

Human Resource Analytics and Data-Driven Decision Making: Implications for Talent Acquisition and Retention Strategies

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Abstract

The increasing availability of workforce data and advanced analytical tools has transformed the role of human resource management from a primarily administrative function into a strategic, evidence-based discipline. This study investigates the influence of human resource analytics (HRA) on data-driven decision making (DDDM) and examines its implications for talent acquisition and talent retention strategies. Employing a quantitative research design, data were collected through a structured questionnaire from 296 HR managers and senior decision makers across medium and large organizations. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results reveal that human resource analytics has a significant positive effect on data-driven decision making, talent acquisition, and talent retention. Furthermore, data-driven decision making significantly enhances both talent acquisition effectiveness and talent retention outcomes and partially mediates the relationships between human resource analytics and the two talent management outcomes. These findings provide empirical evidence that analytics-driven HR practices improve recruitment efficiency, quality of hire, and employee retention by enabling more accurate and proactive HR decisions. The study contributes to the growing literature on HR analytics by clarifying the mechanisms through which analytics creates value in talent management and offers practical insights for organizations seeking to leverage data-driven approaches to achieve sustainable human capital advantages.

Keywords: Human Resource Analytics; Data-Driven Decision Making; Talent Acquisition; Talent Retention; People Analytics; Strategic Human Resource Management.

1. Introduction

In an era marked by rapid technological advancement and fierce competition for skilled labor, organizations are increasingly recognizing the importance of leveraging data to inform strategic human resource (HR) decisions. Traditional HR practices—once rooted largely in intuition and manual processes—are rapidly giving way to more evidence-based, analytical approaches that harness workforce data to optimize performance outcomes. This shift has been driven by the proliferation of digital HR systems, artificial intelligence (AI), and big data platforms that enable the systematic collection, integration, and analysis of complex employee information (Sangu et al., 2024). The discipline of Human Resource Analytics (HRA) or people analytics sits at the intersection of HR management and data science, empowering HR professionals to move beyond descriptive reporting and adopt predictive and prescriptive



decision-making frameworks to support strategic organizational goals (Odionu et al., 2024; Sangu et al., 2024).

Central to the promise of HRA is its ability to transform talent acquisition and retention strategies—two of the most pressing challenges faced by contemporary organizations. Talent acquisition refers to the processes by which organizations attract, select, and onboard individuals whose skills and values align with strategic needs. Meanwhile, talent retention involves creating environments and career pathways that encourage high-performing employees to remain committed to the organization over time. These functions are inherently interrelated: successful retention depends on effective hiring decisions, and strong acquisition pipelines support long-term workforce stability. Yet despite their importance, both functions have historically suffered from inefficiencies, high costs, and subjectivity when guided solely by human judgment (Odionu et al., 2024). According to recent reviews, data-driven HR approaches can significantly enhance the accuracy and effectiveness of recruitment outcomes while reducing turnover risks by identifying patterns and predictors of workforce behavior (Odionu et al., 2024; JISEM, 2025).

One of the major contributions of HR analytics is its ability to utilize predictive modeling to forecast future HR outcomes, such as employee turnover and candidate success. Predictive tools analyze historical data on hiring processes, performance outcomes, and retention metrics to identify key factors that distinguish high-potential hires from less successful candidates (JISEM, 2025). By operationalizing metrics such as time-to-hire, cost-per-hire, candidate fit scores, and workforce planning projections, analytics enables HR leaders to design more efficient recruitment workflows that align with organizational priorities (Rajendran, 2025). Furthermore, advanced analytics supports data-driven segmentation of candidates, identifying sources, channels, and attributes associated with long-term retention, thereby reducing reliance on traditional heuristics and mitigating unconscious bias that can compromise diversity and inclusion goals (Rajendran, 2025).

Beyond acquisition, HR analytics plays a pivotal role in retention strategies by providing actionable insights into employee motivation, engagement, and turnover risk. Through the continuous monitoring of performance indicators, feedback systems, and employee lifecycle data, analytic models can detect early signals of disengagement or dissatisfaction before they manifest in voluntary exits. For instance, patterns in absenteeism, engagement scores, or negative sentiment in employee surveys can be integrated into predictive risk models that alert HR professionals to potential retention challenges (JIER, 2024). Such proactive capabilities allow organizations to implement targeted interventions—such as tailored development programs, flexible work arrangements, or leadership coaching—that address specific drivers of attrition. This stands in stark contrast to reactive retention approaches that often occur only after high-value employees depart, resulting in costly disruptions and knowledge loss.

The integration of HR analytics into workforce strategies also enhances the alignment between HR functions and broader business objectives. Data-driven decision making enables HR teams to shift from administrative support to strategic partnerships, whereby workforce insights directly inform budgeting, strategic planning, and organizational development initiatives (Tessema et al., 2025). Analytics supports workforce planning by forecasting future talent needs, identifying skill gaps, and enabling succession planning that ensures continuity of critical roles. Importantly, this analytic integration fosters a culture of evidence-based HR

practice, wherein decisions are grounded in measurable trends and predictive foresight rather than intuition or precedent (Odionu et al., 2024).

Despite the clear advantages, the adoption of HR analytics is not without challenges. Research highlights several barriers, including the lack of analytical skills among HR professionals, concerns about data privacy and ethical use, and the complexity of integrating disparate data systems (Sangu et al., 2024; Odionu et al., 2024). Organizational readiness, including technological infrastructure and leadership commitment to data-driven cultures, also significantly influences the successful implementation of analytics strategies (Tessema et al., 2025). Moreover, ensuring that analytics insights translate into actionable HR policies requires cross-functional collaboration, effective change management, and clear communication of analytic findings to stakeholders beyond the HR department.

Nevertheless, studies consistently demonstrate that organizations that successfully integrate HRA into talent management processes achieve significant performance improvements. These include enhanced recruitment efficiency, reduced time-to-hire, better identification of high-fit candidates, and reduced turnover rates, all of which contribute to sustainable competitive advantage (Odionu et al., 2024; Rajendran, 2025). As organizations navigate complex labor environments characterized by skill shortages, generational shifts in work preferences, and digital transformation demands, the ability to harness HR analytics for data-driven decision making has become indispensable. This transformation not only supports more effective talent acquisition and retention strategies but also enables HR departments to deliver measurable value that aligns with organizational growth and resilience objectives.

Given these trends and opportunities, the present research seeks to deepen the understanding of how HR analytics influences talent acquisition and retention strategies, elucidate the mechanisms by which data-driven decision making enhances HR practices, and identify the conditions under which analytics yields the greatest strategic benefits.

The primary objective of this research is to examine the influence of Human Resource Analytics (HRA) on data-driven decision making and its implications for talent acquisition and retention strategies in contemporary organizations. Specifically, this study aims to identify how analytic tools and predictive models enhance the effectiveness of recruitment processes—including candidate screening, quality-of-hire assessment, and reduction of time-to-hire—while also determining how analytics supports proactive retention initiatives through early detection of turnover risks and insights into employee engagement drivers. Additionally, the research seeks to explore organizational enablers and barriers to successful HR analytics implementation, including data governance, analytic capability development, and integration with strategic HR planning. By investigating these dimensions, the study will contribute evidence-based insights into best practices for leveraging HR analytics to optimize talent management outcomes and align HR strategies with broader organizational goals.

2. Literature Review and Hypothesis Development

2.1. Human Resource Analytics (HRA)

Human Resource Analytics (HRA), often referred to as people analytics, represents the systematic use of quantitative and qualitative data, statistical analysis, and predictive modeling to support human resource decision-making. Unlike traditional HR reporting, which is largely descriptive and retrospective, HRA emphasizes forward-looking insights that enable

organizations to anticipate workforce trends and strategically manage human capital (Sangu et al., 2024). Recent literature highlights that HRA integrates HR information systems (HRIS), big data, and artificial intelligence to enhance the accuracy, consistency, and strategic relevance of HR practices (Tessema et al., 2025).

From a theoretical perspective, HRA aligns with the resource-based view (RBV), which posits that human capital constitutes a valuable, rare, and inimitable organizational resource capable of generating sustained competitive advantage. By leveraging analytics, organizations can better identify, develop, and retain high-value employees, thereby strengthening strategic capabilities (Odionu et al., 2024). Empirical evidence increasingly supports the argument that firms adopting HRA outperform their counterparts in talent-related outcomes, including recruitment efficiency, workforce productivity, and employee retention (Rajendran, 2025).

However, the effectiveness of HRA depends not only on data availability but also on the organization's ability to translate insights into data-driven decision making (DDDM). Without analytic literacy, leadership commitment, and a supportive data culture, HR analytics risks becoming a purely technical exercise with limited strategic impact (Tessema et al., 2025).

2.2. Data-Driven Decision Making in Human Resource Management

Data-driven decision making refers to the systematic use of data analysis to guide managerial choices, reduce uncertainty, and improve organizational outcomes. In the HR context, DDDM enables decisions related to hiring, promotion, training, and retention to be grounded in empirical evidence rather than intuition or experience (Odionu et al., 2024). Recent studies indicate that organizations adopting DDDM in HR functions experience greater transparency, consistency, and fairness in workforce management processes (JIER, 2024).

HRA serves as a foundational enabler of DDDM by providing timely and relevant workforce insights. Predictive analytics, for example, allows HR managers to estimate future talent needs, forecast turnover probabilities, and assess the likely impact of HR interventions on employee outcomes (Sangu et al., 2024). As a result, HR departments can proactively address talent gaps and mitigate retention risks before they escalate into organizational challenges.

Given this relationship, prior research consistently finds a positive association between HR analytics adoption and the quality of data-driven decision making in HRM (Tessema et al., 2025). Organizations that effectively integrate analytics into HR workflows are more capable of aligning human capital strategies with business objectives.

Hypothesis 1 (H1): Human resource analytics has a positive effect on data-driven decision-making in human resource management.

2.3. Data-Driven Decision Making and Talent Acquisition

Talent acquisition is a strategic HR function encompassing workforce planning, recruitment, selection, and onboarding. Traditional recruitment processes often rely heavily on subjective judgment, which can lead to inefficiencies, bias, and mismatches between job requirements and candidate capabilities. Data-driven talent acquisition seeks to address these limitations by leveraging analytics to optimize recruitment decisions (Rajendran, 2025).

Recent literature highlights that analytics-driven recruitment improves hiring accuracy by identifying candidate attributes that predict job performance and long-term retention. Metrics such as quality of hire, time-to-hire, recruitment funnel efficiency, and source

effectiveness are increasingly used to evaluate and refine acquisition strategies (JISEM, 2025). Moreover, AI-supported analytics enable organizations to screen large applicant pools efficiently while minimizing unconscious bias and improving diversity outcomes.

Empirical studies demonstrate that organizations employing data-driven recruitment strategies achieve higher workforce fit and reduced hiring costs compared to those relying on conventional methods (Odionu et al., 2024). By grounding recruitment decisions in empirical evidence, HR professionals can enhance strategic alignment and workforce sustainability.

Hypothesis 2 (H2): Data-driven decision-making positively influences talent acquisition effectiveness.

2.4. Data-Driven Decision Making and Talent Retention

Talent retention refers to organizational practices aimed at maintaining employee commitment and reducing voluntary turnover. High turnover rates are associated with substantial financial and operational costs, including recruitment expenses, productivity loss, and knowledge depletion. Consequently, retention has emerged as a critical strategic priority for organizations across industries.

HRA enables data-driven retention strategies by identifying the key drivers of employee satisfaction, engagement, and turnover intentions. Predictive analytics models can analyze patterns in performance data, engagement surveys, absenteeism, and career progression to detect early warning signals of employee disengagement (JIER, 2024). Such insights allow organizations to implement targeted interventions—such as personalized development programs, compensation adjustments, or flexible work arrangements—before employees decide to leave.

Recent studies provide strong empirical support for the effectiveness of data-driven retention strategies. Organizations that utilize analytics to inform retention policies report lower turnover rates and higher employee engagement levels compared to those relying on reactive retention measures (Rajendran, 2025; Tessema et al., 2025).

Hypothesis 3 (H3): Data-driven decision-making has a positive effect on talent retention.

2.5. Human Resource Analytics and Talent Acquisition

Beyond its indirect effect through decision making, HRA may also exert a direct influence on talent acquisition outcomes. Analytics tools enhance recruitment by enabling more precise workforce planning, candidate sourcing, and selection processes. For instance, predictive analytics can forecast future skill requirements and identify labor market trends, allowing organizations to align recruitment strategies with long-term business needs (Sangu et al., 2024).

Research suggests that organizations with mature HR analytics capabilities experience greater recruitment efficiency, higher candidate quality, and improved employer branding (Odionu et al., 2024). By embedding analytics directly into recruitment systems, firms can systematically improve hiring decisions and workforce composition.

Hypothesis 4 (H4): Human resource analytics positively influences talent acquisition.

2.6. Human Resource Analytics and Talent Retention

Similarly, HRA plays a direct role in enhancing talent retention by enabling continuous monitoring and evaluation of employee experiences. Analytics-based retention models allow

organizations to identify high-risk employee segments and design evidence-based retention strategies tailored to specific workforce needs (Tessema et al., 2025).

Recent empirical findings indicate that analytics-driven retention practices contribute to improved employee satisfaction, organizational commitment, and reduced turnover intentions (JIER, 2024). By institutionalizing analytics within HR processes, organizations can foster a more proactive and strategic approach to employee retention.

Hypothesis 5 (H5): Human resource analytics positively influence talent retention.

2.7. Mediating Role of Data-Driven Decision Making

Building on prior studies, data-driven decision-making may act as a critical mechanism through which HR analytics influences talent outcomes. While analytics provides insights, it is the effective use of those insights in managerial decisions that ultimately shapes recruitment and retention effectiveness (Odionu et al., 2024). Organizations that possess analytics tools but fail to integrate them into decision processes may not realize their full strategic benefits.

Hypothesis 6 (H6): Data-driven decision-making mediates the relationship between human resource analytics and talent acquisition.

Hypothesis 7 (H7): Data-driven decision-making mediates the relationship between human resource analytics and talent retention.

3. Method

3.1. Research Design

This study employed a quantitative, explanatory research design to examine the relationships among human resource analytics, data-driven decision making, talent acquisition, and talent retention. A cross-sectional survey approach was adopted, as it allows for the collection of standardized data from a large number of respondents at a single point in time and is appropriate for testing causal relationships among latent constructs (Hair et al., 2022). The quantitative approach enables objective measurement of perceptions related to analytics usage and HR decision practices, facilitating hypothesis testing using structural equation modeling.

3.2. Population and Sample

The target population of this study consisted of human resource managers, HR analysts, and senior managers involved in HR decision-making across medium and large organizations. These respondents were selected because of their direct involvement in the implementation and utilization of HR analytics and talent management strategies.

A purposive sampling technique was applied to ensure that participants possessed adequate knowledge and experience related to HR analytics and data-driven decision making. To meet the minimum sample size requirements for structural equation modeling, this study followed the recommendations of Hair et al. (2022), which suggest a minimum of 10 times the maximum number of structural paths pointing at a latent variable. Based on the proposed model, a minimum sample size of 200 respondents was considered sufficient.

Data were collected from 312 respondents, of which 296 valid responses were retained after data screening for incomplete and inconsistent answers. This sample size exceeded the minimum requirement and ensured adequate statistical power for hypothesis testing.

3.3. Data Collection Procedure

Primary data were collected using a self-administered online questionnaire distributed via email and professional networking platforms. Before data collection, respondents were informed of the purpose of the study and assured of the confidentiality and anonymity of their responses. Participation was voluntary, and informed consent was obtained from all participants.

To reduce common method bias, procedural remedies were implemented, including clear wording of questionnaire items, anonymity assurances, and separation of predictor and criterion variables within the survey instrument (Podsakoff et al., 2020).

3.4. Measurement of Variables

All constructs in this study were measured using multi-item scales adapted from validated instruments in prior research. Responses were recorded using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree.

Human Resource Analytics (HRA)

Human resource analytics was measured using six items adapted from Odionu et al. (2024) and Sangu et al. (2024). The items captured the extent to which organizations utilize HR data, analytics tools, and predictive models to support workforce planning, recruitment, and retention decisions.

Data-Driven Decision Making (DDDM)

Data-driven decision making was assessed using five items adapted from Tessema et al. (2025) and JIER (2024). These items measured the degree to which HR decisions are based on empirical data, analytics insights, and systematic evaluation rather than intuition.

Talent Acquisition (TA)

Talent acquisition was measured using five items adapted from Rajendran (2025). The scale evaluated recruitment effectiveness in terms of quality of hire, efficiency of selection processes, alignment between candidate competencies and job requirements, and reduction in time-to-hire.

Talent Retention (TR)

Talent retention was measured using five items adapted from Odionu et al. (2024) and JIER (2024). The items assessed organizational ability to retain skilled employees, reduce turnover intentions, and maintain employee commitment.

3.5. Data Analysis Technique

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the aid of SmartPLS 4 software. PLS-SEM was selected due to its suitability for predictive research, complex models with multiple constructs, and data that may not meet strict normality assumptions (Hair et al., 2022).

The analysis followed a two-stage approach:

a) Measurement Model Evaluation

The reliability and validity of the constructs were assessed through:

- Indicator reliability (factor loadings ≥ 0.70)
- Internal consistency reliability using Cronbach's alpha and composite reliability (≥ 0.70)

- Convergent validity using average variance extracted ($AVE \geq 0.50$)
- Discriminant validity using the Fornell–Larcker criterion and the heterotrait–monotrait (HTMT) ratio

b) Structural Model Evaluation

The structural model was evaluated by examining:

- Path coefficients (β)
- t-values and p-values obtained through bootstrapping with 5,000 resamples
- Coefficient of determination (R^2)
- Effect size (f^2)
- Predictive relevance (Q^2).

3.6. Mediation Analysis

To test the mediating role of data-driven decision making, this study employed a bootstrapping mediation analysis following the recommendations of Hair et al. (2022). Indirect effects were examined to determine whether data-driven decision-making significantly mediated the relationships between human resource analytics and both talent acquisition and talent retention.

3.7. Control Variables

To minimize potential confounding effects, this study included several control variables, namely organizational size, industry type, and respondent tenure. These variables were controlled because prior studies suggest they may influence HR analytics adoption and talent management outcomes (Tessema et al., 2025).

3.8. Ethical Considerations

Ethical standards were strictly observed throughout the research process. Respondents' identities were kept confidential, and data were used solely for academic purposes. The study complied with general ethical research guidelines, including informed consent, voluntary participation, and the right to withdraw at any time.

4. Results and Discussion

4.1. Respondent Profile

Table 1. Respondent Demographic Characteristics (n = 296)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	162	54.7
	Female	134	45.3
Age	< 30 years	58	19.6
	30–39 years	124	41.9
	40–49 years	79	26.7
	≥ 50 years	35	11.8
Position	HR Manager/Director	121	40.9

	HR Analyst	68	23.0
	Senior Manager	107	36.1
Organization Size	Medium	137	46.3
	Large	159	53.7

The respondent profile indicates that the majority of participants occupy strategic HR roles and possess sufficient professional experience, ensuring the credibility of responses related to HR analytics and data-driven decision making.

4.2. Reliability and Convergent Validity

Table 2. Reliability and Convergent Validity

Construct			Items	Cronbach's Alpha	Composite Reliability	AVE
Human Resource Analytics (HRA)			6	0.901	0.923	0.667
Data-Driven Decision Making (DDDM)			5	0.889	0.914	0.680
Talent Acquisition (TA)			5	0.872	0.902	0.647
Talent Retention (TR)			5	0.883	0.910	0.669

All constructs exceed the recommended thresholds for internal consistency reliability (α and $CR \geq 0.70$) and convergent validity ($AVE \geq 0.50$), confirming that the measurement model is reliable and valid.

4.3. Discriminant Validity (HTMT Criterion)

Table 2 HTMT Ratio

Constructs	HRA	DDDM	TA	TR
HRA	—			
DDDM	0.684	—		
TA	0.621	0.703	—	
TR	0.658	0.719	0.688	—

All HTMT values are below the conservative threshold of 0.85, indicating adequate discriminant validity among the constructs.

4.4. Collinearity and Model Fit

Table 4. Collinearity and Model Fit Indicators

Indicator	Value	Threshold
VIF (Max)	2.47	< 5.0
SRMR	0.064	< 0.08

The VIF values indicate no multicollinearity issues, and the SRMR value suggests an acceptable overall model fit.

4.5. Coefficient of Determination (R^2)

Table 5. R^2 Values

Endogenous Construct	R^2
Data-Driven Decision Making	0.463
Talent Acquisition	0.521
Talent Retention	0.548

The model explains 46.3% of the variance in data-driven decision making, 52.1% in talent acquisition, and 54.8% in talent retention, indicating moderate to substantial explanatory power.

4.6. Hypothesis Testing (Direct Effects)

The mediating role of organizational learning was examined using bootstrapped indirect effects.

Table 6. Structural Path Coefficients

Hypothesis	Path	β	t-value	p-value	Result
H1	HRA $\rightarrow$ DDDM	0.681	14.327	<0.001	Supported
H2	DDDM $\rightarrow$ TA	0.392	6.814	<0.001	Supported
H3	DDDM $\rightarrow$ TR	0.417	7.206	<0.001	Supported
H4	HRA $\rightarrow$ TA	0.271	4.992	<0.001	Supported
H5	HRA $\rightarrow$ TR	0.248	4.431	<0.001	Supported

All direct hypotheses are statistically significant. Human resource analytics strongly influences data-driven decision making, which in turn significantly enhances both talent acquisition and retention. Additionally, HRA has a direct positive effect on talent outcomes.

4.7. Mediation Analysis

Table 7. Mediation Effects of Data-Driven Decision Making

Hypothesis	Indirect Path	β	t-value	p-value	Mediation Type
H6	HRA $\rightarrow$ DDDM $\rightarrow$ TA	0.267	5.923	<0.001	Partial
H7	HRA $\rightarrow$ DDDM $\rightarrow$ TR	0.284	6.117	<0.001	Partial

Data-driven decision making partially mediates the relationships between human resource analytics and both talent acquisition and talent retention. This indicates that while HRA directly influences talent outcomes, its impact is significantly enhanced when analytics insights are actively integrated into HR decision-making processes.

4.8. Effect Size (f^2)

Table 8. Effect Size (f^2)

Path	f^2	Effect Size
HRA → DDDM	0.46	Large
DDDM → TA	0.21	Medium
DDDM → TR	0.24	Medium
HRA → TA	0.12	Small
HRA → TR	0.10	Small

Human resource analytics exhibits a large effect on data-driven decision making, while DDDM shows medium effects on talent acquisition and retention. The direct effects of HRA on talent outcomes are smaller but still meaningful.

4.9. Predictive Relevance (Q^2)

Table 9. Predictive Relevance (Q^2)

Construct	Q^2
Data-Driven Decision Making	0.312
Talent Acquisition	0.347
Talent Retention	0.361

All Q^2 values are above zero, indicating strong predictive relevance of the structural model.

4.10. Discussion

The objective of this study was to examine the role of human resource analytics (HRA) in shaping data-driven decision making (DDDM) and to assess how these mechanisms influence talent acquisition and talent retention outcomes. The empirical results provide strong support for the proposed research model and offer important insights into how analytics-driven HR practices contribute to strategic talent management in contemporary organizations.

Human Resource Analytics and Data-Driven Decision Making

The findings demonstrate a strong and statistically significant relationship between human resource analytics and data-driven decision making, thereby supporting Hypothesis 1. This result confirms that organizations with more advanced HR analytics capabilities are significantly better positioned to base HR decisions on empirical evidence rather than intuition or experience alone. The large effect size observed in this relationship underscores the central role of analytics as a foundational enabler of data-driven HR practices.

This finding is consistent with recent research emphasizing that HR analytics transforms the HR function from a primarily administrative role into a strategic decision-making partner (Sangu et al., 2024; Tessema et al., 2025). By systematically collecting, integrating, and analyzing workforce data, HR analytics provides actionable insights that improve decision accuracy, transparency, and consistency. The result also aligns with the resource-based view (RBV), suggesting that analytics capability itself represents a valuable organizational resource

that enhances decision quality and supports sustained competitive advantage. In line with prior studies, the findings indicate that the availability of data alone is insufficient; rather, the ability to interpret and apply analytic insights is what differentiates high-performing HR functions from traditional ones.

Data-Driven Decision Making and Talent Acquisition

The results show that data-driven decision-making has a significant positive effect on talent acquisition, supporting Hypothesis 2. This indicates that organizations that rely on empirical data and analytics in recruitment decisions achieve more effective hiring outcomes. Specifically, data-driven recruitment practices contribute to improved candidate-job fit, higher quality of hire, and greater efficiency in recruitment processes.

These findings reinforce prior research suggesting that analytics-based recruitment reduces bias, improves selection accuracy, and enables organizations to identify candidates with the highest long-term performance and retention potential (Rajendran, 2025). By leveraging predictive models and recruitment metrics such as time-to-hire and source effectiveness, organizations can optimize recruitment channels and allocate resources more efficiently. The findings also suggest that data-driven recruitment supports strategic workforce planning by aligning hiring decisions with long-term organizational goals rather than short-term staffing needs.

From a practical standpoint, the results imply that HR managers who integrate analytics into recruitment decisions can significantly enhance organizational talent pipelines. This shift toward evidence-based recruitment represents a critical departure from traditional, intuition-driven hiring practices that often lead to mismatches and increased turnover.

Data-Driven Decision Making and Talent Retention

Hypothesis 3 is also supported, as data-driven decision making exhibits a positive and significant influence on talent retention. This finding highlights the importance of analytics-informed HR decisions in reducing employee turnover and fostering long-term organizational commitment. The medium effect size suggests that while data-driven decision-making is not the sole determinant of retention, it plays a substantial role in shaping retention outcomes.

This result aligns with recent studies demonstrating that predictive analytics enables organizations to identify early warning signals of employee disengagement and turnover risk (JIER, 2024). By monitoring indicators such as performance trends, absenteeism, and engagement survey results, organizations can implement targeted retention interventions before employees decide to leave. The findings suggest that proactive, data-driven retention strategies are more effective than reactive approaches that address turnover only after it occurs.

Moreover, these results support the notion that data-driven HR practices contribute to a more transparent and fair work environment, which enhances employee trust and satisfaction. When employees perceive HR decisions as objective and evidence-based, they are more likely to feel valued and committed to the organization.

Direct Effects of Human Resource Analytics on Talent Outcomes

In addition to its indirect influence through data-driven decision making, human resource analytics was found to have direct positive effects on both talent acquisition and talent retention, supporting Hypotheses 4 and 5. Although these direct effects are smaller than the indirect effects, they remain statistically significant, indicating that analytics tools themselves contribute to improved talent outcomes.

This finding suggests that analytics enhances recruitment and retention not only by informing decisions but also by improving the efficiency and consistency of HR processes. For instance, analytics-driven recruitment platforms streamline candidate screening and selection, while retention analytics facilitates continuous monitoring of employee experiences. These results are consistent with prior empirical studies reporting that organizations with mature analytics capabilities achieve better talent management outcomes even when decision-making processes are not fully optimized (Odionu et al., 2024).

From a theoretical perspective, the direct effects highlight the multifaceted role of HR analytics as both a technological capability and a strategic resource. Analytics tools embed data-driven logic into HR systems, thereby shaping outcomes even in the absence of deliberate managerial intervention.

Mediating Role of Data-Driven Decision Making

One of the most significant contributions of this study lies in the confirmation of the mediating role of data-driven decision making in the relationships between human resource analytics and both talent acquisition and talent retention. The mediation analysis reveals that data-driven decision making partially mediates these relationships, supporting Hypotheses 6 and 7.

This finding underscores that while HR analytics provides valuable insights, its full impact on talent outcomes is realized only when those insights are actively integrated into managerial decisions. In other words, analytics does not automatically translate into better recruitment or retention outcomes; rather, it must be embedded within decision-making processes to generate strategic value. This result corroborates prior research emphasizing the importance of analytical capability, leadership commitment, and data literacy in maximizing the benefits of HR analytics (Tessema et al., 2025).

The partial nature of the mediation suggests that analytics and decision-making operate both independently and synergistically. Organizations may achieve moderate improvements in talent outcomes through analytics adoption alone, but substantially greater benefits are realized when analytics insights inform strategic HR decisions.

Theoretical and Managerial Implications

Collectively, the findings extend existing literature by empirically validating a comprehensive model that links human resource analytics, data-driven decision making, and talent management outcomes. The study contributes to HRM theory by integrating RBV and decision-making perspectives, demonstrating how analytics capabilities translate into strategic talent advantages through evidence-based decision processes.

From a managerial perspective, the results highlight the need for organizations to move beyond technology adoption and invest in developing analytical competencies among HR professionals. Training programs focused on data interpretation, predictive modeling, and evidence-based decision making are essential to unlocking the full potential of HR analytics. Additionally, senior leadership support is critical in fostering a data-driven culture that encourages the systematic use of analytics in HR decisions.

5. Conclusion

This study concludes that human resource analytics plays a pivotal strategic role in enhancing data-driven decision-making and strengthening talent acquisition and retention

strategies within contemporary organizations. The empirical findings demonstrate that organizations with advanced HR analytics capabilities are better equipped to transform workforce data into actionable insights, leading to more objective, accurate, and proactive HR decisions. Data-driven decision making was found to be a key mechanism through which HR analytics influences talent outcomes, partially mediating its effects on both talent acquisition and retention. This highlights that the true value of HR analytics is realized not merely through technology adoption, but through the effective integration of analytic insights into managerial decision processes. Additionally, the direct effects of HR analytics on recruitment efficiency and employee retention underscore its role as a strategic resource that enhances HR process effectiveness and workforce stability. Overall, the study provides strong empirical evidence that analytics-driven HR practices contribute to sustainable competitive advantage by enabling organizations to attract, select, and retain high-quality talent in an increasingly data-intensive and competitive business environment.

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