

**LEADERSHIP ADOPTION OF ARTIFICIAL
INTELLIGENCE TOOLS FOR EFFECTIVE
INSTITUTIONAL PERFORMANCE IN COLLEGES OF
EDUCATION IN DELTA STATE OF NIGERIA**

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Abstract

The study investigated leadership adoption of Artificial Intelligence (AI) tools for effective institutional performance in public Colleges of Education in Delta State. The study adopted a descriptive survey research design and was guided by three research questions and three null hypotheses. The population comprised 1,248 staff of public Colleges of Education in Delta State. A sample size of 312 staff, representing 25% of the population, was selected using disproportionate and simple random sampling techniques. Data were collected using a structured questionnaire titled : Leadership Adoption of AI Tools Questionnaire. The instrument was validated by two experts in Educational Management, while its reliability was established using Cronbach's alpha, which yielded a reliability coefficient of 0.82. Mean and standard deviation were used to answer the research questions, while independent samples t-test was used to test the null hypotheses at the 0.05 level of significance. The findings revealed that leadership adoption of AI tools influences administrative efficiency, decision-making processes, and staff productivity in public Colleges of Education in Delta State. The study

concluded that leadership adoption of AI tools contributes to effective institutional performance. Based on the findings, it was recommended, among others, that regular training programmes and seminars should be organised for educational leaders and staff to update their knowledge and skills in the use of AI tools for effective institutional performance in public Colleges of Education in Delta State.

Keywords: Artificial Intelligence, Leadership Adoption, Institutional Performance, Tools

Introduction

Institutional performance has become an important issue in modern educational administration because it reflects the extent to which educational institutions are able to achieve their goals effectively, efficiently, and sustainably (UNESCO, 2023). In tertiary institutions, institutional performance reflects the extent to which educational goals and objectives are achieved through effective administration, quality instructional delivery, efficient resource management, staff productivity, students' academic achievement, and overall organisational effectiveness. The performance of an educational institution largely depends on its ability to coordinate administrative activities efficiently, utilise available resources effectively, and respond appropriately to emerging educational demands and societal expectations. Conceptually, institutional performance refers to the overall effectiveness of an institution in utilising its available human, financial, technological, and material resources to achieve predetermined educational objectives, including operational efficiency, service delivery, accountability, innovation, policy implementation, and the attainment of organisational goals. In educational institutions, particularly tertiary institutions, institutional performance is reflected in effective administrative coordination, improved communication systems, efficient record management, quality instructional supervision, timely dissemination of information, and improved staff and student outcomes. In Colleges of Education, institutional performance is particularly significant

because these institutions are responsible for the preparation and development of qualified teachers required for national growth and educational transformation. Conversely, poor institutional performance may manifest in administrative delays, ineffective communication, weak decision-making processes, poor record management, and low staff productivity, all of which can negatively affect organisational effectiveness and the attainment of educational objectives. However, institutional performance in many Nigerian tertiary institutions, including Colleges of Education, continues to face challenges despite various educational reforms introduced by government and educational stakeholders. These challenges include administrative inefficiency associated with manual operational systems, poor coordination of institutional activities, inadequate data management practices, delayed communication processes, and slow decision-making mechanisms. Administrative activities such as staff coordination, student record management, preparation of reports, monitoring of institutional activities, and dissemination of information may be characterised by delays and inaccuracies. The continued reliance on traditional administrative procedures can reduce operational efficiency and make it difficult for institutional leaders to respond effectively to the increasing demands of modern educational management. These challenges highlight the need for more efficient approaches to institutional administration and management.

The challenges associated with administrative inefficiency, poor coordination, weak communication, and inadequate data management can negatively affect the effectiveness and productivity of tertiary institutions. Poor institutional performance may contribute to low staff morale, reduced quality of service delivery, ineffective supervision, weak policy implementation, and declining organisational efficiency. Delays in administrative processes can result in weak coordination between departments, loss or difficulty in accessing institutional information, inefficient allocation of resources, and delays in responding to institutional problems. Similarly, weak communication systems can affect collaboration

among staff and hinder the effective implementation of institutional policies and programmes. In Colleges of Education, these challenges can ultimately affect the quality of teacher preparation, students' academic outcomes, institutional reputation, and overall educational development. The increasing complexity of educational administration in the twenty-first century has therefore created the need for innovative technological strategies capable of improving institutional performance and administrative effectiveness. The rapid advancement of Artificial Intelligence (AI) technologies has provided educational institutions with new opportunities to transform administrative processes, improve decision-making, and enhance organisational productivity. Artificial Intelligence (AI) refers to computer-based systems capable of performing tasks that ordinarily require aspects of human intelligence, such as learning, reasoning, problem-solving, prediction, and decision-making (Russell & Norvig, 2021). UNESCO (2023) notes that AI can support data-informed decision-making, automation, capacity development, and other educational processes when implemented within appropriate policy, ethical, and human-centred frameworks. Consequently, AI tools have emerged as potentially useful mechanisms for improving institutional management and organisational effectiveness. These tools include automated record management systems, intelligent scheduling platforms, predictive analytics, virtual assistants, data-driven reporting technologies, and automated communication systems. Such technologies can support educational leaders in coordinating institutional activities, monitoring performance, analysing information, facilitating communication, and making informed administrative decisions. UNESCO (2023) emphasises that the effective use of AI in education requires appropriate institutional policies, capacity development, data protection, and human oversight. Similarly, Adole and Asue (2025), in a study of Colleges of Education in Zone C of Benue State, Nigeria, found moderate awareness but low utilisation of AI among management staff. The researchers identified inadequate technical expertise, data security concerns, fear of job displacement, and inadequate technological facilities as challenges affecting the use of

AI in educational management. These findings suggest that leadership support and institutional readiness are important considerations in translating AI adoption into improved institutional performance.

The successful integration of AI technologies in educational institutions largely depends on the adoption and support provided by institutional leaders. Leadership adoption of AI tools refers to the willingness, preparedness, and ability of institutional leaders to integrate Artificial Intelligence (AI) technologies into administrative and instructional processes to improve organisational effectiveness. Educational leaders play important roles in policy formulation, strategic planning, technological implementation, staff development, supervision, and resource allocation. Their decisions regarding the selection, implementation, monitoring, and responsible use of AI technologies can therefore influence the extent to which institutions benefit from these innovations. UNESCO (2023) emphasised the importance of institutional preparedness, human capacity development, policy frameworks, and responsible governance in the effective use of AI in education. Where educational leaders provide the necessary support and direction, AI tools can contribute to improved communication, administrative coordination, information management, and decision-making.

Globally, universities and other higher education institutions are increasingly exploring AI technologies to support educational management and institutional activities. AI applications are being considered for areas such as student management, institutional planning, administrative coordination, data analysis, performance monitoring, and academic support. Research on AI in education has identified potential benefits in areas such as automation, data-informed decision-making, personalised support, and improved efficiency, while also highlighting concerns relating to privacy, equity, human oversight, and institutional readiness. UNESCO (2023) therefore advocates a human-centred approach that combines the opportunities offered by AI with appropriate safeguards, staff

capacity development, and institutional policies. In Nigeria, the adoption of AI in educational management is gradually attracting attention. For example, Adole and Asue (2025) investigated AI adoption in the management of Colleges of Education in Zone C of Benue State and found moderate awareness but low utilisation of AI among management staff. The study identified lack of technical expertise, data security concerns, fear of job displacement, and inadequate technological facilities as challenges affecting AI utilisation. These findings are relevant to the present study because they demonstrate that the availability of AI technology alone may not guarantee improved institutional performance; rather, leadership commitment, staff capacity, technological infrastructure, and appropriate institutional support are also important. Public Colleges of Education in Delta State are expected to provide effective teacher education and maintain efficient institutional administration capable of responding to contemporary educational demands. However, challenges associated with administrative coordination, communication, decision-making, data management, and the utilisation of technological innovations may affect the effectiveness of institutional operations. In this context, the adoption of AI tools by institutional leaders could provide opportunities to improve administrative efficiency, strengthen decision-making processes, and enhance staff productivity. The extent to which such adoption influences institutional performance in the public Colleges of Education in Delta State, however, requires empirical investigation.

Despite the growing attention given to Artificial Intelligence (AI) in education, there remains a need for more empirical evidence on the influence of leadership adoption of AI tools on institutional performance, particularly in public Colleges of Education in Delta State. Existing studies have examined AI awareness, utilisation, teaching and learning applications, and broader educational transformation. For example, Adole and Asue (2025) examined AI awareness and utilisation among management staff in Colleges of Education in Zone C of Benue State, while UNESCO (2023) provided broader guidance on the responsible adoption of generative

AI in education and research. However, limited attention has been given to how leadership adoption of AI tools influences specific aspects of institutional performance, such as administrative efficiency, decision-making processes, and staff productivity in public Colleges of Education in Delta State. This gap provided the basis for the present study on the influence of leadership adoption of AI tools on effective institutional performance in public Colleges of Education in Delta State, Nigeria.

Statement of the Problem

Institutional performance in many tertiary institutions has become an important concern because of the growing demand for effective educational administration and quality service delivery. In many public Colleges of Education, administrative activities may be affected by delays in decision-making, poor coordination of institutional activities, ineffective communication systems, weak record management practices, and low staff productivity. The continued reliance on manual administrative procedures can make routine processes slower and more demanding, particularly where institutions have limited technological capacity and inadequate digital infrastructure (UNESCO, 2023). These challenges can affect organisational effectiveness, quality instructional delivery, policy implementation, staff commitment, and overall institutional performance. Consequently, institutions may experience difficulties in achieving their educational goals and responding effectively to emerging challenges in the education sector. In an effort to improve institutional performance, government agencies, educational administrators, and other stakeholders have introduced measures such as staff training programmes, administrative reforms, digitisation initiatives, capacity-building workshops, and the provision of information and communication technology facilities in tertiary institutions (Federal Republic of Nigeria, 2013). Educational leaders have also been encouraged to adopt modern management practices and technological innovations to improve administrative efficiency and organisational effectiveness. Despite these efforts,

some public Colleges of Education continue to face challenges associated with technological integration, data management, communication, and the speed of institutional processes. Inadequate technological infrastructure, insufficient funding, limited digital competence among staff, and resistance to technological change can constrain the effective use of digital technologies in educational institutions (UNESCO, 2023). Consequently, the expected improvements in institutional performance may not always be fully realised. The increasing complexity of educational administration in the twenty-first century has therefore created a need for innovative and technology-driven approaches to improving institutional effectiveness and administrative efficiency. One emerging approach is the adoption of Artificial Intelligence (AI) tools in educational management. AI technologies can support automated administrative processes, improve data management, enhance communication, facilitate timely decision-making, and strengthen institutional planning and monitoring (UNESCO, 2023). Through applications such as predictive analytics, automated reporting systems, virtual assistants, and intelligent information-management platforms, educational leaders can improve workflow coordination and organisational productivity. The effective adoption of Artificial Intelligence (AI) tools by institutional leaders may therefore provide opportunities for improving administrative efficiency, decision-making processes, and staff productivity. It was against this background that this study sought to examine the influence of leadership adoption of Artificial Intelligence (AI) tools on effective institutional performance in public Colleges of Education in Delta State, Nigeria.

Purpose of the Study

The aim of this study was to examine the influence of leadership adoption of AI tools on effective institutional performance in public Colleges of Education in Delta State, Nigeria. Specifically, the objectives of the study are to:

a. examine the influence of leadership adoption of AI tools on

administrative efficiency for effective institutional performance in public Colleges of Education in Delta State, Nigeria;

- b. determine the influence of leadership adoption of AI tools on decision-making processes for effective institutional performance in public Colleges of Education in Delta State, Nigeria; and
- c. ascertain the influence of leadership adoption of AI tools on staff productivity for effective institutional performance in public Colleges of Education in Delta State, Nigeria.

Research Questions

The following research questions guided the study:

1. What is the influence of leadership adoption of AI tools on administrative efficiency for effective institutional performance in public Colleges of Education in Delta State, Nigeria?
2. What is the influence of leadership adoption of AI tools on decision-making processes for effective institutional performance in public Colleges of Education in Delta State, Nigeria?
3. What is the influence of leadership adoption of AI tools on staff productivity for effective institutional performance in public Colleges of Education in Delta State, Nigeria?

Hypotheses

The following null hypotheses were formulated to guide the study and tested at the 0.05 level of significance

1. There is no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on administrative efficiency for effective institutional performance in the public in the Colleges of Education in Delta State.
2. There is no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on decision-making processes

for effective institutional performance in the public in the Colleges of Education in Delta State.

3. There is no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on staff productivity for effective institutional performance in the public in the Colleges of Education in Delta State.

Methodology

The study adopted a descriptive survey research design. The population for the study comprised 1,248 staff, consisting of 865 academic staff and 383 administrative staff in the public Colleges of Education in Delta State. The population figure was obtained from the official staff records of the public Colleges of Education in Delta State for the period of the study. A sample size of 312 respondents, representing 25% of the population, was selected using disproportionate and simple random sampling techniques. A total of 312 copies of the questionnaire were administered to the selected respondents. Of these, 302 copies were properly completed, retrieved, and found usable for data analysis, representing a response rate of 96.8%.” The instrument used for data collection was a self-designed questionnaire titled *Leadership Adoption of Artificial Intelligence Tools and Institutional Performance Questionnaire (LAAITIPQ)*. The questionnaire was self-designed based on the objectives and research questions of the study and was structured to obtain information on leadership adoption of AI tools and its influence on administrative efficiency, decision-making processes, and staff productivity as indicators of institutional performance. The instrument was validated by two experts in Educational Management, and its reliability was established using Cronbach's alpha. A reliability coefficient of 0.82 was obtained, indicating that the instrument had satisfactory internal consistency for the study. The questionnaire consisted of two sections, A and B. Section A collected demographic information about the respondents, while Section B contained items relating to the indicators of institutional performance examined in the study, namely administrative efficiency, decision-making processes, and staff productivity. The items were structured

using a 4-point rating scale of Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points, and Strongly Disagree (SD) = 1 point. The questionnaire was administered by the researchers with the assistance of two trained research assistants. The researchers and the research assistants distributed and retrieved the questionnaires from the selected respondents to ensure adequate coverage and proper administration of the instrument. Mean and standard deviation were used to answer the research questions, while the independent samples t-test was used to test the null hypotheses at the 0.05 level of significance. The decision rule for the research questions was that a mean score of 2.50 and above was regarded as agreement, while a mean score below 2.50 was regarded as disagreement. For the hypotheses, a p-value less than 0.05 led to the rejection of the null hypothesis, while a p-value greater than or equal to 0.05 resulted in the non-rejection of the null hypothesis.

Results

Research Question 1: What is the influence of leadership adoption of AI tools on administrative efficiency for effective institutional performance in the public Colleges of Education in Delta State?

Table 1: Mean and Standard Deviation Analysis of the influence of Leadership Adoption of AI Tools on Administrative Efficiency for effective institutional performance in the public in the Colleges of Education in Delta State.

S/N	Items	Academic Staff (148)		Administrative staff (154)		$\frac{x_1+x_2}{2}$	Decision
		X ₁	SD ₁	X ₂	SD ₂		
1	AI tools improve communication among institutional staff.	2.94	0.78	3.02	0.73	2.98	Agreed
2	AI technologies reduce delays in administrative processes.	2.86	0.81	2.95	0.76	2.91	Agreed

S/N	Items	Academic Staff (148)		Administrative staff (154)		$\frac{x_1 + x_2}{2}$	Decision
		$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2		
3	AI-supported systems improve record management.	2.79	0.84	2.88	0.79	2.84	Agreed
4	AI tools improve coordination of institutional activities.	2.73	0.87	2.82	0.82	2.78	Agreed
5	AI technologies enhance workflow management in Colleges of Education.	2.85	0.80	2.93	0.73	2.89	Agreed
Aggregate Mean		2.83	0.82	2.92	0.77	2.88	Agreed

Table 1 shows the responses of the respondents on the influence of leadership adoption of Artificial Intelligence (AI) tools on administrative efficiency for effective institutional performance Colleges of Education in Delta State. The summary of Table 1 indicates that Items 1–5 had an aggregate mean of 2.88, which is above the criterion mean of 2.50. This indicates that the respondents agreed that leadership adoption of AI tools influences administrative efficiency within the institutions. The study concluded that leadership adoption of AI tools influences administrative efficiency in public Colleges of Education in Delta State.

Research Question 2: What is the influence of leadership adoption of AI tools on decision-making processes for effective institutional performance in Colleges of Education in Delta State?

Table 2: Mean and Standard Deviation Analysis of the influence Leadership Adoption of AI Tools on Decision-Making Processes for effective institutional performance in the public Colleges of Education in Delta State.

S/N	Items	Academic Staff (148)		Administrative staff (154)		$\frac{x_1 + x_2}{2}$	Decision
		$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2		
6	AI technologies provide accurate information for institutional decisions.	2.96	0.77	3.05	0.72	3.01	Agreed
7	AI analytic improve policy formulation processes.	2.88	0.81	2.97	0.76	2.93	Agreed
8	AI systems support evidence-based decision-making.	2.80	0.84	2.89	0.79	2.85	Agreed
9	AI tools improve institutional planning and forecasting.	2.74	0.86	2.83	0.81	2.79	Agreed
10	AI technologies improve monitoring and evaluation processes.	2.90	0.79	2.99	0.74	2.95	Agreed
Aggregate Mean		2.86	0.81	2.95	0.76	2.91	Agreed

Table 2 shows the responses of the respondents on the influence of leadership adoption of Artificial Intelligence (AI) tools on decision-making processes for effective institutional performance in public Colleges of Education in Delta State. The summary of Table 2 reveals that Items 6–10 had an aggregate mean of 2.91, which is above the criterion mean of 2.50. This indicates that both academic and administrative staff agreed that AI tools influence the decision-making process within the institutions. The study concluded that leadership adoption of AI tools influences decision-making processes and contributes to improved institutional performance in public Colleges of Education in Delta State.

Research Question 3: What is the influence of leadership adoption of AI tools on staff productivity for effective institutional performance in the public Colleges of Education in Delta State?

Table 3: Mean and Standard Deviation Analysis of the influence Leadership Adoption of AI Tools on Staff Productivity for effective institutional performance in the public Colleges of Education in Delta State.

S/N	Items	Academic Staff (148)		Administrative staff (154)			Decision
		$\bar{X}_1$	SD ₁	$\bar{X}_2$	SD ₂		
11	AI tools improve staff efficiency in performing official duties.	2.71	0.79	2.84	0.74	2.78	Accepted
12	AI-supported systems reduce staff workload.	2.65	0.82	2.77	0.78	2.71	Accepted
13	AI technologies improve staff communication and collaboration.	2.59	0.85	2.72	0.80	2.66	Accepted
14	AI tools enhance staff monitoring and supervision.	2.53	0.88	2.66	0.83	2.60	Accepted
15	AI technologies improve institutional productivity.	2.68	0.81	2.80	0.76	2.74	Accepted
Aggregate Mean		2.63	0.83	2.76	0.78	2.70	Accepted

Table 3 shows the result of the analysis on the influence of leadership adoption of Artificial Intelligence (AI) tools on staff productivity for effective institutional performance in public Colleges of Education in Delta State. The summary of Table 3 reveals that Items 11–15 had an aggregate mean of 2.70, which is above the criterion mean of 2.50. This indicates that both academic and administrative staff agreed that AI tools influence staff productivity in public Colleges of Education. The researchers concluded that leadership adoption of AI tools influences staff productivity in public Colleges of Education in Delta State.

Testing of Hypotheses

HO₁: There is no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on administrative efficiency for effective institutional performance in the public Colleges of Education in Delta State.

Table 4: Summary of t-test Analysis of the influence Leadership Adoption of AI Tools on Administrative Efficiency for effective institutional performance in the public Colleges of Education in Delta State.

Status	N	Mean	Sd	df	t-cal	p-value	Decision
Academic Staff	148	2.83	0.82	300	0.98	0.328	Not Significant
Administrative Staff	154	2.92	0.77				

P-value at a 0.05 level of significance

Table 4 presents a summary of the t-test analysis of the significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on administrative efficiency for effective institutional performance in public Colleges of Education in Delta State. The result from Table 4 shows a calculated t-value of 0.98, with a significance level (p-value) of 0.328 at 300 degrees of freedom. Since the p-value is greater than 0.05, the result is not statistically significant. Therefore, the null hypothesis was not rejected. This indicates that there was no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on administrative efficiency for effective institutional performance in public Colleges of Education in Delta State.

HO₂: There is no significant difference in the mean responses of academic staff and administrative staff on the influence of leadership adoption of AI tools on decision-making processes for effective institutional performance in the public Colleges of Education in Delta State.

Table 5: Summary of t-test Analysis of the result on the significant difference in the mean ratings of academic and administrative staff on the influence of Leadership Adoption of AI Tools on Decision-Making Processes for effective institutional performance in the public Colleges of Education in Delta State.

Status	N	Mean	SD	df	t-cal	p-value	Decision
Academic Staff	148	2.86	0.81	300	1.01	0.314	Not Significant
Administrative Staff	154	2.95	0.76				HO ₂ Accepted

P-value at a 0.05 level of significance

Table 5 presents a summary of the t-test analysis of the significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on decision-making processes for effective institutional performance in public Colleges of Education in Delta State. The result from Table 5 shows a calculated t-value of 1.01, with a significance level (p-value) of 0.314 at 300 degrees of freedom. Since the p-value is greater than 0.05, the result is not statistically significant. Therefore, the null hypothesis was not rejected. This indicates that there was no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on decision-making processes for effective institutional performance in public Colleges of Education in Delta State.

HO₃: There is no significant difference in the mean rating of academic staff and administrative staff on the influence of leadership adoption of AI tools on staff productivity for effective institutional performance in the public Colleges of Education in Delta State.

Table 6: Summary of t-test Analysis result on Leadership of the significant difference in the mean ratings of academic and administrative staff on the influence of Leadership Adoption of AI Tools on staff productivity for effective institutional performance in the public Colleges of Education in Delta State.

Status	N	Mean	SD	df	t-cal	p-value	Decision
Academic Staff	148	2.63	0.83	300	1.12	0.264	Not Significant
Administrative Staff	154	2.76	0.78				HO ₃ Accepted

P-value at a 0.05 level of significance

Table 6 presents a summary of the t-test analysis of the significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on staff productivity for effective institutional performance in public Colleges of Education in Delta State. The result from Table 6 shows a calculated t-value of 1.12, with a significance level (p-value) of 0.264 at 300 degrees of freedom. Since the p-value is greater than 0.05, the result is not statistically significant. Therefore, the null hypothesis is not rejected. This implies that there is no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on staff productivity for effective institutional performance in public Colleges of Education in Delta State.

Discussion of Findings
 The findings of Research Question One revealed that leadership adoption of Artificial Intelligence (AI) tools positively influences administrative efficiency for effective institutional performance in public Colleges of Education in Delta State. Respondents agreed that AI technologies improve communication, reduce delays in administrative processes, enhance workflow management, and strengthen record management systems. This suggests that the use of AI-supported technologies enables administrators to perform routine tasks more efficiently and promotes faster and better-coordinated

institutional administration. The finding agrees with Chiu et al. (2023) and Fadel et al. (2022), who reported that AI technologies improve operational efficiency, institutional coordination, communication, and data management. The result further showed that there was no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on administrative efficiency for effective institutional performance in public Colleges of Education in Delta State. This indicates that both groups of respondents shared similar views on the contribution of AI tools to administrative efficiency. The findings of Research Question Two revealed that leadership adoption of AI tools positively influences decision-making processes for effective institutional performance in public Colleges of Education in Delta State. Respondents agreed that AI technologies provide accurate and timely information for institutional decisions, improve policy formulation, support evidence-based decision-making, and enhance institutional planning. The result indicates that AI-supported systems can assist institutional leaders in making timely and informed decisions through effective data analysis, information retrieval, and reporting. This finding is consistent with UNESCO (2023) and Russell and Norvig (2021), who noted that AI technologies support data-driven planning, predictive analysis, and effective decision-making. The result further showed that there was no significant difference in the mean ratings of academic and administrative staff on the influence of leadership adoption of AI tools on decision-making processes. This suggests that both academic and administrative staff held similar views that the adoption of AI tools can strengthen decision-making and contribute to effective institutional performance.

The findings of Research Question Three also revealed that leadership adoption of AI tools positively influences staff productivity for effective institutional performance in public Colleges of Education in Delta State. Respondents agreed that AI tools improve staff efficiency, reduce workload, enhance communication and collaboration, and strengthen monitoring and supervision. This implies that the use of AI technologies can improve

staff productivity by automating routine activities, reducing unnecessary delays, and supporting effective workflow coordination. The finding supports Luckin (2021) and Alabi and Eyo (2024), who observed that AI technologies can improve workplace productivity, staff coordination, and institutional effectiveness. Overall, the results indicate that effective leadership adoption of AI tools can enhance the productivity of staff and contribute to improved institutional performance in public Colleges of Education in Delta State.

Conclusion

The study concluded that the adoption of Artificial Intelligence (AI) tools by institutional leaders has a positive influence on institutional performance in public Colleges of Education in Delta State. The results indicate that when leaders effectively use AI technologies, they are better able to manage administrative responsibilities and respond to the changing demands of institutional management. AI tools can simplify routine activities such as data processing, record keeping, information retrieval, scheduling, report preparation, and communication, thereby reducing the time spent on repetitive administrative tasks and allowing administrators to focus on issues that require their experience and professional judgement.

The adoption of AI tools also improves decision-making by helping leaders obtain and analyse relevant information more quickly. Timely and accurate information enables administrators to identify challenges, consider possible solutions, monitor institutional activities, and make evidence-based decisions. AI-supported communication systems can further improve information flow between administrators and staff, making coordination and implementation of decisions easier. Similarly, AI can enhance staff productivity by reducing repetitive tasks, improving workflow, and providing easier access to information and resources. Overall, the results indicate that effective adoption of AI tools can improve administrative efficiency, strengthen decision-making, and enhance staff productivity, thereby contributing to improved institutional performance in public Colleges of Education in Delta State.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Management of Colleges of Education should provide adequate AI-driven technological infrastructure to improve administrative efficiency, communication systems, and institutional coordination.
2. Regular training and capacity-building programme should be organized for educational leaders and staff to improve their competence in the utilization of AI tools for effective decision-making and institutional management.
3. Institutional policies should be developed to support the ethical adoption and sustainable integration of AI technologies in administrative and operational processes within Colleges of Education.

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