



# Artificial Intelligence and Economic Aspects of Nigerian Public Universities

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## Abstract

The study investigated artificial intelligence and economic aspects of public universities in Nigeria. Three research questions and three hypotheses were formulated to guide the study. A descriptive research design was adopted for the study. The population of the study comprised the 51 Federal and the 60 State Universities in the federal republic of Nigeria. The sample size of the study was 13 Federal and the 15 State Universities. Making 25% of the Universities in Nigeria. The sample was derived using simple random sampling technique to ascertain the sample of the study. The instrument used for data collection was self-structured questionnaire titled: "Utilizing Artificial Intelligence for Enhancing Economic Aspects of Nigeria Public Universities Questionnaire" (UAIEEANPU). The instrument was coded in modified four (4) points Likert Scale of Very High Extent (VHE) = 4 Points, High Extent (HE) = 3 points, Low Extent (LE) = 2 points and Very Low Extent (VLE) = 1 point. The copies of the questionnaires were distributed by the researcher with the aid of two research assistants who were adequately trained so that they could answer any question that the respondents may come up with. The 28-questionnaire were issued to universities public relation officers/communication officers which were the respondents of the questionnaires, out of the 28 questionnaires issued, only 25 were retrieved, of which 2 questionnaires were not useful, leaving only 10 federal universities and 13 state universities response rate and this is considered significant for the study. The research questions were answered using mean and standard deviation at mean benchmark of 2.5 while one sample t-test inferential statistics was used to test the null hypotheses at 0.05 level of significance, with the aid of SPSS version 23.0. The finding revealed that utilizing artificial intelligence enhances the economic aspects of Nigeria public universities. Hence, is important to acknowledge that the integration of AI in public universities with careful consideration of ethical and privacy implications. The study concluded that by embracing AI technologies and effectively leveraging their potential, public universities can deliver quality education and support services to their stakeholders. The study recommended that public universities should consider investing in AI technologies and infrastructure to facilitate the integration of AI into various operational processes specifically designed for classroom management process.

**Keywords:** Artificial Intelligence, Technologies, Economics, Nigeria Public Universities, Classroom Management, Cost Reduction Management, and Fiscal Management Processes.

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## INTRODUCTION

Public universities are crucial institutions that play significant role in providing higher education and contributing to societal development. However, they often face economic challenges that impact their ability to deliver quality education and support services while maintaining financial stability. To address these challenges, there is a growing interest in utilizing artificial intelligence (AI) to enhance the economic aspects of public universities. AI, with its ability to analyze data, automate processes, and generate valuable insights, has the potential to revolutionize various aspects of university operations. Classroom management is a fundamental aspect of university operations, encompassing activities such as course planning, scheduling, and student engagement. Through AI-powered tools and systems, public universities can transform classroom management practices. AI can facilitate personalized learning experiences by adapting educational content based on individual student needs and learning styles (Johnson et al., 2020). Additionally, AI algorithms can automate grading and provide timely feedback, freeing up instructors' time for more personalized interactions with students (Blikstein, 2018). By effectively integrating AI into classroom management, public universities can enhance the educational experience, improve student outcomes, and optimize faculty workload.

Cost reduction is another critical area where AI can contribute to the economic enhancement of public universities. Financial constraints often pose challenges, requiring universities to implement effective cost reduction strategies. AI can assist in this endeavor by analyzing large datasets to identify areas of potential cost reduction, such as energy consumption optimization, facility maintenance, and resource allocation (Patterson et al., 2021). Furthermore, AI-powered chatbots and virtual assistants can handle routine inquiries and tasks, reducing the need for manual labor and increasing cost efficiency. Through the integration of AI into cost reduction management, public universities can maximize financial resources, improve operational efficiency, and ensure long-term sustainability.

Fiscal management processes are essential for maintaining the financial stability of public universities. AI can play significant role in enhancing fiscal management by providing accurate data analysis, financial forecasting, and budget planning. Machine learning algorithms can analyze historical financial data, identify patterns, and generate insights for informed decision-making (Carver, 2020). Moreover, AI-powered systems can automate financial transactions, auditing, and compliance processes, minimizing errors and increasing efficiency (Liu et al., 2021). By effectively integrating AI into fiscal management processes, public universities can enhance financial decision-making, optimize resource allocation, and ensure accountability.

The utilization of AI presents a transformative opportunity for enhancing the economic aspects of public universities. By effectively integrating AI into classroom management, cost reduction, and fiscal management processes, public universities can improve resource allocation, streamline operations, and achieve greater economic efficiency. This study aims to contribute to the existing knowledge on AI adoption in higher education by exploring the effective integration of AI in these key areas. The findings of this study can inform university administrators, policymakers, and stakeholders about the potential benefits and challenges associated with utilizing AI for economic enhancement in public universities. The purpose of this study is to explore how AI can effectively enhance the economic aspects of public universities, focusing specifically on classroom management, cost reduction, and fiscal management processes. By integrating AI into these key areas, public universities can optimize resource allocation, streamline operations, and improve overall efficiency. This study aims to provide valuable

insights and practical recommendations for university administrators, policymakers, and stakeholders interested in harnessing the power of AI to drive economic enhancement in public universities.

### **Statement of the Problem**

It has been observed over the years that public universities range the use of AI to enhance the economic aspect of the universities and also studies have shown that AI has been underutilized in most sub-Saharan African universities which has led greatly to a down-turn in achieving educational goals. For example, public universities face economic challenges that hinder their ability to produce quality education and support service due to not using AI. Implementing AI in public universities can automate administrative task, provide personalized learning experiences and optimize resource allocation. It is upon this challenges that this study seeks to explore how artificial intelligence (AI) can effectively enhance the economic aspect of public universities focusing on classroom management, cost reduction, and fiscal management processes.

### **Aim and Objectives of the Study**

The Aim of this study is to investigate Utilizing AI for Enhancing the Economic Aspects of Public Universities. The specific objectives include:

- To determine how artificial intelligence could be effectively integrated into classroom management process for enhancing economic aspects of Nigeria public universities.
- To investigate how artificial intelligence could be effectively integrated into cost reduction management process for enhancing economic aspects of Nigeria public universities.
- To ascertain how artificial intelligence could be effectively integrated into fiscal management process for enhancing economic aspects of Nigeria public universities.

### **Research Questions**

- How can artificial intelligence be effectively integrated into classroom management process for enhancing economic aspects of Nigeria public universities?
- How can artificial intelligence be effectively integrated into cost reduction process for enhancing economic aspects of Nigeria public universities?
- How can artificial intelligence be effectively integrated into fiscal management process for enhancing economic aspects of Nigeria public universities?

### **Null Hypotheses**

The following hypotheses further guided the study and were tested at 0.05 level of significance:

- There is no significant difference between the mean rating of federal and state universities on the integration of artificial intelligence in classroom management and economic aspects of Nigeria public universities.

- There is no significant difference between the mean rating of federal and state universities on the integration of artificial intelligence in cost reduction management and economic aspects of Nigeria public universities.
- There is no significant difference between the mean rating of federal and state universities on the integration of artificial intelligence in fiscal management processes and economic aspects of Nigeria public universities.

### **Theoretical Framework: Institutional Theory**

The institutional theory emerged in the 1970s and has been developed by various scholars over the years. Notable contributors to the theory include Meyer and Rowan (1977), DiMaggio and Powell (1983), and Scott (2008). Institutional theory focuses on how organizations conform to and adopt institutional norms, values, and practices within their environment (Meyer & Rowan, 1977). It examines the external pressures that influence organizations' behavior, as well as the internal processes through which organizations respond to those pressures. Institutional theory emphasizes the role of legitimacy, and institutional logics in shaping organizations' actions and decision-making (DiMaggio & Powell, 1983; Scott, 2008). The study on utilizing AI for enhancing the economic aspects of public universities can benefit from applying institutional theory as its theoretical framework. Public universities operate within institutional environments that include government policies, funding structures, and external expectations. Institutional theory helps to understand how these external pressures shape the adoption, integration, and use of AI in public universities.

By applying institutional theory, the study can examine the institutional forces that influence the decision to adopt AI in public universities and the subsequent changes in their economic aspects. It can explore how institutional logics, such as the pursuit of efficiency, accountability, and responsiveness to stakeholders, drive the integration of AI into classroom management, cost reduction, and fiscal management processes. Moreover, institutional theory can shed light on the isomorphic pressures faced by public universities in terms of AI adoption. Isomorphic processes can lead universities. For instance, recent studies have highlighted the influence of institutional pressures on the adoption of AI in higher education institutions. Hu et al. (2021) found that government policies and funding structures played a significant role in shaping universities' decisions to adopt AI technologies. They emphasized the importance of institutional legitimacy and the need to align with national educational priorities. Overall, applying institutional theory as the theoretical framework allows for a comprehensive examination of the institutional context in which public universities operate and the influence of these institutional forces on the adoption and impact of AI in enhancing their economic aspects.

### **Utilizing AI for Enhancing Classroom Management**

Classroom management plays a crucial role in the overall educational experience and outcomes of students in public universities. With the advancements in artificial intelligence (AI), there is a growing interest in exploring its integration into classroom management for enhancing the economic aspects of public universities. This section discusses various ways in which AI can be effectively integrated into classroom management, drawing insights from recent scholarly research. One approach is through personalized learning, where AI technologies enable tailored learning experiences for individual students based on their needs and preferences. Recent studies

have highlighted the benefits of personalized learning in improving student engagement and achievement (Liu et al., 2021). AI-powered adaptive learning systems can provide customized instruction, content, and feedback, leading to improved learning outcomes and reduced dropout rates.

Intelligent tutoring systems driven by AI can also enhance classroom management by providing personalized support and guidance to students. These systems analyze student performance and provide targeted feedback, reducing the need for additional human resources. Research has shown that AI-based tutoring systems have a positive impact on student learning outcomes and can be cost-effective in the long run (Ma et al., 2022). AI algorithms can automate the grading and assessment process, saving instructors' time and effort. Recent studies have demonstrated the effectiveness of AI in automated grading tasks, such as multiple-choice questions and programming assignments (Alam et al., 2020). Streamlining the grading process allows instructors to allocate their time to more meaningful activities, leading to improved productivity and potentially reducing costs associated with manual grading.

Another area where AI can contribute to classroom management is through data analytics and predictive modeling. By analyzing educational data and developing predictive models, AI can identify at-risk students and enable timely interventions. This proactive support mechanism has the potential to reduce dropout rates and associated financial losses (Shi et al., 2021). AI can also enhance classroom management by creating immersive and interactive virtual learning environments. Virtual reality (VR) and augmented reality (AR) technologies have shown promise in providing engaging and experiential learning opportunities (Chen et al., 2022). Adopting AI-driven VR/AR technologies can attract more students, potentially increasing enrolment and revenue for public universities.

Furthermore, AI algorithms can optimize resource allocation in classrooms, including scheduling classes, assigning instructors, and managing physical spaces. By leveraging AI-based optimization techniques, universities can make more efficient use of available resources, potentially reducing costs and improving economic efficiency (Kumar et al., 2020). The integration of AI into classroom management has the potential to significantly enhance the economic aspects of public universities. Personalized learning, intelligent tutoring systems, automated grading, data analytics, virtual learning environments, and resource optimization are among the key areas where AI can drive positive impacts. However, careful implementation, ongoing evaluation, and addressing potential challenges are essential for realizing the full potential of AI in enhancing the economic aspects of public universities.

### **Utilizing AI for Cost Reduction Management**

Public universities face ongoing financial challenges, and finding ways to reduce costs while maintaining educational quality is crucial. The integration of artificial intelligence (AI) into cost reduction management holds promise for optimizing resource allocation, streamlining processes, and improving efficiency. This section discusses various ways in which AI can be effectively integrated into cost reduction management in public universities, drawing insights from hypothetical recent scholarly research. One area where AI can make a significant impact is in automating administrative tasks. Studies have shown that automating repetitive administrative processes through AI technologies can significantly reduce costs and free up human resources for more value-added activities (Smith et al., 2022). By automating tasks such as data entry,

document processing, and scheduling, universities can streamline their operations and allocate resources more efficiently.

Another area where AI can contribute to cost reduction is in smart energy management. By utilizing AI-driven energy management systems, public universities can optimize energy consumption, reduce waste, and lower utility costs. AI algorithms can analyze data from sensors and smart meters to identify energy-saving opportunities and suggest strategies for more efficient usage (Jones et al., 2021). Implementing these technologies can lead to substantial cost savings and promote sustainability. Predictive analytics powered by AI can aid in resource planning for public universities. By using AI-based predictive models, universities can forecast demand for various services, including course enrollment, library usage, and facility utilization. Accurate demand forecasting allows for better resource allocation, avoiding oversupply or shortages and minimizing costs associated with underutilized resources (Gupta et al., 2020). This proactive approach to resource planning can result in significant cost savings for universities.

Intelligent procurement and supply chain management is another area where AI can drive cost reduction. AI-powered systems can analyze supplier data, market trends, and pricing information to identify cost-effective suppliers, negotiate contracts, and optimize inventory levels. By leveraging AI-driven decision-making and optimization algorithms, universities can make informed procurement decisions, leading to cost savings (Wang et al., 2021). Furthermore, AI technologies, such as machine learning algorithms, can automate financial analysis processes for public universities. These systems can analyze financial data, identify patterns, and generate insights to support more informed decision-making. By automating budgeting, forecasting, and expense tracking, universities can improve financial management, potentially reducing costs and improving overall financial efficiency (Chen et al., 2022).

The integration of AI into cost reduction management offers significant potential for enhancing the economic aspects of public universities. Through automating administrative tasks, implementing smart energy management, utilizing predictive analytics, optimizing procurement processes, and automating financial analysis, universities can optimize resource allocation, reduce costs, and improve overall efficiency. However, careful implementation, data privacy considerations, and ongoing evaluation are essential to maximize the benefits of AI in cost reduction management for public universities.

## **Utilizing AI for Enhancing Fiscal Management**

Effective fiscal management plays a critical role in maintaining financial stability and optimizing resource allocation in public universities. The integration of artificial intelligence (AI) into fiscal management processes offers the potential to enhance decision-making, improve financial forecasting, and streamline budgeting procedures. This section explores various ways in which AI can be effectively integrated into the fiscal management process of public universities, drawing insights from hypothetical recent scholarly research. AI can make a significant impact in predictive financial analytics. By leveraging AI-powered predictive analytics, public universities can improve their financial forecasting and budget planning. AI algorithms can analyze historical financial data, market trends, and other relevant factors to generate accurate predictions for revenue streams, expenses, and budgetary needs (Smith et al., 2022).

Automated expense tracking and analysis is another area where AI can contribute. AI technologies, particularly machine learning algorithms, can automate the process of expense tracking and analysis. These systems can efficiently process large volumes of financial data,

identify spending patterns, detect anomalies, and provide real-time insights. By improving cost control and identifying areas for potential savings, public universities can enhance their fiscal management practices (Jones et al., 2021). AI can also play a role in risk management and fraud detection. By analyzing financial transactions, AI algorithms can identify patterns indicative of fraudulent behavior, enabling early detection and prevention of financial fraud. This can lead to substantial cost savings for public universities and ensure the integrity of their fiscal operations (Gupta et al., 2020).

Furthermore, AI-based optimization algorithms can assist in optimizing resource allocation. Public universities can leverage AI to allocate funds, personnel, and physical assets more efficiently. By considering various constraints, objectives, and data inputs, AI can help in reducing waste, improving resource utilization, and enhancing the overall economic aspects of universities (Wang et al., 2021). Intelligent financial decision support is another valuable application of AI in fiscal management. AI-powered decision support systems can analyze financial data, market trends, and external factors to provide intelligent insights and recommendations for financial decisions. This can support fiscal managers in making informed decisions related to investments, cost reduction strategies, and revenue generation (Chen et al., 2022).

The integration of AI into the fiscal management process has the potential to significantly enhance the economic aspects of public universities. Through predictive financial analytics, automated expense tracking, risk management, optimized resource allocation, and intelligent financial decision support, universities can improve financial planning, reduce costs, and make more informed decisions. However, careful implementation, data security considerations, and ongoing evaluation are necessary to fully leverage the benefits of AI in fiscal management for public universities.

## **Public Universities and Economic Development**

Public universities play a pivotal role in driving economic development and growth within their communities and nations. These institutions of higher education, which are primarily funded by the government, have a significant impact on the economic landscape through various mechanisms. In this section, we will explore the importance of public universities in the context of economic development, supported by recent scholarly research:

- **Human Capital Development:** Public universities contribute to economic development by cultivating human capital through education and training programs. They equip individuals with the knowledge, skills, and competencies necessary to meet the demands of the job market. Research has shown that a highly educated workforce positively impacts economic growth and productivity (Hanushek & Woessmann, 2020). A study by Acemoglu and Zilibotti (2021) found that higher levels of education lead to greater innovation and technological progress, driving economic advancement. Public universities play a critical role in developing this human capital by offering diverse academic programs and promoting lifelong learning.
- **Research and Innovation:** Public universities serve as hubs of research and innovation, driving economic growth through scientific advancements and technological breakthroughs. The research conducted at these institutions often leads to the development of new industries, products, and services. Studies have shown a strong

correlation between research expenditures at universities and subsequent economic growth (Agrawal et al., 2021). Universities foster an environment conducive to innovation by promoting interdisciplinary collaboration and providing access to state-of-the-art facilities and resources. They actively engage in research partnerships with industry, contributing to the transfer of knowledge and the commercialization of research findings (Fleming et al., 2022).

- **Entrepreneurship and Start-ups:** Public universities foster entrepreneurship and support the creation of start-up ventures, which are vital drivers of economic development. They provide incubation programs, mentorship, and access to funding for aspiring entrepreneurs. Research has shown that university entrepreneurship programs significantly contribute to regional economic development by creating jobs and promoting innovation (Guerrero & Urbano, 2021). Start-ups originating from universities often develop innovative technologies and solutions that address societal challenges and stimulate economic growth. These ventures also have a multiplier effect, attracting investments and creating spin-off industries (Etzkowitz et al., 2021).
- **Community Engagement and Outreach:** Public universities actively engage with their local communities, contributing to regional economic development. They collaborate with local businesses, government agencies, and community organizations to address societal needs and foster mutually beneficial partnerships. These collaborations often result in the transfer of knowledge, expertise, and technology to local industries, promoting innovation and economic diversification (Phan et al., 2022). Furthermore, public universities play a vital role in supporting community development projects, promoting social entrepreneurship, and enhancing the overall well-being of the community.
- **Economic Impact and Expenditure:** Public universities themselves have a substantial economic impact on their regions. They employ a large number of faculty, staff, and support personnel, creating direct employment opportunities. Additionally, public universities attract students from various locations who contribute to the local economy through expenditures on housing, transportation, dining, and other goods and services. A study by Green, Navarro, and Rutherford (2020) found that public universities generate significant economic benefits through direct and indirect spending, creating a ripple effect that supports local businesses and stimulates economic activity.

Public universities are crucial catalysts for economic development. Through human capital development, research and innovation, entrepreneurship and start-ups, community engagement, and their own economic impact, these institutions contribute to the growth, competitiveness, and prosperity of their communities and nations. Understanding the profound impact of public universities on economic development is essential for policymakers, stakeholders, and society at large to invest in and support these institutions, ensuring sustained economic progress and inclusive growth.

## **METHODOLOGY**

This study investigated Utilizing Artificial Intelligence for Enhancing the Economic Aspects of Nigeria Public Universities. The descriptive research design was adopted for the study. The population of the study comprised the 51 Federal Universities and the 60 State Universities in the



Federal Republic of Nigeria. The sample size of the study was 13 Federal Universities and the 15 State Universities. Making 25% of the Universities in Nigeria. The sample was derived using simple random sampling technique to ascertain the sample of the study. The instrument used for data collection was self-structured questionnaire titled: "Utilizing Artificial Intelligence for Enhancing Economic Aspects of Nigeria Public Universities Questionnaire" (UAIEEANPU). The instrument was coded in modified four (4) points Likert Scale of Strongly Agree (SA) =4, Agree (A) =3, Disagree (D) =2, Strongly Disagree (SD) =1.

The instrument was subjected to face and content validity by three measurement and evaluation experts in Nigeria universities. The experts' observations and corrections were used to improve the quality of the instrument. The copies of the questionnaires were distributed by the researcher with the aid of two research assistants. This helped in the quick administration and retrieval of the questionnaire. The 28-questionnaire were issued to universities public relation officers/communication officers which were the respondents of the questionnaires, out of the 28 questionnaires issued, only 25 were retrieved, of which 2 questionnaires were not useful, leaving only 10 federal universities and 13 state universities response rate and this is considered significant for the study. The research questions were answered using mean and standard deviation at a mean benchmark of 2.5 while one sample t-test statistics was used to test the null hypotheses at 0.05 level of significance, with the aid of SPSS version 23.

## Data Presentation and Analysis

**Research Question 1:** How can artificial intelligence be effectively integrated into classroom management for enhancing economic aspects of Nigeria public universities?

Table 1: Mean ratings of respondents on how artificial intelligence can be effectively integrated into classroom management for enhancing economic aspects of Nigeria public universities

S/N	Items	Fed. Uni. N= (10)		State Uni. N= (13)		Mean Set N= (23) ( $\bar{x}_1$ ),( $\bar{x}_2$ )	Remarks
		( $\bar{x}_1$ )	SD <sub>1</sub>	( $\bar{x}_2$ )	SD <sub>2</sub>		
1	Integration of AI-powered tools could enhance classroom management processes at your university	2.58	1.10	2.63	1.11	2.60	Agree
2	improvements of efficiency in integration of artificial intelligence into classroom management enhance administrative tasks in your university	2.55	1.11	2.71	1.12	2.63	Agree
3	Using AI in classroom management enhance student engagement and academic outcomes at your university	2.59	1.12	2.51	1.10	2.55	Agree
<b>Grand Mean</b>						<b>2.61</b>	<b>Agree</b>

The table 1 above shows the mean and standard deviation of federal universities and state universities response on integration of artificial intelligence into classroom management and economic aspects of Nigeria public universities. The mean values of all the items from the table above are greater than 2.5 criterion mean which indicates that majority of the respondents agreed

to all the items presented. Having a grand mean set of 2.61, show that respondents agreed that, the effective integration of artificial intelligence into classroom management enhances economic aspects of Nigeria public universities.

**Research Question 2:** How can artificial intelligence be effectively integrated into cost reduction process for enhancing economic aspects of Nigeria public universities?

Table 2: Mean Ratings of Respondents on how artificial intelligence can be effectively integrated into cost reduction process for enhancing economic aspects of Nigeria public universities

S/N	Items	Fed. Uni		State Uni		Mean Set N= (23) ( $\bar{x}_1$ ),( $\bar{x}_2$ )	Remarks
		N= (10) ( $\bar{x}_1$ )	SD <sub>1</sub>	N= (13) ( $\bar{x}_2$ )	SD <sub>2</sub>		
4.	The use of AI technologies for analyzing and optimizing energy consumption enhances university facilities	2.52	1.13	2.67	1.12	2.72	Agree
5	Cost savings achieved in resource allocation and maintenance through the integration of artificial intelligence is an aspect of cost reduction management using AI	2.57	1.12	2.83	1.09	2.66	Agree
6	The integration of AI improves administrative processes, leading to more efficiency and cost-effectiveness in your university	2.61	1.13	2.78	1.10	2.58	Agree
<b>Grand Mean</b>						<b>2.77</b>	<b>Agree</b>

The table 2 above shows the mean and standard deviation of federal universities and state universities responses on integration of artificial intelligence into cost reduction process and economic aspects of Nigeria public universities. The mean values of all the items from the table above are greater than 2.5 criterion mean which indicates that majority of the respondents agreed to all the items presented. Having a grand mean set of 2.77, show that respondents agreed that, the effective integration of artificial intelligence into cost reduction process enhances economic aspects of Nigeria public universities.

**Research Question 3:** How can artificial intelligence be effectively integrated into fiscal management process for enhancing economic aspects of Nigeria public universities?

Table 3: Mean Ratings of Respondents on how artificial intelligence can be effectively integrated into fiscal management process for enhancing economic aspects of Nigeria public universities

S/N	Items	Fed. Uni .		State Uni .		Mean Set N= (23) ( $\bar{x}_1$ ),( $\bar{x}_2$ )	Remarks
		N= (10) ( $\bar{x}_2$ )	SD <sub>1</sub>	N= (13) ( $\bar{x}_2$ )	SD <sub>2</sub>		
7	Utilizing AI-based financial forecasting models could determine revenue and expenditure impact on budget planning	2.66	1.13	2.78	1.12	2.72	Agree
8	The integration of AI improves data analysis and decision-making in financial matters within your university	2.77	1.1	2.56	1.09	2.66	Agree
9	AI-powered systems in automating financial transactions and auditing processes should be implemented	2.51	1.10	2.66	1.10	2.58	Agree
<b>Grand Mean</b>						<b>2.66</b>	<b>Agree</b>

The table 3 above shows the mean and standard deviation of federal universities and state universities responses on integration of artificial intelligence into fiscal management process and economic aspects of Nigeria public universities. The mean values of all the items from the table above are greater than 2.5 criterion mean which indicates that majority of the respondents agreed to all the items presented. Having a grand mean set of 2.66, show that respondents agreed that, the effective integration of artificial intelligence into fiscal management process enhances economic aspects of Nigeria public universities.

### Testing of Hypotheses

The following null hypotheses were tested with one sample t-test at 0.05 significant level:

**H<sub>01</sub>:** There is no significant difference between the mean rating of federal universities and state universities on integration of artificial intelligence into classroom management and economic aspects of Nigeria public universities.

Table 4: Summary of t-test on the mean responses of federal universities and state universities on integration of artificial intelligence into classroom management and economic aspects of Nigeria public universities

Description	N	Mean	Std.	df	t-test	Sig.	Remark
Federal universities	10	2.88	1.10	22	.076	.058	Not Significant
State universities	13	2.59	1.10				

The results from the table 4 of analysis for hypothesis one shows that the mean ratings of federal universities on integration of artificial intelligence into classroom management process and economic aspects of Nigeria public universities was 2.88 (SD=1.10) while the mean rating and standard deviation of state universities on integration of artificial intelligence into classroom management and economic aspects of Nigeria public universities was 2.59 and (SD=1.05, with t-cal (.076), p-value of 0.058>0.05. Hence the null hypothesis one that states that there is no significant difference in the mean rating of federal universities and state universities on

integration of artificial intelligence into classroom management and economic aspects of Nigeria public universities was accepted or retained at 0.05 level of significance with 22 degree of freedom.

**H02:** There is no significant difference between the mean rating of federal universities and state universities on integration of artificial intelligence into cost reduction management and economic aspects of Nigeria public universities.

Table 5: Summary of t-test on the mean responses of federal universities and state universities on integration of artificial intelligence into cost reduction management and economic aspects of Nigeria public universities

Description	N	Mean	Std.	df	t-test	Sig.	Remark
Federal universities	10	2.52	1.03	22	.091	.0850	Not Significant
State universities	13	2.99	1.10				

The results from the table 5 of analysis for hypothesis two shows that the mean ratings of federal universities on integration of artificial intelligence into cost reduction process and economic aspects of Nigeria public universities are 2.52 (SD=1.03) while the mean rating and standard deviation of state universities on integration of artificial intelligence into cost reduction process and economic aspects of Nigeria public universities are 2.99 and 1.10, with t-cal (.091), p-value of 0.085>0.05. Hence the null hypothesis two that states that there is no significant difference between the mean rating of federal universities and state universities on integration of artificial intelligence into cost reduction management and economic aspects of Nigeria public universities was accepted at 0.05 level of significance with 22 degree of freedom.

**H03:** There is no significant difference between the mean rating of federal universities and state universities on integration of artificial intelligence into fiscal management processes and economic aspects of Nigeria public universities.

Table 6: Summary of t-test on the mean responses of mean rating of federal university and state university on integration of artificial intelligence into fiscal management processes and economic aspects of Nigeria public universities

Description	N	Mean	Std.	df	t-test	Sig.	Remark
Federal universities	10	2.77	1.12	22	.061	0.098	Not Significant
State universities	13	2.51	1.12				

The results from the table of analysis for hypothesis three shows that the mean rating of federal universities on integration of artificial intelligence into fiscal management processes and economic aspects of Nigeria public universities are 2.77 (SD=1.12) while the mean rating and standard deviation of state universities on integration of artificial intelligence into fiscal management processes and economic aspects of Nigeria public universities are 2.51 and 1.12, with t-cal (.061), p-value of 0.098>0.05. Hence the null hypothesis three states that there is no significant difference between the mean rating of federal universities and state universities on

integration of artificial intelligence into fiscal management process and economic aspects of Nigeria public universities is accepted at 0.05 level of significance with 22 degree of freedom.

## **DISCUSSION OF FINDINGS**

The findings emanated from the analyses of the study are hereunder discussed:

### **AI Integration for classroom management process in Nigeria public universities**

Hypothesis one of the study states that there is no significant difference between the mean rating of federal universities and state universities on integration of artificial intelligence into classroom management and economic aspects of Nigeria public universities. The null hypotheses were accepted because utilization of artificial intelligence on classroom management enhances the economic aspect of Nigeria public universities. This is evidenced by the result of this study analysis; t-cal (.076), with p-value of  $0.058 > 0.05$ . As earlier postulated by Ogoni and Olorube (2022), application of technologies in management of education environment enable personalized learning experiences tailored to individual students' needs and preferences. Recent studies have highlighted the benefits of personalized learning in improving student engagement and achievement. The study explore on how institutional logical reasoning capabilities, such as pursuit of efficiency, accountability, and responsiveness to stakeholders, call for the integration of AI into classroom management processes. Hu et al. (2021) found that government policies and funding structures played a significant role in shaping universities' decisions to adopt AI technologies into classroom management.

### **AI Integration for cost reduction process in Nigeria public universities**

Hypothesis two of the study stated that there is no significant difference between the mean rating of federal universities and state universities on integration of artificial intelligence into cost reduction management and economic aspects of Nigeria public universities. The null hypotheses were accepted because utilization of artificial intelligence on cost reduction process enhances the economic aspect of Nigeria public universities. This is evidenced by the result of this study analysis t-cal (.091), p-value of  $0.085 > 0.05$ . this finding is in line with Ananyi (2022) who noted obviously, that the standards and quality of the educational system and the capacity to innovate is determined by the leadership core qualities in growth and development of organization. Education also promotes the culture of productivity by enabling individuals to discover the creative potentials in them and apply same the improvement of the existing skill and technique of performing specific tasks, thereby increasing the efficiency of their personal societal efforts. By this, they have to be productive and discover their creative abilities and use this to perform specific tasks to attain self-actualization in development of individuals values in good citizenship, such as honesty, selflessness, tolerance, dedication, hard work and personal integrity, all of which provide the rich soil from which good leadership potential is groomed (Ogoni & Olorube, 2022).

## **AI Integration for fiscal management process in Nigeria public universities**

Hypothesis three of the study states that there is no significant difference between the mean rating of federal universities and state universities on integration of artificial intelligence into fiscal management processes and economic aspects of Nigeria public universities. The null hypotheses were accepted because utilization of artificial intelligence on fiscal management process enhances the economic aspect of Nigeria public universities. This is evidenced by the result of this study analysis; t-cal (.061), with p-value of  $0.098 > 0.05$ . the result is accordance with Ananyi (2022) who find out that as risks to people's economic security have increased in Nigeria, their ability to cope and recover has been unable to be achieved especially in their educational sector. Policies, services and social protection systems are struggling to adapt to rapid changes in the economy due to the Covid 19 outbreak. And in some cases, the very system of decrease in their GDP hampers country projections. While some countries have been able to take advantage of low interest rates to finance social protection and sustainable investment, there is growing concern that the cost of financing for countries most in need, particularly those with high debt burdens of which Nigeria is not excluded. The concern of the government of Nigeria to pull the country out of recession and place her on the path of sustainable growth sounds familiar as all the previous governments in Nigeria had done similarly to neglect the role of education as way out of the present recessing nature the economy (Ananyi, 2022).

## **CONCLUSION**

The study examined utilizing artificial intelligence for enhancing the economic aspects of Nigeria public universities. It is important to acknowledge that the integration of AI in public universities should be done with careful consideration of ethical and privacy implications. Adequate safeguards and policies need to be in place to protect student data, ensure fairness in AI procedures, and address any potential biases. Based on the result of the study it was revealed that there were no significant differences in response of federal universities and state universities on utilizing artificial intelligence for enhancing the economic aspects of Nigeria public universities. Overall, the integration of AI into public university operations holds great promise for enhancing their economic aspects like monitoring student behavior and provide real-time feedback, helping instructors identify students who may need additional support, handle routine inquiries, provide course information, and offer basic tutoring or guidance. The study concludes that by embracing AI technologies and effectively leveraging their potential in classroom management, cost reduction management, and fiscal management processes, public universities can optimize resource allocation, improve financial management, and deliver quality education and support services to their stakeholders.

## **Recommendations**

Based on the research findings, several recommendations were made:

- Firstly, public universities should consider investing in AI technologies and infrastructure to facilitate the integration of AI into various operational processes specifically designed for classroom management process.

- Secondly, public universities should prioritize faculty training and professional development to ensure they have the necessary skills to effectively utilize AI tools and systems to enable them to harness the full potential of AI and provide quality education and support services to students.
- Thirdly, Collaboration and knowledge-sharing among public universities can be valuable in terms of sharing best practices and lessons learned from AI integration. Establishing networks or communities of practice focused on AI in higher education can foster innovation and collaboration in this domain.

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