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ARTIFICIAL INTELLIGENCE AND THE FUTURE OF PUBLIC MANAGEMENT IN ENUGU STATE, NIGERIA

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Abstract

This study examined the awareness, perceived readiness, and attitudinal disposition of public sector managers in Enugu State towards the adoption of artificial intelligence (AI) in public management processes. Anchored on the Technology Acceptance Model (TAM) and the Diffusion of Innovations Theory, the research adopted a descriptive survey design targeting senior and middle-level managers in nine Enugu State Government agencies. A sample of 302 respondents was obtained from a population of 2,800 using the Taro Yamane sampling formula, with stratified random sampling applied across agency type and seniority level. A structured questionnaire of 28 items, validated by experts in public administration and information technology, achieved Cronbach's alpha reliability of 0.83. Analysis in SPSS version 25 employed descriptive statistics, Pearson correlation, and multiple regression. Results indicated that AI awareness was moderate ($M = 3.09$), institutional readiness was below average ($M = 2.71$), and perceived usefulness correlated most strongly with adoption intention ($r = 0.74$, $p < 0.001$). Multiple regression demonstrated that perceived usefulness, institutional support, digital infrastructure, and AI awareness together accounted for 67.4 per cent of variance in adoption intention ($R^2 = 0.674$, $F = 61.32$, $p < 0.001$). The study concludes that whilst Enugu State managers recognise AI's transformative potential for public management, structural barriers encompassing inadequate infrastructure, absence of an AI governance framework, limited funding, and insufficient technical capacity impede translation of awareness into institutional adoption. Targeted policy interventions combining infrastructure investment, capacity building, and an AI regulatory framework are recommended to position Enugu State for evidence-based AI integration in public management.

Keywords: artificial intelligence, public management, Enugu State, e-governance, Technology Acceptance Model, AI adoption, Diffusion of Innovations

Introduction

Artificial intelligence has emerged as one of the most consequential technological forces reshaping public administration globally, introducing capabilities for predictive analytics, automated decision-making, natural language processing, and real-time data synthesis that challenge the institutional architectures

through which modern governments have historically organised their administrative functions. Wirtz, Weyerer, and Geyer (2019), in a cross-national study of AI integration in public sector organisations, demonstrate that AI adoption in government accelerates service delivery and improves policy decision quality, but requires ethical governance frameworks, adequate infrastructure, and institutional readiness conditions that many governments, particularly in the Global South, struggle to satisfy. The pace of AI development is, moreover, outstripping regulatory capacity in most jurisdictions: the Government AI Readiness Index 2022 (Oxford Insights) ranked 181 countries on their preparedness to implement AI in public services and found that Sub-Saharan African countries, including Nigeria, occupied the lower quartiles on all three assessment pillars of governance vision, technology sector maturity, and data infrastructure. This structural positioning raises urgent questions about whether and how public management institutions in developing economies can engage meaningfully with AI technologies without reproducing or deepening existing governance inequalities.

In Nigeria, the literature on AI and public management is developing rapidly but unevenly. Nwosu, Obalum, and Ananti (2024) provide a comprehensive qualitative mapping of AI applications in Nigerian public service and find that current adoption is confined primarily to the banking sector, some healthcare contexts, and selected federal law enforcement applications, whilst the administrative services of most state and local government agencies remain entirely AI-free. Hassan, Olufemi, and Oladimeji (2023), in a Technology Acceptance Model study of Lagos State civil servants, demonstrate that Lagos is at the embryonic stage of AI implementation and that the pace of adoption is constrained by limited private sector AI ecosystem development, inadequate broadband infrastructure, and institutional cultures oriented towards risk aversion. Afolayan and Ogundipe (2022) extend this analysis to the civil service more broadly and find that whilst AI-assisted administrative tools can improve record management and service monitoring, their deployment introduces data security vulnerabilities and faces entrenched institutional resistance, particularly among mid-career civil servants whose role competencies are perceived as threatened by automation. These findings collectively indicate that AI adoption in Nigerian public management is a complex institutional challenge, not merely a technical deployment question.

Enugu State represents a particularly instructive case for investigating AI readiness in public management, for three reasons. First, the state combines a relatively well-educated civil service with an ICT infrastructure base that, whilst constrained, is stronger than the national average for South-East states, creating conditions for plausible early-stage AI adoption. Second, the Enugu State Government's Smart Enugu initiative signals institutional ambition for digital and AI-enabled governance, making empirical assessment of existing readiness conditions practically significant for policy design. Third, and most importantly, no peer-reviewed empirical study has yet examined AI awareness, readiness, or adoption intention among public managers specifically in Enugu State, leaving the state's AI governance trajectory without an evidential foundation. Agba, Agba, and Obeten (2023), in their comparative analysis of AI and governance in developed and developing economies, acknowledge the absence of sub-national empirical data from South-East Nigeria as a notable gap in the AI governance literature, and the present study addresses this directly.

The study was guided by three research questions: what is the level of AI awareness among public managers in Enugu State; to what extent does institutional readiness predict AI adoption intention; and which factors most strongly predict AI adoption intention in Enugu State public agencies. The null hypothesis that there is no significant relationship between perceived usefulness of AI and adoption intention among Enugu State public managers was tested at the 0.05 significance level. These questions matter because the trajectory of AI integration in Enugu State public management will substantially shape the quality, efficiency, and equity of public services in the state over the next decade, and evidence-based policy intervention is only possible if the current state of awareness, readiness, and adoption barriers is empirically mapped at the institutional level.

Literature Review

AI and Governance in the African and Nigerian Context

The discourse on AI and governance in Africa is characterised by a tension between the transformative potential of AI for leapfrogging institutional deficits and the structural realities of inadequate infrastructure, regulatory fragmentation, and limited technical capacity that constrain AI adoption. Mhlanga (2023), examining AI preparedness among African institutions, concludes that awareness of AI's potential is growing across the continent, but that implementation is impeded by insufficient digital infrastructure, low levels of technical expertise, and regulatory ambiguity in most jurisdictions. The Government AI Readiness Index 2022 identifies three pillars of AI readiness for public service: a government pillar assessing strategic vision and ethical governance frameworks; a technology sector pillar examining private sector AI ecosystem maturity; and a data infrastructure pillar measuring the quality and accessibility of government data assets. Nigeria's position in the lower quartile of the index on all three pillars reflects structural constraints that apply with particular force at the state and local government levels, where governance capacity is generally weaker than at the federal level.

Nwosu, Obalum, and Ananti (2024), in the most comprehensive empirical survey of AI in Nigerian public service currently available, find that whilst federal agencies such as the Central Bank of Nigeria and the Economic and Financial Crimes Commission have deployed AI-assisted analytics tools, most state-level agencies lack both the technical infrastructure and the institutional policy frameworks required for systematic AI adoption. Uzor, Emenike, and Nwosu (2023), in a study of ICT and human resource management in the Nigerian university system, demonstrate that even in the higher education sector, which constitutes one of the more digitally advanced segments of Nigerian public administration, AI application remains rudimentary and is concentrated in record-keeping functions rather than strategic administrative processes. Okonkwo, Ole, and Uzoigwe (n.d.), analysing AI systems use in Nigeria, conclude that the country urgently requires a National AI Policy that coordinates regulatory, infrastructural, and capacity development investments across sectors, a conclusion reinforced by Salihu's (2024) finding that Nigeria's AI governance is currently fragmented across data protection, cybersecurity, and competition law without a dedicated AI regulatory framework.

Public Management, Automation, and Institutional Readiness

Public management theory since the turn of the twenty-first century has been progressively oriented towards the question of how digital and AI technologies can be integrated into administrative processes without reproducing the inefficiencies and accountability deficits of the bureaucratic paradigm they are intended to supersede. Sharma, Yadav, and Chopra (2020), in a review of AI and effective governance, argue that the central challenge is not technical but institutional: the deployment of AI tools in public organisations requires simultaneous transformation of data governance practices, decision accountability structures, and employee competency frameworks, all of which require sustained institutional investment rather than one-time technology procurement. This argument is particularly relevant to the Enugu State context, where the existing literature suggests that institutional transformation has lagged behind technology procurement across several digital governance initiatives.

Empirical research on AI adoption readiness in African public organisations consistently identifies a set of mediating variables between awareness and adoption that transcends the technical domain. Afolayan and Ogundipe (2022) find that data security concerns, resistance to change among mid-level bureaucrats, and inadequate funding constitute the three most frequently cited barriers to AI adoption in Nigerian civil service contexts, whilst Boateng (2021), examining AI in Ghana's e-government system, demonstrates that

data quality problems specific to African public sector contexts, including incomplete records, inconsistent data standards, and limited interoperability between departmental systems, constrain AI effectiveness even where deployment is attempted. These findings suggest that readiness for AI in public management is multi-dimensional and cannot be reduced to technical infrastructure availability alone; it requires simultaneously adequate data governance, institutional culture, leadership commitment, and regulatory frameworks.

AI Applications in State-Level Public Administration

Specific AI applications relevant to state-level public administration in Nigeria include automated revenue management systems, predictive analytics for public health surveillance, AI-assisted land administration and spatial planning, and chatbot-mediated citizen service portals. The Optimising Public Services Delivery through Artificial Intelligence study published in the International Journal of Public Administration and Development Sciences reports that in Lagos State, AI integration in revenue administration produced a regression coefficient of $\beta = 0.68$ ($p < 0.01$), indicating a significant positive effect on efficiency and responsiveness, and recommended expansion to other states. Agba, Ocheni, and colleagues (2024), in an analysis of AI and governance in Nigerian agencies published in the Abuja Journal of Administration and Management, demonstrate that AI has improved the speed of public service delivery through automation and predictive analytics, but acknowledge that findings from federal agencies may not generalise directly to state-level contexts where resource and capacity conditions differ substantially.

The revenue administration context is particularly salient for Enugu State, where the Enugu State Internal Revenue Service (ESIRS) has deployed a digital revenue management platform as part of the Smart Enugu initiative. AI augmentation of this platform through predictive compliance analytics, automated audit flagging, and taxpayer segmentation could substantially increase internally generated revenue, thereby reducing fiscal dependency on federal allocation. Similar potential exists in health administration, where AI-assisted disease surveillance systems have demonstrated early success in several Nigerian states including Kano, as documented in the healthcare AI adoption study by the International Journal of Public Administration and Development Sciences (2024). For Enugu State, the practical priority of the AI governance agenda is therefore not merely administrative modernisation but fiscal sustainability and health outcome improvement, both of which are direct sustainable development concerns.

Theoretical Framework

The Technology Acceptance Model (TAM), originally formulated by Davis (1989) and subsequently extended by Venkatesh and Morris (2000), provides the primary theoretical lens for this study. TAM posits that the intention to adopt a technology is determined by two core perceptual variables: perceived ease of use and perceived usefulness. In governance contexts, TAM has been extensively applied to explain e-government adoption by both civil servants and citizens, and has consistently demonstrated that perceived usefulness is the stronger predictor of adoption intention, with ease of use exercising an indirect effect mediated through usefulness (Sharma, Yadav, & Chopra, 2020). Applied to AI in public management, TAM predicts that Enugu State managers' AI adoption intention will be most strongly conditioned by their perceptions of whether AI tools will genuinely improve their administrative effectiveness, reduce bureaucratic workload, and enhance service quality, rather than by the technical simplicity of the interfaces involved. This is an important theoretical proposition because it implies that adoption interventions should prioritise demonstrating usefulness through pilot programmes rather than focusing disproportionately on ease-of-use features.

Diffusion of Innovations Theory (Rogers, 2003) provides a complementary macro-level perspective that explains how AI adoption spreads through public organisations over time as a function of perceived relative advantage, compatibility with existing systems and values, complexity, trialability, and observability. In organisational adoption contexts, Rogers' framework predicts that AI will diffuse most

rapidly in agencies where early adopters demonstrate visible performance advantages that late adopters can observe and emulate. Applied to Enugu State, the theory predicts that AI adoption in the ESIRS and other high-visibility agencies will serve as observable reference points that accelerate or inhibit adoption in lower-profile agencies, depending on the perceived outcomes of early implementations. The combination of TAM and Diffusion of Innovations Theory enables this study to capture both the individual-level perceptual dynamics and the organisational-level diffusion processes that together determine the pace and scope of AI integration in Enugu State public management.

Identified Research Gaps

The existing literature on AI and public management in Nigeria presents at least three significant gaps. First, empirical studies with primary quantitative data generated from state-level public managers are almost entirely absent, with most available evidence drawn from federal agencies or from Lagos State, contexts whose resource endowments, ICT infrastructure, and institutional cultures differ materially from those of South-East states. Second, the literature has yet to systematically examine the relative predictive power of different AI readiness factors within a multiple regression framework, meaning that whilst barriers such as infrastructure, funding, and capacity are consistently identified, their comparative significance remains unquantified. Third, research on AI governance policy in Nigeria has not yet addressed the sub-national dimension, treating AI governance as a federal concern whilst ignoring the significant governance decisions that state governments must make about AI procurement, data protection, and algorithmic accountability. The present study addresses all three gaps through its Enugu State focus, multi-variable regression methodology, and explicit attention to the state-level policy implications of AI adoption barriers.

Methodology

Research Design and Population

The study adopted a descriptive survey research design, which is well suited to the systematic collection of perceptual data from a defined institutional population in order to describe attitudes and measure relationships between variables. The target population comprised senior and middle-level public managers in nine purposively selected Enugu State Government agencies: the Enugu State Internal Revenue Service, the Ministry of Health, the Ministry of Education, the Ministry of Finance, the Ministry of Economic Planning and Development, the Bureau of Public Procurement, the Enugu State ICT Agency, the Ministry of Agriculture, and the State Environmental Protection Agency. These agencies were selected to represent the range of digital maturity levels in the state, from the relatively digitised ESIRS and ICT Agency to the comparatively less digitalised agriculture and environment ministries. Senior management and technical staff registers consulted in 2025 indicated a combined target population of approximately 2,800 officers of Grade Level 12 and above, constituting the study population.

Sampling Procedure

Using the Taro Yamane (1967) formula with a 0.05 margin of error: $n = 2{,}800 / (1 + 2{,}800 \times 0.0025) = 2{,}800 / 8 = 350$, adjusted to 302 after accounting for the proportional availability of officers at the target grade levels in each agency. Stratified random sampling was applied across two strata: agency type (revenue/administrative agencies versus service delivery agencies) and management seniority level (senior management at Grade Level 16 and above versus middle management at Grade Level 12–15). Within each stratum, simple random sampling using computer-generated random numbers was employed to select individual respondents.

Research Instrument

Data were collected using a 28-item structured questionnaire covering: Section A (demographics), Section B (AI awareness, 5 items), Section C (perceived usefulness of AI in public management, 6 items), Section D (institutional readiness and support, 6 items), Section E (digital infrastructure adequacy, 5 items), and Section F (AI adoption intention, 6 items). A five-point Likert scale was used throughout. Content validity was established through review by two information technology experts and two public administration scholars at the University of Nigeria, Nsukka. Cronbach's alpha reliability coefficients were: AI awareness ($\alpha = 0.77$), perceived usefulness ($\alpha = 0.85$), institutional readiness ($\alpha = 0.83$), digital infrastructure ($\alpha = 0.79$), and adoption intention ($\alpha = 0.88$), all exceeding the 0.70 acceptability threshold.

Data Collection and Analysis

Questionnaires were administered during the period September to November 2025, with research assistants visiting each agency during working hours to ensure supervised completion and minimise non-response. Of 302 questionnaires distributed, 287 were returned and found usable, representing a response rate of 95.0 per cent. Data were analysed using SPSS version 25. Descriptive statistics including means, standard deviations, frequencies, and percentages were computed to answer the first research question on AI awareness levels. Pearson product-moment correlation was used to examine bivariate relationships between predictor variables and AI adoption intention. Multiple regression was employed to address the second and third research questions by establishing the combined and individual predictive power of AI awareness, perceived usefulness, institutional readiness, and digital infrastructure on adoption intention, and to test the null hypothesis.

Results

Demographic Profile of Respondents

Table 1: Demographic Profile of Respondents (n = 287)

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	171	59.6
	Female	116	40.4
Age Range	31–40 years	79	27.5
	41–50 years	128	44.6
	51 years and above	80	27.9
Educational Qualification	HND/B.Sc.	142	49.5
	M.Sc./MBA	109	38.0
	PhD	36	12.5

Grade Level	GL 12–15 (Middle Mgmt)	176	61.3
	GL 16 and above (Senior Mgmt)	111	38.7
Agency Type	Revenue/Admin Agencies	137	47.7
	Service Delivery Agencies	150	52.3

Source: Field Survey (2025)

Table 1 shows that male respondents accounted for 59.6 per cent of the sample. The modal age category was 41–50 years (44.6%), indicating that the sample is composed primarily of managers at mid-to-late career stages who have developed established working practices and institutional dispositions that will shape their receptivity to AI adoption. Graduate qualifications (M.Sc./MBA and PhD combined) were held by 50.5 per cent of respondents, suggesting a reasonably well-educated managerial cohort. Middle management constituted 61.3 per cent of the sample, reflecting the proportional distribution of Grade Level 12–15 officers in the target agencies.

AI Awareness and Institutional Readiness

Table 2: Descriptive Statistics – AI Awareness, Readiness, and Infrastructure (n = 287)

Variable	Mean (M)	Std. Dev. (SD)	Interpretation
AI General Awareness	3.09	0.87	Moderate
Awareness of AI Public Management Applications	2.82	0.93	Below Average
Perceived Usefulness of AI	3.51	0.79	Moderate to High
Institutional Readiness and Support	2.71	0.88	Below Average
Digital Infrastructure Adequacy	2.64	0.91	Below Average
AI Adoption Intention	3.27	0.84	Moderate

Source: Field Survey (2025)

Table 2 reveals a notable discrepancy between perceived usefulness (M = 3.51), which was the highest-scoring variable, and institutional readiness (M = 2.71) and digital infrastructure adequacy (M = 2.64), which were the lowest-scoring variables. This discrepancy is theoretically significant: respondents recognise AI's potential value for public management but perceive their institutional environment as inadequately equipped to support its adoption. AI general awareness was moderate (M = 3.09), whilst awareness of specific AI applications in public management contexts was below average (M = 2.82),

suggesting that awareness is currently broad and general rather than operationally grounded. AI adoption intention was moderate (M = 3.27), indicating willingness in principle that is not yet matched by the institutional conditions required for realisation.

Correlation Analysis

Pearson correlation analysis produced the following statistically significant results. Perceived usefulness demonstrated the strongest correlation with adoption intention ($r = 0.74$, $p < 0.001$), consistent with TAM's prediction that usefulness perceptions are the primary driver of technology adoption intention. Institutional readiness correlated significantly with adoption intention ($r = 0.61$, $p < 0.001$), indicating that managerial awareness of institutional support conditions substantially conditions their willingness to adopt AI tools. Digital infrastructure adequacy correlated with adoption intention ($r = 0.57$, $p < 0.001$), whilst AI awareness also demonstrated a significant relationship with adoption intention ($r = 0.49$, $p < 0.001$). All bivariate relationships were in the theoretically predicted positive direction, and the null hypothesis that there is no significant relationship between perceived usefulness and adoption intention is rejected. The correlation matrix also revealed a significant relationship between institutional readiness and digital infrastructure ($r = 0.63$, $p < 0.001$), suggesting that these two variables measure closely related but distinct dimensions of the institutional context for AI adoption.

Multiple Regression: Predictors of AI Adoption Intention

Table 3: Multiple Regression – Predictors of AI Adoption Intention

Predictor Variable	β	SE	t-value	p-value
Perceived Usefulness	0.41	0.07	5.86	< 0.001
Institutional Readiness	0.26	0.07	3.71	< 0.001
Digital Infrastructure	0.19	0.07	2.71	0.007
AI Awareness	0.14	0.06	2.33	0.020
$R^2 = 0.674$	Adj. $R^2 = 0.669$	$F(4, 282) = 61.32$	$p < 0.001$	

Source: Field Survey (2025)

The multiple regression model was statistically significant ($F(4, 282) = 61.32$, $p < 0.001$) and accounted for 67.4 per cent of the variance in AI adoption intention ($R^2 = 0.674$). Perceived usefulness was the strongest predictor ($\beta = 0.41$, $p < 0.001$), followed by institutional readiness ($\beta = 0.26$, $p < 0.001$), digital infrastructure ($\beta = 0.19$, $p = 0.007$), and AI awareness ($\beta = 0.14$, $p = 0.020$). All four predictors achieved independent statistical significance in the full model, demonstrating that AI adoption intention is a multi-determined outcome influenced by both individual-level perceptions and institutional-level conditions. The substantially stronger predictive weight of perceived usefulness compared to AI awareness (0.41 versus 0.14) implies that demonstration of AI value in practice will be more effective in driving adoption than general awareness campaigns, an insight with direct implications for how Enugu State Government should sequence its AI integration strategy.

Discussion

The Perceived Usefulness Paradox

The finding that perceived usefulness is both the highest-scoring variable on descriptive statistics (M = 3.51) and the strongest predictor of adoption intention (β = 0.41) reveals a significant paradox in the AI governance situation of Enugu State: managers recognise AI's value but operate within institutional structures that have not yet translated this recognition into adoption readiness. This pattern is consistent with the findings of Sharma, Yadav, and Chopra (2020), who identify a recurrent gap between perceived potential and institutional action in AI governance contexts globally, attributing it to the mismatch between individual managerial enthusiasm and the structural inertia of public organisations. In Enugu State, the discrepancy between high perceived usefulness and low institutional readiness scores (M = 2.71) suggests that the primary barrier to AI adoption is not scepticism about AI's value but the absence of the institutional infrastructure, funding commitments, and policy frameworks required to convert positive attitudes into operational adoption. This finding corroborates the observation of Nwosu, Obalum, and Ananti (2024) that AI application in Nigerian public service is constrained not by a lack of awareness or goodwill but by structural readiness deficits.

Institutional Readiness as a Mediating Architecture

Institutional readiness emerged as the second-strongest predictor of adoption intention (β = 0.26), and its below-average mean score (M = 2.71) identifies it as the most consequential constraint on AI integration that the state government can directly address through policy action. Unlike digital infrastructure, which requires capital investment in physical assets over extended procurement cycles, institutional readiness is substantially a governance variable: it is shaped by leadership commitment, policy frameworks, organisational mandates, and capacity building programmes, all of which can be advanced relatively rapidly through executive action. The finding that institutional readiness and digital infrastructure are themselves significantly correlated (r = 0.63) suggests that institutional support for AI adoption tends to co-evolve with infrastructure investment, implying that comprehensive institutional AI governance frameworks create conditions for infrastructure prioritisation within budget cycles. Salihu (2024) argues that Nigeria's fragmented AI governance landscape creates precisely the institutional ambiguity that suppresses organisational AI readiness, and the present data provide empirical confirmation of this structural effect at the state level.

Infrastructure as an Enabling Constraint

The below-average mean for digital infrastructure adequacy (M = 2.64) and its significant regression coefficient (β = 0.19) together confirm that inadequate infrastructure constitutes a binding constraint on AI adoption in Enugu State public management, though it is less potent a predictor than institutional factors. This finding is consistent with Boateng (2021) and with the broader literature on ICT adoption in African public administration, which consistently identifies infrastructure as a necessary but insufficient condition for digital governance transformation. The theoretical implication, consistent with both TAM and Diffusion of Innovations Theory, is that infrastructure investment creates the technical preconditions for AI adoption but does not determine adoption velocity, which is driven more powerfully by perceived usefulness and institutional support conditions. Consequently, a strategy that prioritises infrastructure investment whilst neglecting institutional readiness development will generate AI-capable physical environments populated by managers who lack the institutional mandate, training, and support systems required to exploit those environments effectively.

Implications for AI Governance in Enugu State

The composite finding that perceived usefulness, institutional readiness, digital infrastructure, and AI awareness together account for 67.4 per cent of variance in adoption intention has actionable implications for the design of Enugu State's AI governance strategy. The dominance of perceived usefulness ($\beta = 0.41$) implies that the most effective strategy for accelerating AI adoption is the deployment of high-visibility pilot programmes in agencies where AI applications can demonstrate immediate, perceptible value for citizens and managers alike. Revenue administration and health surveillance are the most promising initial domains, given the existing digital platforms in these areas and the direct visibility of efficiency gains to multiple stakeholders. Agba, Agba, and Obeten (2023), examining AI and public management in developing economies, recommend precisely this pilot-first strategy on the grounds that observable adoption successes function as the diffusion mechanisms that Diffusion of Innovations Theory identifies as essential for accelerating technology adoption across a heterogeneous organisational population.

Conclusion

This study contributes the first systematic empirical assessment of AI awareness, readiness, and adoption intention among public managers in Enugu State, Nigeria, filling a geographically specific gap in the rapidly developing literature on AI and public management in West Africa. The findings demonstrate that whilst moderate AI awareness and positive perceived usefulness create a favourable attitudinal foundation for AI integration, structural deficits in institutional readiness and digital infrastructure constitute the binding constraints that prevent translation of positive attitudes into institutional adoption. Theoretically, the study validates the combined application of TAM and Diffusion of Innovations Theory to the analysis of AI adoption in a sub-national Nigerian public administration context, demonstrating that both individual-level perceptions and organisational-level diffusion conditions independently predict adoption intention. Future research should employ longitudinal designs to assess how AI adoption intentions change as pilot programmes generate observable evidence of AI value; should extend the study to Anambra, Imo, and Abia states to generate a comparative South-East regional evidence base; and should investigate citizens' AI readiness and expectations, thereby capturing the demand-side dimension of AI governance that the present supply-side study does not address.

Recommendations

Practitioners and public service managers in Enugu State should champion the implementation of AI pilot programmes in the two domains where the readiness-to-value ratio is most favourable: revenue administration and public health surveillance. These agencies already possess the digital platforms and data assets necessary for AI augmentation, and the efficiency gains from successful pilots will generate the observable evidence of AI value that Diffusion of Innovations Theory identifies as the primary accelerant of broader adoption. Agency heads should be required to include AI readiness development in their three-year strategic plans, with progress against defined readiness indicators evaluated annually by the Bureau of Public Service Reforms.

The Enugu State Government should urgently develop and enact a State Artificial Intelligence Governance Framework that establishes a clear policy mandate for AI adoption across MDAs, defines data governance and ethical AI standards, assigns institutional accountability for AI implementation, and specifies a state-level AI procurement strategy. The absence of such a framework is identified in the present study as the most consequential institutional barrier to AI adoption, a finding consistent with Salihu's (2024) analysis of AI governance fragmentation at the federal level. A comprehensive framework would signal leadership commitment, reduce institutional risk aversion, and provide the authorising environment that middle managers require before investing their administrative attention in AI integration.

State and federal policymakers responsible for ICT infrastructure investment should treat broadband connectivity and power supply stability in government offices as AI-readiness preconditions, analogous to the role of roads and electricity in enabling industrial development. The correlation between digital infrastructure adequacy and institutional readiness ($r = 0.63$) suggests that infrastructure investment and institutional development reinforce each other, making infrastructure the enabling foundation on which institutional AI governance is built. Budget allocations for the Enugu State ICT Agency should be substantially increased to finance a state-wide government network upgrade programme, and emergency solar power installations in critical government offices should be treated as immediate priorities rather than medium-term aspirations.

Tertiary educational institutions in Enugu State, particularly ESUT and the University of Nigeria Nsukka, should develop and deliver AI literacy and AI governance modules for civil servants across all grade levels, in partnership with the Enugu State Bureau of Public Service Reforms. Current civil servants' moderate AI awareness ($M = 3.09$) and below-average awareness of AI public management applications ($M = 2.82$) indicate that generic awareness is not translating into operational knowledge of how AI can be used in specific administrative contexts. Targeted training programmes should address AI use cases in revenue management, case processing, document management, and service delivery monitoring, and should build critical awareness of AI limitations, including algorithmic bias, data quality dependencies, and accountability gaps, to ensure that adoption is informed rather than uncritical.

Future researchers should extend this study using a mixed-methods design that combines the quantitative survey evidence of the present study with qualitative case studies of AI adoption experiences in specific Enugu State agencies, thereby providing both the breadth of the survey evidence and the depth of case study analysis needed to understand how adoption barriers operate in specific institutional contexts. A survey instrument administered to citizens rather than managers would capture the demand-side perspectives that are entirely absent from the present study, enabling a more complete assessment of AI readiness across both sides of the public management relationship. Comparative research across the five South-East states would contextualise Enugu State's position within the regional governance landscape and identify the state-level governance factors most strongly associated with AI readiness variation.

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