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E-Government in Nigeria

Can Generative AI Serve as a Tool for Civic Engagement?

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Abstract: This paper examines the potential for using generative artificial intelligence (AI) to boost civic participation in Nigeria's developing e-government ecosystem. Emerging generative technologies like ChatGPT demonstrate intriguing capabilities to make governance more interactive and engaging through conversational interfaces. Thoughtfully implemented AI tools could increase access and understanding of e-government, particularly for underserved groups. However, risks around bias, privacy, security and capability limitations pose challenges for public sector applications. Additionally, Nigeria's substantial digital divides and defective trust in government institutions hamper e-government participation currently. This paper analyses opportunities and limitations for applying generative AI to advance civic engagement given Nigeria's unique socio-cultural context. Findings suggest that while AI holds promise, targeted strategies focused on inclusion, accessibility, education and institutional legitimacy building are critical to realise benefits. Cautious optimism, human-centric design and responsible governance frameworks are needed to employ generative systems successfully. If challenges are addressed, AI could open innovative possibilities for energising civic participation. But further research and controlled pilot applications are required to determine optimal implementation.

Keywords: generative AI, ChatGPT, civil participation, digital literacy, e-government

1. Introduction

E-government initiatives, which are becoming increasingly common worldwide, aim to enhance public administration and services using digital technologies. These initiatives are designed to facilitate more efficient and effective governance, reducing bureaucratic red tape, and making government services more accessible to the public. One of the primary goals of many e-government programs is to foster civic participation and engagement (Abdulkareem et al., 2022b). This is achieved by providing citizens with

platforms and tools that allow them to interact with government agencies, voice their opinions, and participate in the policy-making process in a more seamless and straightforward manner (Smith & Jamieson, 2006). By doing so, e-government initiatives can help to democratise the policy-making process, giving citizens a greater say in the decisions that affect their lives.

Recent advancements in generative AI, like ChatGPT, present exciting opportunities for revolutionising e-government services (Loukis et al., 2023). These systems can generate human-like text, potentially simplifying complex governance issues and making them more comprehensible for citizens. It may transform how citizens interact with government services, making them more accessible and user-friendly, and by way of providing a platform for clear and efficient communication, generative AI is capable of enhancing civic participation and engagement. It could also help in breaking down complex policy information into understandable language, thereby empowering citizens to make informed decisions (Vrabie, 2023).

One of its many merits consists in the ability of the generative AI to create automated chatbots that can interact with citizens in a natural, conversational manner. These chatbots can answer queries, provide information and guide users through various processes which improves the accessibility and efficiency of e-government services (Cantador et al., 2021; Mahapatra et al., 2012). In addition to chatbots, generative AI may also be used to develop interactive policy-guides which can present complex policy information in a simplified, easy-to-understand format. They can also adapt to the needs of individual users, providing personalised guidance based on each user's specific circumstances and queries (Balaji & Yuvaraj, 2019; Baldauf & Zimmermann, 2020).

In short, generative AI has the potential to significantly enhance two-way communication between citizens and government agencies (Baldauf & Zimmermann, 2020; Chohan & Akhter, 2021; Tisland et al., 2022). It can be used to develop interactive tools that allow citizens to voice their opinions, provide feedback, or participate in decision-making processes, e.g. AI-powered chatbots could be used to collect citizen feedback on various issues, from public services to policy-proposals, and these chatbots could analyse and categorise the feedback, providing valuable insights to decision-makers. Moreover, generative AI could be used to create platforms for participatory decision-making, too (Ju et al., 2023). And these platforms are capable of enabling citizens to contribute with their ideas and opinions to the policy-making process, fostering a more inclusive and democratic form of governance. In effect, this results, then, in bridging the gap between citizens and their government, enhancing transparency, accountability and public trust in the process (Alexopoulos et al., 2019; Androutsopoulou et al., 2019; Androutsopoulou et al., 2021).

The above is well-illustrated by the early applications of generative AI in the public sector which have shown its potential to transform e-government services (Strauss, 2023; Valle-Cruz & García-Contreras, 2023). However, along the way to a successful application, data privacy is a key issue, as these technologies often handle sensitive information (Seböck et al., 2023). Measures must be taken to ensure data is used responsibly and securely; on the other hand, algorithmic bias is another serious concern (Wirtz et al., 2021; Wirtz et al., 2022). If the data used to train these AI systems is biased, the outputs

are also likely to be biased. It is crucial therefore to use diverse and representative training data and regularly audit the performance of AI to identify and mitigate any biases. Lastly, digital literacy is also of a significant concern. Not all citizens are equally comfortable or familiar with digital technologies. Consequently, these tools must be designed to be user-friendly and accessible, even for those with limited digital skills (Abdulkareem & Ramli, 2021).

The advent of generative AI technologies, like ChatGPT, presents therefore intriguing opportunities to revolutionise civic engagement within e-government ecosystems. This paper aims to examine the potential of leveraging these cutting-edge AI capabilities to enhance citizen participation and reinvigorate e-governance initiatives in Nigeria which has made strides in developing digital governance platforms (Abdulkareem & Ishola, 2016). However, citizen adoption and usage remain hindered by multiple barriers including lack of awareness, skills gaps, infrastructure deficits and eroding public trust. Generative AI tools demonstrate unique strengths that could help surmount some of these obstacles.

The present inquiry seeks to provide an analysis of both the opportunities and limitations associated with adopting generative AI technologies to reimagine civic participation within Nigeria's developing e-governance landscape. The core objective is to scrutinise how these emerging tools could be thoughtfully implemented to increase access, understanding and inclusiveness of digital governance channels for Nigerian citizens. By unpacking context-specific risks and rewards, the paper aims to offer insights to policy-makers on responsibly harnessing the potential of generative AI to foster more participatory and citizen-centric governance processes.

The intended contribution is to enrich discourse around the frontier applications of AI in the public sphere, anchored in the realities of Nigeria's socio-political environment. Ultimately, the analysis could help to shape strategies and governance frameworks for effective deployment of generative AI systems to bridge digital divides and energise civic engagement as the country strengthens its e-government architecture. Such evidence-based insights are crucial for developing countries aiming to embrace transformative technologies judiciously to propel more open, participatory and citizen-responsive governance models.

2. Methodology

To explore the potential of the generative AI for enhancing civic engagement in Nigerian e-governance, this study employed a multi-faceted qualitative approach. It conducted a comprehensive literature review on generative AI, e-governance and civic participation, analysed Nigeria's existing e-government policies and initiatives, and engaged in conceptual analysis grounded in the country's socio-political realities like digital divides, trust deficits and ethnic divides. Through this contextual lens, it critically examined opportunities and limitations of deploying generative AI for citizen participation, analysing factors like accessibility, inclusion and governance frameworks. Drawing from literature, policy-documents and contextual insights, the study developed a perspective on

strategically leveraging generative AI as a catalyst for citizen-centric digital governance in Nigeria while identifying key considerations, challenges and pathways for potential implementation.

3. Literature review

3.1. Generative AI and civic engagement

Generative AI technologies represent a paradigm shift in artificial intelligence, moving beyond simply processing and analysing existing data to creating entirely new content (Vrabie, 2023). These systems leverage advanced machine learning techniques, particularly large language models trained on vast datasets, to generate human-like outputs across various modalities like text, images, audio and code. By detecting patterns in the training data, generative AI models can produce novel, yet coherent and contextually relevant, content upon receiving prompts or inputs (Loukis et al., 2023). Systems like ChatGPT exemplify this generative capability in the realm of natural language processing. Powered by transformer-based architectures, these language models can engage in remarkably fluent written exchanges, understanding and responding to queries with nuanced, contextually appropriate text outputs that often exhibit human-like communication traits (Dwivedi et al., 2023). The ability to produce on-demand content that closely mimics human expression opens up transformative possibilities across sectors. In the civic sphere, generative AI could revolutionise how citizens interact with government, access information, and participate in decision-making processes through intuitive conversational interfaces and personalised content generation (Vrabie, 2023; Yang & Wang, 2023).

Prior research has underscored the immense potential of the generative AI to reshape civic engagement dynamics by introducing interactive, conversational interfaces between citizens and government bodies. A seminal study by Androutsopoulou et al. (2019) envisioned how AI-guided chatbots and dialogue agents could radically transform the nature of communication between the public and state institutions. By leveraging the ability of generative models to produce human-like responses, these conversational AI systems could simplify access to information and service delivery, acting as user-friendly gateways to complex governance processes. Moving beyond theoretical arguments, researchers have actively developed and tested generative AI prototypes for civic use cases. Notably, Cantador et al. (2021) implemented an AI conversational tool powered by language models to facilitate conversational search and exploration of open government data repositories. This system demonstrated how citizens could intuitively query vast open data resources through natural language interactions, potentially democratising access to public information reserves.

The pioneering studies showcasing generative AI applications for civic engagement have provided tangible proof-of-concepts that reveal the transformative potential of these technologies. By developing conversational AI agents and intuitive dialogue interfaces, researchers have demonstrated how generative models can bridge accessibility gaps that

have long hindered citizen participation in governance processes. These dialogue interfaces act as user-friendly gateways, empowering citizens to seamlessly navigate the often convoluted labyrinths of bureaucracy and engage transparently with governance functions. No longer constrained by complex terminology or hidden information architectures, the public can leverage these AI assistants to comprehend complex policies, access services, and have their voices heard through natural language interactions.

More so, the successfully prototyped use cases, such as Cantador et al. (2021) open data chatbot and AI Singapore's Ask Jamie virtual assistant (Ojeda, 2021; Shang et al., 2023), exemplify how generative AI models can collect and convey multifaceted governance information in easily understandable formats. By abstracting away complexity through fluent dialogues, these systems democratise access to the policy sphere, fostering a more participatory dynamic. Moreover, researchers like Baldauf and Zimmermann (2020) and Chohan and Akhter (2021) have outlined ambitious visions where voice-based generative AI could holistically enhance inclusivity and accessibility of citizen services. Interactive tools could collect feedback at scale and enable participatory decision-making by giving each citizen a conversational conduit to have their perspectives heard and factored into governance. As Vrabie (2023) notes, the core upside of generative AI in this context is its ability to engage in natural information exchange by way of simplifying complex concepts into easy-to-understand formats through back-and-forth dialogue. This capacity to bridge knowledge asymmetries could catalyse a paradigm shift towards truly citizen-centric digital governance models.

While the potential of generative AI to revolutionise civic engagement is promising, scholars have also raised valid concerns about the limitations and risks associated with deploying these technologies in the public sphere. A major issue highlighted by researchers like Wirtz et al. (2022) relates to governance challenges, including privacy violations, propagation of biases and lack of transparency in AI systems' decision-making processes. Given the sensitive nature of citizen data and the importance of maintaining public trust in governance institutions, the risks of privacy breaches and bias reproduction in generative AI outputs could undermine the very goals of fostering civic participation. If citizens perceive these systems as opaque or unaccountable, it could further erode trust and deter adoption. Dwivedi et al. (2023) have emphasised the critical need for responsible development practices to mitigate the dangers of generative AI inadvertently spreading misinformation or perpetuating harmful biases if not designed and implemented with rigorous safeguards. On the technical front, while generative models have exhibited impressive capabilities in engaging in back-and-forth exchanges, some experts like Androutsopoulou et al. (2021) argue that current systems still fall short in maintaining the coherent, open-ended dialogue required for substantive civic discourse. Limited context tracking and knowledge grounding are seen as bottlenecks that could undermine the depth and quality of citizen–AI interactions on complex policy matters.

Recognising these risks and limitations, several studies have explored frameworks and design principles aimed at mitigating potential pitfalls while unlocking the transformative potential of generative AI for civic engagement. For instance, Ju et al. (2023) conducted a discrete choice experiment to examine citizen preferences for specific social traits in AI chatbots, providing insights for developing more effective and citizen-centric conversational

agents. Meanwhile, Loukis et al. (2023) have outlined a comprehensive research agenda that systematically identifies key capabilities of generative AI, alignment with public values, associated challenges and potential directions for leveraging these technologies in conjunction with open government data and policies. Such holistic frameworks are crucial for guiding the responsible development and deployment of generative AI systems in the civic domain.

In conclusion, prior research has well-illuminated the unique capacity of generative AI to foster interactive citizen–government interfaces capable of demystifying complex governance processes and information through intuitive conversational experiences (Chui et al., 2023). However, realising this transformative democratic potential is contingent upon overcoming critical challenges through a complex, context-aware approach. Developing robust governance frameworks that safeguard against the propagation of bias, misinformation and privacy violations is paramount. Aligning generative AI systems with citizens' needs, preferences and socio-cultural contexts through citizen-centric design methodologies is imperative to ensure broad adoption and impact. Furthermore, continued research into enhancing dialogue coherence, context-tracking and knowledge grounding is crucial to facilitate substantive civic discourse beyond perfunctory interactions. Only by addressing these multifaceted challenges head-on can the immense promise of generative AI be harnessed as a democratising force that empowers citizens, catalyses inclusive participation, and combats the perpetuation of exclusionary practices or insidious misinformation campaigns. A balanced, nuanced approach sensitive to unique societal contexts can pave the way for generative AI to reshape civic engagement dynamics, fostering transparent, participatory and citizen-responsive governance models.

3.2. E-government in Nigeria

Nigeria's e-government efforts began in the early 2000s, and aimed at increasing efficiency and transparency in governance (Abdulkareem, 2015). A major early initiative was the establishment of the National Information Technology Development Agency (NITDA) in 2001 to provide strategic direction for ICT adoption. NITDA developed frameworks like the Nigerian e-Government Interoperability Framework to guide e-government systems development (Abdulkareem et al., 2022a). Key initiatives undertaken include online portals for accessing government information and services. The federal government has established portals such as *Nigeria.gov.ng* to provide centralised access to resources across ministries, departments and agencies. Individual agency portals like the Corporate Affairs Commission portal also enable online business registration and searches. Integrated identity management systems have also been a focus, such as the National Identification Number (NIN). The National Identity Management Commission was founded in 2007 to issue unique NINs to all citizens and legal residents. This foundational digital ID system aims to enhance service delivery across sectors. Additionally, there have been efforts to digitise government records and operations. NITDA's e-Government Masterplan seeks full automation of administrative functions and data. Initiatives like the Government Integrated Financial Management

Information System (GIFMIS) have digitised public financial management (National eGovernment Strategies, 2019).

However, uptake and adoption of these e-government platforms by Nigerian citizens remains low. A 2019 survey found only 28% of Nigerians accessed government web portals, citing multiple barriers to usage (Oni & Okunoye, 2019). A major obstacle is lack of awareness and digital literacy (Abdulkareem & Ramli, 2021). Many citizens, especially in rural areas, are simply not aware of e-government programs and portals. Those who face challenges in computer literacy and skills needed to effectively use digital services, and educational gaps exacerbated this problem. But unreliable digital infrastructure also impedes usage. For many Nigerians, access to affordable electricity, internet connectivity and digital devices continues to be a challenge (Abdulkareem, 2015). Frequent power outages disrupt access, while broadband penetration rates remain below 40% nationally. This urban–rural digital divide limits e-government participation. Additionally, years of ineffective governance have eroded public trust and confidence. Corruption scandals and perceptions of unresponsive bureaucracy have made citizens sceptical of e-government initiatives. Restoring faith in institutions will be critical. Cultural factors also come into play. Traditional norms and preferences for in-person transactions over digital channels persist.

Civic participation in governance also continues to be plagued by digital divide issues. Studies consistently show that wealthier, more educated Nigerians in urban centres have much greater access and ability to effectively use e-government services (Abdulkareem et al., 2022a). Rural areas and lower-income populations have, on the other hand, severe gaps in access and e-government usage. For example, a 2021 study found internet penetration rates of just 23% in rural zones compared to 65% in urban areas. Electricity access displays a similar divide which leads to stark inequalities in Nigerians' ability to leverage e-participation channels.

Obviously, the gaps are worsened by educational disparities as well. While higher literacy and digital skills allow savvier navigation of e-government platforms, those without such skills can find the interfaces overwhelming (Abdulkareem & Ramli, 2021). Initiatives to increase digital literacy among disadvantaged groups are therefore critical. These divides have thwarted efforts to broaden civic engagement online, and government initiatives to consult citizens on policy issues through portals have engaged only a thin slice of the populace. Typically, input comes predominantly from urban elites, marginalising rural and poorer Nigerians.

Nigeria's public sector has indeed recognised the need for innovation and has begun to explore the use of emerging technologies. For example, the National Centre for Artificial Intelligence and Robotics (NCAIR) is an initiative by the Nigerian Government to potentially leverage AI technologies to enhance civic participation and engagement.

4. Nigeria's socio-political landscape and opportunities for civic engagement using AI

Nigeria has a complex democratic history, having transitioned from military rule to a multi-party democratic system in 1999, ushering a new era of hope for democratic governance (Yusuf et al., 2018). However, the journey so far has been far from smooth with prevailing challenges testing the resilience of the country's democratic institutions. At the socio-political level, Nigeria's complex ethnic and religious tapestry has long been a double-edged sword (Ukiwo, 2006). On the one hand, the country's diversity is a source of immense cultural richness; on the other hand, it has frequently been a tinderbox for conflicts and tensions that threaten national unity (Oyedele, 2015). Historical grievances, disputes over resource allocation, and struggles for representation among the country's myriad ethnic groups have periodically erupted into violence, eroding social cohesion and trust in governing institutions (Omotoso, 2014). These fault lines had profound impact on civic engagement dynamics, with certain communities feeling marginalised or disenfranchised from mainstream political processes. Fostering inclusive platforms and rebuilding bridges across these divides will be critical for any e-governance initiative aiming to catalyse broad-based citizen participation.

Furthermore, Nigeria's institutional landscape has been marred by systemic issues like corruption, lack of accountability and inefficient bureaucracies, all of which have contributed to a deep-seated crisis of legitimacy in the eyes of many citizens (Abdulkareem et al., 2021). Decades of graft scandals, mismanagement of public resources and unresponsive governance have bred widespread cynicism and apathy towards state institutions, undermining the very notion of civic engagement. Restoring public trust and confidence in the integrity of governance systems will be a heroic task, but one that is essential for revitalising citizen participation. Robust institutional reforms, coupled with tangible demonstrations of transparency and accountability, could gradually help to rebuild the social contract between the state and its people. Nevertheless, on the cultural front, traditional norms and attitudes towards governance also play a role in shaping civic engagement dynamics. In many parts of Nigeria, there is a deep-rooted preference for in-person, face-to-face interactions and scepticism towards digital channels or platforms. This cultural predisposition poses challenges for the adoption and sustained use of e-governance tools, including those powered by cutting-edge technologies like generative AI.

Additionally, low levels of digital literacy and access to enabling infrastructure (reliable internet, electricity, devices) further exacerbate these cultural barriers, particularly in rural and marginalised communities (Abdulkareem, 2015). Bridging these divides through targeted capacity-building initiatives and ensuring equitable access to digital resources will be imperative. Ultimately, any efforts to leverage generative AI or other innovative technologies for catalysing civic engagement in Nigeria must be firmly grounded in the understanding of these socio-political, institutional and cultural realities. Technological solutions alone, no matter how advanced they are, cannot overcome entrenched systemic challenges or deeply ingrained societal dynamics.

Amidst these challenges, civil society organisations have emerged as advocates for democratic reforms, promoting transparency and accountability in governance, and

intensifying the voices of marginalised citizens. These organisations have served as observers and watchdogs, holding authorities accountable and championing the rights of citizens, playing a vital role in counterbalancing the democratic deficits that have plagued the country. Therefore, unpacking this context is vital for understanding both the immense need and potential pitfalls for leveraging generative AI to reinvigorate civic engagement. On the one hand, intuitive AI-powered platforms that simplify information and increase transparency could help rebuild trust and reconnect disaffected citizens with governance processes. On the other hand, generative models that facilitate two-way dialogue could provide citizens with accessible channels to voice their concerns and shape policies directly.

While generative AI does indeed represent a cutting-edge frontier of technological innovation, there is an evident risk that its introduction into Nigeria's civic engagement sphere could inadvertently exacerbate the existing divides and inequalities if they are not implemented thoughtfully. For instance, deploying generative AI virtual assistants that rely heavily on text-based natural language interactions may provide limited utility for citizens in rural areas with low literacy levels or limited digital skills. More so, deploying such AI systems within Nigeria's fraught socio-political landscape also poses unique risks, such as fuelling ethnic or religious conflicts or being weaponised to spread disinformation (Guenduez & Mettler, 2023).

There are also justifiable concerns around privacy and surveillance given the country's history of human rights abuses. One major concern highlighted regarding generative AI systems is their tendency to operate as inscrutable "black boxes", meaning that their inner workings and decision-making processes remain opaque and difficult to interpret, even as they produce outputs like natural language text. This opacity can breed distrust, especially when such AI systems are applied to high-stakes domains like public policy and governance that have direct impacts on citizens' lives. By providing clear explanations for how the AI arrives at its outputs, whether it is generated text, images or other content, emerging techniques in explainable AI (xAI) can help alleviate fears around black box algorithms making opaque decisions that impact citizens (de Bruijn et al., 2022; Leewis & Smit, 2023).

Moreover, Nigeria's substantial digital divides across rural–urban, socioeconomic and gender lines pose barriers to equitable access and inclusion for AI-driven civic engagement platforms. Therefore, by contextualising the possibilities of generative AI within Nigeria's democratic realities, the challenges of corruption, ethnic tensions, human rights considerations, digital inequalities and civil society's advocacy roles, a more grounded and holistic perspective can emerge. This context-specific framing illuminates not just the theoretical potential of AI, but pragmatic pathways for responsible implementation attuned to societal needs and risks. Ultimately, such nuanced analysis anchored in Nigeria's democratic milieu is crucial for developing strategies to harness generative AI as a force for inclusive, participatory governance rather than an amplifier of asymmetries and divisions.

5. Opportunities for generative AI in Nigerian e-government

5.1. Simplify conversation processes

Conversational agents and interactive guides powered by AI could indeed play a transformative role in simplifying complex policies and governance processes for citizens. These AI-powered virtual assistants, customised for local contexts, could serve as an accessible and user-friendly interface between citizens and e-government services (Guo et al., 2023). For instance, a citizen could interact with a conversational agent in the Nigerian Immigration Service to inquire about a specific policy or process about obtaining and renewal of an international passport. The agent, using its AI capabilities, could then provide a simplified explanation or guide the citizen through the process step-by-step. This could make it easier for citizens to understand and navigate complex governance processes. Moreover, these virtual assistants could also serve as a resource directory, answering citizen queries and directing them to relevant resources. Such applications of AI in e-government could make governance more comprehensible and user-friendly. By providing clear, accessible information and guidance, these technologies could help to demystify complex policies and processes, empowering citizens to engage more effectively with their government.

5.2. Cost effective means of communication

Generative AI tools indeed offer the potential to cost-effectively reach underserved populations, such as those in rural areas without internet access (Dev et al., 2023). Interactive voice response (IVR) systems, which can be accessed by phone, could provide key information and services in different languages to those who are disconnected from the digital world (Chui et al., 2023). These systems could use AI to generate responses to user queries, making them more interactive and user-friendly. Moreover, Nigeria with ethnic groups of over 250 with diverse languages can make use of this window by employing AI-generated content translated into local languages to further expand access. By providing information in a language that users are comfortable with, these tools can make e-government services more accessible and inclusive. This could be particularly beneficial in countries with diverse linguistic communities.

5.3. Increasing citizen awareness

Leveraging on generative AI could indeed play a significant role in increasing citizen awareness and adoption of e-government services (Symeonidis et al., 2023). AI virtual assistants powered by GPT-4, deployed on public service apps, could engage citizens in the digital spaces they already frequent. This approach brings the information directly to the citizens, rather than requiring them to seek out the information themselves. These

assistants could provide tailored, interactive explanations about various e-government services. By responding to individual queries and providing information in a conversational manner, these assistants could help overcome wariness and lack of understanding around existing platforms. They could demystify complex processes and make e-government services seem more approachable and user-friendly. Moreover, they could be programmed to provide information in local languages and dialects, further increasing their accessibility by considering local cultural contexts, making their interactions more relatable and effective.

6. Developing a comprehensive implementation and governance framework

To harness the potential of generative AI for enhancing civic engagement while mitigating associated risks, Nigeria must develop a comprehensive implementation and governance framework tailored to its unique context. This framework should be built through collaborative efforts involving diverse stakeholders, drawing from lessons learned globally while addressing local realities.

6.1. Stakeholder engagement

Engaging a wide range of stakeholders is crucial from the outset. This includes technology experts who can advise policy-makers on the capabilities and limitations of generative AI , to ensure alignment with national objectives, ethics boards to uphold moral principles, and perhaps most importantly, civil society groups and citizen representatives to voice end-user needs and concerns. Such inclusive consultation processes build legitimacy and public trust, which are critical ingredients for successful adoption of novel technologies in the civic sphere.

6.2. Legislative and regulatory mechanisms

Clear legislative and regulatory mechanisms governing public sector use of AI must be established. These should mandate algorithmic audits by independent bodies to detect and mitigate emerging biases or inaccuracies. Robust data privacy and security standards, adhering to global best practices while reflecting local cultural norms around information rights are imperative. Specific provisions dealing with data sovereignty, preventing misuse for surveillance or human rights violations given Nigeria's complex history should be prioritised.

6.3. Human-centric co-design

A human-centric, co-design approach involving extensive user research and feedback loops across Nigeria's diverse populace is vital. This means not just designing generative AI tools for citizens, but actively designing with representative citizens. Hands-on usability testing with rural, urban, literate and semi-literate user groups can uncover accessibility barriers, socio-cultural disconnects or interface friction points missed by technologists. Iterative improvements based on this feedback create AI-powered solutions attuned to how Nigerians communicate, consume information and navigate bureaucracies.

6.4. Digital enablement and literacy

No technological intervention, no matter how well-designed, can succeed without addressing digital divides. Nigeria must couple its generative AI roadmap with substantial investments in digital literacy programs, with a specific focus on underserved rural, low-income and female demographics. Building digital fluencies ranging from device usage to cybersecurity and online citizenship rights empowers citizens to meaningfully engage with AI-enabled services. Parallel investments in internet infrastructure, public digital access points and electrification are prerequisites.

6.5. Institutional capacity building

Adequate institutional capacity, through technical skill development and change management initiatives within the public sector workforce is essential. This ensures government agencies to effectively deploy, maintain and iteratively update AI systems aligned with policy objectives. Strategic partnerships with academia and industry could facilitate knowledge transfer and joint research for developing contextually relevant AI applications.

Nigeria can draw valuable lessons from the generative AI governance frameworks emerging across the globe. The European Union's proposed AI Act provides a comprehensive risk-based approach covering trustworthy AI principles like human oversight, robustness and transparency (Duberry, 2022). Similarly, India's initiatives like the National AI Strategy underscore stakeholder empowerment, skilling and ethical guardrails (Chatterjee, 2020). Singapore's pioneering Model AI Governance Framework is another example that details institutional vehicles for responsible AI deployment (Joo, 2023). Such exemplars provide useful policy templates for Nigeria to consider and localise.

Most importantly, developing a robust governance framework catalyses the positive impact of the generative AI as a democratising force for civic engagement within Nigerian e-governance. However, this transformative potential is contingent on inclusive multi-stakeholder involvement, meticulous human-centric design, unwavering prioritisation of ethics and public interests, and thoughtful navigation of socio-cultural complexities.

An adaptable, made-in-Nigeria framework balancing innovation with responsible stewardship is crucial for harnessing generative AI as a citizen-empowering tool that bridges divides, boosts transparency and reinvigorates participatory democracy.

7. Conclusion

This paper explored opportunities and challenges associated with leveraging generative AI to boost civic participation within Nigeria's developing e-government landscape. Emerging generative technologies like ChatGPT demonstrate intriguing potential to make governance more interactive, accessible and engaging for citizens. Conversational interfaces could allow personalised explanation of complex policies, while virtual assistants provide new easy-to-use channels for the disconnected to engage with e-services. However, risks around bias, privacy, security and capability limitations must be navigated for successful implementation in the public sector. Further advances in AI will be required to enable truly open-ended dialogue needed for rich deliberative engagement. Additionally, Nigeria's substantial digital divides and erosion of public trust pose barriers to adoption. Targeted strategies focused on inclusion, accessibility, education and building institutional legitimacy will be critical to realise the promise of AI-enabled civic participation. Largely, generative AI merits cautious optimism as a tool for advancing e-government, but one requiring good governance, human-centric design and responsible development attentive to risks. Further research and controlled pilots are needed to determine optimal applications and guardrails. If thoughtfully implemented and regulated, generative systems could open new possibilities for reimagining civic engagement and energising Nigeria's democracy in the digital age.

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