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DATA-DRIVEN HR: MEASURING THE IMPACT OF ANALYTICS ON EMPLOYEE PERFORMANCE

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ABSTRACT

With the advent of globalization, there has been a significant transformation in the area of human resource management. This necessitates organizations promoting a competent workforce to gain a competitive advantage in the industrial world. Despite the evolution in human resource management, companies are yet to realize their full potential due to resistance from employees. The study, therefore, underscores the importance of integrating HR analytics into performance management systems, emphasizing its role in driving data-driven decision-making, fostering fairness in appraisals, and supporting strategic workforce management. This study, therefore, explores the impact of HR analytics on employee performance from the perspectives of HR managers and professionals, focusing on five core performance indicators: Work Efficiency (WE), Employee Productivity (EP), Project Completion Rates (PCR), Quality of Work (QW), and Employee Team Collaboration (ETC). Utilizing survey responses from 150 HR professionals across various industries, the research employs correlation and regression analyses to assess the relationship between HR analytics and employee performance outcomes. The study uses structural equation modeling to examine the mediating relationship between human resource analytics, motivation, and employee performance. The findings reveal a strong positive correlation between HR analytics and enhanced employee performance metrics. HR analytics have a positive influence on performance management, talent acquisition, employee engagement, and team collaboration while also contributing to timely project completion and overall productivity improvements. Furthermore, the results suggest that organizations leveraging HR analytics are better positioned to enhance employee performance and optimize HR activities, with the moderating effects of variables such as years of HR experience and company size playing significant roles.

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INTRODUCTION

Organizational effectiveness, value creation, and corporate strategy formulation are all areas where human resource analytics shines. Human Resources (HR) functions have evolved from purely administrative duties to making decisions based on evidence and data, and in some companies, they have even taken on more strategic roles. Human resources professionals need strong analytical and decision-making skills to become strategic partners and impact company strategy. Improving the efficiency, output, and performance of the business relies heavily on data analysis about workers, their work habits, and associated pursuits. Using information technology to integrate data based on extrinsic and intrinsic functions, HR analytics efficiently analyzes HR data. It is also known as workforce, talent, or people analytics.

Human resources is involved in all facets of HR, from hiring to development and training, to retention and succession planning, as well as pay and benefits. It aids in decision-making and forecasting future company results by converting complex data into actionable information. According to HR analytics, the primary objective is "to provide an organization with insights for effectively managing employees to achieve business goals quickly and efficiently," as well as "to help global organizations make decisions relating to optimal acquisition, development, and retention of their human capital." This includes both short-term and long-term trends in the supply and demand of workers across various industries and occupations. Therefore, it is reasonable to assume that data-driven HRM can benefit the company. Consequently, it is clear that the HR team is severely lacking in competent HR analytical functions, and there is a pressing need to comprehend the recruitment of knowledgeable HRA specialists, as the link between analytical measures and proactive future initiatives remains underdeveloped.

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HR analytics remains one of the most crucial performance analysis tools for enhancing human resources performance in organizations, as it enables informed decision-making based on available information (Garcia-Arroyo & Osca, 2021; Hülter et al., 2024). Data analytics is a vital tool in the modern business world across various business areas. HR analytics enables organizations to utilize data to calculate the likelihood of employee behavioral patterns, facilitating enhanced talent management and workforce management that aligns with organizational goals. Incorporating analytics enables HR professionals to show how an efficient workforce affects various organizational performance indicators. For instance, it has been posited that HR analytics plays a vital role in informing organizations about areas of high impact on employee performance, which includes but is not limited to, training, motivation, and satisfaction (Garcia-Arroyo & Osca, 2021; McCartney & Fu, 2022; Rasmussen & Ulrich, 2015). HR analytics also helps improve performance management as it becomes easier to evaluate employee performance (Thakur et al., 2024). In the past, performance appraisals were often more non-analytical and subjective; however, with the help of HR analytics, performance can now be assessed using analytical tools and numerical data. The implementation of HR analytics is not without difficulty. A significant challenge identified is that many HR teams lack the technical skills to implement and analyze complex data (Falletta & Combs, 2021). HR professionals must use data analytics tools; organizations also require developing these skills through training (Alam et al., 2025).

Additionally, self-efficacy and performance expectancy are key antecedents that affect an individual's acceptance and adoption of Human Resource analytics. Studies have also indicated that HR professionals with self-efficacy in using data analytics tools are more likely to integrate these tools into their practices and work. Hence, organizations must foster a culture of continuous learning and skill development to establish high self-efficacy among HR professionals in using analytics to enhance employee performance (Seliverst & Turenko, 2024). Traditional methods for evaluating various performance metrics and employee outcomes, such as employee efficiency, productivity, project completion rates, work quality, and team collaboration, are prone to subjective bias and human error. A data-driven approach enables employees and department heads to make informed decisions, improving employee satisfaction and reducing turnover. The study employs correlation, regression, and one-way ANOVA to assess the impact of human resource analytics on employee performance, as well as the moderating effect of years of experience with analytics. The study also employed structural equation modeling, with motivation mediating the relationship between human resource analytics and employee performance —a key factor in enabling the effective use of HR analytics. Therefore, HR analytics is a fascinating way to enhance employee performance by applying analytical tools in people management at the workplace (Seliverst & Turenko, 2024). It is essential for organizations using or planning to implement HR analytics to consider the issues of resource availability, data integration, and technical competence. Thus, removing these barriers can help organizations maximize the benefits of HR analytics to enhance employee performance, reduce turnover rates, and ultimately optimize business outcomes (Marler & Boudreau, 2017; Jahan, 2023). The study overall shows a positive relationship between HR analytics and employee productivity, work efficiency, project completion rates, and team collaboration.

This study employs a mixed-methods approach to investigate the impact of human resource analytics on employee performance variables. Section 2 comprises the literature review, Section 3 contains the materials and methods, Section 4 contains the results, Section 5 discusses the topic, and Section 6 concludes.

LITERATURE REVIEW

The literature review section provides an overview by comparing and contrasting previous literature with various authors' perspectives, which validates the study's findings and offers an in-depth examination of the human resource analytics literature, encompassing multiple aspects of employee performance measures. It is grouped under various themes, comprising work efficiency, employee productivity, project completion rates, quality of work, and team collaboration.

HR Analytics on Work Efficiency (WE) of Employees

Studies suggest that human resources analytics, particularly predictive tools powered by artificial intelligence, can significantly enhance employee work efficiency by improving productivity, engagement, and retention, as well as optimizing human resource decision-making processes. These innovations promote data-driven insights that improve employee work efficiency, as workforce analytics identifies performance gaps and ensures the productive use of personnel's abilities. Predictive human resources models can anticipate workforce trends, including turnover and demand for skills, enabling managers to implement preventive measures that enhance talent retention and maintain employee engagement (Angrave et al., 2016). Artificial intelligence-driven human resources systems also provide real-time analytics and even fully engaged applications, such as metaverse-based training, leading to improved work environments and personalized feedback that enhances performance (Ioakeimidou et al., 2023; Marabelli & Lirio, 2025). Integrating human resources information systems with advanced analytics reduces administrative expenses and delays in responding, enhancing the speed of decision-making and enabling human resources managers to concentrate on strategic initiatives that boost productivity and engagement (Rigamonti et al., 2024). Predictive and artificial intelligence-based human resources analytics thus turn managerial duties into strategic, data-driven processes that improve employee and organizational efficiency.

HR Analytics on Employee Productivity (EP)

Employee productivity is increasingly linked to human resource analytics, including predictive modeling, integration of the Internet of Things based on artificial intelligence evaluations, and the human resources information system (Cavanagh et al., 2023; Lee & Lee, 2023). Organizations that utilize these tools optimize their human resource processes and make data-driven decisions, thereby enhancing employee productivity and efficiency. Human resource analytics lowers organizational challenges and turnaround times, improving the decision-making and productivity of workers. Internet of Things-enabled

human resource analytics enhances personnel management, engagement, and workforce productivity by providing real-time insights into employee behavior and job information (Ghosh et al., 2025). Advanced analytical solutions, often utilizing artificial intelligence and machine learning, enable managers to predict performance trends and turnover, allowing for preventive interventions and strategic employee development that enhance productivity. For prolonged job satisfaction and productivity, workforce analytics must be implemented carefully, combining data-driven methods with employee autonomy and participation (Ain et al., 2024; Aral et al., 2012; Asadullah et al., 2024). Artificial intelligence-driven platforms promise precise, real-time performance monitoring and potentially more objective assessments, but privacy and ethics must be considered to ensure increased productivity (Kulikowski, 2024). Effective human resource analytics thus improve employee productivity by enabling informed decision-making, personalized management, and proactive workforce development.

HR analytics improves Project Completion Rates (PCR)

Emerging studies on human resources management reveal that modern human resources practices and human resource analytics can boost the rate of project completion. High-performance work systems, integrated human resource practices, improved organizational performance, and managerial confidence in representing employees amplify this effect (Adhami & Timur, 2025; Rosa et al., 2024; Shet et al., 2021). Engaging and empowering people through training, feedback mechanisms, and favorable guidelines can enhance motivation and efficacy, potentially improving project completion rates. There is an increase in human resource analytics across various disciplines, as well as the application of predictive analytics models in current operations. Human resource analytics encompasses descriptive, predictive, and prescriptive approaches, providing organizations with an extensive framework (Darbanian et al., 2024). Predictive analytics, along with other types of analytics, can help human resource managers allocate resources to tasks and groups that are most susceptible to issues. The results show that analytics-driven interaction and advanced analytics provide a proactive project management environment (Dasari & Devi, 2024; Diefenhardt et al., 2024; Rasmussen & Ulrich, 2015; Rosa et al., 2024; Venkatesh et al., 2016). High-performance human resources systems and analytics improve employee engagement, forecasting, and project completion rates.

HR analytics enhances the Quality of Work (QW) delivered by employees.

HR analytics, combined with the use of data, artificial intelligence, and statistics to inform evidence-based personnel decisions, is becoming a tool for enhancing the quality of work by employees (Cayrat & Boxall, 2022; Choudhari et al., 2025; Marler & Boudreau, 2017). Analytics is designed to address attrition, hire the most significant number of performers, and predict future trends by moving beyond reporting into data-driven decision-making. However, usage remains poor despite its connection to organizational performance. In the context of Industry 5.0, human resources analytics, along with specific metrics and predictive evaluations, help attract and retain top talent, motivating them to perform at their best. These data analysis techniques improve work-related results (Sivarethinamohan et al., 2021). Examining data from human resources to identify incidents can lead to innovative approaches that enhance worker satisfaction and productivity while protecting employees (Pariona-Cabrera et al., 2023). In recruiting, it has been observed that machine learning, notably a PAM clustering algorithm, can enhance the quality of hires, as hired employees are more likely to match the job and culture and perform work of higher quality (McCartney et al., 2021; Shet & Nair, 2023). Another study found that analytics-based job satisfaction metrics can predict and reduce turnover, thereby retaining skilled employees, enhancing job security, and improving the quality of service (Pimenta de Brito et al., 2025). Artificial intelligence-driven human resources analytics provide deep insights to support workers in establishing roles that lead to more effective outcomes (Cavanagh et al., 2023; Pariona-Cabrera et al., 2023). Despite these advantages, many organizations continue to rely on basic descriptive analytics, encountering a disparity between their promises and actual results. The quality of data and analytical capabilities is key to achieving the full impact of human resource analytics (Heidemann et al., 2024; Pimenta de Brito et al., 2025; Ratnam & Devi, 2023). To derive maximum benefits from human resource analytics, valuable insights, reliable information, and analytical skills are required. When properly integrated into strategic human resources management, these analytical tools can improve the quality of work. However, the gap between analytical goals and operational practice remains at a primary stage.

HR Analytics on Employees' Team Collaboration (ETC)

Human resource analytics, as a strategic driver, transforms human resources practices by facilitating evidence-based decision-making and collaborative outcomes (Alam et al., 2025; Bechter et al., 2022; Dasari & Devi, 2024; Strohmeier et al., 2022). It is worth noting that human resources analytics shifts human resources functions from intuition-based to data-driven management, significantly improving executives' strategic and operational performance. A range of analytics maturity is defined, emphasizing that organizations expect employees to acquire high analytical skills, enabling them to upgrade their skills for developing human resources. In another study, authors recommend promoting a data-driven culture, making investments in employee training and development, and fostering team collaboration across various departments to overcome the barriers associated with implementing human resource analytics (Espegren & Hugosson, 2023). Studies suggest aligning human resources training with analytics-dominant units, such as marketing, as well as third-party research organizations, to build capabilities and recommend that top managers promote collaborative analytics initiatives that engage multiple stakeholders and dissolve barriers (Singh & Muduli, 2023; Tunsi et al., 2023; Van den Heuvel & Bondarouk, 2017). Various transformative measures are recommended for organizations as human resource analytics implementation requires commitment from the top and an atmosphere of continuous development. Change management workshops and sharing information help gain employees' approval, encouraging leaders to establish a supportive environment where employees can explore data-driven strategies. All these studies suggest that HR analytics can enhance team collaboration and

adaptability by providing shared insights and learning opportunities, enabling organizations to build and develop their analytic capabilities while fostering cultural change among their employees. It is agreed that workforce growth and change readiness are essential for human resources analytics to enhance overall talent management and organizational performance by equipping staff members with analytical skills while promoting collaboration among teams.

Consequently, the following research objectives have been developed to examine how and in what ways the concept of HR analytics leads to the enhancement of employee performance within the context of the study from the viewpoint of HR professionals and managers. The study aims to investigate the impact of HR analytics on employee work efficiency (WE) and its influence on employee productivity (EP). Additionally, it aims to analyze the impact of HR analytics on project completion rates (PCR) and to investigate the correlation between HR analytics and the quality of work (QW). Lastly, the research will evaluate how HR analytics might improve employee collaboration (ETC). Based on the objectives and the results obtained from the analysis, the following hypotheses will be tested:

H_1: There is a significant relationship between HR analytics on Work Efficiency (WE) of employees

H_{1a}: There is a significant relationship of HR analytics on Work Efficiency (WE) of an employee with moderating variable as a Year of experience in HR

H_2: There is an influence of HR analytics on Employee Productivity (EP).

H_{2a}: There is an influence of HR analytics on Employee Productivity (EP) with moderating variables as Years of experience with HR analytics

H_3: There is a positive difference between HR analytics improves Project Completion Rates (PCR)

H_{3a}: There is a positive difference between HR analytics improves Project Completion Rates (PCR) moderating variable as a company size

H_4: There is a relationship between HR analytics enhances the Quality of Work (QW) delivered by employees

H_{4a}: There is a relationship between HR analytics enhancing the Quality of Work (QW) delivered by employees with moderating variables as Years of experience with HR analytics

H_5: There is a significant relationship between HR analytics and Employees' Team Collaboration (ETC)

H_{5a}: There is a significant relationship of HR analytics on Employees' Team Collaboration (ETC) with moderating variable as a Year of experience in HR

Conceptual Framework

The conceptual framework illustrates how various dimensions of HR analytics, such as work efficiency, employee productivity, project completion rates, quality of work, and team collaboration, collectively influence employee performance, moderated by years of experience and company size.

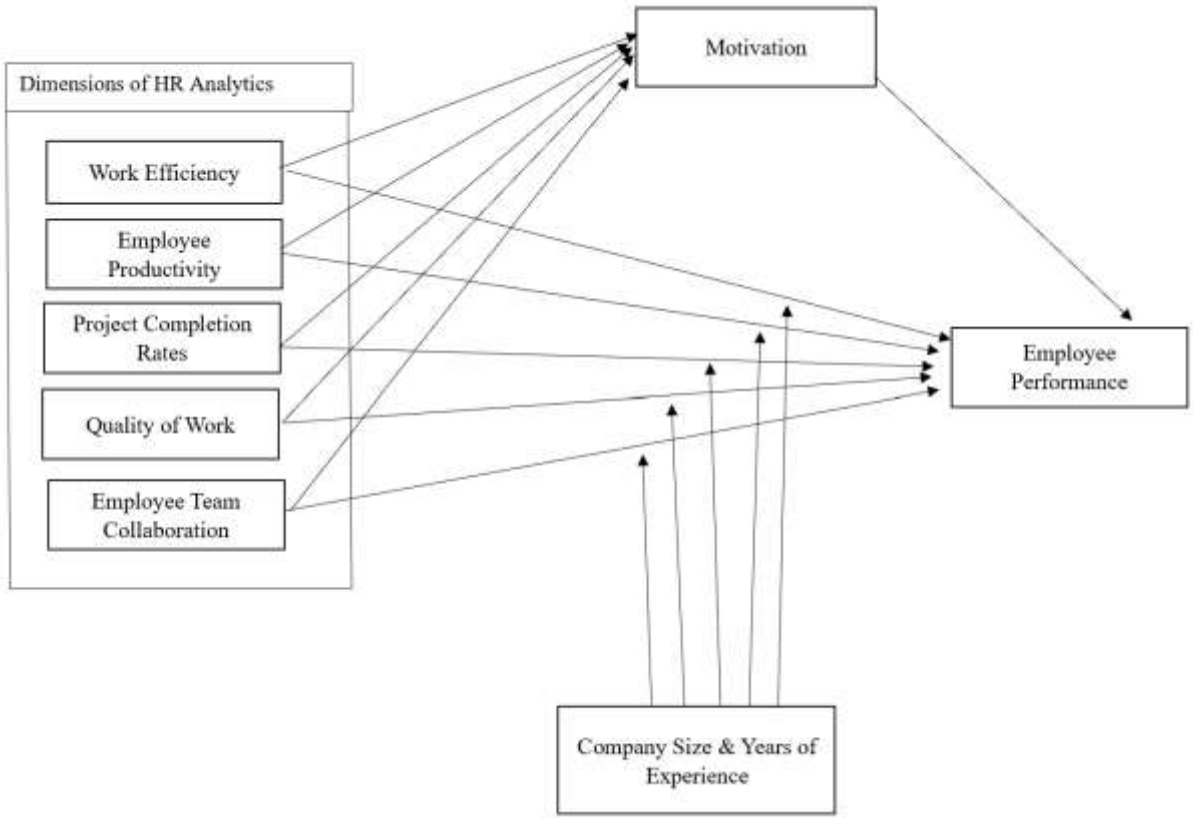

Figure 1. Conceptual Framework

MATERIALS AND METHODS

The authors have decided to use a hybrid technique to increase the research's robustness, as HR Analytics is still in its infancy, and most previous studies have taken a qualitative approach. There is a dearth of research on how HR policies impact organizational performance in the IT sector, particularly in terms of operational efficiency and its broader effects on overall organizational success, including profitability and employee satisfaction. The primary goals of this study are to identify critical human resource (HR) practices that significantly influence organizational performance and to provide management with practical suggestions for future adoption. Using a hybrid methodology, this study aims to enhance the understanding of the complex relationship between HR policies and organizational performance, with a focus on efficiency and its impact on overall success. The study's qualitative component involved interviewing sixteen middle- and upper-level human resources personnel from different IT companies in India. These interviews aimed to get detailed opinions and insights on the research issue from HR practitioners. One hundred fifty samples were gathered from various Indian IT companies for the quantitative study. In particular, this sample comprised the companies' middle- and upper-level HR personnel. The quantitative analysis aimed to examine and measure the information gathered from the answers to these HR experts' survey questions. Snowball sampling is a method of sampling. The study employed an open-ended questionnaire and conducted in-depth interviews with HR specialists to ensure thorough data collection. Respondent validation, which involves asking participants for their opinions and verifying the accuracy and interpretation of their answers, was then used to validate the interview responses. After validation, the interview data were examined to identify recurring themes and patterns. We then used these topics to create a structured questionnaire. 'Not At All' to 'Very Great level' was the range of the 5-point Likert scale used in the questionnaire to gauge the level of HR practices' use and their assessed impact on organizational performance. HR staff members at the top and middle levels were given the structured questionnaire. This made it possible to determine which HR procedures were most frequently used in the firms and to assess the extent to which they affected overall performance.

Table 1. Flow of Research Methods and Design

Methods	Objective	Tools used
Hybrid Approach (Qualitative & Quantitative)	To examine the impact of HR analytics on employee performance	Surveys, Interviews, Statistical Analysis
Qualitative Analysis	To gain insights from HR professionals on HR analytics' influence on performance	In-depth interviews with 16 HR professionals
Quantitative Analysis	To measure the relationship between HR analytics and employee performance	Survey responses from 150 HR professionals, Likert-scale questionnaire
Data Analysis Methods	To test hypotheses and analyze employee performance indicators	SPSS ver28, Cronbach's Alpha, Correlation & Regression Analysis, Chi-square Test, T-tests

Data Analysis

Reliability Testing: Cronbach's alpha was used to assess the reliability and internal consistency of the questionnaire. The reliability coefficients of all variables related to employee performance also demonstrated acceptable reliability, with Cronbach's alpha ranging from 0.644 to 0.918.

Descriptive statistics, including mean and standard deviation, were calculated for various employee performance parameters to facilitate an understanding of the application of HR analytics in evaluating these parameters.

Correlation Analysis: In this study, correlation analysis was used to establish the level of interaction between different aspects of HR analytics practices (such as Performance Management and Employee Engagement) and aspects of employee performance outcomes (including Work Efficiency, Completion Rates, and others). A positive and moderately significant correlation is identified between the variables.

Regression Analysis: A hypothesis testing model was used to analyze the level of forecasting possible using HR analytics about employee performance measurements. The study examined how much of the variability in variables such as Work Efficiency and employee Productivity was likely to be explained by HR analytics practices.

Hypothesis Testing: Null and alternative hypotheses were also formulated using Chi-square and t-tests to test the differential perception of HR professionals and managers on the potential use of HR analytics. These tests aimed to determine the statistical association between HR analytics and employee performance.

This allowed for a more holistic perspective on the research topic, specifically the use of HR analytics to enhance employee performance, based on the survey results of HR specialists and managers.

RESULTS

Qualitative Analysis

Planning for human resources, conducting job analyses, recruiting, selecting, orienting, compensating, evaluating performance, developing and training employees, and managing labor relations are all parts of human resource management (HRM). Human resource management receives much attention from academics due to its significance in business

management and its positive effect on company success. Human resource management (HRM) is a focal point of academic and professional interest because a company's success is directly proportional to the efficiency and effectiveness of its employees. In addition to interacting with technology and processes, operational success is determined by the dynamics of such effective teamwork and by HR practices such as job analysis, recruitment and selection, training and development, work environment, and performance appraisal. These efforts can enhance employees' competence for high performance.

Talented individuals constitute the IT industry's competitive advantage, making human resources a key component of the sector. Many people in the IT industry are concerned about the high turnover rate, low job satisfaction, frequent job hopping, lack of individualization, and limited flexibility. However, the industry thrives due to its innovative work culture practices, such as virtual migration and virtual offices. When compared to organizations in the industrial and service sectors, the human resource practices of Indian IT industries, such as employee sourcing and HR development initiatives, differ significantly.

Hiring new employees is seen as a means to achieve strategic goals. Ongoing recruitment, employee referrals, realistic job previews, and establishing clear selection criteria are among the most prevalent recruitment techniques. The training and development of employees are critical to a company's long-term viability. Training and development programs help workers acquire the knowledge and abilities that boost a company's bottom line. The Indian IT industry is experiencing a rapid loss of talent due to the rapid pace of technological change. In response, Indian companies have begun to recognize the value of corporate training and are consistently investing heavily in programs to improve employees' skills. As a measure of an employee's performance review, performance is reflected in training. It is a methodical approach to determining whether workers can perform their duties. Performance evaluations have become integral to HRM systems in India's information technology sector. Incentives are crucial to motivating and retaining personnel. Pay in the Indian IT business has traditionally consisted of a base salary with a bonus tied to the company's profitability.

These days, the phrase "work-life balance" is a common term in human resources circles. Workers nowadays regard a meaningful job that allows them enough time off to spend with their families and attend to vital home tasks as more significant than monetary compensation as an incentive for high performance. As a result, business leaders have begun to recognize the importance of work-life balance and implement programs to enhance employee happiness and satisfaction. The 'well-being' that an excellent employer fosters in the workplace sets them apart from other employers. Staff retention rates are higher when workers can satisfy their professional and personal needs. Several prominent Indian IT companies, including TATA, Infosys, and Wipro, have recently had their HR practices studied by Saxena and Tiwari. They recognized Important HRM practices when developing the three-tiered framework, which included training and development, employer-employee relations, recognition through rewards, culture building, career development, compensation, and benefits, among others. Human Resource practices that top IT and ITES companies adhere to include an open book management style, performance-linked bonuses, and a 360-degree performance management feedback system. The researcher uncovered several human resource management strategies used by the IT-ITES sector throughout their literature review.

Shared Vision: To achieve success, IT-ITES organizations strive to unite their personnel around a common goal, guiding them toward the company's strategic trajectory. We must foster trust and shared responsibility to make our employees feel valued and motivated to do their best for the company. Having upper-level management on board to foster an environment of honest dialogue and openness is crucial for this to succeed. Developing friendly and trusting interactions with employees can be facilitated by offering flexible schedules, promoting a good work-life balance, and creating a healthy work environment.

Career Opportunity: Several companies offer a dual career path that combines technical and managerial positions, providing employees with more options. Most companies encourage their employees to advance in management positions but do little to help them develop their technical skills. Organizations can foster a dynamic and open culture of innovation and intellectual property (IP) development by allowing employees to pursue technical career paths in parallel.

Performance Management System (PMS): When a performance management system that objectively and fairly evaluates employees' performance is implemented, employees may rest easy knowing that the company is paying attention to their career needs. Simultaneously, an intense performance management system enables the company to recognize its best performers at all levels, and these individuals may then devise plans to nurture and retain them.

Training and Development: To guarantee the workforce's overall growth, it is necessary first to identify the capabilities required at various levels. Your staff must be developed through classroom and online training, internal certification courses, and individual development plans to fill the gaps between the competencies needed and the talents people possess. Gains in existing skill levels help the firm through higher productivity, and people start to feel empowered as they realize the benefits of gaining competencies.

Succession Planning: In addition to promoting the most qualified current employees to leadership positions, succession planning conveys to workers that their hard work and loyalty will be recognized through promotions. A thorough framework for succession planning includes the following steps: determining the essential skills and knowledge that future leaders of the organization will need, evaluating the internal and external talent pool for those roles, providing coaching, mentoring, and the necessary experience to those individuals, assisting with their onboarding and initial handholding, and finally, transferring responsibility to them.

Quantitative Analysis

The demographic profile of the respondents is displayed here.

Table 2. Demographic Profile of Respondents

Demographic	Categories	Percentage (%)
Gender	Female	55
	Male	45
Age (years)	21-30	41.2
	31-40	45.5
	41-50	12.8
Educational Qualification	UG	23.3
	PG	76.6
	PhD	0.01
Currently Working	Multi-National Company	47.2
	Small Indian Companies (up to 100 employees)	13.3
	Medium size companies (101-1000 employees	15.5
	Large companies (>1000 employees)	23.8
Types of Sectors	IT	56.1
	Manufacturing	14.4
	Services	29.4
Total Experience	1-5	48.3
	6-10	36.1
	>10	15.5

The descriptive statistics on the variables demonstrate the overall influence of HR analytics on employee performance factors, including work efficiency, project completion rates, productivity, quality of work, and team collaboration. These important staff performance metrics are displayed with their standard deviations and averages.

Table 3. Descriptive Statistics for Employee Performance Variables

Employee Performance Variable	Mean	Standard Deviation
Work Efficiency (WE)	18.56	3.32
Project Completion Rates (PCR)	19.41	3.19
Employee Productivity (EP)	19.26	2.32
Quality of Work (QW)	18.69	3.31
Employees' Team Collaboration (ETC)	19.69	2.76

Figure 2. This bar chart displays the mean values of key employee performance metrics, including Work Efficiency, Project Completion Rates, Employee Productivity, Quality of Work, and Team Collaboration.

All the means of employee performance variables are reasonably high, which suggests that the use of HR analytics has a positive impact on such results. The two most affected by HR analytics are Employee Productivity (with a mean of 4.37) and Employee Team Collaboration (with a mean of 4.22).

H_1: There is a significant relationship of HR analytics on Work Efficiency (WE) of employees

Table 4. Correlation between HR Analytics on Work Efficiency (WE) of Employee

		HR analytics	WE
HR analytics	Pearson Correlation	1	.771**
	Sig. (2-tailed)		.000
	N	150	150
WE	Pearson Correlation	.771**	1
	Sig. (2-tailed)	.000	
	N	150	150

****. Correlation is significant at the 0.01 level (2-tailed).**

The analysis of Hypothesis H_1, which posits a significant relationship between HR analytics and employee work efficiency (WE), reveals a robust positive correlation. As depicted, the Pearson correlation coefficient between HR analytics and WE is 0.771, indicating a strong positive relationship. This suggests that employee work efficiency increases correspondingly as HR analytics are effectively implemented. The significance value ($p = 0.000$) is well below the threshold of 0.01, reinforcing the statistical significance of this relationship with 99% confidence. Therefore, the results support Hypothesis H_1, confirming that HR analytics have a notable and direct impact on enhancing employee work efficiency within the organization. This finding highlights the critical role of HR analytics in optimizing workforce productivity and performance.

H_{1a}: There is a significant relationship between HR analytics and Work Efficiency (WE) of an employee with a moderating variable as Year of experience in HR

Table 5. Correlation between HR Analytics on Work Efficiency (WE) Of Employees with Moderating Variable as a Year of Experience in HR

Correlations				
Control Variables			**Years of experience with HR analytics**	**HR analytics**
Years of experience in HR	**Years of experience with HR analytics**	Correlation	1.000	.162
		Significance (2-tailed)	.	.049
		Df	0	147
	HR analytics	Correlation	.162	1.000
		Significance (2-tailed)	.049	.
		Df	147	0

The analysis of Hypothesis H_{1a}, which investigates the relationship between HR analytics and employee work efficiency (WE) with the moderating variable of years of experience in HR, reveals a weaker, yet positive, correlation. It is seen that the correlation coefficient between HR analytics and years of HR experience is 0.162. While this indicates a positive relationship, it is relatively weak compared to the direct relationship between HR analytics and WE. The significance value ($p = 0.049$) is slightly above the threshold of 0.05, suggesting that the moderating effect of years of HR experience on the relationship between HR analytics and WE is statistically insignificant. In other words, the number of years of experience an employee has in HR does not meaningfully influence the impact of HR analytics on work efficiency. Therefore, while there is a minimal positive association, it does not substantiate a strong moderating effect, implying that HR analytics independently enhance work efficiency without substantial influence from the employee's HR experience.

H_2: There is an influence of HR analytics on Employee Productivity (EP).

Table 6. Correlation between HR Analytics on Employee Productivity (EP)

Correlations			
		HR Analytics	**EP**
HR Analytics	Pearson Correlation	1	.587**
	Sig. (2-tailed)		.000
	N	150	150
EP	Pearson Correlation	.587**	1
	Sig. (2-tailed)	.000	
	N	150	150

****. Correlation is significant at the 0.01 level (2-tailed).**

The correlation between HR analytics and employee productivity (EP) is displayed here; it was positive and highly significant, with a value of 0.587**. At 99% accuracy, the p-value of 0.000 is less than 0.01. This indicates that HR analytics impact employee productivity (EP). These findings strongly support Hypothesis H_2, demonstrating that HR analytics are crucial in enhancing employee productivity and highlighting the importance of leveraging data-driven HR practices to boost overall performance.

***H_{2a}:** There is an influence of HR analytics on Employee Productivity (EP) with a moderating variable as Years of experience with HR analytics*

Table 7. Correlation between Hr Analytics on Employee Productivity (Ep) With Moderating Variable as Years of Experience with Hr Analytics

Correlations				
Control Variables			**HR Analytics**	**EP**
Years of experience with HR analytics	HR Analytics	Correlation	1.000	.594
		Significance (2-tailed)	.	.000
		df	0	147
	EP	Correlation	.594	1.000
		Significance (2-tailed)	.000	.
		df	147	0

The relationship between HR analytics and Employee Productivity (EP) and the moderating variable, Years of experience with HR analytics, is displayed. The correlation value is 0.594**, indicating a positive and significant relationship. At 99% accuracy, the p-value of 0.000 is less than 0.01. This suggests that HR analytics have a positive influence on employee productivity, and this impact is further strengthened by the employee's years of experience with HR analytics. Thus, more experienced employees in HR analytics are likely to see greater improvements in productivity, underscoring the value of both HR analytics implementation and the expertise developed through experience in using these tools.

***H_3:** There is a positive difference between HR analytics and improved Project Completion Rates (PCR)*

Table 8. Independent Samples Test between HR Analytics and Improve Project Completion Rates (PCR)

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
HR analytics	Equal variances assumed	32.412	.000	2.184	67	.032	5.02069	2.29882	.43222	9.60916
	Equal variances are not assumed.			1.899	31.150	.067	5.02069	2.64377	-.37026	10.41163
PCR	Equal variances assumed	2.376	.128	1.960	67	.054	1.44483	.73720	-.02664	2.91629
	Equal variances are not assumed.			1.808	41.577	.078	1.44483	.79899	-.16808	3.05773

The two-tailed test's significance levels are 0.03 and 0.054, less than or equal to the 0.05 significance level. This indicates acceptance of the alternative hypothesis. Therefore, HR analytics benefits by raising project completion rates (PCR).

***H_{3a}:** There is a positive difference between HR analytics and Project Completion Rates (PCR), with a moderating variable of company size*

Additionally, the analysis highlights the impact of HR analytics on project completion rates, suggesting that leveraging HR analytics can lead to improved project outcomes and higher completion rates. Therefore, hypothesis H_3 is supported, showing a positive influence of HR analytics on PCR.

Hypothesis H_{3a}, which involves the moderating effect of company size, requires further analysis to assess the interaction between HR analytics and company size with project completion rates. This study's results primarily focus on the direct relationship, leaving room for future investigations into the role of company size as a moderating factor.

Table 9. One-Sample Test between HR Analytics Improves Project Completion Rates (PCR), Moderating Variable as a Company Size

One-Sample Test						
	Test Value = 0					
	t	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
					Lower	**Upper**
HR Analytics	90.347	149	.000	99.940000000	97.75416432	102.12583568

PCR	74.412	149	.000	19.40667	18.8913	19.9220
Company Size	36.581	149	.000	2.34667	2.2199	2.4734

The two-tailed test has a significance level of 0.000, which is lower than the 0.05 significance threshold. These findings suggest that HR analytics significantly improves project completion rates, and including company size as a moderating variable further strengthens this relationship. The results confirm that HR analytics have a positive influence on PCR, regardless of company size, thereby improving project outcomes. Therefore, the alternative hypothesis is accepted, indicating that company size enhances the favorable impact of HR analytics on project completion rates. This highlights the scalability and adaptability of HR analytics across various organizational sizes, promoting improved project management and efficiency.

H_4: *There is a relationship between HR analytics and the Quality of Work (QW) delivered by employees*

Table 10. Chi-Square Test between the HR Analytics on the Quality of Work (QW) Delivered by Employees

Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	1372.237	231	.000
Likelihood Ratio	582.793	231	.000
Linear-by-Linear Association	75.297	1	.000
N of Valid Cases	150		

The P value of 0.000 is less than the alpha value of 0.05 (chi-square value=1372.237). Therefore, the alternative theory is approved. Thus, there is a connection between HR analytics and improved employee Quality of Work (QW).

Thus, the results suggest that HR analytics have a positive influence on the quality of work performed by employees, demonstrating that data-driven HR strategies can enhance work quality and lead to improved performance outcomes across the organization.

H_{4a}: *There is a relationship between HR analytics and the Quality of Work (QW) delivered by employees, with the moderating variable being Years of experience with HR analytics*

Table 11. Chi-Square Test Between The HR Analytics On The Quality Of Work (QW) Delivered By Employees With The Moderating Variable As Years Of Experience With HR Analytics

HR Analytics * Years of experience with HR analytics				Quality of Work (QW) * Years of experience with HR analytics		
	Value	**df**	**Asymp. Sig. (2-sided)**	**Value**	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	1142.826	252	.000	626.532	132	.000
Likelihood Ratio	554.794	252	.000	408.863	132	.000
Linear-by-Linear Association	4.022	1	.045	9.496	1	.002
N of Valid Cases	150			150		

The P value of 0.000 (for chi-square HR Analytics * Years of experience with HR analytics = 1142.826 and Quality of Work (QW) * Years of experience with HR analytics 626.532) is less than the alpha value of 0.05. Hence, the alternate hypothesis is accepted. Therefore, a relationship exists between HR analytics and the Quality of Work (QW) delivered by employees, with moderating variables such as Years of experience with HR analytics. Thus, the findings demonstrate that HR analytics enhance work quality, and the years of experience with HR analytics further strengthen this positive relationship, underscoring the importance of experience in leveraging the full potential of HR analytics for improving work outcomes.

H_5: *There is a significant relationship between HR analytics and Employees' Team Collaboration (ETC)*

Table 12. Chi-Square Test between the HR Analytics on Employees' Team Collaboration (ETC)

Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	1052.825	189	.000
Likelihood Ratio	512.561	189	.000
Linear-by-Linear Association	45.723	1	.000
N of Valid Cases	150		

The P value of 0.000 is less than the alpha value of 0.05 (chi-square value=1052.825). Therefore, the alternative theory is approved. Thus, HR analytics and Employee Team Collaboration (ETC) have a substantial link.

H_{5a}: *There is a significant relationship between HR analytics and Employees' Team Collaboration (ETC) with a moderating variable as Years of experience in HR*

Table 13. Chi-Square Test of HR Analytics on Employees' Team Collaboration (ETC) With Moderating Variable as a Year of Experience in HR

HR Analytics * Employees' Team Collaboration				Year of experience in HR * Employees' Team Collaboration		
	Value	df	Asymp. Sig. (2-sided)	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1052.825	189	.000	812.425	153	.000
Likelihood Ratio	512.561	189	.000	448.183	153	.000
Linear-by-Linear Association	45.723	1	.000	.218	1	.641
N of Valid Cases	150					

The analysis of Hypothesis H_{5a}, which explores the relationship between HR analytics and Employees' Team Collaboration (ETC) with the moderating variable of years of experience in HR, reveals a significant association. As shown in Table 13, the Pearson Chi-square values for HR analytics (ETC = 1052.825) and years of experience in HR (ETC = 812.425) yield highly significant p-values of 0.000, which is well below the 0.05 threshold. This confirms the acceptance of the alternative hypothesis, indicating that years of experience in HR significantly moderate the relationship between HR analytics and team collaboration among employees.

The likelihood ratio test supports these results with significant values (p = 0.000). However, the linear-by-linear association for years of experience in HR, etc., yields a non-significant p-value of 0.641, suggesting that while the overall moderating effect of experience is significant, the linear relationship may not be as strong. Nevertheless, the findings confirm that HR analytics significantly enhances team collaboration, and the employees' experience further influences this impact in HR. Thus, employees with more experience in HR may benefit more from HR analytics in fostering better team collaboration. A mediation study was conducted utilizing the Hayes and Preacher process approach to evaluate the impact of motivation on HR analytics and organizational performance. From the findings, it is evident that HR Analytics significantly predicts motivation ($\beta = 0.459$, SE = 0.056, $p < .001$) and that motivation significantly predicts organizational performance ($\beta = 0.329$, SE = 0.062, $p < .001$). The direct impact of HR Analytics and Organizational Performance (c'-path) was also significant, b=.151, SE=.035, p<.001, and the overall effects between HR Analytics and Organizational Performance (c-path), b=.371, SE=.049, p<.001, mediated by Motivation. Thus, motivation serves as a partial mediator between organizational performance and HR analytics.

Table 14. Mediating Effects of Motivation b/w HRA and Employee Performance

	Co-eff	SE	t	p	LLCI	ULCI	Decision
HRA->MTVN	0.449	0.046	8.112	0.000	0.338	0.479	Supported
MOTVN->OP	0.339	0.064	6.344	0.000	0.219	0.511	Supported
HRA->OP (Direct effect)	0.362	0.052	7.415	0.000	0.282	0.457	Supported
HRA->MOTVN->OP (Indirect effect)	0.160	0.029			0.089	0.242	Partially supported

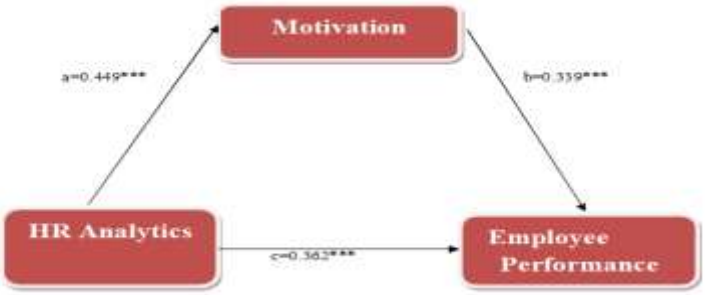

Figure 3. Mediating Effects of Motivation between HR Analytics and Employee Performance

DISCUSSIONS

This study aimed to investigate the impact of HR analytics on employee performance, focusing on five key performance indicators: Work Efficiency (WE), Employee Productivity (EP), Project Completion Rates (PCR), Quality of Work (QW), and Employee Team Collaboration (ETC). The study validated the strong positive correlation between HR analytics and these performance metrics using Structural Equation Modelling (SEM), correlation, and regression analyses. The findings reinforce that HR analytics significantly enhances performance management, talent acquisition, employee engagement, and strategic workforce planning, leading to measurable improvements in organizational efficiency and effectiveness.

The study makes a significant contribution to the growing body of knowledge by providing empirical evidence that HR analytics fosters a data-driven organizational culture, thereby optimizing employee performance and enhancing decision-making processes. Specifically, organizations that systematically integrate HR analytics are better equipped to make objective performance assessments, structure workflows efficiently, and refine HR strategies to align with broader business goals. The interpretation of the SEM model suggests that HR analytics have a direct influence on employee performance, with moderating effects from HR experience levels and company size. Additionally, motivation was identified

as a partial mediator between HR analytics and employee performance, reinforcing the necessity for HR analytics-driven HR policies to maintain and boost employee morale and commitment.

Each research objective and hypothesis was thoroughly examined, confirming that HR analytics have a positive impact on work efficiency (H_1), employee productivity (H_2), project completion rates (H_3), quality of work (H_4), and team collaboration (H_5). The correlation analysis revealed that HR analytics has the most substantial impact on employee productivity and team collaboration. The moderating effects of HR experience and company size were analyzed, revealing that experienced HR professionals and larger organizations tend to extract more substantial benefits from HR analytics in improving employee performance outcomes. Based on these findings, this study presents a positive correlation between HR analytics and employee performance, as reported by HR managers and HR professionals. The use of these HR analytics has also been found to improve key business metrics, including Work Efficiency (WE), Employee Productivity (EP), Project Completion Rates (PCR), Quality of Work (QW), and Employee Team Collaboration (ETC). The survey results indicate significant improvements in human resources (HR) analytics applied to organizations in areas such as talent acquisition, performance management, and employee engagement. The study also established that HR analytics enhances the objectivity of performance appraisals, leading to increased transparency and fairness in employee evaluations, which subsequently drive higher engagement and satisfaction levels. Furthermore, the results from the regression analysis indicate that HR analytics significantly improve project completion rates by facilitating better resource allocation, tracking performance in real time, and predicting potential delays. This highlights the significance of HR analytics in facilitating effective project management, ensuring timely task completion, optimal workforce deployment, and improved coordination among teams. Additionally, HR analytics played a crucial role in reducing biases in talent acquisition and retention strategies, resulting in a more efficient and equitable HR management approach.

Additionally, HR analytics help facilitate more objective performance appraisals, foster better teamwork, and ensure timely project deliveries, adding weight to the use of analytics to improve employee performance, particularly at the team and operational levels. HR analytics influence employee performance, so HR managers should take some practical steps. Integrating HR analytics into current performance management systems would not only document objectives but also provide a more objective assessment of employee performance, allowing for more data-driven decisions to identify top and underperforming employees and improve fairness in appraisals. Furthermore, HR analytics should inform the design of targeted approaches for attracting and retaining more engaged employees based on data about workforce satisfaction and the drivers of turnover. As a result of working with HR analytics, managers also learn how to structure teams and workflows more effectively, leading to improved project outcomes and team performance. One more resource, then, will be directed toward training the HR analytics teams to use the tool to make strategic decisions for HR. Finally, HR managers should utilize AI and predictive analytics to enhance the science of the future by improving forecasting accuracy and proactively managing HR challenges.

Table 15. Hypothesis Decision Table

Hypothesis	Decision
H_1	Accepted
H_2	Accepted
H_3	Accepted
H_4	Accepted
H_5	Accepted

CONCLUSIONS

This study focused on investigating the impact of HR analytics on employee performance, focusing on five key performance indicators: Work Efficiency (WE), Employee Productivity (EP), Project Completion Rates (PCR), Quality of Work (QW), and Employee Team Collaboration (ETC). This study highlights the importance of HR analytics as a strategic tool for motivating employees. Organizations can enhance their decision-making, workforce efficiency, and data-driven culture by integrating HR analytics into their performance management systems. This will support long-term success. Stay ahead of the competition in today's fast-paced business world by prioritizing the implementation of HR analytics and continually enhancing your analytical capabilities. To close the gap in technical competence and maximize the benefits of HR analytics technologies, HR leaders should also invest in staff upskilling. Doing so can help organizations become more agile, boost productivity, and cultivate a strong and capable workforce that can effectively tackle any challenges that arise.

This study acknowledges certain limitations despite making some contributions. The results may not apply to other businesses or areas, as the sample consisted only of human resources experts, most of whom worked in the Indian IT sector. However, neither the short-term consequences nor the possibility of sophisticated AI-driven analytics for forecasting employee performance patterns were investigated in this study, which focused on the influence of HR analytics on present performance measures. Furthermore, the study failed to consider extraneous aspects that could impact the efficacy of HR analytics deployments, such as market conditions, economic variables, and industry-specific challenges. If researchers want their results to be applicable to a broader range of sectors and countries, they should increase the sample size in future studies. For a more in-depth look at how to optimize your personnel, look into HR analytics tools that use AI and their predictive capabilities. Responsible and secure use of HR analytics also requires investigating data privacy risks and ethical factors. Especially for smaller companies that may not have the resources to invest heavily in HR analytics, it is crucial to explore potential solutions to the cultural and technological barriers that hinder their widespread adoption. For organizations to maintain high-performance levels for extended periods, future research should assess the effectiveness of HR analytics

in supporting employee retention and career development. Furthermore, the study focused on the current status of HR analytics rather than exploring future possibilities, such as artificial intelligence (AI) and machine learning (ML). To better understand the potential broader impacts of HR analytics on employee performance, future studies should increase the sample size and broaden their emphasis to include more industries. We also need to step up our research into AI-powered HR analytics tools so that we can utilize their superior predictive capabilities and sophisticated HR solutions. More investigation into the privacy and ethical implications of data linked to improved HR analytics tools can be conducted.

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