

Data Analytics in Human Resource Planning and Decision Making: A Needs Assessment At Earist

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Abstract: This study determined the extent of data analytics adoption and its relationship with human resource planning and decision-making at Eulogio "Amang" Rodriguez Institute of Science and Technology (EARIST). Specifically, it assessed the data analytics systems and practices adopted by the institution, evaluated the role of data analytics in human resource planning and decision-making, and examined the relationship between data analytics adoption and human resource management practices. A descriptive research design utilizing the survey method was employed. Total population sampling was used, involving all 11 personnel of the Human Resource Department of EARIST. Data were collected using a validated survey questionnaire and analyzed using percentage, weighted mean, ranking, and Pearson's correlation coefficient, with statistical significance set at $P < 0.05$. The findings revealed that data analytics systems and practices were generally adopted, with data governance and security obtaining the highest level of adoption (WM = 4.68), while data interpretation and utilization received the lowest rating (WM = 3.89). Human resource personnel assessed data analytics as highly required in improving decision-making (WM = 4.66) and data management and accessibility (WM = 4.57). Furthermore, a highly significant positive relationship was found between the extent of data analytics adoption and human resource planning and decision-making ($P < 0.001$). Data analytics plays a significant role in enhancing human resource planning and decision-making at EARIST. Increased adoption of data analytics contributes to more effective, evidence-based, and strategic human resource management practices; however, improvements in data interpretation, technical competencies, and organizational support are necessary to maximize its full potential.

Keywords: Keywords: Data Analytics, Human Resource Planning, Decision-Making, Human Resource Analytics

I. Introduction

In the modern era of digital transformation, organizations are required to adapt to changing needs and conditions through proper assessment and strategic decision-making. This is especially important in state colleges, where workforce management, administrative processes, and institutional operations require efficient systems and effective planning. At Eulogio "Amang" Rodriguez Institute of Science and Technology (EARIST), human resource personnel and employees encounter various challenges related to staffing, record management, and daily HR functions. These situations highlight the importance of data analytics as a valuable tool in improving human resource planning and decision-making. Through the use of accurate data and careful analysis, HR personnel can identify issues, improve processes, and ensure that organizational goals are achieved effectively and efficiently.

Data analytics has become an essential component of human resource management in organizations worldwide. It is widely used in collecting, organizing, storing, and analyzing employee

information such as payroll, attendance, recruitment records, and performance evaluations. These functions may be supported through manual systems or technology-based tools such as spreadsheets, Human Resource Information Systems (HRIS), and other digital platforms. The proper use of these tools enhances the efficiency of HR operations, improves the accuracy of reports, and helps HR staff monitor workforce data more effectively.

Different studies have shown that integrating data analytics into HR practices contributes to better planning and decision-making across various areas of human resource management. By analyzing workforce trends, evaluating employee performance, and identifying areas for improvement, HR personnel can make more timely, strategic, and reliable decisions compared to traditional methods. In line with this, the present study aims to determine how data analytics improves human resource planning and decision-making at Eulogio

"Amang" Rodriguez Institute of Science and Technology. It also seeks to identify the data analytics tools adopted by the institution, assess the knowledge and skills of HR staff in using analytics tools, examine current practices, and propose an action plan to address existing gaps. The findings of this study are expected to strengthen HR operations and enhance the overall organizational capacity of the institution.

II. Materials And Methods

This study employed a descriptive research design utilizing the survey method to examine the adoption and application of data analytics in human resource planning and decision-making at Eulogio "Amang" Rodriguez Institute of Science and Technology (EARIST). The descriptive approach was considered appropriate because it systematically describes existing conditions, practices, and perceptions without manipulating variables. The respondents consisted of all personnel of the Human Resource Department of EARIST. Total population sampling was employed, wherein all 11 HR personnel were included in the study, resulting in a 100% response rate. This sampling technique ensured complete representation of the target population and minimized sampling bias. Data were collected using a structured survey questionnaire developed by the researchers based on relevant literature and related studies. The instrument consisted of three sections: (1) demographic and professional profile of respondents, (2) assessment of data analytics systems and practices adopted by the institution, and (3) assessment of data analytics in human resource planning and decision-making. Prior to data collection, the questionnaire underwent content validation by experts from the Human Resource Management Department to establish its validity. A pilot test was subsequently conducted to determine the clarity, relevance, and reliability of the instrument. Permission was secured from the administration and the Human Resource Department of EARIST. Participation in the study was voluntary, and informed consent was obtained from all respondents. The researchers assured the respondents that all information gathered would be treated with strict confidentiality and used solely for academic and research purposes. Data gathering involved the distribution of validated questionnaires to the respondents, retrieval of accomplished questionnaires, and tabulation of responses for analysis. The collected data were analyzed using descriptive and inferential statistical tools, including percentage, weighted mean, and ranking to describe the extent of data analytics adoption and its role in human resource planning and decision-making. Pearson's correlation coefficient was utilized to determine the relationship between data analytics adoption and human resource planning and decision-making. Statistical significance was established at $P < 0.05$, while highly significant relationships were identified at $P < 0.01$.

III. Results And Discussion

1. Data Analytics Systems and Practices Adopted at EARIST in terms of:

Table 1 Data Analytics Systems and Practices Adopted at EARIST As to Data Collection and Storage Systems

	Indicator	WM	VI	Rank
1.	The department utilizes a Human Resource Information System (HRIS) to manage employee records.	4.27	HA	2.5
2.	Employee information is stored in a centralized digital database.	4.64	HA	1
3.	The HR Department uses electronic systems (e.g., biometric, online forms) for collecting HR data.	4.27	HA	2.5
4.	HR records are maintained through networked or cloud-based storage systems managed by the HR Department.	4	A	5
5.	Digital HR records are regularly updated and maintained for accuracy by the HR Department.	4.18	A	4
	Overall Weighted Mean	4.27	HA	

Legend:

Range	Scale	Verbal Interpretation	Symbol
5	4.20-5.00	Highly Adopted	HA
4	3.40-4.19	Adopted	A
3	2.60-3.39	Moderately Adopted	MA
2	1.80-2.59	Least Adopted	LA
1	1.00-1.79	Not Adopted	NA

Table 1 shows that data collection and storage systems at EARIST were highly adopted (WM = 4.27). Employee information stored in a centralized digital database obtained the highest rating (WM = 4.64), while the use of networked or

cloud-based storage systems obtained the lowest rating (WM = 4.00).

The findings indicate that EARIST has established effective digital mechanisms for collecting and storing HR data, particularly through centralized databases and Human Resource Information Systems (HRIS). However, the relatively lower rating for cloud-based storage suggests opportunities to further modernize HR data management practices. Similar findings were reported by Barayuga et al. [1], who emphasized that HRIS implementation enhances the efficiency, accessibility, and accuracy of HR data management in higher education institutions.

Table 2 Data Analytics Systems and Practices Adopted at EARIST As to Data Processing and Analysis Tools

	Indicator	WM	VI	Rank
1.	The HR Department uses software applications (e.g., Excel, HR management systems) to process employee data.	4.45	HA	1
2.	Payroll and attendance systems generate automated reports for HR use.	3.91	A	5
3.	HR personnel use data analysis tools to summarize workforce information.	4	A	4
4.	The HR Department generates statistical summaries or workforce reports when needed.	4.09	A	2.5
5.	Automated tools are used to minimize manual computation in HR operations.	4.09	A	2.5
	Overall Weighted Mean	4.11	A	

Table 2 reveals that data processing and analysis tools were generally adopted (WM = 4.11). The use of software applications such as Excel and HR management systems obtained the highest mean score (WM = 4.45), whereas

automated payroll and attendance reporting received the lowest rating (WM = 3.91).

These findings suggest that digital tools are regularly utilized in processing HR information at EARIST. Nevertheless, the lower rating for automated reporting indicates that some HR processes still rely on manual procedures. Abaya and De Guzman [2] similarly found that analytics tools and automated systems improve operational efficiency and reduce manual computation in HR functions.

Table 4 Data Analytics Systems and Practices Adopted at EARIST As to Data Interpretation and Utilization Practices

	Indicator	WM	VI	Rank
1.	HR data reports are used as a basis for workforce planning in the HR Department.	3.91	A	2.5
2.	Recruitment decisions are supported by analyzed HR data.	4.18	A	1
3.	Employee performance data are reviewed by the HR Department before making HR decisions.	3.64	A	5
4.	HR analytics findings are presented to management for planning purposes.	3.82	A	4
5.	Data analysis is used to identify staffing gaps and HR needs.	3.91	A	2.5
	Overall Weighted Mean	3.89	A	

Table 3 shows that data interpretation and utilization practices were generally adopted at EARIST, with an overall weighted mean of 3.89. Recruitment decisions supported by analyzed HR data obtained the highest rating (WM = 4.18), whereas the use of employee performance data in HR decisions received the lowest rating (WM = 3.64).

The findings indicate that HR data is already being utilized to support recruitment, workforce planning, and the identification of staffing needs. However, the lower utilization of employee performance data suggests that HR analytics is not

yet fully integrated into all decision-making processes. Lopez et al. [3] similarly reported that effective HR analytics enhances workforce planning and recruitment by providing data-driven insights that support strategic decision-making.

Table 3 Data Analytics Systems and Practices Adopted at EARIST As to Data Accessibility and Integration

	Indicator	WM	VI	Rank
1.	HR data systems are integrated with payroll and attendance systems within the HR Department.	4.27	HA	1
2.	Authorized HR personnel can access HR data through a centralized departmental system.	3.91	A	3
3.	HR information can be retrieved efficiently when needed.	4.09	A	2
4.	Data from different HR functions are consolidated into one platform for HR use.	3.73	A	5
5.	Controlled data sharing is implemented across relevant HR personnel and units.	3.82	A	4
	Overall Weighted Mean	3.96	A	

Table 4 reveals that data accessibility and integration practices were adopted, with an overall weighted mean of 3.96. Integration of HR systems with payroll and attendance systems received the highest rating (WM = 4.27), while consolidation of data from different HR functions into a single platform obtained the lowest rating (WM = 3.73).

These findings suggest that EARIST has established basic mechanisms for data accessibility and system integration. Nevertheless, the lower level of data consolidation indicates that some HR information remains fragmented across different systems. Mascariñas Jr. et al. [4] emphasized that integrated HR information systems improve coordination, accessibility, and efficiency in HR operations by centralizing employee

information.

Table 5 Data Analytics Systems and Practices Adopted at EARIST As to Data Governance and Security Practices

	Indicator	WM	VI	Rank
1.	HR systems are protected through secure login credentials.	4.45	HA	5
2.	Access to employee information is restricted to authorized HR personnel only.	4.54	HA	4
3.	The HR Department implements policies governing the use of HR data.	4.82	HA	1.5
4.	HR data management complies with applicable data privacy regulations.	4.82	HA	1.5
5.	Regular data backup and security measures are implemented to protect HR information.	4.73	HA	3
	Overall Weighted Mean	4.68	HA	

Table 5 indicates that data governance and security practices were highly adopted, as reflected by the overall weighted mean of 4.68. The implementation of HR data governance policies and compliance with data privacy regulations obtained the highest ratings (WM = 4.82).

The results demonstrate that EARIST places considerable importance on data privacy, security, and responsible data management. Strong governance practices ensure that employee information is adequately protected and managed ethically. Baluis [5] similarly emphasized that effective HR analytics requires robust governance mechanisms, strict access controls, and compliance with data protection regulations to ensure secure handling of employee data.

2. Assessment of Data Analytics in Human Resource Planning and Decision-Making as to:

Table 6 Data Analytics in Human Resource Planning and Decision-Making As to Human Resource Planning

	Indicator	WM	VI	Rank
1.	Data analytics supports forecasting of staffing needs.	3.82	R	5
2.	Recruitment planning is based on analyzed HR data.	3.91	R	4
3.	Workforce allocation decisions rely on accurate data.	4.09	R	1.5
4.	Skills gaps are identified through data analysis.	4	R	3
5.	HR planning becomes more systematic due to data insights.	4.09	R	1.5
	Overall Weighted Mean	3.98	R	

Legend:

Range	Scale	Verbal Interpretation	Symbol
5	4.20-5.00	Highly Required	HR
4	3.40-4.19	Required	R
3	2.60-3.39	Moderately Required	MR
2	1.80-2.59	Least Required	LR
1	1.00-1.79	Not Required	NR

Table 6 shows that data analytics in human resource planning was generally required, with an overall weighted mean of 3.98. Workforce allocation decisions and systematic HR planning through data insights received the highest ratings (WM = 4.09), whereas forecasting staffing needs obtained the lowest rating (WM = 3.82).

These findings indicate that HR personnel recognize the value of analytics in workforce allocation and planning activities. However, the comparatively lower rating for staffing forecasts suggests limited use of predictive analytics. Bajaj et al. [6] noted that organizations frequently utilize analytics for operational HR planning but often face challenges in applying predictive analytics for long-term workforce forecasting.

Table 7 Data Analytics in Human Resource Planning and Decision-Making As to Human Resource Decision-Making

	Indicator	WM	VI	Rank
1.	HR decisions are based on analyzed data rather than assumptions.	4.73	HR	1.5
2.	Data analytics improves the quality of HR decisions.	4.64	HR	3.5
3.	Employee performance evaluations use data-driven measures.	4.64	HR	3.5
4.	Training and promotion decisions are supported by data.	4.55	HR	5
5.	Data analytics helps reduce bias in decision-making.	4.73	HR	1.5
	Overall Weighted Mean	4.66	HR	

Table 7 reveals that data analytics in HR decision-making was highly required, with an overall weighted mean of 4.66. Data-based decision-making and reduction of bias through analytics received the highest ratings (WM = 4.73).

The findings indicate that HR personnel strongly value data-driven approaches in making objective and evidence-based decisions. The high ratings suggest that analytics contributes to improving decision quality and fairness in HR processes. Wibowo et al. [7] similarly reported that HR analytics enhances decision accuracy and reduces bias by promoting evidence-based HR practices.

Table 8 Data Analytics in Human Resource Planning and Decision-Making As to Data Management and Accessibility

	Indicator	WM	VI	Rank
1.	HR data is well-organized and systematically maintained.	4.64	HR	2.5
2.	Updated HR information is readily available when needed.	4.64	HR	2.5
3.	There is minimal delay in retrieving HR records.	4.27	HR	5

	Indicator	WM	VI	Rank
4.	The HR Department ensures the accuracy of stored HR data.	4.73	HR	1
5.	HR personnel can easily request necessary HR information.	4.55	HR	4
	Overall Weighted Mean	4.57	HR	

Table 8 demonstrates that data management and accessibility were highly required, with an overall weighted mean of 4.57. Ensuring the accuracy of stored HR data obtained the highest rating (WM = 4.73), while minimizing delays in retrieving HR records received the lowest rating (WM = 4.27).

These findings indicate that HR personnel place significant importance on maintaining accurate, organized, and accessible HR information. Nonetheless, retrieval efficiency may still be improved to support timely access to data. Abalos [8] emphasized that effective HR information systems enhance data organization and accessibility, thereby improving operational efficiency and information retrieval.

Table 9 Data Analytics in Human Resource Planning and Decision-Making As to Competency and Utilization

	Indicator	WM	VI	Rank
1.	HR personnel are competent in using data analytics tools.	4	R	5
2.	HR personnel understand the importance of data analytics in HR.	4.45	HR	1
3.	Training programs are provided to enhance data skills.	4.36	HR	2.5
4.	HR personnel can accurately interpret analytical reports.	4.19	R	4
5.	Available data tools are maximized in HR operations.	4.36	HR	2.5
	Overall Weighted Mean	4.27	HR	

Table 9 shows that competency and utilization of data analytics were highly required, with an overall weighted mean of 4.27. Understanding the importance of data analytics obtained the highest rating (WM = 4.45), whereas competence in using analytics tools received the lowest rating (WM = 4.00).

The results suggest that although HR personnel recognize the importance of data analytics and are provided with training opportunities, practical competencies in using analytics tools remain limited. Nyathani [9] noted that the successful implementation of HR analytics largely depends on the analytical competencies and technical skills of HR professionals.

Table 10 Data Analytics in Human Resource Planning and Decision-Making As Organizational Support and Infrastructure

	Indicator	WM	VI	Rank
1.	Management supports the use of data analytics in HR.	4.09	R	1
2.	Adequate IT infrastructure is available for HR systems.	3.64	R	3
3.	Management allocates budget for HR analytics tools.	3.36	R	5
4.	Technical support is accessible when system issues arise.	3.45	R	4
5.	The HR Department promotes a culture of data-driven decision-making.	3.82	R	2
	Overall Weighted Mean	3.67	R	

Table 9 shows that competency and utilization of data analytics were highly required, with an overall weighted mean of 4.27. Understanding the importance of data analytics obtained the highest rating (WM = 4.45), whereas competence in using analytics tools received the lowest rating (WM = 4.00).

The results suggest that although HR personnel recognize the importance of data analytics and are provided with training opportunities, practical competencies in using analytics tools remain limited. Nyathani [10] noted that the successful implementation of HR analytics largely depends on the analytical competencies and technical skills of HR professionals.

3. Relationship Between the Extent of Data Analytics Adopted and Human Resource Planning and Decision-Making

Table 11 Correlation Between the Extent of Data Analytics Adoption and Human Resource Planning and Decision-Making at EARIST

Indicators	r-value	t-value	p-value	Interpretation	Decision
Human Resource Planning	0.99	2.826	$p < 0.001$	Highly Significant	Reject Ho
Human Resource Decision Making	0.99	2.828	$p < 0.001$	Highly Significant	Reject Ho
Data Management and Accessibility	0.99	2.826	$p < 0.001$	Highly Significant	Reject Ho
Competency and Utilization	0.99	2.825	$p < 0.001$	Highly Significant	Reject Ho
Organizational Support and Infrastructure	0.98	2.822	$p < 0.001$	Highly Significant	Reject Ho

Legend: 8 Degrees of freedom (df)

Table 11 shows that all dimensions of human resource planning and decision-making were significantly correlated with the extent of data analytics adoption. Correlation coefficients ranged from 0.98 to 0.99, with all variables yielding p-values of less than 0.001, indicating highly significant positive relationships.

The findings demonstrate that increased adoption of data analytics is strongly associated with improvements in HR planning, decision-making, data management, competency, and organizational support. These results suggest that analytics plays a crucial role in strengthening HR functions and promoting evidence-based management practices. Donthu et al. [11] similarly emphasized that organizations that effectively adopt HR analytics are better positioned to enhance workforce planning, optimize decision-making, and improve organizational performance.

IV. Conclusion

Eulogio "Amang" Rodriguez Institute of Science and Technology (EARIST) has substantially adopted data analytics in its human resource functions, particularly in data governance, security, collection, and storage systems. However, further enhancement in data interpretation and utilization practices is necessary to maximize the benefits of analytics in decision-making processes. Human resource personnel highly recognize the importance of data analytics in improving workforce allocation, decision quality, and other data-driven HR processes. Nevertheless, improvements in workforce

forecasting, technical competencies, and organizational support are needed to optimize its implementation. Furthermore, the study revealed a significant positive relationship between the extent of data analytics adoption and human resource planning and decision-making, indicating that increased utilization of data analytics contributes to more effective, evidence-based, and strategic HR management within the institution.

V. Recommendation

The Human Resource Department of EARIST, in collaboration with the Information Technology Unit and institutional administrators, should strengthen data interpretation and utilization practices through continuous training and system enhancements to maximize the use of HR analytics in decision-making. Management should also provide sufficient budget, improve technical infrastructure, and upgrade existing HR systems to optimize the implementation of data analytics in human resource planning and decision-making. Continuous capacity-building initiatives are likewise recommended to enhance the forecasting capabilities and technical competencies of HR personnel. Future researchers may examine the long-term effects of data analytics on organizational performance, employee outcomes, and strategic human resource management, as well as explore other factors influencing the successful adoption and utilization of HR analytics.

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