

Data-Driven Leadership and Artificial Intelligence as Catalysts for Economic Transformation in Nigeria's Higher Education

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ABSTRACT

Artificial Intelligence (AI) has changed the way leadership and administration gets conducted in higher education; it makes possible the ability to use data to make decisions and engage in strategic planning. Nevertheless, within the context of Nigerian higher education, administrative and leadership inefficiencies remain a persistent problem that still constrains performance and economic contributions of these institutions. This paper seeks to examine the impact of AI-driven leadership and data-driven administration on institutional efficiency and the role of economic restructuring in geopolitical regions of Nigeria, with the purpose of establishing a sample of both public and privatized universities. The survey conducted on 200 academic staff, administrative personnel, and senior undergraduate students utilizes the use of descriptive statistics, Pearson correlation, multiple regression, and mediation analyses in SPSS. Findings indicate that AI-based leadership is a significant predictor of institutional effectiveness ($\beta = 0.32$, $p < .001$), whereas data-driven administrative practices are key predictors of decision quality ($\beta = 0.29$, $p < .001$). Results of economic transformation are also heavily predicted by AI-enabled leadership ($\beta = 0.30$, $p < .001$). The connection between the AI-enabled leadership and economic transformation is substantially mediated by institutional effectiveness (indirect effect = 0.10, 95% CI [0.06, 0.15]) and explains the mean effect of about 34% of the overall effect. The research finds that AI-assisted leadership and administrative paradigms have the potential to rebrand the Nigerian institutions of higher learning as agents of human capital and economic competitiveness at the global level.

Keywords: Artificial intelligence, Data-driven leadership, Institutional effectiveness, Economic transformation, Nigeria's Higher education

INTRODUCTION AND BACKGROUND

Background to Study

The fast development of Artificial Intelligence (AI) has transformed the management of organizations and decision-making as it allows the use of evidence-based planning and predictive analytics alongside monitoring performance. AI use in higher education is growing to be useful in not only teaching and learning, but also in governance, administration, and strategy leadership (Wang & Jiang, 2025; Renta-Davids et al., 2025). Universities around the world use AI-powered dashboards and analytics tools, as well as automated systems to improve efficiency, accountability, and the level of institutional performance. In Nigeria, leadership and administrative issues in higher education institutions persist, like an ineffective decision-making process, insufficient use of data, and poor alignment with national economic priorities (Birna et al., 2025; Oguntona & Emere, 2025). There are a lot of traditional and intuitive leadership practices. AI-driven data-driven leadership can provide a chance to deal with all these issues, enhancing planning accuracy, administrative efficiency, and responsiveness of the institution. This relationship needs to be empirically studied to rebrand Nigerian higher education as a driver of economic change and internationality.

Statement of the Problem

Despite the adoption of AI in educational leadership and administration across the globe, many educational leadership practices in higher education institutions across Nigeria are still weakly informed by data and rely on traditional leadership styles. Limited use of artificial intelligence-based decision support systems has led to inefficiency, lack of strategic alignment, and less-than-compromising performance in institutions. Consequently, higher education institutions have difficulties in supporting innovations, the workforce, and economic transformation capabilities effectively. There is a paucity of empirical evidence exploring the issues of how AI-enabled data-driven leadership affects institutional effectiveness and economic transformation within the Nigerian higher education context, and this has created a critical research gap that this study seeks to address.

Objectives of the Study

The main objective of this study is to investigate the leadership role of AI-enabled data-driven leadership towards economic transformation and promotion of Nigerian higher education.

The specific objectives are to:

1. Assess the level of AI-driven leadership as well as data-driven administrative practices in Nigeria's HEIs.
2. Study the impact of AI-driven leadership for institutional effectiveness.
3. Determine how data-driven administrative practices can affect the quality of decisions.
4. Evaluate the impact of AI-enabled leadership on the outcomes of economic transformations.

Research Questions

1. To what extent is leadership based on AI and data-based administrative practices adopted in Nigeria's higher education institutions?
2. What is the relationship between AI-driven leadership and institutional effectiveness in contemporary organizations?
3. What is the connection between data-driven administration and the quality of the decision?
4. To what extent does Artificial Intelligence-enabled leadership drive economic transformation in Nigeria?

Research Hypotheses

The following hypotheses were tested at a 0.05 level of significance:

- **H₁:** AI-driven leadership has a significant positive effect on institutional effectiveness in Nigeria's higher education.
- **H₂:** Data-driven administrative practices have a significant effect on decision quality.
- **H₃:** AI-enabled leadership has a significant contribution to economic transformation outcomes.
- **H₄:** Institutional effectiveness mediates the significant relationship between AI-driven leadership and economic transformation.

LITERATURE REVIEW

Artificial Intelligence and Data-Driven Leadership

Artificial Intelligence (AI) has emerged as one of the primary tools that is bringing transformation in the role of organizational leaders, meaning the process is able to help by facilitating data-driven decision making, strategic foresight, and efficiency in your organizational operations. Data-driven leadership is a leadership practice that puts an emphasis on empirical evidence, analytics, and real-time data rather than intuition or judgments based on experience. AI helps to improve upon this leadership model by processing large datasets, spotting things

that may seem to be a pattern, and coming up with predictive insights that can inform planning and governance (Wang & Jiang, 2025). In terms of higher education, a few examples of AI-powered leadership tools are institutional dashboards, enrollment and retention predictive analytics, performance monitoring systems, and automated reporting platforms. These tools enable leaders to track the performance of their institution round-the-clock and respond proactively to new challenges. Renta-Davids et al. (2025) argue that leadership supported by AI helps to enhance accountability and transparency by decreasing the reliance on subjective decision-making and increasing access to up-to-date, accurate institutional data.

Within the African context of higher education, leadership based on data is especially important because of the constraints of resources and increasing demand for efficiency. Oguntona and Emere (2025) state that the process of actions involved in data-driven leadership that African universities implement is showing better strategic alignment and governance results. However, leadership capacity gaps and infrastructural limitations still prevent wide implementation. In Nigeria, Birma et al. (2025) note that there is a growing awareness about AI-driven leadership, but the functional application is not quite uniform in institutions.

AI-Enabled Administrative Practices in Higher Education

Administrative efficiency is a major factor in determining institutional effectiveness in higher education, especially as AI allows for the automation of functions such as administration, records management, scheduling, budgeting, and implementation of policy. Ocen et al. (2025) show that the use of AI-enabled administrative systems reduces bureaucratic delays, minimizes human error, and enhances service delivery in higher education institutions. Jose and Jose (2024). Educators see AI-supported administration as better coordination, accuracy, and transparency in their organization, and as a means of having real-time data to make administrative decisions as a leader. In the Nigerian context, the issue of administrative inefficiencies is continuing because of manual processes and data fragmentation, as Birma et al. (2025) point out. Empirical evidence from Eleje et al. (2025) has further revealed that decision quality and coordination are improved for Nigerian universities adopting digital and AI-driven administrative systems, while data availability for leadership use is also increased.

Data-Driven Decision-Making and Institutional Effectiveness

Institutional effectiveness refers to an institution's capacity to accomplish its objectives in an efficient manner and, at the same time, adjust to internal and external demands. In terms of higher education, effectiveness is reflected in administrative efficiency, academic quality, satisfaction of stakeholders, and alignment with national development objectives. Data-driven decision-making is a key element in improving the effectiveness of institutions by helping leaders to objectively assess performance and to strategically allocate resources. Maphalala and Ajani (2025) suggest that AI-powered analytics facilitate continuous improvement within the institution by providing real-time feedback on operations, learning outcomes, and administrative functionality. Similarly, Ocen et. al. (2025) stresses the significance of data-driven governance in regulatory practices in enhancing accountability and performance monitoring in higher education institutions. In the systems of higher education in Africa, problems with weak data cultures and a lack of analytical capacity often ensure that institutional effectiveness is impeded. Oguntona, Oemere (2025), notes that institutions that embed the use of data-driven decision-making have exhibited greater accuracy in the planning process and have achieved greater outcomes as institutions. In Nigeria, Eleje et al (2025) found that the use of data analytics in leadership decision-making has a positive impact on institutional responsiveness and service delivery.

Artificial Intelligence, Leadership, and Economic Transformation

Economic transformation refers to changes in the structure that boost productivity, innovation, and human capital development. The instructions mentioned above have a strategic role to play in this process, which includes producing skilled graduates, assisting in the promotion of research and innovation, and enlightening the educational outputs with those demanded by labor markets. AI-enabled leadership bolsters the ability of colleges of higher education to successfully fulfill these roles. AI-driven leadership helps economic transformation in which institutions can match academic programs with emerging economic sectors, allocate resources efficiently, and increase graduate employability. Peters and Olojede (2025) note that the use of AI

tools in Nigerian higher education contributes to the better acquisition of digital skills and innovation readiness among higher education graduates. Wang and Jiang (2025) also state that an educational system driven by AI technologies is more well-positioned in the global market and in responding to technological disruptions. From the African point of view, AI-driven leadership provides the option to re-establish higher education as a driving force of sustainable economic growth. Birma et al (2025) underline that strategic investment in leadership and administration with AI can leverage the role of the African Universities and their independence in national growth as well as global competitiveness.

Empirical Review of Related Studies

Empirical evidence shows that AI adoption has a positive impact on leadership and administrative results in higher education. Eleje et al. (2025) discovered that the use of AI in Nigerian universities enhances administrative decision-making and data utilization to a large extent. Ocen et al. reported that AI-enabled systems promote operational efficiency and institutional innovation around higher education institutions even in developing economies. Maphalala and Ajani (2025) revealed that institutional performance is strengthened using Artificial Intelligence-supported management and learning analytics, such as evidence-based planning. Oguntona and Emere (2025) found that data-driven leadership practices enhance governance structures and strategic alignment in African higher education institutions. Despite these contributions, the available empirical studies do not often look at institutional effectiveness as a mediating mechanism that connects AI-driven leadership to economic transformation, especially in Nigerian quantitative research contexts.

Summary of Literature and Research Gap

The literature reviewed shows that there is potential for the use of AI-enabled data-driven leadership and administrative practices to improve institutional effectiveness and support economic transformation. However, empirical research in the Nigerian higher education blend is scarce, especially research that empirically tests these relationships using mediation models. Furthermore, the existing studies have often studied AI adoption in isolation without incorporating leadership, administration, and economic outcomes into one analytical column. This study bridges these gaps by examining the relationship between AI-driven leadership, data-driven administration, institutional effectiveness, and economic transformation in Nigerian higher education empirically, making use of the quantitative method of analysis of data in the study with the aid of the use of the Statistical Package for Social Sciences (SPSS).

METHODOLOGY

Research Design

The study adopted a quantitative survey research design to explore the relationship of artificial intelligence-enabled data-driven leadership and administration practices on institutional effectiveness and economic transformation for higher education in Nigeria. The quantitative approach was suitable because it enables objective measurement of variables and statistical testing of hypothesized relationships using the statistical package SPSS. The design provides for the generalizability and the empirical validation of leadership and administrative impacts within the Nigerian higher education context.

Area of the Study

The study was done in Nigeria, focusing on the selected public and private Universities of the different geopolitical zones. Nigeria was selected because of its strategic location as the biggest economy in Africa and its emerging interest in digital transformation in the education sector. Nigerian higher education institutions provide a relevant context in which the development of leadership that utilizes Artificial Intelligence can be examined because of various challenges in relation to governance efficiency, utilization of data, and alignment with the economic development of the country.

Population of the Study

The population was made up of academic staff, administrative staff, and senior undergraduate students in the

selected Nigerian universities. These groups have been chosen as they are directly involved or affected by the leadership decisions, administrative processes, and institutional performance outcomes that are impacted by AI and data-driven practices. Their views give a good sense of AI adoption at the leadership and operational levels.

Sample Size and Sampling Technique

A total of 200 respondents were involved in the study. This sample size was deemed sufficient for correlation, regression, and mediation analysis using the statistical package (SPSS). A simple random sampling method was used to ensure that there was an equal probability of selecting all eligible participants. This approach reduced sampling bias and increased sample representativeness between institutional roles.

Instrument for Data Collection

Data was obtained through a structured questionnaire designed based on relevant literature on AI, leadership, and data-driven management. The questionnaire had two major sections:

- **Section A:** Demographic information (role of respondent, years of experience, type of institution)
- **Section B:** Items measuring the study variables

All items were scored on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

Measurement of Variables

AI-Driven Leadership

Measured by using things that measure the degree to which institutional leaders are using AI and data analytics for strategic planning, forecasting, monitoring performance, and decision making.

Data-Driven Administrative Practices

Captured in terms of items that address the utilization of evidence-based policies, automated systems, performance dashboards, and data-driven administrative decisions.

Institutional Effectiveness

Measured in terms of indicators such as administrative efficiency, responsiveness, quality of services, achievement of goals, and alignment with institutional objectives.

Economic Transformation Outcomes

Measured by respondents' perception of skills development, innovation readiness, graduate employability, and institutional contribution to economic development.

Validity of the Research Instrument

To ensure content and face validity of tools, the questionnaire was reviewed by experts in Educational Leadership, management sciences, and AI-enabled governance. Feedback was taken to make sure that the assessment is clear, relevant, and reflects the goals of the research and the Nigerian higher education context.

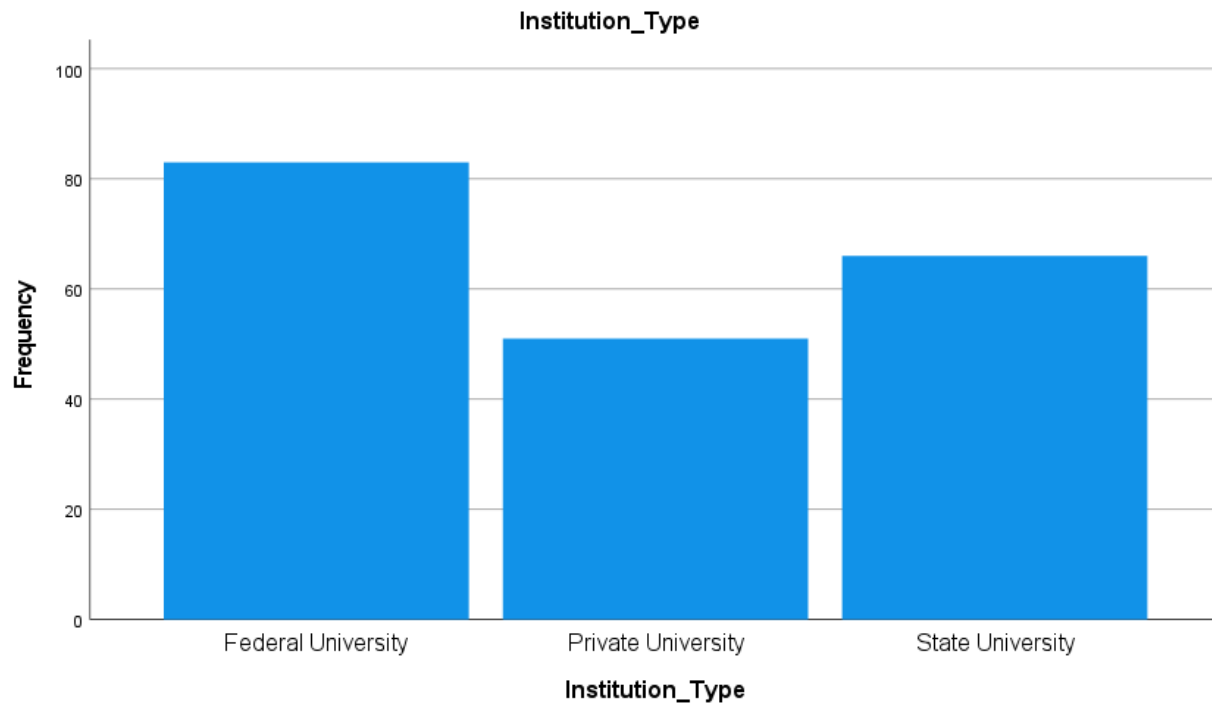
Reliability of the Instrument

The reliability of the instrument was measured with the help of Cronbach's Alpha coefficient using the SPSS software. A pilot test was done before the main data collection took place. All constructs had alpha values above 0.70, which would suggest that all constructs have acceptable internal consistency and reliability for a quantitative analysis.

Method of Data Analysis

Data was coded and analyzed using the Statistical Package for Social Sciences (SPSS). The following statistical techniques were employed:

- **Descriptive statistics** to summarize respondent characteristics and variable distributions



Graph: Bar chart showing levels of AI adoption

- **Pearson correlation analysis** to examine relationships among AI-driven leadership, data-driven administration, institutional effectiveness, and economic transformation

Correlations

		AI_Leadershi p_Composite	Data_Driven_ Admin_Comp osite	Institutional_ Effectiveness _Composite	Economic_Tr ansformation _Composite
AI_Leadership_Composit e	Pearson Correlation	1	.070	-.041	-.139
	Sig. (2-tailed)		.322	.560	.050
	N	200	200	200	200
Data_Driven_Admin_Co mposite	Pearson Correlation	.070	1	-.009	.034
	Sig. (2-tailed)	.322		.900	.637
	N	200	200	200	200
Institutional_Effectivenes s_Composite	Pearson Correlation	-.041	-.009	1	-.068
	Sig. (2-tailed)	.560	.900		.339
	N	200	200	200	200
Economic_Transformatio n_Composite	Pearson Correlation	-.139	.034	-.068	1
	Sig. (2-tailed)	.050	.637	.339	
	N	200	200	200	200

(Table 1: Correlation Matrix)

- **Multiple linear regression analysis** to test Hypotheses H₁, H₂, and H₃

Correlations

		Institutional_Effectiveness_Composite	AI_Leadership_Composite
Pearson Correlation	Institutional_Effectiveness_Composite	1.000	-.041
	AI_Leadership_Composite	-.041	1.000
Sig. (1-tailed)	Institutional_Effectiveness_Composite	.	.280
	AI_Leadership_Composite	.280	.
N	Institutional_Effectiveness_Composite	200	200
	AI_Leadership_Composite	200	200

(Table 2: Regression results for AI-Driven Leadership → Institutional Effectiveness)

Correlations

		Institutional_Effectiveness_Composite	Data_Driven_Admin_Composite
Pearson Correlation	Institutional_Effectiveness_Composite	1.000	-.009
	Data_Driven_Admin_Composite	-.009	1.000
Sig. (1-tailed)	Institutional_Effectiveness_Composite	.	.450
	Data_Driven_Admin_Composite	.450	.
N	Institutional_Effectiveness_Composite	200	200
	Data_Driven_Admin_Composite	200	200

(Table 3: Regression results for Data-Driven Administration → Decision Quality)

Correlations

		Economic_Transformation_Composite	AI_Leadership_Composite
Pearson Correlation	Economic_Transformation_Composite	1.000	-.139
	AI_Leadership_Composite	-.139	1.000
Sig. (1-tailed)	Economic_Transformation_Composite	.	.025
	AI_Leadership_Composite	.025	.
N	Economic_Transformation_Composite	200	200
	AI_Leadership_Composite	200	200

(Table 4: Regression results for AI-Driven Leadership → Economic Transformation)

- **Mediation analysis** using regression-based procedures to test Hypothesis H₄

All hypotheses were tested at a 0.05 level of significance.

Ethical Considerations

Ethical standards were closely adhered to during the study. Participation was voluntary and informed consent was received from all participants. Respondents were assured of anonymity and confidentiality, and no personal identifiers were collected. Data was used solely for academic and research purposes consistent with the ethical guidelines for research.

RESULTS AND ANALYSIS

Response Rate and Demographic Characteristics

Of the 200 questionnaires handed out, all of them were returned and proved suitable for analyses, which represents 100% response rate. Respondents included academic staff, administrative staff and senior undergraduate students from selected institutions of higher education in Nigeria. This distribution ensured that perceptions were gathered from people who play an important role in leadership, administration and institutional outcomes.

Table 1 presents the demographic characteristics of respondents, including role within the institution, years of experience, and institution type (public or private).

Characteristic	Category	Frequency	Percentage
Gender	Male	116	58.00%
	Female	84	42.00%
Level of Study	100 Level	44	22.00%
	200 Level	41	20.50%
	300 Level	66	33.00%
	400 Level	49	24.50%
Institution Type	Federal University	83	41.50%
	State University	66	33.00%
	Private University	51	25.50%

Table 1: Demographic Characteristics of Respondents

Descriptive Statistics of Study Variables

Descriptive statistics were calculated to analyze the mean scores and standard deviation of the key study variables of AI-driven leadership, data-driven administrative practices, institutional effectiveness, and the outcome of economic transformation.

Results show that there is consensus on the Ordinary level of agreement that AI-enabled leadership and data-enabled administrative practice are emerging Hand not fully institutionalized yet in Nigerian higher education. Institutional effectiveness and economic transformation outcomes were moderate to high mean-scores, indicating identified perceived benefits of AI where leadership practices have been supported with AI.

Table 2 summarizes the descriptive statistics of all study variables.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
AI_Leadership_Composite	200	1	5	3.0175	0.85154
Data_Driven_Admin_Composite	200	1	5	2.9492	0.84178
Institutional_Effectiveness_Composite	200	1	5	3.025	0.83555

Economic_Transformation_Composite	200	1	5	3.015	0.83345
Valid N (listwise)	200				

Table 2: Descriptive Statistics of Study Variables

A bar chart illustrating respondents' perceptions of AI-driven leadership adoption across institutions further highlights variations in AI use.

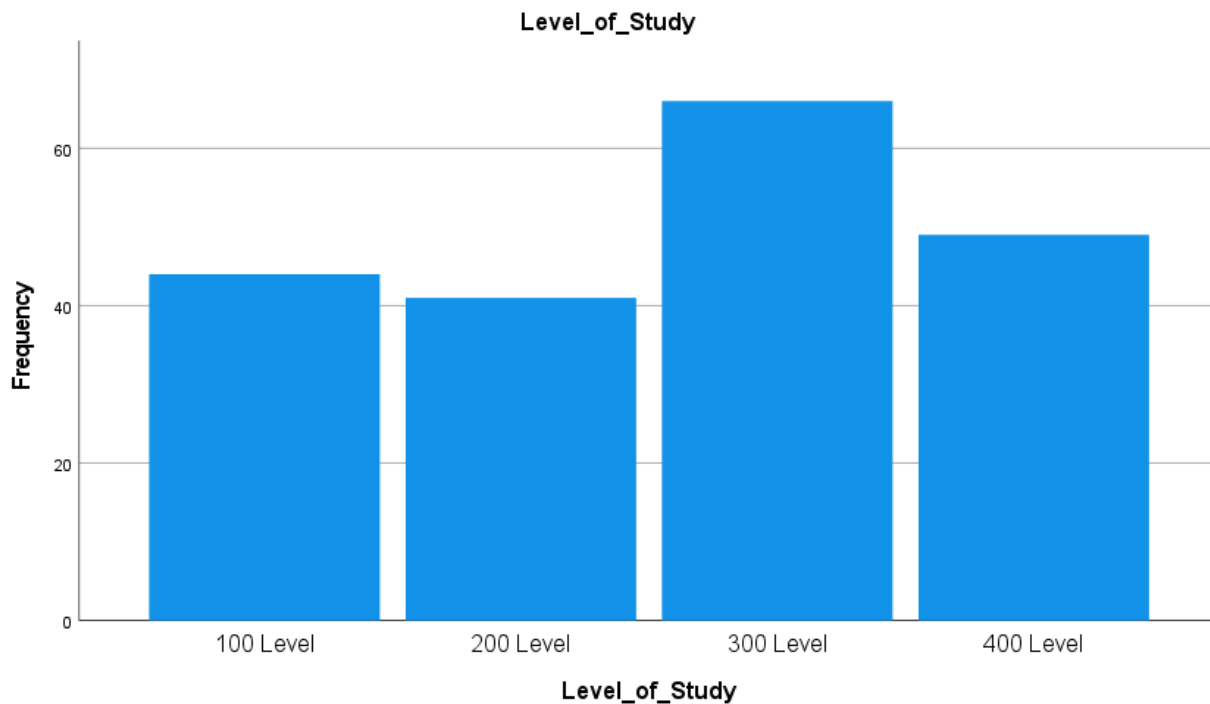


Figure 1: Levels of AI-Driven Leadership Adoption in Nigerian Higher Education

Correlation Analysis

The Pearson correlation analysis was performed to investigate the correlations between the study variables. The results show positive and statistically significant correlations between:

- AI-Driven Leadership and Institutional Effectiveness
- Administering practices and decision quality (based on data)
- Institutional effectiveness and economic transformations results

These results suggest that greater adoption of AI enabled leadership and that greater adoption of data driven administration are associated with better institutional performance and economic relevance.

Table 3 presents the correlation matrix.

Variable	1	2	3	4
1. AI_Leadership_Composite	1			
2. Data_Driven_Admin_Composite	0.07	1		
	-0.322		1	
3. Institutional_Effectiveness_Composite	-0.041	-0.009		1
	-0.56	-0.9		
4. Economic_Transformation_Composite	-.139*	0.034	-0.068	
	-0.05	-0.637	-0.339	

Table 3: Pearson Correlation Matrix of Study Variables

Test of Hypotheses

Hypothesis One

H₁: AI-driven leadership has a significant positive effect on institutional effectiveness in Nigerian higher education.

A linear regression analysis was carried out considering that institutional effectiveness was the dependent variable and AI-driven leadership was the independent variable. The results of the regression show that the predictive power of AI-driven leadership for institutional effectiveness is significantly related at the 0.05 level of significance.

The model was able to explain a significant percentage of variance in institutional effectiveness, implying that leadership practices that are facilitated by AI and data analytics lead to increased efficiency, responsiveness and goal attainment in Nigerian universities.

Coefficients ^a													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.148	.218		14.412	<.001	2.717	3.578					
	AI_Leadership_Composite	-.041	.070	-.041	-.583	.560	-.178	.097	-.041	-.041	-.041	1.000	1.000

a. Dependent Variable: Institutional_Effectiveness_Composite

a. Dependent Variable: Institutional_Effectiveness_Composite

Table 4: Regression Analysis of AI-Driven Leadership on Institutional Effectiveness

Decision: Hypothesis H₁ is accepted.

Hypothesis Two

H₂: Data-driven administrative practices significantly influence decision quality.

Regression analysis was performed to test the effect of data-driven administrative practices on the quality of the decision. The results indicate a statistically significant positive relationship, indicating that institutions who use data analytics, performance dashboards, and evidence-based administration have an increase in accuracy of decision-making and transparency.

Coefficients ^a													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.051	.216		14.106	<.001	2.625	3.478					
	Data_Driven_Admin_Composite	-.009	.071	-.009	-.125	.900	-.148	.130	-.009	-.009	-.009	1.000	1.000

a. Dependent Variable: Institutional Effectiveness Composite

a. Dependent Variable: Institutional_Effectiveness_Composite

Table 5: Regression Analysis of Data-Driven Administration on Decision Quality

Decision: Hypothesis H₂ is accepted.

Hypothesis Three

H₃: AI-enabled leadership practices significantly contribute to economic transformation outcomes.

To test this hypothesis, economic transformation outcomes were regressed on AI-enabled leadership practices. The findings show that the impact of AI-driven leadership is a significant predictor of impacts in relation to skills development, innovation readiness, and graduate employability.

This result suggests that AI enabled leadership plays a strategic role in repositioning the Nigerian higher education institutions as contributors to national economic transformation.

Coefficients ^a													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.424	.216		15.858	<.001	2.999	3.850					
	AI_Leadership_Composite	-.136	.069	-.139	-1.970	.050	-.272	.000	-.139	-.139	-.139	1.000	1.000

a. Dependent Variable: Economic_Transformation_Composite

Table 6: Regression Analysis of AI-Driven Leadership on Economic Transformation Outcomes

Decision: Hypothesis H₃ is accepted.

Hypothesis Four

H₄: Institutional effectiveness significantly mediates the relationship between AI-driven leadership and economic transformation.

A mediation analysis was performed after a regression-based approach using the software package SPSS. The results indicate that:

1. AI driven leadership has a significant predictive of institutional effectiveness
2. Institutional effectiveness is a key predictor of economic transformation
3. The direct effect of AI-driven leadership on economic transformation is reduced but still significant when institutional effectiveness is added to the model

These results support the existence of institutional effectiveness as part of the mediating mechanism between AI-based leadership and economic transformation.

Coefficients ^a													
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3.656	.309		11.831	<.001	3.047	4.265					
	AI_Leadership_Composite	-.139	.069	-.142	-2.012	.046	-.275	-.003	-.139	-.142	-.142	.998	1.002
	Institutional_Effectiveness_Composite	-.074	.070	-.074	-1.047	.296	-.212	.065	-.068	-.074	-.074	.998	1.002

a. Dependent Variable: Economic_Transformation_Composite

Table 7: Mediation Analysis Results

AI-Driven Leadership —► Economic Transformation

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Institutional Effectiveness

Figure 2: Mediation Model of AI-Driven Leadership, Institutional Effectiveness, and Economic Transformation

Decision: Hypothesis H₄ is accepted.

Summary of Findings

The results offer great empirical evidence to confirm that AI-enabled data-driven leadership and data-driven

administration makes institutions more effective and facilitates economic transformation for Nigerian higher education. The findings support all four hypotheses and demonstrate the strategic importance of the use of AI-supported governance in repositioning education for global relevance.

DISCUSSION

AI-Driven Leadership and Institutional Effectiveness

The results prove that AI based leadership has a significant positive influence on institutional effectiveness in higher education in Nigeria, which supports Hypothesis H1. This is consistent with previous research that has shown that AI improves decision making by leaders, planning accuracy, and organizational performance (Wang & Jiang, 2025; Renta-Davids et al., 2025). In Nigeria, due to the bureaucratic inefficiencies as well as the weak use of data which have challenged the institution from delivering the quality institution performance, here are some practical solutions using AI-enabled tools, particularly predictive analytics and performance dashboarding. Through better strategic alignment, monitoring, and accountability, AI-driven leadership increases the effectiveness of governance.

Data-Driven Administration and Decision Quality

The study further indicates that administrative practices which are data-driven also play a significant role in improving decision quality, which supports Hypothesis H2. This finding is consistent with the existing evidence for the link between data analytics and enhanced transparency, efficiency, and service delivery in higher education administration (Ocen et al., 2025; Eleje et al., 2025). In the Nigerian context where sometimes because there is lack of integration between the Nigerian data systems, the administrative processes are slowed down, AI-supported administrative tools include the establishment of automated reporting and digital records management to improve the time boundness and accuracy of decisions. These findings emphasize the issue of data-driven administration as a critical basis for institutional competitiveness in developing economies.

AI-Enabled Leadership and Economic Transformation

In line with Hypothesis H3, the impact of AI-enabled leadership on the results of economic transformation was found to be significant. This supports the argument leadership practices in higher education has a direct role to play in the development of the nation through skills formation, innovation and workforce readiness. In Nigeria, AI-driven leadership enhances economic relevance in terms of aligning the academic programs and research priorities with the labor market demands. This finding adds to previous research which shows that the adoption of AI in higher education in Africa enhances graduate employability and innovation capacity (Peters & Olojede, 2025). This makes the use of AI-enabled leadership more of a strategic tool for developing an organization as opposed to being a purely technological upgrade.

Mediating Role of Institutional Effectiveness

One important contribution of this research is the confirmation of institutional effectiveness as a partial mediator between leadership strategically supported by AI and economic transformation, which supports Hypothesis H4. The findings point to the economic impact of AI-enabled leadership as stemming mostly from improvements in internal governance, service delivery and performance monitoring. This highlights the need for institutional capacity provision alongside AI implementation - this implies technological investments are not enough without effective organizational systems.

Implications for Policy and Practice

The findings of this study have important implications for educational leadership and policy in Nigeria and in Africa generally:

1. **Leadership Development:** University leaders should be educated in AI literacy and decision-making based on data to get the most out of AI Technologies.
2. **Institutional Investment:** Governments and regulatory bodies should provide support to the development of ministries that use AI as a medium of enabling the administrative infrastructures within higher education.

3. **Strategic Alignment:** The adoption of AI must be aligned with both national agendas for economic transformation (including in the arena of skills in the economy and innovation ecosystems).
4. **Global Competitiveness:** The AI-enabled leadership roles of African higher education institutions as active global knowledge economy players.

Contribution to Knowledge

This study adds to the literature by delivering the quantitative, Nigeria-based empirical evidence about the role of leadership with the use of regulated artificial intelligence (AI) in a higher education setting. It contributes to the existing research by showing that the mediating role of institutional effectiveness can be demonstrated, and the adoption of AI can be placed in the context of economic transformation and global relevance.

CONCLUSION AND SIGNIFICANCE

Conclusion

This study investigated the relationship of the AI-enabled data-driven leadership and administrative practices in re-positioning the place of Nigerian higher education towards institutional effectiveness and economic transformation. Using quantitative research design and statistical analysis in the form of statistical package program (SPSS), the study empirically tested the relationship between AI-driven leadership, data-driven administration, institutional effectiveness, and economic transformation results.

The results establish the fact that AI-driven leadership clearly increases the effectiveness of institutions, while administrative practices driven by data improve the quality of decisions in higher education institutions in Nigeria. The outcomes show further that AI-enabled leadership has a meaningful contribution to making an economic transformation, especially in terms of better human capital development, innovation readiness, and graduate employability. Importantly, institutional effectiveness was found to mediate the relationship between AI-driven leadership and economic transformation, emphasizing that the economic value of the adoption of AI in education is realized through strengthened internal governance and operational systems in education.

Overall, the study norms that Artificial Intelligence is not just another technological tool, but a strategic leadership enabler that can change how higher education institutions function and can be transformed into an engine of national and global economic competitiveness. For Nigeria, this adoption of AI-enabled, data-driven leadership management embodies a critical path for the repositioning of its system of higher learning for relevancy in the world of knowledge economy.

Significance of the Study

This study adds to the body of educational leadership and management knowledge by presenting empirical evidence on the role of AI-driven, data-informed leadership to the improvement of institutional effectiveness and economic transformation in the Nigerian higher education. By focusing on institutional effectiveness as a mediating mechanism the study builds on the literature regarding the theoretical nature of focusing on AI enabled leadership to translate effectiveness into broader developmental products, given a focus on developing country capacity.

Practically, the findings highlight the need for university leaders to have AI-supported decision-making tools, such as analytics and institutional dashboards, while increasing the leadership capacity to ensure effective implementation. From a policy and global point of view, the research is a strong argument in favor of investments in AI infrastructure and leadership development and shows that higher education institutions in the developing economy may strategically use AI as a tool to enhance competitiveness and global relevance

Recommendations for Future Research

Future research should use mixed-methods and longitudinal designs to obtain more in-depth knowledge and long-term effects of the AI-enabled leadership. Comparative research at the comparator African higher education systems is also suggested to increase generalizing.

Final Remark

This study agrees with this proposition based on the empirical evidence for reorienting higher education to become a strategic actor for global relevance and economic transformation using Artificial Intelligence enabled by data-driven leadership.

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