

**ARTIFICIAL INTELLIGENCE ADOPTION AND ADMINISTRATIVE EFFICIENCY: A  
COMPARATIVE AND DIALECTICAL ANALYSIS OF PUBLIC AND PRIVATE TERTIARY  
INSTITUTIONS IN RIVERS STATE, NIGERIA**

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**ABSTRACT**

The adoption of artificial intelligence in tertiary institutions has generated two opposing but simultaneously true narratives. One narrative presents artificial intelligence as a decisive instrument for reducing administrative bottlenecks, improving record keeping, speeding up decision making and freeing office and information managers from repetitive manual tasks. The other narrative presents artificial intelligence as a source of new administrative burdens, arising from inadequate infrastructure, weak digital literacy, unstable electricity supply, high implementation cost and institutional resistance to change. This paper examines both narratives through a comparative and dialectical analysis of public and private tertiary institutions in Rivers State, Nigeria. Adopting a qualitative, desk based design anchored on the Technology Acceptance Model, the Diffusion of Innovation theory and the Hegelian dialectical method of thesis, antithesis and synthesis, the paper reviews over forty recent local and international empirical and conceptual studies on artificial intelligence adoption and administrative efficiency in higher education. The review shows that public tertiary institutions in Rivers State, being larger, more bureaucratic and more dependent on statutory funding, exhibit slower and more uneven artificial intelligence adoption than private institutions, which tend to be smaller, more centrally managed and more willing to experiment with new administrative technology. At the same time, private institutions face constraints of scale and cost that limit the depth of adoption, while public institutions possess statutory mandates and larger staff strength that could support wider diffusion once infrastructural and policy gaps are closed. The dialectical synthesis proposed in this paper is a hybrid administrative model in which artificial intelligence tools are matched to the resource realities and governance structures of each institutional type rather than adopted uniformly. The paper concludes with policy recommendations for tertiary institution managers, the National Board for Technical Education, the National Universities Commission and government agencies responsible for information and communication technology infrastructure in Rivers State.

**Keywords:** *Artificial Intelligence, Administrative Efficiency, Tertiary Institutions, Dialectical Analysis, Technology Adoption*

## **INTRODUCTION**

Office and administrative work in tertiary institutions has always been shaped by the tools available for record keeping, communication and decision support. The shift from paper files to computers, and now to artificial intelligence enabled systems, represents the latest stage in this long process of technological change. Artificial intelligence, understood broadly as the capacity of computer systems to perform tasks that ordinarily require human reasoning, pattern recognition and judgment, has moved from a specialist research subject into a everyday administrative tool available to registries, bursaries, admissions offices and academic planning units (Holmes, Bialik & Fadel, 2019; Wang & Cheng, 2020).

Nigerian higher education has not been left out of this movement. Universities and polytechnics across the country are experimenting with artificial intelligence powered scheduling systems, chatbot enabled student inquiry desks, predictive analytics for enrolment planning and automated document processing (Bali, Garba, Ahmadu, Takwate & Malgwi, 2024; Agadagba & Ekwevugbe, 2025). Rivers State, home to a dense cluster of public and private tertiary institutions including universities, polytechnics and colleges of education, offers a useful setting for examining how institutional type shapes the pace and depth of artificial intelligence adoption. Public tertiary institutions in the state operate under statutory governance structures, civil service linked personnel systems and government controlled funding cycles, while private tertiary institutions typically operate under proprietor or board controlled management with more direct control over procurement and staff training decisions.

This difference in governance and resourcing raises a central question that this paper addresses. Does artificial intelligence adoption produce comparable gains in administrative efficiency across public and private tertiary institutions in Rivers State, or does institutional ownership structure produce systematically different adoption patterns and outcomes. Rather than treating the promise of artificial intelligence and the constraints against it as separate bodies of literature, this paper adopts a dialectical approach that places the opportunities (thesis) and the constraints (antithesis) of artificial intelligence adoption in direct tension, in order to arrive at a synthesis that is realistic about what Rivers State tertiary institutions can achieve given their present resources and governance arrangements.

## **Statement of the Problem**

Administrative inefficiency remains a persistent complaint in Nigerian tertiary institutions, manifesting as delayed student records processing, slow inter departmental communication, duplicated data entry, poor information retrieval and weak evidence for management decisions (Agadagba & Ekwevugbe, 2025; Ikuenomore, 2025). Office and information managers in Rivers State tertiary institutions have reported that manual dispatch of memos and letters delays feedback and slows workflow, while institutions that have adopted digital infrastructure such as cloud storage and office internet facilities record measurable improvement in workflow and information dissemination (Amadi, 2025).

Despite growing global and continental evidence that artificial intelligence can shorten administrative cycles, reduce human error and support data driven decision making (Herodotou, Rienties, Boroowa, Zdrahal & Hlosta, 2019; Van Noordt & Misuraca, 2022), the extent to which Rivers State tertiary institutions, whether public or private, have translated this potential into measurable administrative gains remains poorly documented in a single comparative account. Existing Nigerian studies tend to examine artificial intelligence adoption either in isolated institutions or in undifferentiated samples that combine public and private institutions without disentangling the effect of ownership structure (Osegi & Oduma, 2025; Adewale, Soetan & Arigbabu, 2025). Studies on office and information management in Rivers State, meanwhile,

have concentrated on conventional digital infrastructure such as internet connectivity and cloud storage rather than on artificial intelligence proper (Nyekazi & Usip, 2023; Eke, 2026).

This gap creates a problem for institutional planners and policy makers in Rivers State, who lack a synthesised, comparative account of how public and private tertiary institutions differ in their readiness for, adoption of and benefit from artificial intelligence in administrative work. This paper responds to that gap through a dialectical review of available local and international evidence.

### **Objectives of the Study**

The paper pursues the following objectives:

1. To examine the extent and pattern of artificial intelligence adoption in the administrative functions of public tertiary institutions in Rivers State.
2. To examine the extent and pattern of artificial intelligence adoption in the administrative functions of private tertiary institutions in Rivers State.
3. To identify the opportunities (thesis) that artificial intelligence adoption presents for administrative efficiency in both categories of institutions.
4. To identify the constraints and contradictions (antithesis) that limit artificial intelligence adoption in both categories of institutions.
5. To propose a dialectical synthesis and policy pathway for balanced artificial intelligence adoption across public and private tertiary institutions in Rivers State.

### **Conceptual Clarification**

#### **Artificial Intelligence in Administrative Practice**

Artificial intelligence, for the purposes of this paper, refers to computer based systems capable of performing administrative functions that previously depended on continuous human judgment, including automated scheduling, intelligent document routing, chatbot supported inquiry handling, predictive analytics for enrolment and retention, and natural language tools for drafting and summarising official correspondence (Holmes, Bialik & Fadel, 2019). In the context of Nigerian tertiary institutions, artificial intelligence adoption is frequently discussed alongside generative tools such as large language model based assistants, which are increasingly used by administrative and academic staff for drafting reports, analysing data and preparing instructional material (Brynjolfsson, Li & Raymond, 2023; Noy & Zhang, 2023). Alikornwo (2026) situates this shift within a broader nexus between office administration and information management, arguing that twenty first century administrative practice can no longer be understood as a purely clerical function but must be read as an information management function in which the office worker, whether assisted by conventional software or by artificial intelligence, is primarily engaged in capturing, organising, retrieving and transmitting institutional information.

#### **Administrative Efficiency**

Administrative efficiency describes the extent to which an organisation converts its administrative inputs, namely staff time, infrastructure and procedure, into timely and accurate outputs such as processed records, resolved inquiries and evidence based decisions, with minimal waste (Ikuenomore, 2025). In tertiary institutions, administrative efficiency is commonly measured through indicators such as speed of record retrieval, accuracy of student data, turnaround time for correspondence and the availability of reliable data for planning (Osegi & Oduma, 2025).

### **Public and Private Tertiary Institutions**

Public tertiary institutions in Rivers State are owned and substantially funded by the federal or state government, governed by statutory boards or councils, and staffed through processes tied to civil service and public procurement regulations. Private tertiary institutions are owned by individuals, religious bodies or corporate proprietors, governed by boards of trustees or similar bodies, and funded largely through tuition and proprietor investment. These structural differences shape procurement speed, staff training investment and the degree of managerial discretion available for adopting new administrative technology (Pepple, Enuoh, Otalor, Eneh, Oben-Etchi & Omosebi, 2024).

### **Theoretical Framework**

#### **Technology Acceptance Model**

The Technology Acceptance Model, developed by Davis (1989), holds that an individual's willingness to adopt a new technology is shaped primarily by perceived usefulness and perceived ease of use. Applied to artificial intelligence adoption in tertiary institution administration, the model suggests that office and information managers are more likely to embrace artificial intelligence tools when they perceive the tools as capable of reducing their workload and as reasonably simple to operate without extensive retraining (Ibrahim, Munscher, Daseking & Telle, 2024). This model has been widely applied in Nigerian and African studies of artificial intelligence adoption in higher education administration (Osegi & Oduma, 2025).

#### **Diffusion of Innovation Theory**

Rogers (1995) describes diffusion as the process by which an innovation is communicated through particular channels over time among members of a social system, and identifies relative advantage, compatibility, complexity, trialability and observability as the attributes that determine the speed of adoption. Institutions with visible early adopters, supportive leadership and opportunities to trial new tools on a small scale before full commitment tend to diffuse innovation faster than institutions without these conditions (Khoalenyane & Ajani, 2024). This theory is useful for explaining why private tertiary institutions, which typically have shorter decision chains, may diffuse artificial intelligence tools faster than public institutions bound by layered bureaucratic approval.

#### **Dialectical Framework**

The dialectical method, associated with the philosophical tradition running from Fichte through Hegel, proceeds through three moments: thesis, an initial position or state of affairs; antithesis, the contradiction or opposing condition that the thesis generates; and synthesis, the resolution that preserves the valid elements of both while producing a more adequate position. This paper adopts the dialectical method not as a metaphysical claim about history but as an analytical structure for organising contested evidence. The thesis in this paper is the body of literature that presents artificial intelligence as an efficiency enhancing administrative tool. The antithesis is the body of literature documenting the infrastructural, financial, human capacity and cultural constraints that frustrate this promise in the Nigerian and Rivers State context. The synthesis is the differentiated, institution sensitive adoption model proposed in section nine of this paper.

#### **Methodology**

This paper adopts a qualitative, desk based comparative design. The paper synthesises published empirical and conceptual studies on artificial intelligence adoption and administrative efficiency drawn from Nigerian, African and international sources, prioritising work published

between 2019 and 2026. Sources were selected from institutional repositories, academic journal platforms and open access databases, and were screened for relevance to tertiary institution administration, artificial intelligence adoption, technology acceptance and comparative institutional analysis. Each source cited in this paper was independently verified against its original publication record before inclusion, in keeping with the requirement that a scholarly paper of this nature rest only on confirmed and traceable literature. The dialectical method described in section five is applied as the organising structure for presenting and reconciling the reviewed evidence, while findings specific to Rivers State are drawn from studies conducted within public tertiary institutions in the state, supplemented by comparable Nigerian and African evidence where state specific literature on private institutions remains limited.

### **Artificial Intelligence and Administrative Efficiency in Public Tertiary Institutions**

Public tertiary institutions in Rivers State, including universities, polytechnics and colleges of education, employ large administrative staff populations working across registries, bursaries, academic planning and student affairs offices. A study of eight hundred and thirty six office and information managers across public tertiary institutions in Rivers State found that change management practices, particularly technological change, are significantly associated with job performance, and recommended structured training whenever new technology is introduced (Nyekazi & Usip, 2023). A related study using the same population found that leadership change and technological change management were positively linked to indicators of institutional citizenship behaviour among office managers, suggesting that adoption outcomes depend heavily on how leadership frames and supports new technology rather than on the technology alone (Nyekazi, 2023).

Evidence on digital infrastructure more broadly, short of full artificial intelligence deployment, shows that public tertiary institutions in Rivers State that acquired office internet facilities and cloud storage systems such as Google Drive recorded a strong and statistically significant improvement in workflow smoothness and information dissemination among office managers, drawn from a sample of two hundred and eighty four office managers across nine public tertiary institutions in the state, and the study recommended further acquisition of digital office infrastructure as a precondition for improved job performance (Amadi, 2025). This finding is instructive because it indicates that public institutions in the state are still consolidating basic digital infrastructure, a necessary foundation that must precede meaningful artificial intelligence adoption. Related work situated specifically within public universities in Rivers State found that digital literacy and information management competencies among administrative personnel remain uneven, with staff in registry and bursary units showing markedly lower confidence in handling digital administrative tools than staff in units with more frequent exposure to computer based systems, a gap that carries direct implications for how far artificial intelligence tools can be pushed into routine administrative practice before dedicated staff training is undertaken (Alikornwo & Omunakwe, 2026). A companion study of digital office practices across tertiary institutions in the state similarly found that information management effectiveness improves markedly where offices move beyond basic digitisation toward structured digital record and correspondence systems, and cautioned that effectiveness gains depend on consistent institutional practice rather than on the mere presence of digital tools (Alikornwo & Echendu, 2026). At the governance level, a study of information governance strategy in public sector institutions in Rivers State found that administrative accountability improves where institutions establish clear referents and standards for how digital and information systems are used, a condition that public tertiary institutions in the state have only begun to formalise (Orisah-Godfrey & Alikornwo, 2026).

At the level of decision making specifically, a study of federal, state and private university administrative staff in the neighbouring Delta State found that artificial intelligence integration was positively associated with the efficiency, effectiveness and quality of administrative decision making, although the improvement was not uniform across institution types and was constrained by variation in staff digital competence (Osegi & Oduma, 2025). Similarly, a study of educational systems across Nigeria found a complex but progressively positive landscape for artificial intelligence adoption, with administrative efficiency benefiting from artificial intelligence tools even where full integration into core student information systems remained low (Agadagba & Ekwevugbe, 2025). Barriers identified in a related North Central Nigeria study of tertiary institutions included inadequate funding, poor staff exposure to artificial intelligence tools and weak institutional policy guidance (Ogunode, Olofu & Bassey, 2023).

Put together, the evidence on public tertiary institutions in Rivers State and comparable Nigerian states suggests a pattern of cautious, uneven and infrastructure constrained adoption, in which gains are visible in specific administrative functions such as record dissemination and correspondence but have not yet extended into deeper artificial intelligence functions such as predictive analytics or automated decision support at scale.

### **Artificial Intelligence and Administrative Efficiency in Private Tertiary Institutions**

Private tertiary institutions typically operate with shorter administrative hierarchies and greater proprietor control over procurement, both of which the Diffusion of Innovation theory would predict as favourable conditions for faster technology adoption (Rogers, 1995). A study of private universities in Ogun State found relatively high general awareness of artificial intelligence among lecturers, administrators and students, alongside continuing gaps in practical skill and institutional framework, and concluded that resource availability and institutional support significantly influenced the depth of adoption even where awareness was strong (Adewale, Soetan & Arigbabu, 2025). This finding suggests that private institutions may lead in awareness and willingness to adopt without necessarily leading in the depth or sophistication of actual administrative deployment, since many private institutions in Nigeria operate with constrained budgets despite their governance flexibility.

Comparative evidence from Ghana reinforces this pattern. A mixed methods study of a public university found that institutional culture, perceived performance benefits and facilitating conditions jointly shaped adoption outcomes, with inadequate digital infrastructure, limited artificial intelligence literacy and ambiguous policy frameworks acting as the dominant barriers even where staff expressed willingness to adopt (Boison, 2025). Because private institutions generally face fewer layers of policy ambiguity than public institutions bound by government circulars, they are structurally positioned to close the gap between willingness and actual adoption more quickly, provided they can fund the requisite infrastructure and training (Loglo, 2024).

At the same time, private tertiary institutions in Rivers State and similar Nigerian contexts are frequently smaller in scale, meaning that some administrative artificial intelligence tools, particularly those designed for large scale predictive analytics or bulk document processing, may not be cost justified relative to the size of their student population and staff establishment. This scale limitation represents a genuine constraint on private institution adoption that is often understated in literature focused primarily on governance flexibility as the decisive adoption factor.

A comparative study of digital office strategy and administrative service delivery across higher education institutions in Rivers State found that institutions with clearly articulated digital office strategies, rather than ad hoc technology purchases, recorded better service delivery outcomes

regardless of ownership type, suggesting that the presence or absence of a coherent institutional strategy may matter as much as ownership structure in determining how far artificial intelligence tools translate into actual efficiency gains (Alikornwo & Orisah-Godfrey, 2026). This is consistent with evidence on administrative strategic planning, which found that institutional regulatory frameworks and responsiveness in tertiary educational institutions are strengthened where digital information systems are integrated into strategic planning processes rather than treated as a separate technical concern managed exclusively by information technology units (Alikornwo & Amadi, 2026). For private institutions in particular, this points to a practical safeguard against the scale limitation identified above, namely that a modest but strategically integrated artificial intelligence deployment is likely to outperform a larger but poorly coordinated one.

### **Dialectical Analysis of Artificial Intelligence Adoption**

#### **Thesis: The Efficiency Promise of Artificial Intelligence**

The thesis supported across the reviewed literature is that artificial intelligence adoption strengthens administrative efficiency in tertiary institutions. Predictive analytics tools have been used internationally to improve student retention and enrolment management, reducing financial losses associated with attrition and misallocated capacity. Intelligent scheduling and resource allocation systems have reduced administrative workload and infrastructure misallocation in higher education settings globally. Generative artificial intelligence tools have been shown in controlled workplace studies to reduce the time required for professional writing and documentation tasks while narrowing performance gaps between less experienced and more experienced staff, a finding with direct relevance to administrative offices that rely on correspondence, reports and record summarisation (Noy & Zhang, 2023; Brynjolfsson, Li & Raymond, 2023). Within Nigeria specifically, artificial intelligence adoption has been linked to improved administrative decision making, better service delivery and enhanced assessment and feedback mechanisms in higher education institutions (Osegi & Oduma, 2025; Agbarakwe & Chibueze, 2024).

#### **Antithesis: The Structural Constraints on Artificial Intelligence Adoption**

The antithesis, equally well supported in the literature, is that the efficiency promise of artificial intelligence is systematically frustrated by structural conditions common to Nigerian tertiary institutions, and to public institutions in particular. Inadequate digital and technological infrastructure, limited artificial intelligence literacy among administrative staff, ambiguous or absent institutional policy on artificial intelligence use, unreliable electricity and internet connectivity, and administrative inertia rooted in reactive rather than forward planning cultures all recur across the reviewed studies as barriers to adoption (Boison, 2025; Ogunode, Olofu & Bassey, 2023). Resistance to change among staff accustomed to established manual procedures has also been identified as a persistent human factor constraint, independent of the availability of technology itself. Public institutions additionally face the constraint of centralised procurement and civil service linked human resource processes, which slow the pace at which new administrative tools can be acquired, tested and scaled, even where individual departments express willingness to adopt them.

#### **Synthesis: A Differentiated Adoption Pathway**

The synthesis proposed in this paper rejects both the uncritical optimism of the thesis and the fatalism sometimes implicit in the antithesis. Public tertiary institutions in Rivers State should not attempt to replicate the rapid, broad based artificial intelligence rollout that governance

flexibility makes possible in some private institutions, but should instead pursue a phased approach that consolidates basic digital infrastructure, such as reliable internet connectivity and cloud based record systems, before layering artificial intelligence tools onto functions where the administrative case is strongest, such as correspondence drafting, record retrieval and enrolment data analysis. Private tertiary institutions, meanwhile, should resist adopting artificial intelligence tools purely because governance structures make adoption easy, and should instead scale their investment to match actual institutional size, ensuring that tools acquired are proportionate to student population and administrative workload rather than adopted for prestige. Across both institutional types, the synthesis requires coordinated staff training, institutional policy clarity on acceptable and unacceptable uses of artificial intelligence, and phased trialability consistent with the Diffusion of Innovation theory, so that early successes in low risk administrative functions build the confidence needed for wider adoption (Rogers, 1995; Davis, 1989).

## **DISCUSSION**

The comparative evidence reviewed in this paper indicates that institutional ownership structure is not a neutral variable in artificial intelligence adoption but a determining factor that shapes the pace, scale and character of adoption in Rivers State tertiary institutions. Public institutions possess the statutory mandate, staff strength and long term stability to eventually achieve broad and deep artificial intelligence integration, but are currently held back by infrastructural gaps and bureaucratic procurement processes. Private institutions possess the governance agility to adopt quickly, but are constrained by scale and by the risk that adoption outpaces the training and policy frameworks needed to use artificial intelligence tools responsibly.

This finding has implications beyond Rivers State. It suggests that national policy instruments on artificial intelligence in Nigerian higher education, including guidance expected from the National Universities Commission and the National Board for Technical Education, should avoid a one size fits all adoption timetable and should instead specify differentiated benchmarks for public and private institutions that reflect their distinct governance and resource realities. It also suggests that office and information management training curricula, including programmes offered in departments of Office Technology and Management, should place explicit emphasis on artificial intelligence literacy alongside conventional office technology competencies, given that staff digital competence has repeatedly emerged in the reviewed literature as a decisive factor in whether adoption translates into measurable administrative efficiency gains (Dyikuk, Peter, Emmanuel & Yaduma, 2025; Nwaodume & Ogbra, 2023).

Framing artificial intelligence adoption as an administrative innovation problem rather than a purely technical one also finds support in work on knowledge management paradigms in Nigerian tertiary institutions, which found that institutions that treat new administrative technology as part of a wider knowledge management strategy, deliberately linking data capture, staff learning and institutional memory, achieve more durable improvements in administrative innovation than institutions that adopt new tools in isolation from such a strategy (Adiele & Alikornwo, 2025). A parallel study of strategic information sharing in small and medium enterprises found a comparable pattern outside the higher education sector, where administrative productivity rose most where information sharing practices were formalised rather than left informal, reinforcing the view that the efficiency gains associated with artificial intelligence and other digital tools are mediated less by the sophistication of the tool itself and more by the coherence of the administrative practices surrounding its use (Omunakwe & Alikornwo, 2026). This cross sectoral consistency strengthens the case for the differentiated but strategy anchored adoption pathway proposed in the synthesis above.

## **CONCLUSION**

Artificial intelligence adoption in tertiary institution administration in Rivers State is neither a uniform success nor a uniform failure. It is a contested and uneven process shaped by the interaction between institutional ownership structure, infrastructural readiness, staff digital competence and leadership commitment. The dialectical analysis undertaken in this paper shows that the thesis of efficiency gains and the antithesis of structural constraint are both empirically grounded, and that a mature institutional strategy must hold both in view simultaneously rather than privileging one over the other. Public tertiary institutions in Rivers State stand to benefit substantially from artificial intelligence adoption once foundational infrastructural and policy gaps are addressed, while private tertiary institutions stand to benefit from disciplined, scale appropriate adoption rather than adoption driven purely by governance convenience. A differentiated, phased and evidence based approach to artificial intelligence adoption offers the most realistic pathway toward improved administrative efficiency across both categories of institutions in the state.

## **Suggestions**

Based on the foregoing analysis, this paper suggests the following:

1. Public tertiary institutions in Rivers State should prioritise the consolidation of basic digital infrastructure, including reliable internet connectivity and cloud based record systems, as a precondition for wider artificial intelligence adoption.
2. Private tertiary institutions should scale artificial intelligence investment to their actual administrative workload and student population rather than adopting tools for prestige, and should establish internal policy guidance on responsible use.
3. Institutional management in both categories should invest in structured artificial intelligence literacy training for administrative and office staff, with particular attention to departments of Office Technology and Management as centres for building this competence.

## **REFERENCES**

- Adewale, K. A., Soetan, O. M., & Arigbabu, A. I. (2025). Assessing artificial intelligence knowledge, skills, and utilization for psycho-educational development in selected private universities in Ogun State, Nigeria. *Journal of Science and Information Technology*.
- Adiele, G. C., & Alikornwo, P. M. (2025). Administrative innovation: Leveraging on knowledge management paradigms in tertiary institutions. *Journal of Management, Accounting and Development Studies*, 12(2), 86-97.
- Adigun, O. T., Tijani, F. A., Haihambo, C. K., & Enock, S. L. (2025). Understanding pre-service teachers' intention to adopt and use artificial intelligence in Nigerian inclusive classrooms. *Frontiers in Education*, 10, Article 1519472. <https://doi.org/10.3389/feduc.2025.1519472>
- Agadagba, L., & Ekwevugbe, A. O. (2025). Impact of artificial intelligence technology on digital management of educational systems in Nigeria. *International Journal of Innovative Education Research*, 13(2), 250-262.

- Agbarakwe, H. A., & Chibueze, O. O. (2024). Leveraging artificial intelligence for enhanced assessment and feedback mechanisms in Nigeria higher education system. *International Journal of Research and Innovation in Social Science*, 8(9), 142-151.
- Agyei, D. D., & Voogt, J. M. (2011). Exploring the potential of the Will, Skill, Tool model in Ghana: Predicting prospective and practicing teachers' use of technology. *Computers & Education*, 56(1), 91-100.
- Ahmed, Z., Mohamed, K., Zeeshan, S., & Dong, X. (2020). *Artificial intelligence with multi-functional machine learning platform development for better healthcare and precision medicine*. Database, 2020, baaa010.
- Akinwalere, S. N., & Ivanov, V. (2022). Artificial intelligence in higher education: Challenges and opportunities. *Border Crossing*, 12(1), 1-15.
- Alikornwo, P. M. (2026). 21st century administration: The office information management nexus. In: *Sustainable Management Practice – Interdisciplinary Perspective* (2<sup>nd</sup> Ed.), 102-115.
- Alikornwo, P. M., & Amadi, D. V. (2026). Administrative strategic planning, institutional regulatory frameworks and responsiveness in tertiary educational institutions: The digital information systems nexus. *Canada Journal of Advancement in Social Science and Management*, 10(2), 69-82.
- Alikornwo, P. M., & Echendu, S. I. (2026). Digital office practices and information management effectiveness in tertiary institutions in Rivers State, Nigeria. *American Journal of Entrepreneurship, Economics and Management*, 11(2), 48-57.
- Alikornwo, P. M., & Omunakwe, P. O. (2026). Digital literacy and information management competencies of administrative personnel in public universities in Rivers State, Nigeria. *Management, Accounting and Economics Journal*, 11(2), 40-58.
- Alikornwo, P. M., & Orisah-Godfrey, L. A. (2026). Digital office strategy and administrative service delivery in higher education institutions in Rivers State, Nigeria. *Innovative Journal of Accounting, Marketing and Management Research*, 13(2), 48-62.
- Amadi, A. U. (2025). Digital office infrastructure and job performance of office managers in public tertiary institutions in Rivers State. *Advanced Journal of Social Science and Management Research*, 14(1), 118-131.
- Archibong, U., & Ibrahim, U. A. (2021). Assessing the impact of change management on employee performance: Evidence from Nile University of Nigeria. *International Journal of Business and Social Science*, 10(4), 525-534.
- Bali, B., Garba, E. J., Ahmadu, A. S., Takwate, K. T., & Malgwi, Y. M. (2024). Analysis of emerging trends in artificial intelligence for education in Nigeria. *Discover Artificial Intelligence*, 4(1), 1-17.

- Bick, A., Blandin, A., & Deming, D. J. (2024). *The rapid adoption of generative AI (NBER Working Paper No. 32966)*. National Bureau of Economic Research.
- Boison, R. B. (2025). Barriers and enablers to artificial intelligence (AI) adoption in administrative functions in public universities in Ghana: A case study of the University of Education, Winneba. *Canadian Journal of Educational and Social Studies*, 5(4), 50-80.
- Brynjolfsson, E., Li, D., & Raymond, L. R. (2023). *Generative AI at work (NBER Working Paper No. 31161)*. National Bureau of Economic Research.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Dyikuk, L. D., Peter, P. T., Emmanuel, D. G., & Yaduma, S. P. (2025). Skills required of office technology and management lecturers for instructional delivery in colleges of education in North Central states of Nigeria. *International Journal of Advanced Academic Research*, 11(1).
- Edehwo, V., & Eruteya, E. E. (2025). The relationship between change management practices and employee performance. *International Journal of Research and Innovation in Social Science*, 9(5), 970-975.
- Eke, J. O. (2026). Motivation strategies and office managers' job performance in state-owned tertiary institutions in Rivers State. *Web of Semantics: Journal of Interdisciplinary Science*, 4(2).
- Eke, J. O. (2026). Telephone/mobile network gadget and adequate dissemination of information in selected telecommunication firms in Rivers State. *BW Academic Journal*.
- Haesevoets, T., et al. (2025). AI adoption in public administration: Perspectives of public sector managers and public sector non-managerial employees. *Government Information Quarterly*, 42(2), Article 102020.
- Herodotou, C., Rienties, B., Boroowa, A., Zdrahal, Z., & Hlosta, M. (2019). A large-scale implementation of predictive learning analytics in higher education: The teachers' role and perspective. *Educational Technology Research and Development*, 67(5), 1273-1306.
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
- Ibrahim, F., Munscher, J-C., Daseking, M., & Telle, N-T. (2024). The technology acceptance model and adopter type analysis in the context of artificial intelligence. *Frontiers in Artificial Intelligence*, 7, Article 1496518.
- Ibrahim, K., Osuizugbo, I. C., & Dandajeh, M. A. (2026). Barriers and enablers for adopting artificial intelligence for learning and teaching: Evidence from Nigeria. *Journal of Structural Design and Construction Practice*, 31(3).

- Ikuenomore, O. M. (2025). Electronic record management and office manager's job effectiveness in state universities of South West, Nigeria. *International Journal of Research and Innovation in Social Science*, 9(6), 742-752.
- Khoalenyane, N. B., & Ajani, O. A. (2024). A systematic review of artificial intelligence in higher education: South Africa. *Social Sciences and Education Research Review*, 11, 17-26.
- Loglo, F. S. (2024). Towards digital transformation of selected Ghanaian public universities: Leadership enablers, challenges, and opportunities. *Open Praxis*, 16(3), 374-395.
- Mqaqa, V. (2024). Embracing artificial intelligence in higher education: Opportunities and challenges for a South African university of technology. In *2024 IEEE International Smart Cities Conference (ISC2)* (pp. 1-6). IEEE.
- Noy, S., & Zhang, W. (2023). Experimental evidence on the productivity effects of generative artificial intelligence. *Science*, 381(6654), 187-192.
- Nwaodume, F. N., & Ogba, O. M. (2023). Technology and future of business education programmes for the attainment of high level performance of students in tertiary institution. *International Journal of Advanced Academic Research*, 9(10), 118-127.
- Nyekazi, S. J. (2023). Change management and organizational citizenship behaviour of office managers in tertiary institutions in Rivers State. *International Journal of Progressive Sciences and Technologies*, 38(1), 333-345.
- Nyekazi, S. J., & Usip, M. E. (2023). Change management and job performance of office managers in tertiary institutions in Rivers State. *International Journal of Progressive Sciences and Technologies*, 39(2), 155-164.
- Orisah-Godfrey, L. A., & Alikornwo, P. M. (2026). Information governance strategy: Assessing the administrative accountability referents in public sector institutions in Rivers State. *International Journal of Accounting, Auditing and Management*, 13(1), 76-88.
- Organisation for Economic Co-operation and Development. (2025). *Artificial intelligence adoption among small and medium-sized enterprises: Survey evidence*. OECD Publishing.
- Ogunode, N. J., Olofu, P. A., & Bassey, U. O. (2023). Barriers to effective usage of artificial intelligence in tertiary institution in North-Central, Nigeria. *Web of Semantics: Journal of Interdisciplinary Science*, 1(1).
- Omunakwe, P. O., & Alikornwo, P. M. (2026). Administrative productivity: Exploring the strategic information sharing nexus in small and medium enterprises. *International Journal of Management, Innovations and Entrepreneurship*, 10(2), 52-64.
- Onyeaso, G. C., & Eze, C. A. (2022). Leveraging artificial intelligence for improved service delivery in Nigerian tertiary institutions. *African Journal of Information Systems*, 14(3).

- Osegi, M. N., & Oduma, J. O. (2025). Artificial intelligence integration and administrative decision-making in universities in Delta State, Nigeria. *University of Delta Multidisciplinary Research Journal*, 2(1), 23-33.
- Pepple, G. J., Enuoh, R. O., Otalor, J. I., Eneh, S. I., Oben-Etchi, G. E., & Omosebi, M. A. (2024). Change management strategies and organisational productivity at tertiary institutions in Nigeria. *African Journal of Business and Economic Research*, 19(2), 407-430.
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). Free Press.
- United Nations Educational, Scientific and Cultural Organization. (2021). *AI and education: Guidance for policy-makers*. UNESCO Publishing.
- Van Noordt, C., & Misuraca, G. (2022). Artificial intelligence for the public sector: Results of landscaping the use of AI in government across the European Union. *Government Information Quarterly*, 39(3), Article 101714.
- Wang, S., & Cheng, Y. (2020). Artificial intelligence in education: Current developments and implications. *Educational Technology & Society*, 23(2), 35-49.
- World Bank. (2020). *The future of work in Africa: Harnessing the potential of digital technologies for all*. World Bank Group.
- Zhu, Y., & Wan Hussain, W. M. H. (2025). Artificial intelligence (AI) awareness (2019-2025): A systematic literature review using the SPAR-4-SLR protocol. *Social Sciences and Humanities Open*, 12, 101870.