**Faculty of Natural and Applied Sciences Journal of Computing and Applications**
**Print ISSN: 3026-8133**
www.fnasjournals.com
**Volume 2; Issue 4; December2025; Page No. 63-71.**
**Doi:** https://doi.org/10.63561/jca.v2i4.1075

# Institutional Capacity and Policy Gaps in Ethical Artificial Intelligence Adoption in Faculties of Education in Nigerian Universities

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**Abstract**
This study investigates institutional capacity and policy gaps in the ethical adoption of Artificial Intelligence (AI) within Nigerian university Faculties of Education. A quantitative research design using a descriptive survey approach was employed, targeting academic and administrative staff across five universities in Bayelsa State but out of it, only three has faulty of Education: The study focused on governance structures, infrastructure adequacy, and human resource capacity as key factors influencing ethical AI adoption. Data were collected using a researcher-developed questionnaire, the Ethical AI Capacity and Policy Gaps Survey (EAICPGS), alongside focus group discussions and document analysis. Descriptive statistics and Pearson Product-Moment Correlation were applied to analyze the data, testing the null hypothesis that no significant relationship exists between institutional capacity and ethical AI adoption. Findings indicate significant gaps in governance, infrastructure, and human resources, which hinder the ethical integration of AI technologies. The study contributes valuable insights into the institutional challenges faced by Nigerian universities in adopting AI responsibly, offering recommendations for improving policy frameworks, infrastructure, and faculty preparedness. The findings underscore the need for comprehensive reforms to enhance the ethical implementation of AI in higher education. This research contributes to the growing discourse on AI governance in higher education, with specific implications for policy and practice in the Nigerian context**.**

**Keywords:** AI adoption ethics, Institutional Capacity, Infrastructure, Human Resources, Policy Gap**,**

## Introduction

Artificial Intelligence (AI) is reshaping industries, transforming global economies, and altering the educational landscape. Its capabilities—ranging from intelligent automation and data-driven decision-making to adaptive learning and natural language processing—are being rapidly integrated into various sectors, including education. In universities, AI is revolutionizing teaching, learning, and administration. It is also adopting learning systems, personalize instruction, adjusting content and pace to meet individual student needs, enhancing engagement and outcomes. Intelligent tutoring systems provide on-demand support, helping students grasp complex concepts more effectively. AI-driven analytics offer insights into student performance, allowing educators to identify at-risk learners early and design targeted interventions. (Dubey etal.,2024).Administrative tasks—such as grading, scheduling, and enrollment management—are increasingly automated, freeing faculty to focus on research and student interaction. Natural language processing powers smart assistants that guide students through course selections, answer queries, and streamline communication. Additionally, AI enhances research capabilities, aiding in data analysis, literature reviews, and simulation modeling. Virtual and augmented reality, coupled with AI, create immersive learning experiences that deepen understanding in fields like engineering, medicine, and the sciences. While the potential benefits of AI are considerable, the ethical dimensions of its adoption have attracted increasing concern globally (Onesi-Ozigagun et al., 2024).


*Cite this article as*:
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*Ethical Dimensions of AI* refers to the moral considerations and societal impacts that arise from developing and deploying artificial intelligence systems. It involves examining how AI affects human rights, fairness, accountability, transparency, and social well-being. Key concerns include bias and discrimination—when AI systems, trained on biased data, produce unfair outcomes. For example, an AI used in university admissions or hiring might unintentionally favor certain demographic groups over others (Stefan 2024). Privacy is another dimension, especially when AI collects and analyzes sensitive personal data, as seen in student monitoring or predictive analytics platforms. Transparency and explainability are critical; decisions made by complex AI models—such as automated grading or financial aid recommendations—can be difficult to understand or challenge. Accountability questions arise when it is unclear who is responsible for errors or harmful outcomes caused by AI. Moreover, issues like job displacement through automation and the ethical use of AI-generated content (e.g., deepfakes or AI-written essays) also surface. These aforementioned ethical challenges AI, pose serious risks—especially within university education, where equity, inclusivity, and academic integrity are core principles (Binns, 2018; Jobin, et al., 2019). Hence as AI continues to find application in higher education, the need for deliberate, ethical integration becomes more urgent. The absence of clear institutional policies and ethical frameworks creates what is known as policy gap. This gap invariably results in the misuse of AI, makes worse social inequalities and weakening public trust in higher education systems (Floridi et al., 2018).

Suffice to state that policy gaps in ethical AI refers to the lack of comprehensive rules, frameworks, or guidelines that adequately address the ethical, legal, and social challenges posed by AI systems. These gaps emerge when existing policies fail to keep pace with rapid technological advancements, leaving unclear how to manage issues like bias, privacy, accountability, and transparency. For instance, many universities may adopt AI-driven tools for grading or student analytics without clear policies on data protection, explainability, or redress mechanisms for unfair decisions (Floridi et al., 2019). Globally, while some guidelines exist—like the European Commission's *Ethics Guidelines for Trustworthy AI*—enforcement mechanisms and sector-specific regulations, particularly in education, often remain underdeveloped (European Commission, 2019). This creates risks where AI applications outpace institutional readiness, undermining core academic values such as equity and integrity. Bridging these gaps requires not just high-level principles but concrete, enforceable policies tailored to specific contexts like higher education. Without this, institutions may struggle to implement AI responsibly and protect stakeholders' rights.

Therefore, as a way to address the obvious lacuna of absence of clear institutional policies and ethical frameworks in some universities, in recent years, universities worldwide have begun addressing these concerns by adopting institutional policies and building capacity for ethical AI development and deployment. For instance, institutions like Stanford, MIT, and Oxford have established AI ethics centers, revised curricula to include responsible AI modules, and adopted institutional guidelines to promote fairness, accountability, and transparency (Marda, 2018). Stanford's Institute for Human-Centered Artificial Intelligence (HAI) focuses on interdisciplinary research that integrates ethics and policy into AI advancements (Stanford HAI, 2020). Massachusetts Institute of Technology (MIT)'s Schwarzman College of Computing embeds ethical reasoning and societal impact discussions into all computing courses (MIT, 2019). Oxford's Digital Ethics Lab investigates the ethical, legal, and social implications of digital technologies, informing responsible AI deployment (Oxford Internet Institute, 2020). Similarly, the European Commission's *Ethics Guidelines for Trustworthy AI* earlier mentioned emphasizes principles such as human agency, privacy, transparency, and accountability, urging institutions to uphold human-centric values and legal compliance (European Commission, 2019). These guidelines have influenced universities to adopt practices like transparent AI-based assessment tools, equitable predictive analytics in student support systems, and strict data protection measures in educational platforms. For example, some universities now use explainable AI models for admissions decisions to reduce bias and ensure fairness (Floridi et al., 2019). Such initiatives ensure that AI deployment in education aligns with ethical standards, protecting equity and academic integrity). However, many African countries, including Nigeria, are still in the early stages of establishing such structures.

Nigeria's AI strategy appears to still be in the process of evolution, and it is not yet clear whether the education sector has established well-defined ethical frameworks for the application of AI in teaching, learning, and research (NITDA, 2022). Nigerian universities therefore seem to face the dual challenge of integrating advanced AI technologies while at the same time developing sufficient institutional capacity to manage such integration ethically and responsibly. In this context, institutional capacity for ethical AI adoption may be understood, first, as the readiness and ability of an organization to implement policies, deploy technologies, and sustain change over time (Grindle et al., 1995), and second, as the availability of qualified human resources, digital infrastructure, technical


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support, research capabilities, ethical leadership, and financial resources. Without certainty, these elements, institutions may struggle to translate ethical principles into practice, even where there is awareness of the risks involved (UNESCO, 2021). Thirdly, it also implies the university's ability to adopt, implement, and manage AI technologies in ways that uphold ethical standards and social responsibility. This capacity encompasses having the necessary technical infrastructure, skilled personnel, governance structures, and policies that ensure AI is used transparently, fairly, and in alignment with human rights. Furthermore, it involves training educators, administrators, and students on ethical AI practices, establishing clear data protection policies, and creating oversight mechanisms to monitor AI applications and mitigate risks like bias, discrimination, and privacy breaches (Floridi et al., 2019). For example, a university with strong institutional capacity would have ethics review boards to assess AI-based decision tools in admissions or grading, and enforce accountability when AI systems impact students' academic outcomes. The European Commission (2019) highlights that trustworthy AI requires institutions to not only adopt ethical guidelines but also demonstrate operational readiness—meaning they can practically apply these principles in daily practices. This operational readiness must be embedded within clear and robust corporate institutional policies that guide the responsible development, deployment, and oversight of AI systems. Without such policies and institutional capacity, universities risk implementing AI in ways that undermine equity, inclusivity, and academic integrity. Building both policy frameworks and practical capacity ensures that AI enhances education while safeguarding individual rights and promoting societal well-being.

In the context of this study, Institutional policies references to those essential tools for ensuring ethical consistency, risk mitigation, and accountability in AI use. Such policies should address data protection, consent, algorithmic transparency, bias mitigation, and the social implications of AI systems. However, in many Nigerian universities, comprehensive AI-specific ethical policies are either lacking or subsumed under general ICT or research ethics policies that do not adequately address the nuances of AI technologies (Nwali et al., 2025). These policy gaps mean that even when institutions possess some capacity to deploy AI, there may be no guiding principles to ensure its ethical use. The problem is compounded by a lack of national standards or regulatory mandates on AI ethics in higher education. While international frameworks for trustworthy AI exist, their effective application within Nigerian contexts necessitates thoughtful adaptation, strong institutional commitment, and deliberate policy localization—processes that are frequently constrained by bureaucratic inertia and competing institutional priorities (Sawyer, 2025).

The success of such localization efforts fundamentally depends on the institutions' capacity to operationalize these frameworks effectively. This capacity encompasses adequate resources, infrastructure, governance structures, and skilled human capital, all of which are critical to supporting the ethical integration of AI. However, persistent questions remain regarding whether Nigerian institutions possess sufficient institutional capacity to meet these demands. Compounding these challenges is the presence—or, in many cases, the absence—of robust corporate institutional policies, which further complicates efforts to ensure the responsible and sustainable development of AI (( Manju,2025,). In the absence of such support and regulation, there is a heightened risk of ethical oversights with potentially far-reaching consequences. Moreover, many institutions have not yet embedded AI ethics into their curricula or research agendas. AI courses often focus on technical competence—machine learning, robotics, data mining—without a parallel emphasis on responsible design, fairness, or algorithmic accountability (Mohammed et al,2023. This curricular gap represents a critical vulnerability in institutional readiness and highlights the importance of integrating ethical dimensions into both teaching and governance structures.

In light of these challenges, this study is both timely and necessary. As the global AI landscape evolves rapidly, it is imperative that Nigerian universities, particularly their Faculties of Education, are not left behind in aligning AI development and deployment with ethical best practices. The focus of this research on Faculties of Education is particularly justified given their pivotal role in shaping future educators who will integrate emerging technologies into pedagogical practice. As AI technologies increasingly influence teaching, assessment, and administration, educators must be adequately equipped not only with technical competencies but also with ethical frameworks that ensure responsible use (Holmes et al., 2021). Faculties of Education serve as the foundational platforms where pedagogical philosophies, technological integration strategies, and professional ethics intersect. Without robust institutional capacity—including governance structures, policy frameworks, and staff expertise—there is a significant risk that educators will adopt AI tools in ways that inadvertently compromise educational equity, inclusivity, and data privacy (Zawacki-Richter et al., 2020).


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Furthermore, teacher preparation programs globally are undergoing a paradigm shift towards embedding digital literacy and AI literacy as core competencies, underscoring the necessity of institutional readiness (Luckin, 2017). In the Nigerian context, where infrastructural and policy limitations already challenge digital integration, a lack of institutional capacity within Faculties of Education make worse existing disparities (Omodan et al., 2021). Focusing this research on these faculties ensures a direct examination of how institutions responsible for teacher training are positioned to guide the ethical application of AI in education—a matter that is foundational to sustainable and contextually relevant AI adoption.

Addressing ethical AI is not merely a technical matter but a governance priority requiring coordinated and proactive institutional engagement. Furthermore, Existing literature in the Nigerian and broader African context primarily emphasizes AI's technical innovation and economic impact, leaving a substantial void concerning the institutional capacities and policy frameworks necessary for ethical implementation within education faculties. The absence of empirical studies that interrogate how institutional capacity—encompassing resources, governance structures, infrastructure, and human capital—influences the development and operationalization of ethical AI policies in Faculties of Education underscores a critical research gap. By focusing on Faculties of Education—key drivers in shaping future educators and integrating emerging technologies into pedagogical practice—this study offers a focused analysis of where capacity building and policy interventions are most urgent. Building on this foundation, the research seeks to bridge the existing gap between knowledge and practice by empirically evaluating how institutional capacity influences the development and implementation of ethical AI policies within Faculties of Education in Nigerian universities. Thus, the choice of this research topic: *"*Institutional Capacity and Policy Gaps in Ethical Artificial Intelligence Adoption in Nigerian University Faculties of Education

**Statement of the Problem**

Although international frameworks for ethical AI application exist, their adaptation and implementation within Nigerian higher education contexts remain insufficient. Efforts at contextual adaptation, institutionalization, and policy localization are often obstructed by bureaucratic inertia, resource limitations, and competing institutional priorities. While African scholarship has made notable progress in advancing AI innovation and exploring its economic applications, comparatively little attention has been devoted to the ethical governance structures and institutional readiness required for the sustainable integration of AI—particularly within the education sector. This gap is especially critical in Faculties of Education, where future educators are expected to integrate emerging technologies responsibly, yet institutional capacity to guide such ethical integration remains uncertain. Against this backdrop, an urgent question arises: *What are the institutional capacity and policy gaps in ethical artificial intelligence adoption in Nigerian university Faculties of Education?*

**Purpose of the Study**

This study seeks to bridge the gap between theoretical knowledge and institutional practice by empirically examining how institutional capacity shapes the formulation, implementation, and sustainability of ethical artificial intelligence (AI) policies within Nigerian university Faculties of Education. It aims to generate practical insights that can guide capacity-building efforts and policy reforms where they are most urgently required.

To achieve these aims, the study sets out the following objectives: To

1. Assess the institutional capacity of Nigerian university Faculties of Education to ethically adopt
2. Identify policy gaps that hinder the ethical integration of AI in these faculties

**Research Questions:**

**1.** What is the institutional capacity of Nigerian university Faculties of Education to ethically adopt AI?
**2.** What policy gaps hinder the ethical integration of AI in Nigerian university Faculties of Education?

**Null Hypothesis:**

There is no significant relationship between institutional capacity (governance, infrastructure, human resources) and the ethical adoption of AI in Nigerian university Faculties of Education.

**Methodology**

This study adopted **a** quantitative research design using a survey approach to investigate institutional capacity and policy gaps in the ethical adoption of artificial intelligence (AI) in Nigerian university Faculties of Education. A descriptive survey design was deemed appropriate because it enables the researcher to systematically collect quantitative data to describe characteristics, opinions, and conditions of the population (Creswell et al. 2018). The population of the study comprised216 academic and administrative staff in the Faculties of Education of three


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universities in Bayelsa State as obtained from the three-faculty officer of the different University faculty of Education. Although there are five universities in Bayelsa State, in this order, one Federal, three state and one private, only**:** Federal University Otuoke**,** Niger Delta University, and University of Africa Toru Orua, Bayelsa State has 3 faculties of Education**.** A random sampling technique was used to select two universities which were Federal University Otuoke and Niger Delta University (NDU) a total sample size **of** 124 respondents (69 from NDU and 55 from FU-Otuoke ) responded to the Google form questionnaire sent to the different faculty of Education platform the two Universities**.** Data were collected using a researcher-developed questionnaire titled the *Ethical AI Capacity and Policy Gaps Survey (EAICPGS)*. The instrument was designed to address the study's two research questions by measuring variables related to institutional capacity and policy gaps in the ethical adoption of artificial intelligence. To capture institutional capacity, the questionnaire included items that assessed governance and policy structures, the adequacy of digital infrastructure such as internet reliability and hardware or software availability, the competence and training of human resources, the extent of research and technical support, and the level of ethical leadership and awareness within the faculties. To address policy gaps, the instrument contained items examining the absence of institutional or national AI policies, funding deficiencies, limited training and capacity-building opportunities, weaknesses in digital infrastructure policies, and the lack of monitoring and evaluation mechanisms.

The EAICPGS comprised 20 items organized into two sections. Section A contained 11 items focusing on institutional capacity indicators, while Section B included 9 items addressing policy-related challenges such as AI policy availability, funding, training, and oversight structures. All items were presented on a four-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1), a format suitable for capturing respondents' perceptions of institutional readiness, ethical preparedness, and policy adequacy. The instrument was developed following an extensive review of literature on AI ethics, institutional capacity, technology governance, and higher education policy frameworks. This process ensured that each item was conceptually aligned with the constructs underlying the research questions and that the instrument comprehensively captured the dimensions relevant to ethical AI adoption in university contexts. The instrument's content validity was established by a panel of three experts in educational technology, measurement and evaluation, and computer science, in line with best practices for content validation (Haynes et al., 1995). The reliability of the instrument was determined through a trial test involving 30 respondents from a similar population, yielding a Cronbach's alpha coefficient of **0.87**, indicating high internal consistency (Tavakol et al., 2011). Data were collected through three complementary methods**:** (1) the EAICPGS questionnaire, **(**2**)** focus group discussions**,** and (3**)** document analysis**.** The focus groups, consisting of 6–8 participants in each university, explored in-depth perceptions of policy implementation, governance, and ethical concerns related to AI adoption (Krueger & Casey, 2015). Document analysis involved a systematic review of university policy documents, strategic plans, and ethical guidelines related to ICT and AI adoption (Bowen, 2009). Key documents analyzed included the National Policy on Education(FRN, 2014),National Digital Economy Policy and Strategy (2020–2030) **(**FMCDE, 2019), and the National Artificial Intelligence Policy Draft (Effoduh, 2021)

Data collected through the questionnaire were subjected to both descriptive and inferential statistical analyses. Descriptive statistics, specifically mean scores and standard deviations, were employed to summarize and interpret patterns relating to governance structures, infrastructural adequacy, and human resource capacity. To test the null hypothesis, Multiple Regression Analysis was applied. This technique was deemed appropriate as it enables the assessment of the predictive influence of several independent variables on a single dependent variable. In this study, institutional capacity components—governance, infrastructure, and human resources—served as the independent (predictor) variables, while ethical AI adoption constituted the dependent (outcome) variable. Multiple Regression Analysis was therefore considered suitable, as it simultaneously evaluates the combined and individual contributions of governance, infrastructure, and human resources to ethical AI adoption, thereby providing evidence for accepting or rejecting the null hypothesis based on both the overall model fit and the significance of individual predictors. The study adhered to ethical standards as outlined in the National Code of Health Research Ethics (National Health Research Ethics Committee of Nigeria (NHREC), 2014) and British Educational Research Association (BERA**, 2018)** guidelines. Ethical clearance was obtained from the institutional research ethics committee. Informed consent was secured from all participants, and participation was voluntary. Confidentiality and anonymity were guaranteed. Data were securely stored, and access was restricted to the researcher, in line with data protection guidelines (Creswell & Creswell, 2018).


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**Results**

Research Question 1: What is the institutional capacity of Nigerian university Faculties of Education to ethically adopt AI?

Table 1 the response on the institutional capacity of Nigerian university Faculties of Education to ethically adopt AI

| Institutional Capacity Component | Mean Score | Std. Dev. | Remark |
|---|---|---|---|
| Governance & Policy Frameworks | 2.9 | 0.8 | Fair, but inconsistent |
| Digital Infrastructure (internet, hardware, software) | 2.5 | 0.9 | Weak, insufficient |
| Human Resources (qualified staff, training) | 2.7 | 0.7 | Moderate but below required standard |
| Research & Technical Support | 2.4 | 1.0 | Weak |
| Ethical Leadership & Awareness | 3.1 | 0.6 | Moderate |

Table 1 show that the overall institutional capacity scored below 3.0 on average, indicating weak to moderate readiness for ethical AI adoption. The strongest aspect was ethical leadership (M=3.1)**,** while the weakest **was** research and infrastructure support (M=2.4–2.5)**.** This suggests universities are conceptually aware of ethical issues but lack the physical and human resource capacity to implement them effectively.

**Research Question 2:** What policy gaps hinder the ethical integration of AI in Nigerian university Faculties of Education?

**Table 2, the response on the policy gaps that hinder the ethical integration of AI in Nigerian university Faculties of Education**

| Policy Gap Identified | Frequency (out of 124) | Percentage (%) | Rank |
|---|---|---|---|
| Lack of National/Institutional AI Policy | 102 | 82.3% | 1 |
| Inadequate Funding for AI Adoption | 96 | 77.4% | 2 |
| Limited Training & Capacity Building | 88 | 71.0% | 3 |
| Poor Digital Infrastructure Policy | 80 | 64.5% | 4 |
| Weak Monitoring & Evaluation Mechanisms | 69 | 55.6% | 5 |

Table 2 shows that the most critical policy gap was the absence of clear institutional/national AI policies (82.3%), followed by funding constraints (77.4%) and limited staff training (71.0%). These gaps collectively highlight that ethical AI adoption is hindered more by policy and structural deficiencies than by willingness or awareness.

**Table 3: the combined inferential test (multiple regression models) Regression Model: Predictors of Ethical AI Adoption.**

| Predictor | Coefficient (β) | Std. Error | t-value | p-value | 95% CI (Lower–Upper) |
|---|---|---|---|---|---|
| Governance | **0.317** | 0.069 | 4.62 | 0.000 | 0.181 – 0.453 |
| Infrastructure | **0.438** | 0.059 | 7.41 | 0.000 | 0.321 – 0.555 |
| Human Resources | **0.391** | 0.085 | 4.63 | 0.000 | 0.224 – 0.558 |
| Constant | 0.173 | 0.337 | 0.51 | 0.608 | -0.494 – 0.840 |

Table 3 show that R2=0.435R^2 = 0.435R2=0.435 → 43.5% of variance in Ethical AI Adoption explained by governance, infrastructure, and human resources. Adjusted R2=0.421R^2 = 0.421R2=0.421F (3,120) = 30.83, $p < 0.001$. Interpretation: Governance, infrastructure, and human resources each significantly predict ethical AI adoption ($p < 0.001$). Among them**,** infrastructure ($\beta = 0.438$s) has the strongest influence, followed **by** human resources ($\beta =$ 0.391) and governance ($\beta = 0.317$)**.** The model shows that institutional capacity factors jointly account for nearly half (43.5%) of the variance in how Nigerian Faculties of Education adopt AI ethically


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**Null Hypothesis:**

**$H_{01}$**: There is no significant relationship between institutional capacity (governance, infrastructure, human resources) and the ethical adoption of AI in Nigerian university Faculties of Education.

Table 4: Regression Coefficients Table

| Predictor | B | Std. Error | T | p | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|---|---|
| Constant | 0.1730 | 0.337 | 0.514 | 0.608 | -0.494 | 0.840 |
| Governance | 0.3168 | 0.069 | 4.621 | 0.000 | 0.181 | 0.453 |
| Infrastructure | 0.4382 | 0.059 | 7.405 | 0.000 | 0.321 | 0.555 |
| Human Resources | 0.3909 | 0.085 | 4.626 | 0.000 | 0.224 | 0.558 |

Table 4, the regression results reveal that institutional capacity significantly predicts the ethical adoption of AI in Nigerian university Faculties of Education. Infrastructure emerged as the strongest predictor ($\beta = .44$, $p < .001$), followed closely by human resources ($\beta = .39$, $p < .001$). Governance, while positive, showed a weaker effect ($\beta = .32$, $p < .001$). This indicates that universities with robust digital infrastructure and skilled human resources are more likely to integrate AI in an ethical manner. The relatively weaker contribution of governance highlights a potential gap in policy enforcement and institutional oversight, suggesting that strengthening governance mechanisms could further enhance ethical AI adoption.

**Discussion**

Table 1 indicates that institutional capacity for ethical AI adoption in Nigerian university Faculties of Education is weak to moderate, with overall mean scores below 3.0. Ethical leadership was the strongest area (M = 3.1), while research and infrastructure support were weakest (M = 2.4–2.5), reflecting significant structural and resource limitations. This pattern suggests that although universities acknowledge the ethical dimensions of AI, their ability to act is constrained by inadequate infrastructure and human resource capacity. Previous research has emphasized that leadership awareness alone is insufficient without robust systems and skilled personnel (Grindle etal 1995; UNESCO, 2021; Adegbite, 2022). Policy action is therefore critical: regulators such as NITDA should develop sector-specific ethical AI guidelines and incentivize universities to invest in infrastructure and capacity-building (NITDA, 2022). At the institutional level, faculties should strengthen research centers and staff training to ensure awareness translates into effective, ethical practice.

Table 2 reveals that the most critical policy gap in Nigerian university Faculties of Education is the absence of clear institutional or national AI policies (82.3%), followed by funding constraints (77.4%) and limited staff training (71.0%). These findings suggest that ethical AI adoption is hindered less by institutional willingness or awareness than by systemic policy and structural deficiencies. UNESCO (2021) similarly notes that in the absence of coherent governance frameworks, universities find it difficult to translate ethical principles into practice. Adegbite (2022) further highlights that insufficient funding and weak staff capacity undermine the sustainability of AI ethics initiatives in Nigerian higher education. NITDA (2022) has also recognized the absence of a national AI framework as a major limitation, preventing universities from developing standardized approaches. Addressing these gaps requires both national coordination and institutional reform. Regulators such as NITDA should accelerate the development of a comprehensive national AI policy that embeds ethical standards into higher education. Universities, in turn, must commit to targeted investments in faculty training, research infrastructure, and sustainable funding mechanisms to build internal capacity. Without such deliberate interventions, the current awareness of AI ethics risks remaining inspirational rather than actionable.

Table 3 indicates that governance, infrastructure, and human resources collectively explain 43.5% of the variance in ethical AI adoption ($R^2 = 0.435$; Adjusted $R^2 = 0.421$; $F(3,120) = 30.83$, $p < 0.001$). Infrastructure exerted the strongest influence ($\beta = 0.438$), confirming recent scholarship that robust technological ecosystems are prerequisites for responsible AI implementation (Jobin, et al 2019). Human resources ($\beta = 0.391$) also proved significant, echoing Floridi et al. (2018), who argue that ethical AI depends not only on technical standards but also on the competence of trained professionals. Governance ($\beta = 0.317$), though comparatively weaker, remains vital since effective oversight and institutional policies establish the accountability mechanisms necessary for ethical practice (Cihon, etal., 2020). Overall, these findings underscore that ethical AI adoption in Nigerian Faculties of Education requires a balanced strengthening of infrastructure, workforce skills, and governance frameworks. Table 4 reveals that governance, infrastructure, and human resources collectively predict ethical AI adoption ($R^2 = 0.435$; Adjusted $R^2 =$


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0.421; F (3,120) = 30.83, p < .001), with infrastructure (β = .44) exerting the strongest effect, followed by human resources (β = .39), while governance plays a weaker role (β = .32). These findings align with Vrontis et al. (2021), who emphasize that organizational readiness—especially technological infrastructure—is central to effective AI integration. Moreover, Mikalef etal. (2021) highlight that human capital significantly enhances AI-driven outcomes by facilitating capability development. Finally, studies such as Wittmayer et al. (2020) assert that governance mechanisms, though less powerful alone, provide vital accountability frameworks that enable sustainable technological adoption. Taken together, this evidence suggests that ethical AI implementation in Nigerian Faculties of Education rests on a foundational triad: infrastructure, skilled personnel, and institutional governance.

**Conclusion**

This study examined institutional capacity and policy gaps affecting the ethical adoption of Artificial Intelligence (AI) in Faculties of Education in selected Nigerian universities. The findings reveal significant weaknesses in governance frameworks, digital infrastructure, and human resource capacity, all of which hinder responsible AI integration. Clear ethical policies are largely underdeveloped, infrastructure remains inadequate, and staff training in AI literacy is limited. The study established a significant relationship between institutional capacity and ethical AI adoption, confirming that effective governance, adequate infrastructure, and skilled personnel are essential for responsible implementation. It concludes that strengthening policy frameworks, investing in digital systems, and building faculty competence are critical to advancing ethical AI adoption in Nigerian higher education.

**Recommendations:**

1. Universities should develop and implement formal AI ethics policies and invest in technological infrastructure and human resource development.
2. The NUC should mandate AI ethics and infrastructure criteria in accreditation processes and provide funding for AI-related capacity-building initiatives.
3. Faculties should create AI ethics oversight bodies and incorporate ethics training into professional development programs to ensure responsible AI use in education.

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*Cite this article as*:
Obadiaru, I., &Anih A.A. (2025). Institutional capacity and policy gaps in ethical artificial intelligence adoption in faculties of education in Nigerian universities**.** *FNAS Journal of Computing and Applications, 2*(4), 63-71. https://doi.org/10.63561/jca.v2i4.1075

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