

## UTILIZATION OF ARTIFICIAL INTELLIGENCE TOOLS FOR ENHANCING HUMAN RESOURCE MANAGEMENT IN PUBLIC UNIVERSITIES IN RIVERS STATE

Ukeme Henry UDO

Department of Educational Management, Faculty of Education, Rivers State University, Nigeria  
[ukeme121@akscoe.edu.ng](mailto:ukeme121@akscoe.edu.ng)

Nengi Jessy JAMAICA

Department of Educational Management, Faculty of Education, Rivers State University, Nigeria  
[jessy.jamaica@ust.edu.ng](mailto:jessy.jamaica@ust.edu.ng)  
<https://orcid.org/0009-0004-6504-1900>

---

**ABSTRACT:** This study investigated the utilization of Artificial Intelligence (AI) tools in enhancing Human Resource Management (HRM) in public universities in Rivers State, Nigeria. It focused on how natural language processing, robotic process automation and predictive analytics are used to improve communication, automate human resource operations, and support workforce planning. The study employed a descriptive survey design. The population comprised 4,890 lecturers across three public universities: University of Port Harcourt, Rivers State University, and Ignatius Ajuru University of Education. A sample of 335 lecturers consisting of 235 males and 100 females was derived using Taro Yemane formula and stratified sampling technique. Data were collected using a structured questionnaire titled: “Utilization of Artificial Intelligence in Human Resource Management Questionnaire” based on a four-point rating scale. The instrument was validated by experts in Measurement and Evaluation. Reliability of the instrument was confirmed using Cronbach Alpha, producing values of 0.73, 0.75, and 0.79 across the three clusters, with a cumulative reliability score of 0.79, indicating strong internal consistency. Data were analyzed using mean and standard deviation for research questions, while hypotheses were tested using the z-test at the 0.05 level of significance. Results showed that natural language processing is being effectively applied to facilitate communication and manage employee records. Robotic process automation was found to reduce the time spent on tasks such as payroll and onboarding. Predictive analytics was noted to assist in workforce planning and human resource decision-making. The study recommended that institutions should institutionalize regular digital upskilling programs for human resource personnel to remain proficient in emerging NLP applications like automated feedback analysis and document summarization, reinforcing the positive trend away from previous concerns about low digital literacy.

**Keywords:** Artificial Intelligence, Human Resource Management, Natural Language Processing, Robotic Process Automation, Predictive Analytics.

Reference to this paper should be made as follows:

Udo, U. H., & Jamaica, N. J. (2025). Utilization of artificial intelligence tools for enhancing human resource management in public universities in Rivers State. *International Journal of Strategic Leadership, Education and Social Sciences*, 1(3), 541-551. <https://doi.org/10.5281/zenodo.180498988>.

---

Copyright © 2025 IJSLESS

### INTRODUCTION

Human resource management (HRM) is an essential function in every organization, encompassing a wide range of practices including recruitment, selection, performance management, training and development, and employee relations. It is primarily concerned with

maximizing employee performance to meet the strategic objectives of the organization. According to Chukwu and Nwachukwu (2020), human resource management in Nigerian public institutions particularly in universities plays a pivotal role in shaping the academic and administrative framework through workforce planning, talent development, and staff welfare. In Rivers State, public universities such as the University of Port Harcourt and Rivers State University depend heavily on Human resource management structures to manage their large and diverse human capital. However, with the evolving complexities in workforce expectations and administrative demands, conventional human resource management practices are often insufficient, prompting the need for innovative technological solutions (Dessler, 2020; Ololube, 2024; Ololube & Wome, 2025).

Artificial Intelligence (AI) has emerged as a transformative force across multiple sectors, and its potential in Human resource management is increasingly gaining attention which encompasses technologies that enable machines to mimic human intelligence, including learning (the acquisition of information and rules for using it), reasoning (the use of rules to reach approximate or definite conclusions), and problem-solving (fostering a culture of innovation and adaptability within the institutions, and preserving the integrity and personnel that are vital to the educational experience) (Jamaica, 2025). Artificial Intelligence refers to the simulation of human intelligence processes by machines, especially computer systems, which can perform tasks such as learning, reasoning, and self-correction (Agboola, 2021). AI tools include chatbots, machine learning algorithms, natural language processing, and robotic process automation (RPA). These technologies are revolutionizing traditional human resource practices by automating routine tasks, enhancing decision-making, and improving overall efficiency (Sharma & Sharma, 2019). Uche and Wokocha (2022) observed that artificial intelligence tools are becoming vital in public institutions for managing recruitment processes, employee engagement, and data-driven decision-making. Their integration into human resource management helps eliminate administrative bottlenecks, enhances transparency, and supports strategic planning.

Several dimensions of artificial intelligence tools relevant to Human resource management in public universities include machine learning, natural language processing, robotic process automation (RPA), and predictive analytics (Tursunbayeva e al., 2018). This study used natural language processing, robotic process automation and predictive analytics (see Marler & Boudreau, 2017). Natural language processing refers to a field of artificial intelligence that enables machines to understand, interpret, and generate human language. It allows systems to process large amounts of natural language data through techniques such as text classification, sentiment analysis, speech recognition, and machine translation. In the context of human resource management, natural language processing enhances the recruitment process by allowing software to scan and analyze résumés, cover letters, and job descriptions, matching candidates with job roles more effectively. Moreover, natural language processing tools can automate responses to common employee queries through Chatbots, thereby improving internal communication and operational efficiency. According to Wang and Sun (2021), the integration of natural language processing in human resource management leads to better talent acquisition, reduced bias in screening, and enhanced employee engagement by simplifying communication between human resource personnel and staff.

Robotic process automation refers to the use of software robots to automate repetitive, rule-based tasks traditionally performed by humans. These tasks can include employee onboarding, payroll processing, benefits administration, and maintaining employee records. In human resource management, robotic process automation streamlines administrative workloads

by reducing the time and errors associated with manual data entry, allowing human resource professionals to focus on strategic functions like workforce planning and employee development (Braide & Nwankwo, 2020). For example, robotic process automation can automatically update databases with new employee details or generate employment contracts, minimizing human intervention. Brougham and Haar (2018) suggested that Robotic process automation significantly improves human resource management efficiency, compliance, and accuracy, especially in high-volume human resource operations, by eliminating routine bottlenecks and increasing processing speed.

Predictive analytics involves the use of statistical algorithms and machine learning techniques to analyze historical data and make predictions about future outcomes. In human resource management, predictive analytics is used to anticipate employee turnover, forecast hiring needs, evaluate performance trends, and assess training outcomes. Human resource managers can make informed decisions to retain top talent and design effective workforce strategies by analyzing patterns in employee behavior, absenteeism, and productivity. For instance, predictive models can identify high-potential employees or those at risk of leaving the organization, prompting timely interventions. A study by Musa and Dada (2019) highlighted that predictive analytics empowers human resource management by enhancing decision-making accuracy and enabling proactive human capital management, which ultimately contributes to organizational growth and resilience.

Empirical studies have begun to investigate the practical application of artificial intelligence tools in Human resource management within the context of Nigerian public universities. A study by Amadi and Ibe (2022) revealed that the adoption of artificial intelligence-based recruitment platforms in some departments at the University of Port Harcourt significantly reduced the time and cost associated with hiring processes. Similarly, Opara and Ekweozoh (2021) found that the implementation of artificial intelligence tools in training and development at Rivers State University led to higher employee productivity and better alignment of training programs with institutional goals. However, despite these advantages, adoption remains low due to infrastructural deficits, digital illiteracy, and organizational resistance. Empirical evidence points to the fact that while there is awareness of the potentials of artificial intelligence in Human resource management, actual implementation is hampered by systemic and contextual barriers in public university settings.

The literature reveals a significant gap concerning the depth of artificial intelligence tools utilization in Human resource management in public universities in Rivers State. Most available studies tend to focus on general technology integration or digitization in university administration rather than the specific application and outcomes of artificial intelligence in human resource functions. Furthermore, there is a lack of localized research that explores the challenges, opportunities, and outcomes of artificial intelligence -driven Human resource management from the perspectives of human resource managers, academic staff, and policy-makers within these institutions. This underscores the need for more comprehensive, context-specific investigations that examine not just the adoption but the impact and scalability of artificial intelligence tools in the human resource processes of public universities in the region (Okoli & Akpan, 2022).

Given the interdisciplinary nature of AI and Human resource management, the theoretical framework guiding this study is the Resource-Based View (RBV) Theory. The RBV posits that institutions gain sustainable competitive advantage by effectively managing internal resources, including human capital and technological capabilities. When applied to Human resource

management, this theory supports the idea that leveraging artificial intelligence tools enhances the value, rareness, inimitability, and non-substitutability of institutional human resources (Barney, 1991). In the context of public universities in Rivers State, integrating artificial intelligence tools into Human resource management functions can be seen as a strategic move to harness internal capabilities, improve service delivery, and optimize performance outcomes.

The integration of Artificial Intelligence tools into Human resource management offers substantial promise for addressing long-standing inefficiencies in public universities in Rivers State. While the concept and potential of artificial intelligence in Human resource management are widely recognized, empirical evidence suggests that adoption remains limited and inconsistent. Bridging this gap requires not only investment in digital infrastructure but also training, policy reforms, and further academic inquiry. The Resource-Based View theory provides a suitable framework for understanding how artificial intelligence tools can serve as strategic assets in enhancing Human resource management and achieving institutional excellence. Therefore, advancing research in this area is crucial for aligning Human resource practices in public universities with global trends and improving administrative efficiency in Nigeria's higher education system.

### **Statement of the Problem**

In the Public universities in Rivers State, Human resource management challenges are particularly pronounced. Institutions such as the University of Port Harcourt, Rivers State University, and Ignatius Ajuru University of Education struggle with outdated human resource practices that are not only time-consuming but also prone to administrative errors and corruption. These inefficiencies often result in staff dissatisfaction, poor service delivery, and high administrative costs. Moreover, the lack of data-driven decision-making tools limits the ability of Human resource departments to plan strategically or respond quickly to workforce demands. These issues create systemic inefficiencies that ultimately hinder the competitiveness and global relevance of public universities in Rivers State.

Although several scholars have acknowledged the role of technology in improving Human resource management, their focus has largely been on general digitization rather than on the integration of Artificial Intelligence tools specifically. These studies provided useful foundations but lacked the specificity and depth needed to inform policy and practice on artificial intelligence -driven Human resource management systems in public universities.

### **Purpose of the Study**

The aim of this study was to examine the utilization of Artificial Intelligence (AI) Tools for enhancing Human Resource Management in Public Universities in Rivers State. Specifically, the study sought to:

- Assess how natural language processing is applied to improve communication and information management within Human resource departments of public universities in Rivers State.
- Evaluate the utilization of robotic process automation (RPA) in streamlining routine HR administrative tasks in public universities in Rivers State.

- Analyze the application of predictive analytics in supporting strategic Human Resource decision-making in public universities in Rivers State.

### **Research Questions**

- How is natural language processing applied to improve communication and information management in the Human resource departments of public universities in Rivers State?
- How does utilization of robotic process automation (RPA) enhance streamlining routine Human resource administrative tasks in public universities in Rivers State?
- How is predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State?

### **Hypotheses**

The following null hypotheses guided the study:

- There is no significant difference in the mean rating of male and female lecturers on natural language processing is applied to improve communication and information management in the Human resource departments of public universities in Rivers State.
- There is no significant difference in the mean rating of male and female lecturers on the utilization of robotic process automation (RPA) in enhance streamlining routine Human resource administrative tasks in public universities in Rivers State.
- There is no significant difference in the mean rating of male and female lecturers on predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State.

### **METHODOLOGY**

The study adopted a descriptive survey research design with a population of 4890 lecturers from University of Port Harcourt, Rivers State University and Ignatius Ajuru University of Education (Source: Registry of the three universities). The population consists of 2,050 lecturers from the University of Port Harcourt, 1,890 lecturers from Rivers State University and 950 lecturers from Ignatius Ajuru University of Education. The sample size for the study was 1000 lecturers from the three universities which consisted of 235 males and 100 female lecturers. The sample size was determined using Taro Yeminis formula.

The Stratified Sampling techniques was adopted to divided into subgroups based on characteristics such as gender. The instrument for data collection was a researcher-structure questionnaire titled “Utilization of Artificial Intelligence in Human Resource Management Questionnaire”, (UAITHRMQ). Responses to the questionnaire items were structured on a four-point rating scale of Strongly Agree (SA) – 4 points, Agree (A) – 3 points, Disagree (D) – 2 points and Strongly Disagree (SD) 1 point.

The instrument was validated by research coordinator and other experts in Measurement & Evaluation, the face and content validity were used for the study. A test of internal consistency was conducted using Cronbach Alpha method to determine the reliability of the instrument. Reliability coefficients of 0.73, 0.75, and 0.79 were obtained for the three clusters of the instrument with a cumulative reliability of 0.79.

The research questions were answered using mean and standard deviation statistics while the null hypotheses formulated were tested using z-test statistics at .05 level of significance which is a test of difference of mean. The decision rule was to accept the null hypotheses where the calculated z-value is less than z-critical value of  $\pm 1.96$ , but reject the null hypotheses where the calculated z-value is greater than z-critical value of  $\pm 1.96$ .

## RESULTS

**Research Question 1:** How is natural language processing applied to improve communication and information management in the Human resource departments of public universities in Rivers State?

Table 1: Response Rates and descriptive statistics on natural language processing applied to improve communication and information management in the Human resource departments of public universities in Rivers State

S/N	Questionnaire Items	Male = 235		Female = 100		Mean Set	Decision
		Mean	SD <sub>1</sub>	Mean	SD <sub>2</sub>		
1	NLP tools help in extracting relevant information from employee records and documents efficiently.	3.35	0.92	3.40	0.90	3.38	Agree
2	Natural Language Processing enhances real-time communication between HR staff and employees.	3.25	0.89	3.30	0.89	3.28	Agree
3	NLP helps in summarizing lengthy HR documents for easier understanding by staff.	3.50	0.88	3.45	0.89	3.48	Agree
4	The use of NLP enables HR to detect employee concerns from written feedback early.	3.35	0.93	3.33	0.95	3.34	Agree
<b>Grand Mean</b>		<b>3.36</b>	<b>0.91</b>	<b>3.37</b>	<b>0.91</b>	<b>3.37</b>	<b>Agree</b>

Table 1 revealed that all the items 1, 2, 3 and 4 had mean set values of 3.38, 3.28, 3.48 and 3.34. In summary with grand mean values of 3.36 and 3.37 which are above the criterion mean of 2.50, this indicated that respondents agreed that utilization of natural language processing improve communication and information management in the Human resource departments of public universities in Rivers State.

**Research Question 2:** How does utilization of robotic process automation (RPA) enhance streamlining routine Human resource administrative tasks in public universities in Rivers State?

Table 2: Response Rates and descriptive statistics on utilization of robotic process automation (RPA) enhance streamlining routine Human resource administrative tasks in public universities in Rivers State

S/N	Questionnaire Items	Male = 235		Female = 100		Mean set	Decision
		Mean	SD <sub>1</sub>	Mean	SD <sub>2</sub>		
5	RPA is used to automate repetitive tasks such as data entry and employee record updates in HR.	3.25	0.96	3.30	0.89	3.28	Agree
6	The use of RPA has reduced human error in routine HR administrative processes.	3.27	0.98	3.20	1.05	3.24	Agree
7	RPA tools are deployed to manage payroll processing and leave applications efficiently.	3.38	0.88	3.32	0.86	3.35	Agree
8	RPA systems help HR staff focus on strategic tasks by taking over administrative burdens.	3.35	0.82	3.38	0.91	3.37	Agree
<b>Grand Mean</b>		<b>3.31</b>	<b>0.91</b>	<b>3.30</b>	<b>0.93</b>	<b>3.31</b>	<b>Agree</b>

Table 2 revealed that all the items 5, 6, 7 and 8 had mean set values of 3.28, 3.24, 3.35 and 3.37. In summary with grand mean values of 3.31 and 3.30 which are above the criterion mean of 2.50, this indicated that respondents strongly agreed that utilization of robotic process automation (RPA) enhance streamlining routine Human resource administrative tasks in public universities in Rivers State.

**Research Question 3:** How is predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State?

**Table 3: Response Rates and descriptive statistics on predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State**

S/N	Questionnaire Items	Male=235		Female=100		Mean set	Decision
		Mean	SD <sub>1</sub>	Mean	SD <sub>2</sub>		
9	Predictive analytics is used to forecast employee turnover in the HR department.	3.30	0.89	3.32	0.84	3.31	Agree
10	HR decisions about recruitment planning are based on predictive analysis of workforce data.	3.22	0.95	3.28	0.92	3.25	Agree
11	Predictive models help identify future skill gaps and training needs within the university.	3.25	0.91	3.25	0.93	3.25	Agree
12	Data from predictive analytics supports workforce planning and succession strategies.	3.15	0.98	3.20	0.96	3.18	Agree
<b>Grand Mean</b>		<b>3.23</b>	<b>0.93</b>	<b>3.26</b>	<b>0.91</b>	<b>3.25</b>	<b>Agree</b>

Table 3 for research question 3, revealed that all the items 9, 10, 11 and 12 had mean set values of 3.31, 3.25, 3.25 and 3.18. In summary with grand mean values of 3.23 and 3.26 which are above the criterion mean of 2.50, this indicated that respondents strongly agreed that utilization of predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State.

## Hypotheses

**Hypotheses one (H<sub>01</sub>):** There is no significant difference in the mean ratings of male and female lecturers on natural language processing is applied to improve communication and information management in the Human resource departments of public universities in Rivers State.

Table 4: z-test significant of difference in the mean ratings of male and female lecturers on natural language processing is applied to improve communication and information management in the Human resource departments of public universities in Rivers State

Respondents	N	$\bar{x}$	SD	Df	@	z-cal	z-crit	Remark
Male Lecturers	235	3.36	0.91	333	0.05	0.88	±1.96	Not Sig.
Female Lecturers	100	3.37	0.91					

Table 4 shows a summary of mean, standard deviation and z-test of difference between the mean ratings of male and female lecturers on natural language processing is applied to improve communication and information management in the Human resource departments of public universities in Rivers State. The z-calculated value was 0.88 while the z-critical value was ±1.96,

using 333 degree of freedom at 0.05 level of significance. Since the z-calculated was less than the z-critical, the null hypothesis was accepted. This shows that there is no significant difference in the mean ratings of male and female lecturers on natural language processing is applied to improve communication and information management in the Human resource departments of public universities in Rivers State.

**Hypotheses Two (H<sub>02</sub>):** There is no significant difference in the mean ratings of male and female lecturers on the utilization of robotic process automation (RPA) in enhance streamlining routine Human resource administrative tasks in public universities in Rivers State.

Table 5: z-test significant of difference in the mean ratings of male and female lecturers on the utilization of robotic process automation (RPA) in enhance streamlining routine Human resource administrative tasks in public universities in Rivers State

Respondents	N	$\bar{x}$	SD	Df	@	z-cal	z-crit	Remark
Male Lecturers	235	3.31	0.91	333	0.05	0.85	±1.96	Not Sig.
Female Lecturers	100	3.30	0.93					

Table 5 shows a summary of mean, standard deviation and z-test of difference between the mean ratings of male and female lecturers on the utilization of robotic process automation (RPA) in enhance streamlining routine Human resource administrative tasks in public universities in Rivers State. The z-calculated value was 0.85 while the z-critical value was ±1.96, using 333 degree of freedom at 0.05 level of significance. Since the z-calculated was less than the z-critical, the null hypothesis was accepted. This shows that there is no significant difference in the mean ratings of male and female lecturers on the utilization of robotic process automation (RPA) in enhance streamlining routine Human resource administrative tasks in public universities in Rivers State.

**Hypotheses three (H<sub>03</sub>):** There is no significant difference in the mean ratings of male and female lecturers on predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State.

Table 6: z-test significant of difference in the mean ratings of male and female lecturers on predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State

Respondents	N	$\bar{x}$	SD	Df	@	z-cal	z-crit	Remark
Male Lecturers	235	3.23	0.93	333	0.05	0.46	±1.96	Not Sig.
Female Lecturers	100	3.26	0.91					

Table 6 shows a summary of mean, standard deviation and z-test of difference between the mean ratings of male and female lecturers on predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State. The z-calculated value was 0.46 while the z-critical value was ±1.96, using 333 degree of freedom at 0.05 level of significance. Since the z-calculated was less than the z-critical, the null hypothesis was accepted. This shows that there is no significant difference in the mean ratings of male and female lecturers on

predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State.

## **DISCUSSION OF FINDINGS**

The analysis of the responses to Research Question 1 on Table 1 revealed strong agreement among respondents on the role of Natural Language Processing (NLP) in improving communication and information management in Human Resource (HR) departments of public universities in Rivers State with grand mean values of 3.36 and 3.37. Hypothesis 1 on Table 4 revealed that there is no significant difference in the mean ratings of male and female lecturers on natural language processing is applied to improve communication and information management in the Human resource departments of public universities in Rivers State with z-calculated value of 0.88 which is less than the z-critical value was  $\pm 1.96$ . This aligns with the findings of Wang and Sun (2021), who emphasized the utility of NLP in extracting, summarizing, and interpreting complex HR documents for enhanced comprehension and speed. Similarly, the item on NLP enabling HR to detect employee concerns through written feedback, with a mean of 3.34, affirms insights from Amadi and Ibe (2022), who asserted that the adoption of artificial intelligence such as the sentiment analysis in employee communications aids early detection of dissatisfaction or burnout.

Analysis of Research Question 2 on Table 2 emphasized respondents are on the same agreement on the role of Robotic Process Automation (RPA) in streamlining repetitive HR administrative tasks in public universities in Rivers State with grand mean values of 3.31 and 3.30. Again, information on hypothesis 2 on Table 5 revealed that there was no significant difference in the mean ratings of male and female lecturers on the utilization of robotic process automation (RPA) in enhance streamlining routine Human resource administrative tasks in public universities in Rivers State with z-calculated value of 0.85 which is less than the z-critical value was  $\pm 1.96$ . This finding supports the assertion of Brougham and Haar (2018) that Robotic process automation increases efficiency by automating repetitive, rules-based processes, thus allowing HR professionals to invest more time in strategic planning and talent development. The lowest mean was 3.24 for the item on RPA reducing human error that is still above the benchmark and consistent with findings by Opara and Ekweozoh (2021), who found that the adoption of artificial intelligence such as RPA contributes to error minimization and accuracy in HR functions.

The data presented in response to Research Question 3 on Table 3 showed that the respondents are on the same agreement on the application of predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State with grand mean values of 3.23 and 3.26. Again, information on hypothesis 3 on Table 6 revealed that there was no significant difference in the mean ratings of male and female lecturers on predictive analytics applied to support strategic Human Resource decision-making in public universities in Rivers State with z-calculated value of 0.46 which is less than the z-critical value was  $\pm 1.96$ . This is consistent with the work of Brougham and Haar (2018), who demonstrated how predictive modeling helps organizations anticipate workforce attrition, thereby supporting timely and informed interventions. These findings are supported by Angrave et al. (2016), who emphasized the growing role of predictive analytics in shaping HR strategies and enabling evidence-based decision-making. As supported by Creswell and Creswell (2018), combining descriptive and inferential statistics allows for deeper insights and stronger generalizations.

## CONCLUSION

The findings from this research reveal that Natural Language Processing (NLP) significantly enhances communication and information management within Human Resource (HR) departments of public universities in Rivers State. Respondents affirmed its role in document summarization and employee sentiment analysis. Similarly, Robotic Process Automation (RPA) was recognized for streamlining repetitive administrative tasks, minimizing human error, and allowing HR staff to focus on strategic functions. Lastly, predictive analytics was found to support strategic HR decision-making, particularly in forecasting employee turnover, recruitment planning, and identifying skill gaps, although its implementation is still evolving in practice. In general, the study concludes that artificial intelligence tools like NLP, RPA, and predictive analytics are critical enablers of modernization in HR management within public universities. These technologies contribute to increased efficiency, improved data handling, and informed strategic planning. Their adoption marks a progressive shift towards data-driven, agile, and intelligent HR operations, positioning universities in Rivers State to better align human capital strategies with institutional goals.

## Recommendations

Based on the discussion of findings, here are three recommendations aligned with the evidence presented:

- Institutions should institutionalize regular digital upskilling programs. This ensures human resource personnel remain proficient in emerging NLP applications like automated feedback analysis and document summarization, reinforcing the positive trend away from previous concerns about low digital literacy (see Eze & Uche, 2017).
- Human resource departments should further integrate RPA into complex processes such as onboarding, performance reviews, and compliance monitoring. This can deepen the strategic role of human resource by reducing manual workload and enhancing accuracy in broader HR functions.
- Public universities should invest in improving data quality, storage systems, and analytical tools. Additionally, providing targeted training in data analysis will help overcome earlier barriers and position human resource units to make evidence-based workforce decisions with greater precision.

## REFERENCES

- Agboola, D. (2021). Artificial intelligence in human resource management: A theoretical framework. *Journal of Technology and Human Resource Management*, 12(4), 256-274.
- Amadi, I., & Ibe, M. (2022). AI-driven recruitment in Nigerian universities: A case study of the University of Port Harcourt. *Journal of Higher Education Technology*, 25(2), 45-62.
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Braide, C., & Nwankwo, E. (2020). Machine learning in human resource management: Enhancing decision-making in Nigerian universities. *Journal of Educational Administration and Policy Studies*, 12(5), 210-222.

- Brougham, D., & Haar, J. (2018). The impact of robotic process automation on human resource management in organizations. *Journal of Business Research*, 85, 125-134.
- Chukwu, J., & Nwachukwu, C. (2020). Predictive analytics in Nigerian universities: Challenges and prospects. *International Journal of Academic Research in Business and Social Sciences*, 10(1), 74-82.
- Dessler, G. (2020). *Human resource management* (15th ed.). Pearson Education.
- Eze, I., & Uche, M. (2017). Digital literacy and AI adoption in Nigerian universities: A critical review. *Journal of Information Technology in Education*, 30(2), 53-61.
- Jamaica, N. J. (2025). Application intelligence in educational management for lecturers' productivity in public universities in Rivers State. *World Education Forum: An International Journal*, 14(1), 1-13.
- Marler, J. H., & Boudreau, J. W. (2017). An evidence-based review of predictive analytics in human resource management. *Journal of Organizational Behavior*, 38(6), 1007-1023.
- Musa, O., & Dada, S. (2019). The barriers to the adoption of robotic process automation in Nigerian public institutions. *Public Administration Review*, 79(1), 12-25.
- Okoli, C., & Akpan, S. (2022). AI tools in HRM: A framework for Nigerian universities. *International Journal of Artificial Intelligence Research*, 11(3), 199-215.
- Ololube, N. P. (2024). *Institutional leadership: Laying the foundation for success*. Pearl Publications.
- Ololube, N. P., & Wome, M. O. E. (2025). *Principles of green human resource management: Theory and practice*. Pearl Publishers.
- Opara, A., & Ekweozoh, O. (2021). The role of AI in enhancing staff training in Rivers State University. *Journal of Human Resource Development*, 18(1), 98-110.
- Sharma, S., & Sharma, P. (2019). The role of machine learning in human resource management decision-making. *Journal of Business and Management*, 21(2), 67-80.
- Tursunbayeva, A., Zavyalova, E., & Sokolova, M. (2018). The application of predictive analytics in HRM: A case study in the public sector. *Public Management Review*, 12(4), 43-57.
- Uche, M., & Wokocho, C. (2022). AI tools in public institutions: Enhancing recruitment and employee engagement. *Journal of Public Administration*, 35(3), 154-169.
- Wang, X., & Sun, Z. (2021). Natural language processing for HRM: Enhancing employee communication and feedback management. *International Journal of Human Resource Development*, 14(2), 111-124.