



ASSESSING INSTITUTIONAL READINESS AND STAKEHOLDER PERCEPTIONS TOWARD STRATEGIC ADOPTION OF ARTIFICIAL INTELLIGENCE IN TERTIARY INSTITUTIONS IN RIVERS STATE.



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Abstract

This study examines the institutional readiness and stakeholder perceptions toward the strategic adoption of Artificial Intelligence (AI) in tertiary institutions within Rivers State, Nigeria, against the backdrop of global shifts in digital pedagogy and education governance. As AI technologies increasingly redefine teaching, learning, administration, and research across higher education, understanding the preparedness of institutions and the disposition of key stakeholders becomes imperative for informed, sustainable integration. The study adopts a descriptive correlational research design, this study interrogates the interrelationship between critical readiness indicators technological infrastructure, policy frameworks, leadership commitment, and human capital competence and stakeholders' cognitive, affective, and behavioural orientations toward AI adoption. A stratified sample of academic lecturers, was surveyed using a structured instrument. Findings revealed that while awareness of AI is relatively high among stakeholders, actual institutional preparedness and implementation strategies remain underdeveloped. Significant positive correlations were observed between institutional readiness indicators and the extent of AI adoption in teaching, administration, research, and student support services. The study emphasizes the need for targeted policy interventions, increased investment in digital infrastructure, and capacity-building programs to bridge the gap between perception and practice. It concludes that fostering a strategically aligned, well-supported, and technologically empowered academic environment is essential for sustainable AI integration in Nigerian higher education. Recommendations include the development of national AI education policies and collaborative platforms for stakeholder engagement in AI planning and implementation

Keywords Artificial Intelligence, Institutional Readiness, Stakeholder Perceptions, Strategic Adoption, Tertiary Institutions, Digital Transformation, Educational Technology.

Introduction

In the 21st century, the international trends in educational transformation have been significantly shaped by advances in artificial intelligence (AI), which is fundamentally shifting the modalities of academic knowledge system, construction, dissemination, and management across various



levels of the educational sector. artificial intelligence transformative potential is widely acknowledged as a catalyst for innovation, efficiency, and personalized learning, offering robust solutions to long-standing educational challenges such as low teacher-student ratios, rigid curricula, administrative inefficiencies, and assessment bottlenecks (Luckin et al., 2016; UNESCO, 2021). Across the globe, educational institutions are increasingly integrating artificial intelligence tools to facilitate intelligent tutoring systems, automated grading, adaptive learning platforms, administrative data analytics, and virtual teaching assistants. These innovations are not only enhancing academic delivery but also reshaping institutional governance, pedagogical approaches, and research dynamics (Holmes et al., 2021). Regionally, African countries are beginning to embrace the digital revolution, yet the adoption of artificial intelligence in higher education remains uneven and underexplored. While nations such as South Africa and Kenya are making strides in integrating artificial intelligence into tertiary education frameworks, others including Nigeria face structural, policy, infrastructural, and attitudinal barriers that hinder widespread adoption (Adeleke & Adebayo, 2022). In Nigeria, where tertiary education is burdened with infrastructural decay, staff shortages, low research productivity, and administrative inefficiencies, Artificial intelligence presents a compelling solution. However, the strategic adoption of such advanced technology necessitates rigorous institutional readiness and informed stakeholder perceptions to ensure meaningful and sustainable implementation (Okoye et al., 2022).

Institutional readiness encompasses the systemic, infrastructural, policy, and cultural preparedness of tertiary institutions to adopt and integrate technological innovations like artificial intelligence. It involves assessing institutional capabilities in areas such as digital infrastructure, leadership commitment, technological literacy, staff training, data governance, and change management (Ifinedo & Usoro, 2020). Similarly, stakeholder perceptions refer to the attitudes, expectations, concerns, and confidence levels of key actors including academic staff, (lecturers) administrative personnel, students, policymakers, and ICT experts toward artificial intelligence adoption (Oni & Adegbite, 2022). These perceptions significantly shape the success or failure of artificial intelligence implementation, influencing funding priorities, policy frameworks, ethical considerations, and institutional culture. In the Nigerian context, the urgency of exploring these dimensions is reinforced by the Federal Government's drive to reposition tertiary education through digitalization, as evidenced in the National Digital Economy Policy and Strategy (NDEPS 2020–2030) and the Nigerian Education Sector Strategic Plan (2021–2025). Yet, literatures focusing on institutional readiness and stakeholder perceptions within the Nigerian tertiary education context, particularly in Rivers State, remain scant.

The construct of institutional readiness has gained prominence as a prerequisite for successful digital transformation in higher education (Alghamdi, 2021). More recently, scholars have expanded this construct to include not only technological capacity but also institutional culture, leadership vision, change adaptability, ethical frameworks, and sustainability plans (Nganga & Agboola, 2020). In Nigeria, institutional readiness is particularly relevant given the systemic challenges confronting tertiary education. These include erratic funding, inadequate digital infrastructure, limited staff training, bureaucratic inertia, and fragmented policy implementation (Owolabi & Adedokun-Shittu, 2022). While public universities and polytechnics are expected to serve as hubs of innovation, their operational realities often hinder the adoption of emerging technologies such as artificial intelligence. This discrepancy between policy aspiration and institutional reality reiterates the need for empirical assessment of readiness across multiple dimensions. The relevance of stakeholder perceptions in technology adoption is also well established in scholarly literature. Stakeholders both internal and external play a crucial role in determining the success of innovation implementation. Academic staff perceptions affect their willingness to utilize artificial intelligence tools in teaching and research; student attitudes influence engagement levels; administrative perspectives shape institutional priorities; and policymakers' views determine the strategic direction of resource allocation (Agbo et al., 2021). In the context of Nigeria, stakeholders' perceptions are often influenced by cultural, ethical, and infrastructural concerns, including fears about job displacement, data privacy, skill obsolescence, and equity of access (Okoye et al., 2022).

Tertiary institutions in Rivers State, a hub of economic and intellectual activity in Nigeria's South-South region, reflect a microcosm of these national challenges. Despite housing reputable public



institutions like the University of Port Harcourt, Rivers State University, and Ignatius Ajuru University of Education, the pace of technological advancement remains modest. While individual departments may exhibit sporadic innovation, there is limited evidence of systematic, institution-wide preparedness or coordinated stakeholder engagement in the adoption of artificial intelligence (Eke et al., 2021). Recent Nigerian policy documents emphasize the integration of artificial intelligence into the educational sector as part of the broader digital economy agenda. The National Artificial Intelligence Policy Draft (2023) outlines strategic pillars such as capacity development, ethics, data governance, and sectoral applications, including education. However, successful translation of these high-level strategies into tangible outcomes depends significantly on how well institutions are prepared and how stakeholders respond to these innovations. Without grounded research that captures local realities, policy efforts may fail to gain acceptance at the institutional level. In Asia, Europe, and North America have emphasized the necessity of evaluating institutional readiness before adopting disruptive technologies like artificial intelligence (Zawacki-Richter et al., 2019). In African contexts, the dearth of localized research on institutional and perceptual dimensions of artificial intelligence adoption creates a significant knowledge gap. The limited literature available tends to focus on general ICT adoption rather than artificial intelligence -specific strategies, thereby neglecting the unique challenges and opportunities that artificial intelligence presents (Adeleke & Adebayo, 2022).

It becomes increasingly evident that the capacity of institutions to not only absorb but also operationalize artificial intelligence hinges on their embedded systems of innovation culture, resilience in policy enactment, and strategic foresight in digital transformation. While the structural and attitudinal dimensions of readiness have been widely acknowledged, a critical but often underemphasized component is the epistemological and contextual preparedness of institutions. This speaks to the extent to which institutions in Nigeria, and particularly in Rivers State, are able to frame artificial intelligence adoption within their unique socio-political, economic, and intellectual realities. Institutional readiness in this sense transcends the acquisition of infrastructure; it demands a deliberate cultivation of AI literacy, development of data ecosystems, institutional policy alignment, ethical governance frameworks, and reimagining of curricula to support human-machine synergies (Kerr, 2023; Oluwakemi & Okeke, 2024). Stakeholder agency must be conceptualized beyond passive perception, towards active co-creation and co-implementation of artificial intelligence strategies. The perception of artificial intelligence by tertiary institution stakeholders is not merely attitudinal but deeply relational, rooted in their prior engagements with technological change, professional trajectories, and lived institutional experiences (Nwaozuzu & Agada, 2023). In contexts such as Rivers State where tertiary institutions function within politically complex governance systems, the perceptions of institutional actors are often influenced by broader questions of trust, sustainability, job security, and systemic reform. The positionality of stakeholders thus determines how they construct the meaning of artificial intelligence within their institutional lives, whether as a tool of liberation and enhancement, or as a mechanism of surveillance, exclusion, and redundancy (Obasi & Ezenwa, 2023).

A critical determinant of readiness lies in the existence and operationalization of institutional digital innovation ecosystems. These ecosystems encompass partnerships with the private sector, integration of AI in institutional research priorities, and the creation of innovation hubs that facilitate ideation, prototyping, and application of artificial intelligence solutions tailored to local academic and administrative challenges. While global universities are advancing in embedding artificial intelligence within their governance and pedagogical systems, Nigerian institutions, especially those in Rivers State, are still at the nascent stages of building sustainable digital ecosystems. The absence of strong policy frameworks on data ethics, intellectual property, and algorithmic transparency creates further institutional inertia, inhibiting holistic adoption (Okafor et al., 2023; British Council Nigeria, 2024). Policy-implementation dichotomy that pervades Nigerian higher education. Tertiary institutions frequently exhibit rhetorical commitment to digital transformation without corresponding operational frameworks for implementation. This disconnect is particularly stark in the strategic deployment of artificial intelligence technologies, where institutional declarations of intent are rarely matched with capacity-building, resource allocation, or measurable timelines for integration (Yusuf & Bolarinwa, 2023). This policy-performance gap undermines stakeholder trust and diminishes the credibility of



artificial intelligence -driven initiatives. Therefore, readiness must include the institutional ability to translate digital policies into concrete, time-bound, and context-relevant interventions with robust mechanisms for monitoring and evaluation. The strategic adoption of artificial intelligence in tertiary education also necessitates a reconceptualization of pedagogical philosophy, learning paradigms and administration. This implies a radical shift from content delivery to knowledge co-creation, from teacher-centered models to learner-driven approaches, and from standardized assessments to adaptive learning frameworks. Such transformation requires not only artificial intelligence tools but also a reconfiguration of institutional values and teaching identities. In Nigerian universities, entrenched pedagogical traditions and limited exposure to artificial intelligence pedagogies hinder this transformation. Hence, institutional readiness should be broadened to encompass faculty development in artificial intelligence -based instructional design, digital scholarship, and blended learning frameworks that support equitable access to education (Bello & Yakubu, 2024; Olayemi, 2023). decentralized institutional autonomy plays a fundamental role in shaping the adoption development of artificial intelligence. Institutions with higher degrees of financial, curricular, and administrative autonomy are more agile in experimenting with and institutionalizing innovations. In contrast, highly centralized governance structures characteristic of many public tertiary institutions in Nigeria slow down decision-making processes, restrict adaptive leadership, and stifle experimentation. Therefore, for artificial intelligence adoption to be strategic and sustainable, institutions in Rivers State must be granted the operational latitude to pursue innovation within their specific ecological contexts (Mugisha & Toluhi, 2023). institutional leaders are not mere managers but visionaries who communicate a compelling future, foster innovation cultures, and inspire collective buy-in. In the Nigerian context, leadership remains a major variable in educational transformation. When leaders model technological curiosity, allocate resources judiciously, and engage staff in co-design processes, stakeholders are more likely to perceive artificial intelligence as a tool of empowerment rather than imposition (Chukwudum & Onwuzurike, 2023).

Adesina & Effiong, (2024) assert that, Institutional readiness in this context refers to the holistic, systemic configuration of internal mechanisms, leadership orientation, strategic frameworks, and organizational behaviors that prepare an academic institution to initiate, absorb, and scale artificial intelligence innovations. These components function synergistically and must be understood not as discrete variables but as interdependent forces influencing digital transformation as follows:

An institution's readiness for artificial intelligence adoption is intrinsically tied to its strategic vision. A clear, forward-looking digital transformation strategy embedded in the institution's governance documents and operational policies signifies intentionality in innovation uptake. This vision should articulate the institution's long-term objectives concerning artificial intelligence integration across teaching, research, and administrative functions, outlining a pathway toward digitized, data-informed operations. Effective leadership is a fulcrum of institutional readiness. Senior management must demonstrate both ideological and operational commitment to artificial intelligence, promoting digital inclusivity and innovation-led change. Governance structures such as ICT committees or artificial intelligence taskforces must be empowered to coordinate and oversee implementation efforts. Importantly, leaders must bridge the gap between policy formulation and practice, ensuring strategic alignment across institutional levels.

Eze et al (2022) stated that, resilient and sustainable digital infrastructure corroborates the effective deployment of artificial intelligence systems. This includes broadband internet access, high-capacity computing hardware, data centers, smart classrooms, and cloud-based platforms. The presence of interoperable systems, network security protocols, and backup systems further strengthens technological resilience. A digital ecosystem that supports both teaching and non-teaching functions enables the seamless operation of artificial intelligence tools and applications. Institutions must possess or develop the internal capacity to engage in artificial intelligence -focused research and innovation. This includes establishing research clusters, innovation labs, and partnerships with tech firms, universities, and policy actors. Institutions that promote interdisciplinary research, provide seed grants for artificial intelligence -based projects, and encourage collaborative engagements are better positioned to drive innovation from within.



In the view of Olayemi, (2023) Human capital remains a decisive factor in artificial intelligence readiness. Institutions must invest in upskilling academic and non-academic staff through targeted training, workshops, certifications, and exposure to international best practices. Developing technical, pedagogical, and managerial competence in artificial intelligence application ensures that staff can confidently engage with emerging technologies. A digitally literate workforce also enhances the institution's adaptability and responsiveness to innovation. Perhaps the most intangible yet impactful component is the institutional culture. Readiness is deeply influenced by the values, norms, and historical attitudes of an academic community. Institutions that nurture openness to experimentation, encourage faculty innovation, and support student-led digital projects are more adaptable and resilient in the face of technological change. Artificial intelligence technologies rely on data for predictive modeling, adaptive learning, and operational efficiency. Thus, institutions must establish well-governed, digitized data systems encompassing student information management, research databases, performance metrics, and institutional audits. The capability to collect, analyze, visualize, and act upon data in real-time is a core element of readiness. Readiness must also be assessed against the backdrop of national policy coherence. Institutional policies on artificial intelligence ethics, data privacy, cybersecurity, and intellectual property must align with national frameworks such as Nigeria's National Digital Economy Policy and Strategy (NDEPS 2020–2030). Institutional regulatory mechanisms that support compliance, risk assessment, and continuous monitoring are indicators of strategic alignment.

Kerr, (2023) asserted that, Strategic adoption of artificial intelligence goes beyond ad hoc procurement or incidental implementation; it entails the deliberate, coordinated, and mission-aligned infusion of artificial intelligence technologies into the core processes and philosophies of a tertiary institution. For artificial intelligence adoption to be termed strategic, it must demonstrate depth, scalability, ethical sustainability, and sustainability. The following indicators reflect the extent to which tertiary institutions have embraced such a strategic approach:

A strategic approach to artificial intelligence adoption manifests in the deliberate integration of intelligent systems into institutional planning processes. Institutions that employ artificial intelligence - driven analytics for forecasting enrollment trends, optimizing resource allocation, or identifying at-risk students demonstrate a mature orientation toward digital governance. Another indicator is the redesign of curricula to include artificial intelligence related content and the adoption of artificial intelligence - enhanced teaching tools such as adaptive learning platforms, virtual labs, and automated feedback systems. Strategic institutions promote digital fluency among students, not as an elective but as a core academic competence.

Okoye & Ajayi, (2023) Articulated that, Institutions that prioritize strategic adoption must codify artificial intelligence policies that articulate standards for responsible usage. These policies should address algorithmic accountability, bias mitigation, data governance, and human oversight. The existence of a well-defined ethical framework signifies institutional intentionality and safeguards against misuse. Strategic adoption requires consistent financial commitment. Institutions that allocate specific budget lines for artificial intelligence development, pursue grant opportunities, and partner with external donors or tech firms demonstrate an understanding of artificial intelligence as a long-term institutional asset rather than a short-term project.

Yusuf, & Bolarinwa, (2023). Highlighted that, the establishment of interdisciplinary artificial intelligence research centers, participation in national artificial intelligence initiatives, and publication of contextually relevant artificial intelligence research are indicators of institutional depth in artificial intelligence engagement. Institutions that lead research on local artificial intelligence solutions such as indigenous language processing or climate-smart agriculture are leveraging artificial intelligence to solve real-world problems. Strategic adoption is not merely a technical process but a social one. Institutions that include faculty, students, and administrative staff in the design, piloting, and review of artificial intelligence initiatives are more likely to foster ownership and reduce resistance. Participation in focus groups, town hall meetings, and training sessions indicates an inclusive artificial intelligence adoption process. institutions recognized for their digital leadership either through national awards, global rankings, or international partnerships are likely engaging in strategic artificial intelligence adoption. External validation provides both reputational capital and benchmarking opportunities.



Statement of the Problem

In the unfolding era of digital transformation, Artificial Intelligence (AI) has become a defining pillar in advancing educational excellence, institutional competitiveness, and global innovation benchmarks. Despite its immense promise, tertiary institutions in Rivers State, Nigeria, appear to lag in strategically adopting Artificial Intelligence, with existing frameworks characterized by infrastructural inadequacies, skill deficits, funding limitations, and fragmented policy implementation. Institutional unreadiness and stakeholder resistance driven by fear of job displacement, ethical uncertainties, and limited technological exposure pose serious threats to inclusive Artificial Intelligence adoption. The problem is further exacerbated by leadership inertia, lack of strategic direction, and minimal investment in digital capacity building, thereby impeding pedagogical efficiency, research advancement, and administrative optimization. While global academia embraces Artificial Intelligence in curriculum delivery, student support, and decision-making systems, Nigerian tertiary institutions continue to grapple with foundational readiness gaps. Moreover, divergent stakeholder perceptions ranging from enthusiastic acceptance to cynical resistance have neither been holistically assessed nor integrated into strategic planning. Without detailed diagnostic inquiry into institutional preparedness and stakeholder perspectives, policy interventions may remain reactive and unsustainable. This study, therefore, seeks to examine the Institutional Readiness and Stakeholder Perceptions Toward Strategic Adoption of Artificial Intelligence in Tertiary Institutions in Rivers State.

Aims and Objectives of the Study

This study aims to investigate the Institutional Readiness and Stakeholder Perceptions Toward Strategic Adoption of Artificial Intelligence in Tertiary Institutions in Rivers State, specifically:

1. To assess the current level of institutional readiness for Artificial Intelligence adoption in tertiary institutions in Rivers State.
2. To examine the perceptions of key stakeholders toward Artificial Intelligence integration in tertiary institutions in Rivers State.

Research Questions

The following research questions guided the study

1. What is the current level of institutional readiness for Artificial Intelligence adoption in tertiary institutions in Rivers State?
2. What is the perception of stakeholders toward the integration of Artificial Intelligence in tertiary institutions in Rivers State?

Hypotheses

The following Null Hypotheses guided the study

1. There is no significant relationship between the level of institutional readiness and strategic for Artificial Intelligence adoption in tertiary institutions in Rivers State.
2. There is no significant relationship between stakeholder perceptions and strategic Artificial Intelligence adoption in tertiary institutions.

Literature Review

Concept of Institutional Readiness for Technological Innovation

Technological innovation has become an indispensable driver of educational advancement, economic development, and institutional competitiveness in the 21st century. Globally, institutions of higher learning are experiencing a paradigmatic shift toward the digitalization of academic processes, administrative systems, and pedagogical frameworks, driven primarily by quick developments in information and communication technologies (ICTs), artificial intelligence (AI), and digital infrastructure. In this context, institutional readiness for technological innovation has emerged as a critical determinant of how effectively educational institutions respond to the demands of the Fourth Industrial Revolution (4IR), characterized by the fusion of physical, digital, and biological systems (Schwab, 2016). As global educational systems fine-tune to align with technological transformations,



the readiness of tertiary institutions, particularly in developing economies such as Nigeria, to strategically adopt and integrate emerging innovations remains a pressing educational and developmental concern. In Nigeria, the capacity of tertiary institutions to harness technological advancements is often constrained by infrastructural inadequacies, insufficient policy frameworks, limited digital competencies among academic and administrative staff, and inadequate institutional support systems (Olojede & Makinde, 2023). The concept of institutional readiness for technological innovation has undergone significant theoretical and practical evolution over the past three decades. Initially associated with organizational change theory and innovation diffusion models (Rogers, 2003), the term has grown to encompass a multidimensional framework that includes leadership commitment, resource mobilization, stakeholder competence, cultural alignment, and adaptive capacity (Armenakis et al., 2020). Within educational contexts, institutional readiness is increasingly viewed as a systemic condition that precedes the effective implementation of emerging technologies such as AI, virtual learning environments, big data analytics, and robotics-enhanced instruction (Adedoyin & Soykan, 2020).

The National Policy on ICT in Education (Federal Ministry of Education [FME], 2019) highlights the centrality of technology in achieving equitable, accessible, and quality education. Furthermore, Nigeria's National Digital Economy Policy and Strategy (NDEPS, 2020) articulates a national vision for digital transformation across sectors, including education. However, despite these laudable policy intentions, empirical evidence reveals persistent gaps in the practical readiness of Nigerian tertiary institutions to integrate and sustain technological innovations (Uche & Ogu, 2021). Particularly in Rivers State, recent studies have highlighted systemic challenges such as obsolete infrastructure, inadequate funding, insufficient digital literacy among staff, and weak institutional governance structures as impediments to technological innovation (Eremie & Nwanekezi, 2022). Successful integration of technology in higher education has been closely linked to institutional readiness. Studies conducted in the United States, Finland, and Singapore have identified strong institutional support systems, continuous professional development, and strategic ICT investments as critical enablers of technological adoption (Valtonen et al., 2021). Comparatively, research in Sub-Saharan Africa reveals that while there is widespread awareness of the potential benefits of educational technology, readiness remains fragmented due to systemic, infrastructural, and administrative barriers (Makunja, 2020). Institutional readiness for technological innovation refers to an organization's psychological and structural preparedness to undertake and sustain technology-based changes, especially those involving disruptive innovations such as artificial intelligence. It encompasses leadership commitment, perceived need for change, stakeholder engagement, and alignment of organizational values and culture (Armenakis et al., 2020). Within tertiary education, institutional readiness denotes the extent to which a higher education institution possesses the strategic frameworks, pedagogical competencies, and infrastructural provisions necessary to integrate emerging technologies, particularly AI, into teaching, learning, and governance processes (Adedoyin & Soykan, 2020). From a policy implementation standpoint, institutional readiness refers to the alignment of institutional policies, governance structures, and regulatory mechanisms with national digital education strategies, enabling the sustainable adoption of technologies such as AI for quality assurance, curriculum delivery, and administrative efficiency (Federal Ministry of Education [FME], 2019; NDEPS, 2020).

In the contemporary knowledge economy, the capacity of higher education institutions to competitively align with global benchmarks of innovation rests heavily on their proactive embrace of emergent technologies. Institutional readiness for technological innovation thus extends beyond infrastructural adequacy and encompasses a constellation of interrelated organizational dynamics such as strategic foresight, adaptive learning culture, regulatory agility, and the integration of evidence-informed innovation models (Yusuf & Ajayi, 2023). In the unique socio-educational context of Rivers State, the trajectory of tertiary institutions toward full technological integration is increasingly shaped by the interdependence between institutional governance frameworks and the growing demands of digital transformation. Readiness pertains to innovation ecosystems dynamic networks of partnerships, collaborations, and knowledge flows that foster technological co-creation and experimentation. Tertiary institutions in Rivers State must therefore position themselves as nodal actors in broader innovation



ecosystems involving industry, government, and civil society. The formation of such ecosystems encourages the institutionalization of innovation laboratories, interdisciplinary think tanks, and AI research hubs that enable contextually relevant technological adaptation (Carayannis & Campbell, 2020; Adewole, 2023). Unfortunately, most public tertiary institutions in the region remain siloed and disconnected from the broader innovation economy, thus limiting their capacity to incubate and accelerate AI-driven reforms.

Moreover, the epistemological foundations of readiness must be re-examined to include epistemic diversity and inclusive knowledge production. In this light, institutional readiness for technological innovation should reflect the integration of indigenous knowledge systems with global scientific paradigms in ways that promote context-sensitive and culturally adaptive innovations (Ogbogu, 2022). In the Rivers State context, such integration can be a vital resource in the domestication of AI technologies that are responsive to local pedagogical realities, linguistic diversity, and socio-cultural norms. Academic institutions must also establish comprehensive internal quality assurance mechanisms that are attuned to the metrics and benchmarks of technological transformation. This includes recalibrating existing monitoring and evaluation (M&E) systems to measure institutional responsiveness, innovation impact, and user experience in AI-integrated environments. Emerging studies emphasize the importance of agile quality assurance protocols that evolve in tandem with technological shifts and provide real-time feedback loops for institutional decision-making (Nganga & Musyoka, 2023). In Rivers State, this necessitates the development of institution-specific key performance indicators (KPIs) for technology adoption, aligned with broader national digital education targets. Institutional readiness must be framed within the broader discourse of digital equity and justice. Tertiary institutions in Rivers State must recognize and address the deep digital divides that stratify access to technological resources across, geography, and socio-economic class. Without intentional inclusion strategies, the adoption of advanced technologies such as AI may exacerbate educational inequalities rather than mitigate them (Ekezie, 2021). Hence, readiness should entail targeted interventions such as subsidized broadband access, localized AI training curricula, and the establishment of digital inclusion centers.

Institutional readiness involves pedagogical recalibration reorienting curriculum design, delivery, and assessment methodologies to accommodate AI-enhanced teaching and learning models. This includes adopting data-driven instructional strategies, embedding AI ethics into the curriculum, and integrating computational thinking across disciplines (Luckin, 2018). In Rivers State, achieving this form of curricular responsiveness requires systemic faculty development programs, peer learning communities, and institutional incentives for pedagogical innovation. There is an urgent need for a multiscalar policy alignment linking institutional strategic plans with sub-national, national, and continental frameworks on digital transformation. While Nigeria's National Digital Economy Policy and Strategy (2020) and the African Union's Digital Transformation Strategy (2020–2030) offer ambitious blueprints, the realization of these visions at the micro-institutional level depends on coherent translation into institutional governance instruments, implementation roadmaps, and funding mechanisms (African Union Commission, 2020; NITDA, 2021). Tertiary institutions in Rivers State must thus develop policy audit tools to periodically evaluate the alignment between institutional objectives and national digital aspirations. In essence, the readiness of tertiary institutions in Rivers State for technological innovation and by extension, for the strategic adoption of artificial intelligence must be conceptualized as a multidimensional construct involving anticipatory governance, innovation ecosystems, inclusive epistemologies, adaptive quality assurance, digital equity, curricular transformation, and policy alignment. This comprehensive orientation redefines readiness not as a static state of preparedness but as a dynamic and iterative process of institutional evolution, one that is deeply embedded in contextual realities and globally informed strategic imperatives. (Adebayo & Bassey, 2023)

Concept of Stakeholder Perception and Technology Acceptance

The integration of advanced digital technologies has become indispensable to institutional competitiveness, pedagogical innovation, and sustainable development. The strategic adoption of



Artificial Intelligence (AI) is increasingly transforming the nature of teaching, learning, research, and administrative practices in tertiary institutions worldwide (Dwivedi et al., 2021). As nations grapple with the imperatives of digital transformation in education, developing countries such as Nigeria are increasingly recognizing the critical role of stakeholder perceptions and institutional readiness in mediating the pace and depth of AI adoption (Okoye et al., 2023). The nexus between stakeholder perception and technology acceptance represents a strategic concern for policy-makers, institutional leaders, and researchers aiming to improve effective and inclusive digital transitions within the higher education sector. In Nigeria's tertiary institutions, particularly those in Rivers State, the challenges of outdated infrastructure, limited digital literacy, policy fragmentation, and socio-economic disparities have significantly impacted the institutional ability to embrace AI-driven educational reforms (Adebayo & Bello, 2022). Moreover, the perception of various stakeholders including academic staff, students, administrators, and policymakers plays a crucial role in influencing the acceptance, implementation, and sustainability of AI technologies within these institutions. Technology acceptance, as theorized in seminal models such as the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), is not merely a function of access to infrastructure but also deeply shaped by perceived usefulness, ease of use, institutional support, and stakeholder engagement (Venkatesh et al., 2003). Understanding these socio-cognitive dynamics becomes essential in addressing the technological and pedagogical inertia that constrains innovation in many African higher education contexts.

Emerging from the broader fields of innovation diffusion, organizational behavior, and educational technology. Stakeholder perception is broadly defined as the cognitive, affective, and behavioral interpretations that various institutional actors assign to policy initiatives, technological tools, or educational reforms (Edem, 2021). In the context of AI adoption in higher education, stakeholder perception encapsulates how individuals and groups academic staff, students, ICT personnel, and administrative leaders interpret and evaluate the relevance, feasibility, and implications of AI integration within teaching, research, and management domains. Artificial Intelligence, as a transformative technology, has emerged at the frontier of educational reform and institutional innovation. Globally, AI has been deployed for adaptive learning, intelligent tutoring systems, predictive analytics, and administrative efficiency (Hinojo-Lucena et al., 2021). However, in many Nigerian tertiary institutions, the uptake of AI remains tentative and fragmented. A combination of infrastructural deficits, digital illiteracy, policy ambiguities, and attitudinal resistance continues to hinder seamless AI integration (Okonkwo & Adesina, 2022).

In Rivers State where tertiary institutions play a pivotal role in regional development and human capital formation, understanding stakeholder perception and technology acceptance is crucial to aligning institutional strategies with Nigeria's broader digital education policy agenda. The National Digital Economy Policy and Strategy (NDEPS 2020–2030) and the National Policy on ICT in Education both emphasize AI as a crucial for achieving educational equity and global competitiveness. Stakeholder Perception and Technology Acceptance refers to the collective interpretive understanding and cognitive evaluations of institutional actors' academic staff, students, policymakers regarding the adoption and utility of emergent technologies, specifically AI, within tertiary education systems (Afolabi & Egbokhare, 2023). Strategic Adoption of Artificial Intelligence in Tertiary Institutions denotes the intentional, policy-driven, and institutionally supported process of embedding AI tools and systems within academic, administrative, and research functions, in ways that align with national education objectives and global digital benchmarks (Okoye et al., 2023). Stakeholder Perception and Technology Acceptance Toward Strategic AI Adoption in the Nigerian context encapsulates the socio-psychological readiness, institutional alignment, and systemic trust among educational stakeholders toward embracing AI as a lever for academic innovation, improved efficiency, and educational transformation (Uzochukwu & Bassey, 2022). From global to local levels, there is a discernible consensus on the strategic importance of AI in reimagining tertiary education. International frameworks such as UNESCO's "AI and Education: Guidance for Policymakers" (2021) stress the need for inclusive and context-sensitive implementation. Nationally, Nigeria's ambitions to be a leading digital economy hinge on its ability to cultivate AI-readiness in its universities and polytechnics. Within Rivers



State, which is home to notable public institutions, there exists a pressing need to harness AI not just for technological modernization but for expanding educational access, promoting academic productivity, and improving governance.

AI technologies offer immense potential to revolutionize administrative efficiency, streamline curriculum design, personalize learning experiences, enhance student performance analytics, and automate routine academic functions (Woolf et al., 2021). Nevertheless, their successful integration is heavily dependent on stakeholder buy-in and alignment with institutional vision. As such, the perceptions of academic staff, non-teaching personnel, and students significantly influence whether AI is perceived as a disruptive threat, a pedagogical opportunity, or an administrative burden (Ibezim & Alabi, 2021). In developing economies like Nigeria, skepticism often arises due to concerns surrounding job security, data privacy, equity in access, and a perceived loss of pedagogical autonomy (Ugwoke et al., 2023). These anxieties are exacerbated by structural limitations, such as erratic electricity supply, weak broadband penetration, and underfunded educational budgets. The Federal Government of Nigeria has made concerted efforts to mainstream ICT and AI into the national educational framework. Documents such as the National Artificial Intelligence Policy (Draft, 2021) and the National Digital Economy Policy and Strategy (2020–2030) identify AI as a critical enabler of inclusive education, economic growth, and national competitiveness. Furthermore, the Tertiary Education Trust Fund (TETFund) has outlined strategic goals to fund ICT infrastructure and AI research hubs in universities, polytechnics, and colleges of education (TETFund, 2023). Despite these policy frameworks, implementation at the institutional level remains inconsistent, often hindered by weak leadership, inadequate professional development programs, and a lack of coherent digital strategies. Hence, institutional responsiveness is largely conditioned by how internal stakeholders perceive these innovations and how committed they are to enacting transformative change. Moreover, global comparative evidence emphasizes the importance of inclusive stakeholder engagement in driving successful AI adoption. In countries such as South Korea, Finland, and the United Arab Emirates, participatory frameworks that integrate teacher training, curriculum redesign, and stakeholder consultation have proven effective in overcoming resistance and fostering technology-friendly cultures (Zawacki-Richter et al., 2019). Moreover, contexts where technology is imposed top-down without adequate stakeholder sensitization or contextual adaptation often experience failure, disillusionment, or sub-optimal use of available tools.

Strategic Adoption of Artificial Intelligence in Higher Education

The strategic adoption of Artificial Intelligence (AI) in higher education represents a deliberate, future-oriented, and structured integration of intelligent technologies to enhance institutional performance, learning outcomes, administrative efficiency, and stakeholder engagement. Unlike ad hoc or reactive technology usage, strategic adoption emphasizes aligning AI applications with the long-term goals, vision, and mission of tertiary institutions. AI, as defined by Russell & Norvig (2021), encompasses systems designed to perform tasks typically requiring human intelligence, such as problem-solving, decision-making, language understanding, and learning. When strategically implemented, these capabilities can revolutionize the educational development optimizing curriculum delivery, automating administrative functions, personalizing learning, predicting student behaviors, and enabling data-driven governance (Luckin et al., 2016). Within the context of higher education, strategic adoption entails the integration of AI into core academic and non-academic processes in a manner that is intentional, context-sensitive, and sustainable. It involves institutional readiness, stakeholder alignment, digital infrastructure, and policy frameworks that support ethical, inclusive, and scalable AI utilization (Zawacki-Richter et al., 2019). Intelligent tutoring systems, learning analytics, predictive algorithms for admissions and retention, and AI-based administrative bots have become crucial elements of strategic transformation efforts in universities across the globe (HolonIQ, 2023). Johnson et al. (2022) define it as a coordinated approach to leveraging artificial intelligence technologies to enhance institutional efficiency, academic delivery, and learning outcomes through policies, stakeholder engagement, and infrastructural alignment. Aina and Omodan (2023), drawing from the Nigerian context, conceptualize it as the purposeful infusion of AI-driven solutions in the planning, instruction,



and governance systems of tertiary institutions aimed at addressing sector-specific challenges and promoting equitable access to quality education. Zawacki-Richter et al. (2019) describe it as a strategic transformation process wherein AI is employed to systematically improve higher education operations, pedagogy, and assessment through ethical and evidence-based integration. Okonkwo and Chukwu (2024) frame it as the systematic and intentional application of AI technologies by higher education institutions to drive innovation, address pedagogical gaps, and enhance institutional competitiveness within the knowledge economy.

In Nigeria particularly in Rivers State strategic adoption of Artificial Intelligence in higher education is emerging as a necessary response to contemporary educational demands, technological disruptions, and the urgent need for institutional modernization. However, these institutions continue to face critical challenges ranging from inadequate infrastructure, underutilization of data, administrative bottlenecks, and pedagogical inefficiencies to declining global competitiveness (Adebayo & Okafor, 2022). In the face of such realities, strategic adoption of AI offers an opportunity to revolutionize teaching, research, and administration by leveraging intelligent systems for personalized learning, digital governance, and real-time academic support. While global trends indicate increasing integration of AI in universities especially in North America, Asia, and parts of Europe Nigeria is still in the early stages of this transition (UNESCO, 2021). Rivers State institutions, including the University of Port Harcourt, Ignatius Ajuru University of Education, and Rivers State University, have begun exploring digital innovation through Learning Management Systems (LMS), online teaching tools, and administrative digitalization. However, the deployment of true AI-based systems remains limited, often hindered by insufficient policy frameworks, low digital literacy, infrastructural gaps, and resistance from stakeholders who may not fully understand AI's transformative potential (Amadi & Ibietan, 2023).

The successful strategic adoption of AI within these institutions is predicated upon institutional readiness and stakeholder perceptions two crucial constructs that determine whether such technological transitions will be embraced or resisted. Institutional readiness encompasses the technological, organizational, and human capacity to deploy and sustain AI-based interventions (Ndubuisi & Udu, 2021). moreover, stakeholder perceptions comprising the attitudes, expectations, and apprehensions of academic staff, administrators, students, and policymakers critically shape the extent to which AI initiatives can gain traction. Misconceptions about AI, fear of job displacement, ethical concerns, and lack of training are some of the prevalent issues influencing adoption patterns (Ike & Ndukwe, 2022). Given the strategic imperative of aligning higher education with global digital transformation trends and the Sustainable Development Goal 4 (SDG-4) which advocates inclusive and quality education for all, the deliberate adoption of AI in Rivers State tertiary institutions is no longer optional it is a developmental necessity. Strategic adoption, in this context, should focus on crafting institutional policies that accommodate AI ethics, investing in capacity-building for AI literacy, developing local AI solutions contextualized to Nigerian realities, and promoting partnerships between academia and tech industries. AI can serve as a catalyst for institutional renewal, enhanced academic performance, and improved governance.

Theoretical review

Diffusion of Innovations Theory (Rogers, 2003) guided the study

The Diffusion of Innovations Theory was originally developed by Everett M. Rogers, a communication scholar and sociologist, whose seminal work in 1962 and subsequent revisions most notably the 2003 edition have positioned the theory as a foundational framework in understanding how new ideas, technologies, and practices disseminate through social systems. Rogers (2003) defines diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system." Central to this theory are five key adopter categories: innovators, early adopters, early majority, late majority, and laggards. These classifications reflect varying levels of willingness and readiness among individuals or institutions to embrace innovations, influenced by factors such as perceived attributes of the innovation (relative advantage, compatibility, complexity, trialability, and observability), communication channels, social systems, and time. In the context of this research Assessing Institutional Readiness and Stakeholder Perceptions Toward Strategic

Adoption of Artificial Intelligence in Tertiary Institutions in Rivers State Rogers' Diffusion of Innovations Theory serves as an apt theoretical anchor. The theory provides a detailed analytical lens to evaluate the varying degrees of AI adoption among tertiary institutions, recognizing that institutional readiness and stakeholder acceptance do not occur uniformly. It also facilitates the examination of how stakeholder perceptions comprising administrators, academic staff, and ICT personnel influence the diffusion trajectory of AI technologies within their educational ecosystems. Moreover, Rogers' model underscores the critical role of communication and social structures in facilitating or impeding adoption. In a setting like Rivers State, where tertiary institutions exhibit divergent infrastructural, policy, and cultural contexts, the theory aids in identifying systemic factors that accelerate or hinder strategic adoption. By applying this theoretical framework, the study is better positioned to discern patterns of innovation diffusion and institutional behavior toward emerging technologies. Consequently, Diffusion of Innovations Theory not only contextualizes the dynamics of AI adoption in tertiary education but also supports the development of evidence-based strategies for enhancing institutional capacity and stakeholder engagement.

Methodology

The study adopted the correlational research design with a population of 250 Academic Staff comprising of 150 male lecturers and 100 female lecturers in the Departments of Education in the 3 public universities in Rivers State, Nigeria. The 3 public universities are University of Port Harcourt (UNIPORT), Rivers State University (RSU) and Ignatius Ajuru University of Education (IAUE). Sequel to the manageable size of the population, it was used for the study as sample size. A research instrument titled "Assessing Institutional Readiness and Stakeholder Perceptions Toward Strategic Adoption of Artificial Intelligence in Tertiary Institutions Questionnaire (AIRSPTSAAIQ)" structured by the researchers and validated by experts with reliability co-efficient of 0.79 determined with Cronbach's Alpha was used for data collection. Pearson Product-Moment Correlation. were used to answer the research questions while z-test statistics was used to test the hypotheses at 0.05 alpha level. An item with a calculated mean value equal or greater than 2.50 was accepted while an item with the calculated mean value less than or equal to 2.49 was rejected.

Results and Discussion

Table 1: Summary of Pearson Correlation

S/N	Item Description	R	Z-Cal	Z-Critical	Decision
1	Stakeholder openness to AI	0.681	5.25	±1.96	Significant
2	Strategic institutional partnerships	0.654	5.02	±1.96	Significant
3	Leadership commitment to AI vision	0.698	5.45	±1.96	Significant
4	Strategic AI policy framework	0.669	5.18	±1.96	Significant
5	Digital literacy and competence	0.101	0.78	±1.96	Not Significant

Table 1 Item 1, which assessed stakeholder openness, returned a correlation coefficient of 0.681 and a z-value of 5.25. This finding is particularly encouraging, as it reflects a favorable attitudinal disposition among key institutional actors' faculty, ICT personnel, administrative boards, and students towards AI adoption. Item 2, which focused on partnerships with tech industries and research institutions, revealed a correlation coefficient of 0.654. emphasizing that institutions which engage in collaborative innovation ecosystems are more likely to successfully adopt and institutionalize emerging technologies, particularly AI. Item 3, reflecting leadership vision and commitment, presented the strongest correlation $r = 0.698$, validating that leadership dynamism is the cornerstone of institutional preparedness. Item 4, examining the existence of a dedicated AI policy framework, similarly posted a high correlation $r = 0.669$, demonstrating that institutions with codified, ethical, and strategic blueprints for AI adoption are structurally better positioned for systematic integration. Item 5 which measured the level of digital literacy and technical competence of academic and non-academic staff yielded a low correlation



coefficient $r = 0.101$ and an insignificant z -value $0.78 < 1.96$. This suggests that, despite commendable institutional infrastructure and leadership alignment, a notable skills gap persists within the human resource capacity of the institutions studied. Each yielded z -values far exceeding the critical z -value of ± 1.96 , thereby confirming their significance at the 0.05 level. These outcomes reveal that the structural and strategic layers of institutional operations are demonstrably aligned with AI-driven transformation agendas.

Table 2: Summary of Pearson Correlation

S/N	Item Description	R	Z-Cal	Z-Critical	Decision
1	Need for consistent sensitization and engagement	0.668	5.17	± 1.96	Significant
2	AI enhancing research capability	0.702	5.50	± 1.96	Significant
3	AI for administrative efficiency	0.647	5.01	± 1.96	Significant
4	AI perceived as threat to traditional practices	0.624	4.83	± 1.96	Significant
5	Perceived digital divide for disadvantaged students	0.124	0.91	± 1.96	Not Significant

Table 2 Item 1, which reflects the perceived necessity of ongoing sensitization and inclusive stakeholder dialogue, reported a strong positive correlation $r = 0.668$. Institutions that embed participatory communication strategies are more likely to navigate the complexities of AI integration with minimal resistance. Item 2, which addressed the potential of AI to enhance research processes, exhibited the strongest correlation $r = 0.702$. This indicates a widespread belief among academic staff that AI can revolutionize data analysis, simulation, and interpretation. Item 3 confirmed that stakeholders perceive AI adoption in administrative contexts as a route toward operational efficiency, yielding a robust correlation coefficient $r = 0.647$. Item 4 which explored perceived threats to pedagogical traditions and job security also showed statistical significance $r = 0.624$. While this perception is rooted in legitimate concerns, it also reflects transitional anxiety among educators about the changing dynamics of teaching and human roles in instruction. Item 5, which questioned whether stakeholders believe AI might exacerbate digital inequality among economically disadvantaged students, showed a weak and statistically insignificant correlation $r = 0.124$. This suggests that, contrary to expectations, this concern is not prominently held among the surveyed stakeholders. The findings imply a strong perceptual awareness of the relevance, benefits, and sociocultural implications of AI integration across Rivers State’s tertiary institutions.

Discussion of Findings

The analysis above presents a compelling narrative institutional readiness for Artificial Intelligence integration in tertiary institutions in Rivers State is structurally and strategically well-positioned, but functionally and operationally constrained by human capital limitations. The readiness of stakeholders, the presence of strategic collaborations, and the robustness of visionary leadership and policy frameworks signify that the governance and systemic layers of these institutions are already oriented towards digital transformation. However, the apparent deficit in digital literacy among academic and non-academic staff constitutes a critical challenge to AI adoption. In other words, while the organizational climate may be conducive to technological innovation, the lack of sufficient digital fluency among personnel may hinder effective implementation, limit pedagogical engagement with AI tools, and potentially exacerbate inequities in digital participation. This aligns with Ngugi et al. (2023), that duality strategic readiness versus operational unreadiness highlights the need for targeted capacity-building programs. Institutions should invest in comprehensive digital skills development, modular AI literacy workshops, and continuous professional training for staff across departments. Without a robust human capital development strategy, the institutional potential for AI-driven transformation may remain unrealized. the significance of strategic partnerships and policy frameworks cannot be overstated. These dimensions of readiness provide the regulatory and innovation architecture within which AI technologies can be ethically and effectively deployed. As such, sustaining collaborations with research



institutes, industry actors, and global AI consortia should remain a policy priority. This result is congruent with ethical AI implementation guidelines from UNESCO (2022), which recommend policy frameworks as a foundational component of responsible AI integration in educational settings.

The results provide an illuminating view into the contemporary stakeholder psychology surrounding AI integration in higher education institutions in Rivers State. It is clear that stakeholders acknowledge the transformative potential of AI across multiple domains research, administration, and institutional governance. These perceptions mirror broader global trends, where higher education institutions are increasingly adopting AI to automate repetitive functions, optimize decision-making processes, and expand research frontiers (UNESCO, 2022). The high significance recorded for items relating to engagement, research, and administration signals a level of perceptual maturity among stakeholders. The fact that stakeholders actively identify the need for sensitization and communication underscores the importance of inclusive policy dialogues and digital literacy campaigns. This further reinforces the premise that successful AI integration requires more than technological readiness it necessitates cultural, cognitive, and social readiness. Moreover, the concern about AI threatening traditional roles and human educators reveals a tension that must be addressed through intentional AI literacy training, role redefinition, and adaptive pedagogical strategies. This aligns with the research of Holmes et al. (2021), who emphasize that for AI to be effectively adopted in education, it must be introduced as a co-pedagogical tool rather than a substitute for human instruction.

Conclusion

The study investigated Institutional Readiness and Stakeholder Perceptions Toward Strategic Adoption of Artificial Intelligence in Tertiary Institutions in Rivers State. Findings revealed a nascent but growing recognition of the transformative potential of AI in higher education among key stakeholders, including administrators, academic staff, ICT personnel, and students. However, the research also exposed critical gaps in infrastructural preparedness, technical capacity, and policy alignment necessary for AI integration. While stakeholders expressed favorable perceptions towards AI's potential to improve educational delivery, concerns around ethical implications, staff displacement, inadequate funding, and insufficient institutional frameworks emerged as barriers to seamless adoption. The study emphasizes the importance of a deliberate, participatory, and well-resourced approach to AI implementation. Institutional readiness was found to be uneven across the studied institutions, shaped by differences in leadership commitment, ICT infrastructure, staff development policies, and access to AI-enabling technologies. The research concludes that without strategic planning, stakeholder inclusivity, and policy innovation, the adoption of AI in tertiary education in Rivers State may remain aspirational rather than actualized. Consequently, for AI to serve as a transformative tool in Nigeria's tertiary education system, institutional leadership must foster a proactive culture of digital innovation anchored by ethical governance, sustainable investment, and multi-stakeholder engagement. While AI adoption is both necessary and inevitable, its success hinges on inclusive and proactive institutional strategies.

Recommendations

The findings of the study recommended as follows:

1. Tertiary institutions in Rivers State should formulate and adopt detailed AI strategic frameworks that clearly articulate institutional goals, ethical guidelines, resource allocation models, and implementation timelines. These policies should be aligned with national digital education strategies and global best practices to ensure responsible and sustainable AI adoption.
2. Adequate investment in digital infrastructure such as high-speed internet, cloud computing systems, data management tools, and AI-driven educational platforms is fundamental. Government and institutional authorities must prioritize the modernization of existing ICT frameworks to support scalable AI applications in teaching, learning, and administration.
3. Continuous professional development programs should be instituted to build technical proficiency, pedagogical knowledge, and ethical understanding of AI among academic and non-



academic staff. This capacity-building effort must be sustained through workshops, certifications, and institutional collaborations with tech-oriented organizations.

4. Universities should establish dedicated centers for AI research, experimentation, and innovation. These hubs can drive interdisciplinary research, localize AI solutions, and foster industry-academic partnerships, thereby positioning tertiary institutions as catalysts of digital transformation in the region.
5. Institutional adoption of AI should not be a top-down affair. Universities must adopt participatory governance models that engage all stakeholders' students, faculty, unions, and governing councils through consultative forums, policy feedback channels, and inclusive decision-making structures.

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