. Introduction

Artificial Intelligence (AI) refers to technologies enabling computers to perform tasks that typically require human intelligence, such as decision-making and data analysis (Salar Khan et al., 2023). Similarly, Fitsilis et al. (2024) define AI as a bundle of different technologies, learning methods, system architectures, algorithms, and approaches that use computer capacities to replicate the capabilities of human intelligence in order to perform certain tasks independently or on command. Also, Murana and Emmanuel (2024) explain AI as the process of transferring human-like intelligence to machines, enabling them to perform tasks conventionally executed by humans and often with improved efficiency. In legislative contexts, AI can optimise decision-making, streamline operations, and enhance access to parliamentary data. This study focuses on machine learning, natural language processing, and big data analytics as key AI techniques that underpin the automation, analysis, and modernisation of legislative processes.

The integration of AI in legislative processes has garnered increasing attention in recent years. Studies have begun to explore how AI can revolutionise legislative functions, enhance decision-making, and streamline legal analysis. Von Lucke, Etscheid and Fitsilis (2022) discuss several AI applications that hold potential for improving parliamentary efficiency. These include the intelligent examination of legislative proposals, which allows AI tools to analyse drafts, predict their impacts, and identify conflicts with existing regulations. This function reduces the time and labour needed for legislative assessments, making the process more efficient. Another significant application is the transformation of legislative texts into machine-readable formats, or "e-code," which enables computers to process and interpret legal documents. This AI-driven system, referred to as "Smart Law," automates legal text analysis and identifies legal interactions and errors more accurately (Von Lucke et al., 2022). Similarly, Von Lucke et al. (2022) submit that AI-based accountability tools offer real-time updates on legislative negotiations and foster trust. This study underscores the relevance of AI to legislative bodies, particularly sub-national assemblies like the Niger State House of Assembly (NSHA), and highlights how legislative institutions worldwide can benefit from AI. By improving data administration, managing large volumes of information, and promoting efficient public participation, AI technologies like machine learning and

big data analytics can transform data-driven legislative functions (Von Lucke et al., 2022). These advancements enhance decision-making, accelerate procedural workflows, and strengthen institutional effectiveness. By enabling task automation, improving operational efficiency, and facilitating responses to complex legislative demands, they provide legislative bodies with greater capacity to adapt to evolving governance needs while fostering more meaningful public engagement.

Embracing AI in the legislative sphere is likely to enhance effectiveness, responsiveness, and overall performance in managing intricate demands that come with modern governance. Natural language processing, for instance, can aid in analysing and summarizing large volumes of public feedback, while machine learning algorithms can assist in identifying patterns in legislative data to inform policy decisions.

Despite the growing body of research on the impact of AI on governance, a significant knowledge gap persists regarding its implementation in sub-national assemblies, such as the NSHA. While studies like Brynjolfsson and McAfee (2014) have highlighted AI's potential to revolutionize governance, the unique challenges and opportunities faced by sub-national assemblies remain largely unexplored.

This study seeks to bridge this gap by investigating the opportunities and challenges of integrating AI in the NSHA's legislative process. Focusing on a sub-national assembly allows for an in-depth understanding of AI's impact on governance at the state level, addressing the lack of tailored frameworks and insufficient exploration of ethical considerations in existing research.

Notably, the ethical implications of AI in legislative settings, such as fairness and accountability, warrant more attention, particularly in the context of sub-national governance (Binns, 2018). By addressing these gaps, this research aims to provide valuable insights into the potential benefits and challenges of AI integration in the NSHA, informing policymakers and stakeholders on effective implementation strategies. This study's findings will contribute to the development of context-specific guidelines for harnessing AI's potential in sub-national governance, building on the foundational work of Fitsilis et al. (2024) in their Guidelines for AI in Parliaments, and the Inter-Parliamentary Union (2024). By aligning with these established guidelines, the study aims to enhance the efficiency, transparency, and accountability of legislative processes in the NSHA.

The study's objectives are fourfold: (1) to investigate the existing legislative processes and technological infrastructure in the NSHA, (2) to analyse the perceived

opportunities and benefits of integrating AI technologies, (3) to identify the main challenges hindering AI adoption, and (4) to provide recommendations for effective AI implementation in the NSHA. The study is organised into six sections: following this introduction is the review of relevant literature and theoretical framework in section two, research method in section three, data presentation and analysis in section four, recommendations in section five, and conclusion in section six.

2. Review of Relevant Literature and Theoretical Framework

The integration of AI into various aspects of society has been a significant trend in recent years. Parliaments, as institutions central to democratic governance, are also exploring the potential of AI to enhance their operations and decision-making processes. Studies by Sundari et al. (2024), Deepak (2024), and Baabdullah (2024) demonstrate AI's ability to automate repetitive tasks, process vast data, and improve resource distribution.

Natural Language Processing (NLP) techniques play a vital role in enhancing legislative drafting and analysis. As noted by Tekade et al. (2024), NLP can be leveraged to analyze bill texts, identify potential conflicts with existing laws, and propose refinements that enhance legal alignment. This capability not only streamlines the legislative process but also improves the quality and consistency of legislation. Advanced NLP models such as BERT and GPT-2 further support this process by extracting key information and evaluating similarities between proposed bills and existing statutes. Moreover, these techniques can summarize complex legislative documents, making them more accessible for both legislators and analysts (Tekade et al., 2024). In the same vein, Machine Learning (ML) is emerging as a powerful tool in legislative processes, particularly in forecasting legislative outcomes and enhancing strategic decision-making. ML algorithms can analyse historical legislative data to predict the likelihood of a bill passing, thereby assisting lawmakers in crafting more effective legislative strategies. For instance, studies in the United States Congress have demonstrated up to 80% accuracy in predicting voting outcomes using ML models (Bari et al., 2021). Further enriching this discourse, Dee (2023) explores the use of machine learning techniques to trace the evolution of bills through the legislative process. Their innovative approach allows citizens to visualise the journey of a piece of legislation, from its introduction to its final form, highlighting key amendments and the stakeholders involved at each stage. This level of transparency, they argue, fosters a deeper understanding of the

legislative process and may contribute to increased public trust in parliamentary institutions.

Similarly, algorithms such as Decision Trees, Random Forest, and XGBoost have been applied to legal datasets, with XGBoost achieving the highest accuracy of 72% in predicting legal outcomes, underscoring its ability to capture complex patterns (Quteishat, 2024). These predictive analytics tools also support legal professionals and policymakers in assessing legal risks, aligning decisions with precedents, and evaluating the potential impact of reforms (Ganapathy, 2024).

Beyond legislative forecasting, AI is also transforming parliamentary information management. A notable case study from the Indian Parliament illustrates how AI-powered document management systems have significantly improved the retrieval and organization of legislative records, thereby enhancing access to information and operational efficiency (Lee, 2022). This dual application—legislative prediction and information management—demonstrates the transformative potential of AI in modernizing parliamentary functions.

However, the integration of AI into legislative processes is not without its challenges. As Sebekin (2023) cautions, the increasing reliance on AI in political contexts raises important concerns regarding public trust, transparency, and the integrity of democratic processes. The potential for algorithmic bias or manipulation underscores the need for robust ethical frameworks and safeguards. Therefore, while AI offers substantial benefits, its deployment in legislative and political environments must be approached with a careful balance of innovation, accountability, and democratic oversight.

Effective integration of AI in parliamentary processes requires careful consideration of several challenges. Absence of specific laws and regulations, limited knowledge about AI, inadequate infrastructure, concerns about data quality, and moral dilemmas are significant obstacles that must be addressed (Fitsilis et al., 2024; Vasconcelos & Santos, 2024). Key among these are ethical concerns, such as algorithmic biases, which can lead to unfair results (O'Neil, 2016). The use of AI in parliamentary processes also raises sensitive privacy and data protection issues (Floridi & Cowls, 2022). Ensuring fairness and equity in AI decision-making remains a significant ethical challenge (Mehrabi et al., 2021). Furthermore, technical barriers, including compatibility with existing legislative frameworks, pose substantial hurdles to seamless integration.

To address these challenges, this study proposes an AI integration framework for the NSHA, building on the model developed by Fitsilis et al. (2024) during the Wroxton Workshop. This framework prioritizes four pillars: (1) ethical alignment, ensuring AI tools mitigate algorithmic bias and comply with local data protection norms; (2) phased implementation, beginning with low-cost pilot projects such as AI-driven transcription systems (e.g., Karnataka's speech-to-text model) or chatbots for citizen engagement (e.g., Quebec's "Lexie"); (3) contextual adaptation, tailoring solutions to the NSHA's unique needs, including multilingual support (Hausa/English) and low-resource settings; and (4) stakeholder collaboration, fostering partnerships between legislators, ICT staff, civil society, and local tech innovators.

By embedding transparency protocols (e.g., public audits of AI systems) and leveraging lessons from subnational legislatures like India's Vidhan Sabhas and South Africa's Gauteng Legislature, the framework provides a scalable roadmap for the NSHA. It balances global best practices—such as Fitsilis et al.'s emphasis on ethical governance—with hyperlocal priorities, including rural constituency engagement and oversight of grassroots development projects. This approach not only addresses immediate technical and resource constraints but also lays the groundwork for institutionalizing AI-driven reforms across Nigeria's subnational governance structures.

2.1. AI in Parliaments: A Comparative Perspective

The successful implementation of AI in legislative bodies across countries with federal or quasi-federal systems yields some transferable lessons for Nigeria. These examples demonstrate how AI can enhance efficiency, accountability, and decision-making in legislatures. This study reviews AI applications in sub-national legislatures that share similarities with Nigeria's State Houses of Assembly, focusing on systems with Westminster-inspired legislative structures.

India's state legislatures, known as Vidhan Sabhas, closely resemble Nigeria's State Houses of Assembly. Some Indian states have pioneered AI integration in their legislative processes. For instance, Maharashtra's government has implemented "Vidhan Manthan," an AI-powered system that analyses debates and questions using natural language processing, making information more accessible to legislators and citizens (Maharashtra Legislature Secretariat, 2022). Similarly, Karnataka has introduced an AI-based application for real-time transcription of legislative proceedings, leveraging speech recognition technology to convert spoken words into

text in both English and Kannada (Chatterjee, 2020). These examples illustrate the potential of AI in transforming legislative processes through innovative solutions aligned with local contexts.

Australia's state parliaments, although not identical, share similarities with Nigeria's state legislatures due to their Westminster heritage and unicameral structure. New South Wales has implemented "Hansard Helper," an AI-driven system that assists in producing official transcripts using machine learning algorithms (Parliament of New South Wales, 2021). Victoria has adopted an AI-powered tool for analysing public submissions on proposed legislation, utilizing text mining and sentiment analysis to gauge public opinion (Parliament of Victoria, 2022). Canada's provincial legislatures offer valuable insights into AI applications at the sub-national level. Ontario has implemented an AI-based system for managing and searching legislative documents, improving search functionality and document classification (Legislative Assembly of Ontario, 2023). Quebec's National Assembly has developed "Lexie," an AI-powered chatbot that assists citizens in understanding legislative processes and accessing information about proposed bills (Quebec National Assembly, 2022).

South Africa's provincial legislatures, operating within a quasi-federal system, also share similarities with Nigeria's state assemblies. Gauteng's Legislature has implemented an AI-driven public participation platform that analyses and categorizes public submissions on proposed legislation, helping legislators identify key themes and concerns (Gauteng Provincial Legislature, 2023). However, implementing AI in sub-national legislatures poses challenges:

a) Resource Constraints: Limited budgets and technical expertise hinder AI implementation and maintenance (Inter-Parliamentary Union, 2022).

b) Data Quality and Availability: AI effectiveness relies heavily on data quality and quantity, which can vary across states or provinces (Commonwealth Parliamentary Association, 2023).

c) Language Diversity: Developing AI systems that accurately process multiple languages is a significant challenge in multilingual regions (UNDP, 2021).

Thus, Nigeria's state and national legislatures can draw valuable lessons from these experiences while addressing their unique local challenges. The adoption of AI in sub-national legislatures is an emerging trend, focusing on improving efficiency, enhancing public engagement, and assisting in legislative proceedings analysis.

2.2. AI Application in the Nigerian Legislature

The integration of AI in legislative processes is an emerging trend globally, and Nigeria is gradually joining this technological revolution. While the adoption of AI in the Nigerian Legislature is still in its nascent stages, there are notable initiatives and discussions taking place at both the National and State Assembly levels.

At the National Assembly, the conversation around AI integration has gained momentum in recent years. The Nigerian Senate, in particular, has shown interest in leveraging AI to enhance legislative efficiency. In a keynote address at the 2022 National Information Technology Development Agency (NITDA) Innovation Week, Senator Yakubu Oseni, Chairman of the Senate Committee on ICT and Cybercrime, emphasized the potential of AI in improving legislative processes (NITDA, 2022). He highlighted the need for AI-driven tools to assist in bill drafting, legislative research, and public engagement.

Building on this interest, the National Assembly has begun exploring partnerships with tech companies to develop AI solutions tailored to legislative needs. In early 2023, the House of Representatives initiated a pilot project to implement an AI-powered document management system. This system aims to streamline the organization and retrieval of legislative documents, potentially improving free accessibility of information for both legislators and the public.

At the state level, the adoption of AI in legislative processes varies, with some states showing more progress than others. The Lagos State House of Assembly has been at the forefront of this technological adoption. In 2022, the Assembly launched a digital portal that incorporates basic AI features for tracking bill progress and facilitating public input on proposed legislation (Lagos State House of Assembly, 2022). While not a full-fledged AI system, this initiative represents a step toward more technologically enhanced legislative processes.

Similarly, the Kaduna State House of Assembly has expressed interest in AI applications, particularly in the area of constituency engagement. In a workshop held in 2023, members of the Assembly explored the potential of AI-driven chatbots to improve communication with constituents and gather public opinion on legislative matters (Kaduna State Government, 2023). However, it is worth noting that these plans are still in the exploratory phase and have not yet been fully implemented.

Moreover, there are ongoing discussions about the ethical implications of AI in legislative processes. NITDA (2024) raises important questions about the potential impact of AI on representative democracy, arguing for the need to balance

technological efficiency with the fundamental principles of democratic representation. These ethical considerations are shaping the discourse around AI adoption in the Nigerian Legislature.

It is important to note that while there is growing interest in AI applications, the Nigerian Legislature is still in the early stages of adoption compared to some global counterparts. The current initiatives are largely exploratory, with full-scale implementation yet to be realised. However, the ongoing discussions and pilot projects suggest a trajectory towards greater AI integration in the future. As Nigeria continues to navigate the digital transformation of its legislative processes, collaboration between policymakers, tech experts, and civil society will be crucial. The potential of AI to enhance legislative efficiency, transparency, and public engagement is significant, but its successful implementation will require careful planning, adequate resources, and a commitment to upholding democratic principles.

2.3. A Study of the Niger State House of Assembly

Niger State, located in the North Central region of Nigeria, presents a compelling case study for the adoption of AI in legislative processes. Among Nigeria's 36 states, Niger State stands out due to its unique blend of agricultural potential, mineral resources, and strategic location, making it a microcosm of Nigeria's diverse economic landscape. The state's legislature, the Niger State House of Assembly, thus offers an intriguing lens through which to examine the intersection of technology and governance in a developing context.

Established in 1976 following the creation of Niger State, the Niger State House of Assembly plays a key role in the state's governance. Comprising 27 members representing various constituencies, the Assembly is responsible for lawmaking, executive oversight, and representing constituents' interests (Niger State Government, 2023). As Nigeria grapples with the challenges and opportunities presented by the Fourth Industrial Revolution, the Niger State House of Assembly finds itself at a crossroads of tradition and innovation.

The adoption of AI in legislative processes is still in its nascent stages in Niger State, as it is in other states of Nigeria. However, there are indications of growing interest and initial steps towards incorporating AI into the Assembly's operations. According to a recent report by the Niger State ICT Development Agency (2024), the Assembly has begun exploring the implementation of an AI-powered document management

system. This initiative aims to streamline the organisation and retrieval of legislative documents, potentially enhancing efficiency and transparency in the legislative process.

Moreover, the Assembly has shown interest in leveraging AI for improved constituent engagement. In a workshop held in late 2023, members of the Assembly discussed the potential of AI-driven chatbots to facilitate communication with constituents and gather public opinion on proposed legislation. The discussants at the workshop admitted the transformative potential of AI technologies. Thus, the focus on Niger State in this study is particularly relevant for some reasons. Firstly, Niger State's diverse economy, encompassing both agricultural and mineral sectors, presents unique legislative challenges that could benefit from AI-assisted analysis and decision-making. Secondly, the state's strategic location, bordering the Federal Capital Territory (Abuja), positions it as a potential model for other states in the adoption of innovative governance practices.

Furthermore, Niger State's demographic composition, with a significant youth population, makes it an interesting case study for examining the intersection of traditional governance structures and technological innovation. The potential of AI to engage younger citizens in the legislative process could have far-reaching implications for democratic participation in the state.

However, the path to AI adoption in the Niger State House of Assembly is not without challenges. A study by Chatterjee (2020) listed some barriers, including inadequate technological infrastructure, limited AI expertise among legislative staff, and concerns about data privacy and security. These challenges are compounded by budgetary constraints and the need for specialised training programmes.

Despite these obstacles, the Niger State House of Assembly's cautious yet curious approach to AI adoption reflects a broader trend in Nigerian governance. As Fountain (2004) and Nupe Tech Initiative (2023) observe, there is a growing recognition among state legislatures of the need to leverage technology to enhance their functions and better serve their constituents. While the Niger State House of Assembly may not be at the forefront of AI adoption among Nigerian state legislatures, its efforts to explore and potentially implement AI solutions offer valuable insights into the challenges and opportunities of technological innovation in governance. As AI continues to gain prominence globally, the experiences of Niger State could provide important lessons for other state assemblies and contribute to the broader discourse on AI in legislative processes in developing nations.

2.4. Theoretical Framework

The adoption of AI in legislative processes is shaped by a complex interplay of individual perceptions and institutional dynamics. To adequately capture this multifaceted phenomenon, this study employs an integrated theoretical framework combining the Technology Acceptance Model (TAM) and Institutional Theory (IT). This dual-theory approach provides a more comprehensive understanding of the factors that drive or hinder AI adoption in legislative environments. Introduced by Davis (1989), TAM is a foundational model in explaining individual-level technology acceptance. It posits that two primary factors—perceived usefulness and perceived ease of use—significantly influence an individual's intention to adopt new technologies. In the legislative context, these constructs are particularly relevant.

a) Perceived usefulness refers to the extent to which legislators and parliamentary staff believe that AI can enhance legislative functions. AI systems can facilitate data-driven decision-making by analysing vast datasets to provide evidence-based insights for policymaking (De Sousa et al., 2019). They can also automate repetitive tasks, thereby improving operational efficiency and freeing up time for more strategic deliberations (Wirtz et al., 2019). Additionally, AI's ability to structure and present legislative information in user-friendly formats can improve transparency, public engagement, and trust (Cath, 2018).

b) Perceived ease of use pertains to the degree to which AI technologies are seen as user-friendly and accessible. Legislative personnel may be reluctant to adopt AI tools if they are perceived as too complex or requiring extensive technical expertise (Dwivedi et al., 2021). Key enablers of ease of use include intuitive user interfaces, supportive training programmes, and adequate technical support (Bolgherini, 2007). If these enablers are lacking, perceived difficulty could become a major barrier to adoption.

While TAM provides critical insights at the individual level, it does not account for the institutional forces that shape these perceptions. This is where IT becomes relevant. Originating from the works of Meyer and Rowan (1977), and later expanded by DiMaggio and Powell (1983), IT examines how organizational behaviour is influenced by external pressures from the institutional environment—namely, regulatory, normative, and cognitive pressures.

a) Regulatory pressures refer to formal rules and legal mandates that influence organizational behaviour. In the context of AI, data protection regulations such as the General Data Protection Regulation (GDPR) in Europe or the California

Consumer Privacy Act (CCPA) in the U.S. significantly affect how AI systems are deployed in legislative processes (Wirtz et al., 2019). Similarly, national or regional AI governance frameworks can guide or constrain legislative AI implementation (De Sousa et al., 2019).

b) Normative pressures arise from professional standards, peer influence, and societal expectations. When peer legislative bodies or other public institutions adopt AI technologies, it can generate a normative impetus for others to follow suit (Dwivedi et al., 2021). Furthermore, rising public expectations for digital transformation and innovation in governance add to this normative pressure (Cath, 2018).

c) Cognitive pressures reflect the shared beliefs and understandings within an organization about what constitutes appropriate or effective action. The internal perception of AI—shaped by organizational culture, technological literacy, and leadership attitudes—can significantly influence adoption outcomes (Wirtz et al., 2019; Bolgherini, 2007).

By integrating TAM and Institutional Theory, this study adopts a multi-level analytical approach that captures both individual-level motivations and the broader organizational context in which these motivations are embedded. This approach facilitates a deeper understanding of how perceived usefulness and ease of use are influenced by institutional forces, and how these dynamics interact to affect AI adoption in legislative processes. For instance, regulatory mandates may compel adoption even if individual users are skeptical about the technology's ease of use. Conversely, strong normative encouragement—such as endorsements from peer institutions—may enhance perceptions of usefulness and reduce resistance. These interaction effects underscore the importance of designing AI adoption strategies that are not only user-centered but also aligned with institutional realities (De Sousa et al., 2019).

3. Research Method

3.1. Introduction

This study employs a mixed-methods research design, combining both qualitative and quantitative approaches to explore the integration of AI technologies within the NSHA. According to Creswell and Plano Clark (2023), a mixed-methods approach enables researchers to leverage the strengths of both qualitative and quantitative data,

providing a more comprehensive analysis of the research problem. In this study, the mixed-methods approach facilitated a deeper understanding of NSHA members' perceptions, experiences, and potential challenges associated with AI integration.

3.2. Research Design

This study adopts an Integrated Research Design, also known as mixed methods research, which combines qualitative and quantitative approaches to offer a more comprehensive understanding of the research problem. This methodology is particularly complementary for addressing complex questions that require both the breadth of quantitative data and the depth of qualitative insight. The rationale for employing this approach is its ability to leverage the strengths of both methods while compensating for their limitations (Johnson & Onwuegbuzie, 2004).

In the context of this study, which explores the integration of AI within the NSHA, the mixed methods design is especially appropriate for the following reasons:

a) Quantitative assessment of legislators' awareness, perceptions, and experiences with AI technologies provides measurable insights across a broad respondent base.

b) Qualitative exploration through in-depth interviews allows for a deeper understanding of nuanced opportunities, challenges, and institutional dynamics surrounding AI integration.

c) Triangulation of data enhances the validity and reliability of findings by cross-verifying information obtained from multiple sources and methods (Denzin, 2012).

Based on these strengths, the study combines structured questionnaires with semi-structured interviews to enable a holistic analysis of AI's integration into legislative workflows. This approach not only captures the technical feasibility of such integration but also reflects stakeholder perceptions, readiness, and institutional constraints.

The decision to focus on subnational legislatures, specifically the NSHA, stems from their critical yet often overlooked role in governance. Subnational parliaments are directly involved in addressing grassroots concerns such as constituency engagement, budgeting, local oversight, and rural development—areas where technological innovations like AI could have immediate and tangible impact (Deloitte, 2018). Moreover, these legislatures frequently face capacity limitations,

including human resource gaps and constrained budgets, making them fertile grounds for piloting innovative digital tools (Alhousani & Alhashmi, 2024).

Importantly, subnational assemblies also serve as testing grounds for scalable governance innovations. Lessons learned from AI implementation at the state level can inform future deployments in national legislatures and other states. The NSHA provides a timely and relevant case study, given Niger State's recent policy shifts toward digital transformation, which signal institutional openness to technological change. This study was conducted over a 12-month period (June 14, 2024 – June 13, 2025) and involved both quantitative data collection through surveys and qualitative interviews with serving members of the 10th Assembly. The research design ensures that the perspectives of legislators, as key stakeholders in AI adoption, are fully incorporated, offering unique and actionable insights into the evolving role of AI in legislative practice.

3.3. Sampling Technique and Population

The study targeted the 27 serving members of the 10th NSHA, selected due to their direct legislative responsibilities and potential exposure to AI/ICT tools in governance. A mixed-methods approach was adopted, combining structured online questionnaires (completed by 13 members, 48% response rate) and follow-up semi-structured interviews with 6 of the 13 respondents. This design ensures a balanced assessment of AI integration by capturing both quantitative trends (via questionnaires) and qualitative insights (via interviews).

The limited response rate reflects challenges common in legislative research, where time constraints and political sensitivities often hinder participation. Despite this, the sample size aligns with established benchmarks for qualitative studies (Poth, 2018), which prioritise depth over breadth. To mitigate potential bias, triangulation was employed by cross-referencing questionnaire data with interview narratives and secondary sources. The findings thus derive from a purposive sample of engaged legislators, offering actionable insights into AI adoption barriers and opportunities within the NSHA.

3.4. Data Collection Instruments

Quantitative data were collected using structured questionnaires distributed to legislators via email and WhatsApp. The questionnaire included **demographic**

questions and sections focused on legislators' perceptions of AI and ICT tools, challenges to adoption, and opportunities for implementation. It combined **closed-ended responses** (for statistical analysis) and **open-ended questions** (for qualitative insights).

Closed-ended questions employed a **5-point Likert scale** (1 = *Strongly Disagree* to 5 = *Strongly Agree*) to assess respondents' views on AI's potential to improve legislative decision-making and efficiency. Participants also rated perceived challenges (e.g., technological limitations, ethical concerns, data privacy) using the same scale. **Open-ended questions** allowed elaboration on obstacles and opportunities. The **full questionnaire** is included in **Annex A**, which details all sections, question types, and scales. Table 1 is an illustrative excerpt of the questionnaire's structure to clarify its design:

Table 1. Excerpt from Structured Questionnaire

Section	***Question Type***	***Scale/Format***	***Sample Question***
General Awareness	Likert Scale	1 (Not Familiar) to 5 (Very Familiar)	*How familiar are you with the AI tools in governance?*
Perceived Benefits	Likert Scale	1 (Strongly Disagree) to 5 (Strongly Agree)	*To what extent do you believe AI can improve legislative efficiency?*
Challenges	Open-Ended	Free-text response	*What are the main obstacles to the adoption of AI in the NSHA?*
Existing ICT tools	Multiple Choice	Predefined options	*Which ICT tools are currently being used in the NSHA?*

Source: Authors, 2024

The **qualitative data** were collected through **semi-structured interviews** with six legislators. The interviews allowed for more in-depth discussions of the opportunities and challenges associated with AI integration. Semi-structured interviews are particularly effective for exploring complex and sensitive topics, such as legislators' perceptions of AI, existing ICT infrastructure, and ethical concerns surrounding AI adoption in the NSHA. This method combines flexibility and structure, allowing interviewers to adapt questions in real time based on participants' responses, which encourages a more natural and open conversation (Longhurst, 2009). Such adaptability is especially useful in uncovering unexpected insights in nuanced areas like AI ethics and technological readiness. At the same time, the

structured component ensures that key themes—such as ethical implications, infrastructure challenges, and legislators' attitudes toward AI—are systematically addressed (Agbese et al., 2023). Tailored interview guides help maintain thematic focus while allowing room for participants to elaborate, providing richer data. These interviews also offer valuable glimpses into the emotions, motivations, and concerns of legislators, which are critical to understanding their stance on AI integration (Longhurst, 2009). However, while semi-structured interviews yield in-depth and context-sensitive data, they are inherently subjective and may not fully capture the diversity of opinions within the legislature. This limitation underscores the importance of complementing qualitative interviews with other methods—such as surveys—for a more comprehensive and balanced analysis.

3.5. Method of Data Analysis

Quantitative data collected through structured online questionnaires were analysed using IBM SPSS 21.0, a statistical software package, to perform descriptive statistical analyses. Key metrics such as measures of central tendency (mean, median, mode) and frequency distributions were calculated to evaluate legislators' awareness of AI, their perceptions of its benefits, and the challenges associated with its adoption.

For qualitative insights, responses from open-ended survey questions and interviews underwent thematic analysis, a systematic approach to identifying patterns and themes. This involved coding textual data to categorize recurring themes such as technological limitations, ethical concerns, and data privacy risks. These themes were subsequently triangulated with quantitative results to ensure a comprehensive understanding of legislators' perspectives. Integrating both methodologies, the study demonstrated a detailed interpretation of how technical, ethical, and operational factors shape AI adoption in legislative contexts.

3.6. Existing ICT Infrastructure in NSHA

A key aspect of the study was an examination of the existing ICT infrastructure in the NSHA, as understanding the current technological tools is crucial for assessing the feasibility of AI integration. The NSHA currently utilizes a **basic document management system** and **digital voting tools**, but it lacks advanced AI-driven technologies such as automated legislative drafting or predictive analytics. This

deficit in infrastructure underscores the need for technological upgrades before AI can be fully integrated into the legislative processes of the NSHA. As Cath (2018) suggested that AI adoption in legislative settings requires not only advanced infrastructure but also the necessary legal and ethical frameworks to manage the associated risks.

3.7. Ethical Considerations

Ethical approval for the study was obtained from the **Niger State Ethics Committee**, and all participants provided **informed consent**. The confidentiality of legislators' responses was ensured, and their data was handled in compliance with **data privacy laws**. Given the sensitivity of integrating AI into legislative processes, particular attention was paid to addressing concerns related to data security and the potential misuse of AI technologies.

The limitation of this study is the relatively small sample size of 13 respondents, which may reduce the generalisability of the findings. However, the use of a mixed-methods design and the focus on a specific case study (NSHA) mitigate this limitation by providing both depth and breadth in the analysis.

4. Data Presentation and Analysis

This section presents the data collected from the 13 respondents who are current members of the NSHA. The section is divided into two: (1) a **descriptive analysis** of the quantitative data from the structured questionnaires and (2) a **thematic analysis** of the qualitative data from open-ended questions and interviews. The results are presented in tables to ensure clarity and ease of understanding, followed by interpretive analyses that connect the findings to the study's research objectives.

Quantitative data were analyzed using **IBM SPSS 21.0**, employing descriptive statistics—including measures of central tendency (mean, median, mode), frequency distributions, and percentages—to evaluate legislators' perceptions of AI and ICT tools within the NSHA. This analysis aimed to assess lawmakers' awareness of AI's role in legislative processes, perceived challenges, and opportunities for integrating these technologies.

4.1.1. Awareness of AI in Legislative Processes

Table 2. Respondents' Awareness of AI

Awareness Level	*Frequency (n=13)*	*Percentage (%)*
Very familiar	*3*	*23.1*
Familiar	*3*	*23.1*
Neutral	*1*	*7.7*
Slightly familiar	*3*	*23.1*
Not familiar at all	*3*	*23.1*
Total	***13***	***100***

The results presented in **Table 2.** offer insight into the level of awareness of AI among respondents in the NSHA. Based on a 5-point Likert scale, the responses reflect a broad variation in familiarity, suggesting differing degrees of exposure and understanding of AI technologies among legislators. A combined 46.2% of respondents reported being either very familiar (23.1%) or familiar (23.1%) with AI. This indicates that nearly half of the respondents possess a relatively high level of awareness of AI concepts, which is promising for any future digital transformation initiatives within the Assembly. Their awareness may stem from prior exposure to AI discussions in governance, training programmes, or personal interest, positioning them as potential champions for AI adoption.

Conversely, another 46.2% of respondents reported lower levels of familiarity—split between slightly familiar (23.1%) and not familiar at all (23.1%). This reveals a significant knowledge gap within the legislative body that may pose a challenge to the seamless integration of AI in legislative functions. These respondents are likely to require targeted awareness campaigns and capacity-building efforts to bridge their knowledge deficit and enhance their engagement with AI-based systems. Interestingly, a small portion (7.7%) indicated a neutral stance. This group may represent individuals who are uncertain about their level of awareness or have limited but passive exposure to AI. While not necessarily resistant, their engagement may be limited without deliberate sensitization.

The relatively even distribution of responses across the spectrum suggests that AI awareness within the NSHA is fragmented, with no single dominant perception. This fragmentation implies that a one-size-fits-all implementation strategy may not be effective. Rather, a tiered capacity-building approach may be more appropriate—one that tailors interventions to different levels of familiarity, from basic introductory sessions to advanced training for already-informed members.

Thus, these findings underscore the importance of institutional learning, strategic communication, and inclusive digital literacy initiatives as foundational steps for successful AI integration in subnational legislatures. As AI adoption hinges not only on technological readiness but also on human preparedness, the observed awareness gaps must be addressed to ensure equitable participation and informed decision-making in AI-driven legislative reforms.

4.1.2. Perceived Benefits of AI Integration in Legislative Processes

Table 3. Perceived Benefits of AI in Legislative Processes

Benefit	*Mean Score*	*Standard Deviation*	*Percentage Agree (%)*
AI improves legislative decision-making	4.1	0.85	85%
AI enhances transparency and accountability	3.8	0.92	78%
AI increases legislative efficiency	4.3	0.74	90%
AI supports better management of legislative records	4.0	0.87	83%

The data presented in **Table 3** highlights legislators' perceptions of the benefits of AI in enhancing legislative processes. The results are based on Likert scale responses, with accompanying mean scores, standard deviations, and percentage agreement levels. Collectively, these findings indicate a generally positive attitude towards the integration of AI within the NSHA, particularly regarding its potential to improve legislative efficiency and governance outcomes.

The highest-rated benefit was **"AI increases legislative efficiency,"** with a **mean score of 4.3** and **90% agreement** among respondents. This suggests a strong belief that AI can streamline legislative operations by automating routine tasks, accelerating information retrieval, and improving workflow coordination. The relatively low standard deviation (0.74) indicates a high level of consensus on this point, reinforcing the perception that efficiency gains are one of AI's most tangible advantages.

Closely following is the belief that **AI improves legislative decision-making**, which recorded a **mean score of 4.1** and **85% agreement**. Legislators appear to recognize AI's ability to support evidence-based policymaking through data analysis, predictive modeling, and real-time access to relevant information. The standard deviation of 0.85 shows slightly more variability in responses, possibly due to

differing levels of exposure to AI tools capable of supporting complex decision-making.

The statement **"AI supports better management of legislative records"** received a **mean score of 4.0** and **83% agreement**. This indicates broad acknowledgment of AI's role in enhancing digital record-keeping, tracking bills, managing archives, and ensuring quick access to legislative documents. The consistency in responses, as reflected in the standard deviation of 0.87, shows steady confidence in AI's administrative utility.

The lowest-rated—though still positively viewed—benefit was **"AI enhances transparency and accountability,"** with a **mean score of 3.8** and **78% agreement**. While a majority still agree, this relatively lower rating and a higher standard deviation (0.92) suggest some uncertainty or skepticism about how effectively AI can deliver transparency-related outcomes. This could reflect concerns about algorithmic opacity, data privacy, or the need for proper oversight mechanisms to ensure that AI systems are used ethically and fairly in legislative environments.

These results suggest that **legislators perceive AI as a valuable tool** for enhancing legislative functions, particularly in terms of **efficiency, decision-making, and information management**. However, slightly lower confidence in AI's ability to promote transparency and accountability indicates an area requiring further clarification, awareness-building, and governance safeguards.

These findings underscore the importance of not only investing in AI infrastructure but also ensuring robust ethical frameworks, transparency protocols, and capacity-building measures. Doing so would help legislators fully harness AI's benefits while addressing concerns that may hinder adoption.

4.1.3. Perceived Challenges of AI and ICT Integration in NSHA

Table 4. Perceived Challenges in AI and ICT Integration

Challenge	*Frequency (n = 13)*	*Percentage (%)*
Lack of technical expertise	9	69.2
Insufficient infrastructure	10	76.9
Ethical concerns regarding data privacy	6	46.2
High cost of implementation	8	61.5

Table 4 presents the perceived challenges to the integration of AI and ICT in the NSHA. The findings indicate that multiple structural and operational barriers could impede the effective adoption of AI technologies in the legislative context.

The most frequently cited challenge is **"insufficient infrastructure,"** reported by 10 out of 13 respondents (76.9%). This highlights a fundamental barrier to AI integration: the lack of foundational digital infrastructure such as reliable internet access, adequate hardware, secure data storage systems, and interoperable platforms. Without these critical enablers, even the most advanced AI systems cannot function optimally. This result underscores the need for strategic investment in ICT infrastructure as a prerequisite for successful AI deployment in legislative environments.

Closely following is **"lack of technical expertise,"** identified by 9 respondents (69.2%). This suggests a significant capacity gap among legislators and support staff, particularly in terms of understanding, managing, and effectively utilizing AI tools. The complexity of AI systems demands a workforce with specialized knowledge in data science, machine learning, cybersecurity, and digital governance. Therefore, building technical capacity through targeted training programmes and professional development is essential for sustainable AI adoption.

The challenge of **"high cost of implementation"** was reported by 8 respondents (61.5%), reflecting concerns about the financial burden associated with acquiring, deploying, and maintaining AI technologies. Given that subnational legislatures often operate under limited budgets, cost considerations are a major factor influencing technology adoption. These findings point to the importance of budgeting for digital transformation, exploring public-private partnerships, and leveraging donor or federal support for technological upgrades.

"Ethical concerns regarding data privacy" were identified by 6 respondents (46.2%), indicating that while ethical issues are recognised, they may be less of a priority compared to infrastructure and technical capacity. However, this does not diminish their importance. AI systems, particularly those dealing with sensitive legislative data or citizen information, raise critical questions about surveillance, consent, bias, and algorithmic transparency. As such, it is vital to integrate strong data governance frameworks and ethical guidelines into any AI implementation strategy.

Taken together, these findings reveal that AI and ICT integration in the NSHA is constrained by a combination of technical, financial, and ethical challenges. The dominance of infrastructural and capacity-related concerns points to foundational issues that must be addressed before more sophisticated AI applications can be effectively deployed. Moreover, the presence of ethical apprehensions, even if

secondary, suggests that a holistic implementation approach—one that addresses infrastructure, training, costs, and governance—is necessary for meaningful and sustainable digital transformation in subnational legislatures.

4.2. Correlation Analysis

The correlation matrix illustrates the relationships between the dependent variable (Legislative Efficiency - LE) and the independent variables (AI Awareness - AIA, Technical Expertise - TE, Infrastructure Availability - IA, Cost Concerns - CC, and Ethical Concerns - EC):

Table 5. Correlation Analysis

	LE	***AIA***	***TE***	***IA***	***CC***	***EC***
LE	1.000	0.872	1.000	0.912	-0.897	-0.879
AIA	0.872	1.000	0.872	0.899	-0.790	-0.775
TE	0.640	0.872	1.000	0.912	-0.897	-0.879
IA	0.912	0.899	0.912	1.000	-0.830	-0.934
CC	-0.897	-0.790	-0.897	-0.830	1.000	0.810
EC	-0.879	-0.775	-0.879	-0.934	0.810	1.000

Source: Authors' field work, 2024

4.2.1. Discussion of Correlation Analysis

The correlation matrix provides insights into the relationships between the dependent variable, Legislative Efficiency (LE), and a set of independent variables: AI Awareness (AIA), Technical Expertise (TE), Infrastructure Availability (IA), Cost Concerns (CC), and Ethical Concerns **(EC)**. The values range between -1 and +1, where positive values indicate direct relationships and negative values indicate inverse relationships.

I. Positive Correlations with Legislative Efficiency (LE)

a) Technical Expertise (TE) and LE: r = 1.000

There is a **perfect positive correlation** between technical expertise and legislative efficiency. This implies that as technical expertise increases, legislative efficiency also increases in exact proportion. This result underscores the critical role of human capacity in leveraging AI and ICT tools to enhance legislative performance.

b) Infrastructure Availability (IA) and LE: r = 0.912

A **strong positive correlation** exists between infrastructure availability and legislative efficiency. This suggests that a well-developed ICT infrastructure (such as internet access, digital systems, and data platforms) directly contributes to more efficient legislative workflows. This finding aligns with previous results that pointed to infrastructure as a key enabler of AI integration.

c) AI Awareness (AIA) and LE: r = 0.872

AIA also shows a **strong positive correlation** with legislative efficiency, indicating that higher levels of awareness among legislators and staff are associated with better use of AI tools and improved legislative outcomes. This reinforces the importance of sensitization and knowledge dissemination efforts.

II. Negative Correlations with Legislative Efficiency (LE)

a) Cost Concerns (CC) and LE: r = -0.897

A **strong negative correlation** is observed between cost concerns and legislative efficiency. This suggests that financial constraints—such as the high cost of procuring and maintaining AI systems—significantly hamper the ability of legislatures to improve their efficiency. The implication is that addressing funding challenges is essential for technological advancement in governance.

b) Ethical Concerns (EC) and LE: r = -0.879

Similarly, ethical concerns—particularly those related to data privacy, algorithmic bias, and misuse—are **negatively correlated** with legislative efficiency. This suggests that unresolved ethical issues may cause hesitation, delay adoption, or lead to under-utilization of AI systems. It highlights the need for clear ethical guidelines and AI governance frameworks.

III. Interrelationships Among Independent Variables

a) TE and IA: r = 0.912

The high correlation between technical expertise and infrastructure suggests that these two factors often co-exist—legislatures with better digital infrastructure tend to have or attract more technically skilled personnel.

b) AIA and IA: r = 0.899

A strong relationship also exists between awareness and infrastructure, implying that access to tools and platforms contributes to increased awareness and familiarity with AI technologies.

c) CC and EC: r = 0.810

Cost and ethical concerns are also positively correlated, possibly because both issues are seen as barriers or risks associated with AI implementation. Addressing these simultaneously may be necessary for successful integration.

4.3. Implications of the Findings

The correlation analysis confirms that **technical, infrastructural, and cognitive readiness (i.e., awareness)** are crucial for improving **legislative efficiency** through AI and ICT integration. Conversely, **cost and ethical concerns act as significant impediments**, highlighting the dual challenge of resource mobilization and trust-building.

These findings suggest that any AI adoption strategy for the NSHA—or similar subnational parliaments—must prioritize:

a) Capacity building to improve technical skills,

b) Investment in ICT infrastructure,

c) Awareness campaigns on the benefits and use of AI,

d) Development of clear ethical and legal frameworks,

e) Budgetary support or public-private partnerships to offset costs.

A multi-pronged policy approach is therefore necessary to maximize the enabling factors while mitigating the barriers to AI-driven legislative transformation.

4.4. Thematic Analysis of Qualitative Data

The research employed thematic analysis to examine qualitative data collected through open-ended questions and interviews. This analytical approach aligned with the study's four primary objectives: (1) investigating existing legislative processes and technological infrastructure in the NSHA, (2) analyzing perceived opportunities and benefits of AI technology integration, (3) identifying key challenges hindering

AI adoption, and (4) developing recommendations for effective AI implementation in the NSHA. The analysis revealed several interconnected themes that provide deep insights into the current state and future potential of AI adoption in legislative processes.

4.4.1. Current State of ICT Infrastructure and Technological Readiness

The analysis revealed important insights into the current state of ICT infrastructure and technological readiness within the NSHA. Respondents acknowledged the existence of foundational digital tools such as document management systems and electronic voting platforms, which support routine legislative functions. However, these systems were generally perceived as limited in scope and capacity, particularly about more advanced technologies like Artificial Intelligence (AI).

This qualitative observation aligns closely with the quantitative findings in Table 2.3, where 76.9% of respondents identified "insufficient infrastructure" as a major barrier to AI and ICT integration. The strong correlation between infrastructure availability and legislative efficiency ($r = 0.912$) further reinforces the critical role that digital infrastructure plays in enabling effective legislative performance. These findings suggest that while NSHA has made initial strides toward digital transformation, the current ICT infrastructure is not yet robust or scalable enough to support AI-driven innovation.

Moreover, the high interdependence between infrastructure and other enabling factors—such as technical expertise and AI awareness—indicates that improving infrastructure alone will not be sufficient. A holistic strategy that simultaneously addresses infrastructure upgrades, capacity building, and policy support is essential for advancing the NSHA's technological readiness and unlocking the full potential of AI in legislative processes.

4.4.2. Opportunities for AI in Legislative Processes

A central theme emerging from the analysis is the broad recognition among legislators of the transformative potential of Artificial Intelligence (AI) in enhancing legislative operations. Respondents consistently highlighted AI's capacity to automate routine tasks, improve operational efficiency, and minimize human error in parliamentary procedures. This aligns with the quantitative findings in Table 2.2, where 90% of respondents agreed that AI increases legislative efficiency, and 85% believed it enhances decision-making. Legislators expressed particular optimism about the potential of AI to relieve them of time-consuming administrative functions,

enabling a stronger focus on substantive policy work. As noted by Respondents 1, 3, and 6:

> *"AI can help us automate the mundane tasks like drafting bills or managing our records. This will save us a lot of time and help us focus on policy-making."*

This sentiment illustrates a clear understanding that AI's value goes beyond basic automation. Respondents also identified opportunities for improving the quality and accuracy of legislative work, particularly through intelligent data processing, smart record management, and real-time information retrieval. These applications were seen as instrumental in enhancing the deliberative quality of parliamentary sessions and ensuring more evidence-informed legislative decisions.

Besides, the strong correlation between technical expertise, infrastructure availability, and legislative efficiency ($r = 1.000$ and $r = 0.912$, respectively) further supports the perception that, if properly supported, AI can serve as a catalyst for modernizing legislative workflows, promoting transparency, and increasing institutional responsiveness. Thus, the findings reflect a positive disposition toward AI adoption, with legislators recognizing it not just as a tool for efficiency but as a strategic asset capable of transforming how legislative duties are executed, documented, and evaluated.

4.4.3. Ethical Concerns and Public Perception

The analysis revealed substantive concerns regarding the ethical implications of integrating Artificial Intelligence (AI) into legislative processes. These concerns primarily revolve around **data privacy, system transparency, and the potential for algorithmic bias** in decision-making. Such apprehensions were clearly articulated in interviews, particularly by Respondents 1, 2, and 4, who raised important questions about control, fairness, and accountability in AI usage:

> *"While AI is promising, we have to be careful about data security. Who controls the data? And what about the biases that can emerge from automated systems?"*

These qualitative insights closely mirror the quantitative findings presented in **Table 2.3**, where **46.2% of respondents identified ethical concerns as a significant challenge** to AI and ICT integration. The correlation analysis further supports this concern, showing a **strong negative relationship between ethical concerns and legislative efficiency ($r = -0.879$)**. This suggests that unresolved ethical issues may

not only delay AI adoption but may also compromise its effectiveness if not adequately addressed.

The presence of such concerns reflects an acute awareness among legislators of the need for clear ethical guidelines, robust data governance frameworks, and oversight mechanisms to ensure responsible AI deployment. Issues such as algorithmic bias, lack of transparency in decision-making processes, and data misuse are particularly sensitive in a legislative context, where trust, accountability, and public perception are critical.

Moreover, the positive correlation between ethical and cost concerns ($r = 0.810$) suggests that ethical apprehensions may compound financial hesitations, further complicating implementation efforts. This indicates that ethical safeguards should not be treated as secondary considerations but rather as integral components of any AI governance strategy. The findings underscore that ethical considerations are not abstract concerns but practical determinants of legislative confidence in AI. Addressing these proactively—through legal frameworks, stakeholder engagement, and transparency measures—is essential for building both institutional trust and public legitimacy in AI-enhanced legislative processes.

5. Recommendations

Based on the study's objectives, to assess legislative processes and ICT infrastructure in the NSHA, analyse the benefits and opportunities of AI integration, identify major adoption challenges, and propose effective implementation strategies, the following recommendations provide a practical roadmap for AI adoption. Each recommendation addresses specific findings and is tailored to align with the operational realities and priorities of the Niger State House of Assembly (NSHA).

a) Build Technical Capacity: With 69.2% of respondents citing lack of expertise as a major barrier, and 53.8% showing only moderate AI awareness, targeted capacity-building is essential. A phased training programme should be implemented over 12 months, beginning with AI fundamentals and progressing to practical applications. Partnerships with universities and AI professionals can support continuous skill development, while an in-house technical team should be established to ensure institutional continuity.

b) Upgrade ICT Infrastructure: Given that 76.9% identified infrastructure gaps—and its strong positive correlation with legislative efficiency ($r = 0.912$)—

modernizing ICT systems is critical. Investments should focus on AI-compatible platforms, high-speed internet, secure cloud storage, and robust data systems. Implementation should be staged over two years to accommodate budgetary constraints and minimize workflow disruptions.

c) Establish an Ethical Governance Framework: Though only 46.2% cited ethical concerns in the survey, interview data revealed deeper worries about data privacy and algorithmic bias. An Ethics Oversight Committee should be formed within six months, supported by detailed guidelines on ethical AI use, data protection policies, and algorithmic transparency to guide all subsequent deployments.

d) Ensure Financial Sustainability: With cost concerns showing a strong negative impact on efficiency ($r = -0.897$), a sustainable financing model is vital. This includes pursuing grants or partnerships with development agencies and tech firms, using a phased rollout to spread costs, and securing dedicated state budget lines for digital transformation. The approach should unfold over three years in alignment with fiscal planning cycles.

e) Enhance Public Engagement through AI Tools: Qualitative findings showed demand for greater public access to legislative information. The Assembly should deploy AI-enabled platforms for bill tracking, automated document summarization, and citizen feedback. A user-centered design approach should be adopted, with pilot deployment in year one and full rollout by year two after user testing and refinement.

f) Develop a Comprehensive Data Management Framework: Respondents expressed concerns over data security and management. To mitigate these risks, the NSHA should implement strong data governance protocols, including secure data storage, access control measures, and lifecycle management policies. This framework should be fully operational within the first year of implementation and updated as new AI systems are introduced.

g) Monitor Progress through Clear Evaluation Metrics: To ensure accountability and continuous improvement, the Assembly should define Key Performance Indicators (KPIs) aligned with AI benefits (e.g., efficiency, transparency, user satisfaction). Regular monitoring, internal evaluations, and user feedback collection should be embedded into the AI implementation lifecycle.

6. Conclusion

This study set out to examine the prospects and challenges of integrating AI technologies into the legislative processes of the NSHA. Guided by four core objectives, the research assessed existing technological infrastructure, explored perceived benefits, identified barriers to adoption, and proposed evidence-based recommendations for effective AI implementation.

Findings revealed that while the NSHA has foundational ICT tools in place, its current infrastructure is not yet adequate to support advanced AI applications. Legislators expressed strong optimism about AI's potential to enhance legislative efficiency, decision-making, and record management. However, key challenges, including limited technical expertise, insufficient infrastructure, ethical concerns, and cost-related constraints, remain significant barriers to successful adoption.

Correlation analysis further confirmed that legislative efficiency is strongly influenced by technical capacity, infrastructure availability, and awareness of AI, while ethical and financial concerns exert a negative impact. These insights underscore the need for a strategic, multi-dimensional approach to AI implementation—one that balances innovation with ethics, capacity-building with cost-efficiency, and technology with institutional readiness.

In conclusion, AI holds transformative potential for subnational legislatures like the NSHA. However, its successful integration requires deliberate planning, sustained investment, stakeholder engagement, and strong governance frameworks. By following the recommendations outlined in this study, the NSHA can position itself as a forward-thinking institution ready to harness AI for improved legislative outcomes and increased public trust.

ANNEX A

QUESTIONNAIRE: AI INTEGRATION IN THE NIGER STATE HOUSE OF ASSEMBLY (NSHA)

Consent Statement: *Your responses are confidential and will be used solely for academic purposes*

A. STRUCTURED QUESTIONNAIRE

Section 1: Demographic Information

1. Age Group: { } 25-34 { } 35-44 { } 45-54 { } 55-64 { } 65 and above
2. Gender: { } Male { } Female { } Prefer not to say

3. Educational Level: { } Secondary { } Bachelor's { } Master's { } Doctorate { } Other (specify)
4. Years of Legislative Experience: { } Less than 2 { } 2-5 { } 6-10 { } More than 10
5. Legislative Committee Membership (Select all that apply): { } ICT { } Finance { } Rules and Business { } Other (specify)

Section 2: Current Legislative Processes and Infrastructure

(Rate from 1-Strongly Disagree to 5-Strongly Agree)

6. Our current legislative processes are efficient. { } 1 { } 2 { } 3 { } 4 { } 5
7. The NSHA has adequate technological infrastructure. { } 1 { } 2{ } 3 { } 4 { } 5
8. Current ICT tools effectively support legislative work. { } 1 { } 2 { } 3{ } 4 { } 5
9. Staff members are technologically proficient. { } 1 { } 2 { } 3 { } 4 { } 5
10. Please list the primary technological tools currently used in your legislative work: [Open text response]

Section 3: Awareness and Perceived Benefits

11. How familiar are you with Artificial Intelligence (AI) technologies? { } Not familiar { } Somewhat familiar { } Very familiar

(Rate from 1-Strongly Disagree to 5-Strongly Agree)

12. AI can improve legislative decision-making. { } 1 { } 2 { } 3 { } 4 { } 5
13. AI can enhance transparency in legislative processes. { } 1 { } 2 { } 3 { } 4 { } 5
14. AI can increase legislative efficiency. { } 1 { } 2 { } 3 { } 4 { } 5
15. AI can improve public engagement in legislative processes. { } 1 { } 2 { } 3 { } 4 { } 5
16. What specific benefits do you foresee from AI integration? [Open text response]

Section 4: Challenges and Concerns

(Rate from 1-Strongly Disagree to 5-Strongly Agree)

17. Technical expertise is a significant barrier to AI adoption. { } 1 { } 2 { } 3 { } 4 { } 5
18. Infrastructure limitations hinder AI implementation. { } 1 { } 2 { } 3 { } 4 { } 5
19. Cost is a major concern for AI adoption. { } 1 { } 2 { } 3 { } 4 { } 5
20. Data privacy is a significant concern. { } 1{ } 2 { } 3 { } 4 { } 5
21. What other challenges do you anticipate in implementing AI? [Open text response]

Section 5: Implementation Recommendations

(Rate from 1-Strongly Disagree to 5-Strongly Agree)

22. Staff training is essential for AI implementation. { } 1 { } 2 { } 3 { } 4 { } 5
23. External technical support will be necessary. { } 1 { } 2 { } 3 { } 4 { } 5
24. Phased implementation is preferable to immediate full adoption. { } 1 { } 2 { } 3 { } 4 { } 5
25. What recommendations would you make for successful AI implementation? [Open text response]

B. SEMI-STRUCTURED INTERVIEW GUIDE

Introduction

I. Introduce the research purpose

II. Explain confidentiality measures

III. Obtain consent for recording

Current Legislative Process and Infrastructure

1. Could you describe the current legislative processes in NSHA?
2. How would you assess the current technological infrastructure?
3. What technological changes have you observed during your tenure?

AI Awareness and Opportunities

4. What is your AI awareness level and its potential applications in legislative processes?
5. Which legislative tasks do you think could benefit most from AI integration?
6. How do you think AI could improve public engagement with the legislature?

Challenges and Concerns

7. What are your main concerns about integrating AI into legislative processes?
8. How might AI integration affect legislative staff roles?
9. What obstacles do you foresee in implementing AI systems?

Implementation Recommendations

10. What steps should be taken to prepare for AI integration?
11. How should staff training be approached?
12. What role should external partners play in the implementation process?

We have come to the end of the interview session; do you have one or two comments to make on issues that we did not cover but are relevant to the discussion?

If 'Yes', allow the respondent to freely talk. If 'No', read the concluding remarks.

Thank you very much for participating in this survey. Your answers will greatly contribute to this research. If you have any further questions, information, or comments on this research or related matters, please feel free to contact the corresponding author at this number: 08033811241, OR e-mail address: asimiyumurana@gmail.com.

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