



Examining the Influence of HR Analytics on the Performance of IT Companies

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

This study delves into the intricate relationship between Human Resource Management (HRM) practices and their impact on company performance, specifically focusing on the IT-ITES industry in the Hyderabad region. The study aims to identify prevalent HRM practices, both commonly and less commonly adopted, within this sector, emphasizing their strategic significance. HRM encompasses a wide range of practices such as recruitment, training, performance assessment, and employee engagement, all crucial for organizational success. While numerous studies have explored the connection between HRM practices and performance, this research aims to bridge the gap in understanding the direct and indirect links between them, focusing on the unique challenges of the IT industry. The study employs a mixed-method approach, combining qualitative interviews with HR professionals and quantitative surveys of IT firms in India. Qualitative analysis revealed themes including data-driven practices, artificial intelligence integration, statistical evaluations, and

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work culture shaping. These HR practices were found to impact organizational factors such as cost reduction, enhanced employee performance, and retention. Hypotheses are formulated to assess the correlation between HR practices and their successful implementation in the IT industry. The study contributes to the understanding of HRM-performance relationships, providing insights for future practice implementation and offering a comprehensive perspective on HR practices in the Indian IT sector.

Keywords: Evidence-based practices; HR practices; mixed methodology; artificial intelligence practices; organizational performance.

1. INTRODUCTION

Human Resource Management (HRM) encompasses the strategies, processes, and systems adopted by organizations to effectively manage their most valuable asset - their workforce. According to Wright and McMahan, HRM involves the strategic deployment of human resources and the implementation of activities aligned with the organization's objectives. In simpler terms, HRM focuses on how a company utilizes its comprehensive range of practices and policies to enhance overall performance and productivity. This study delves into the intricate relationship between HRM practices and their impact on company performance, highlighting the strategic connection between the two.

1.1 Significance of the Hr Practices on the Performance of the It Industry

1.1.1 HR Management best practices in IT-ITES companies

While numerous studies have examined the relationship between investment in HRM practices and organizational performance, there remains a lack of research that effectively establishes or demonstrates the direct or indirect links between the two. This study aims to address this gap, specifically focusing on the IT-ITES industry in the Hyderabad region. Its objective is to identify the prevalent HRM practices within these sectors, explore the commonly adopted practices, and shed light on those that are less commonly practiced or given less significance [1]. By doing so, the study aims to contribute to the understanding of the HRM-performance relationship in the context of the IT-ITES industry in Hyderabad.

1.1.2 HR-related performance in a variety of situations

Although the HRM field encompasses a wide range of approximately 35 to 40 practices, this

study takes a focused approach by identifying and examining a select few key HRM practices. These practices have gained widespread acceptance and are applied by only a limited number of organizations within the industry. By narrowing the scope to these specific practices, the study aims to provide a comprehensive understanding of their impact and effectiveness in the industry.

1.2 HR Practices in India

Human Resource Management (HRM) encompasses the policies and protocols related to the management of human resources within a managerial context. This encompasses activities ranging from human resource planning and job analysis to recruitment, selection, orientation, compensation, performance evaluation, professional growth, and safeguarding labor rights. The importance of HRM within business management and its profound impact on a company's success render it an extensively studied subject. Scholars from both academia and the business world delve deeply into HRM due to its pivotal role, as a firm's overall performance is largely contingent on the collective output of its workforce.

In addition to enabling effective communication through tools and systems, HR practices like job analysis, recruitment, training and development, shaping the work environment, and performance assessment all contribute to enhancing the competence of employees, leading to heightened performance levels. Successful collaboration and mutually beneficial interactions among employees across departments stand as pivotal determinants of operational triumph. In the context of the IT industry, adept individuals represent the very nucleus, acting as a wellspring of competitive advantage. The IT-ITES industry, marked by its dynamic character and innovative work culture—think virtual offices and virtual migration—faces a spectrum of challenges including high attrition rates, insufficient job

satisfaction, frequent job changes among employees, and the need for customization and adaptability. Notably, HR procedures in Indian IT companies diverge significantly from those seen in manufacturing and other service sectors, particularly in terms of employee sourcing and human resource development initiatives.

Recruitment and selection methodologies are increasingly recognized as indispensable instruments for achieving strategic objectives within organizations. Various recruitment strategies come into play, encompassing ongoing recruitment, employee referrals, offering realistic job previews, and setting up unambiguous selection criteria. The enduring prosperity of any enterprise hinges on the progression and enrichment of its workforce. Employee training and development programs emerge as pivotal, as they equip staff members with the essential skills and competencies to elevate productivity and enhance profitability within their respective organizations.

2. REVIEW OF LITERATURE

Theoretical frameworks in the realm of strategic human resource management (SHRM) often incorporate employee behavior as a pivotal intermediary factor that mediates the connection between HR practices and overall firm performance [2]. However, the existing body of empirical research in SHRM predominantly concentrates on the direct correlation between HR practices and organizational outcomes, sidelining the potential mediating role of employee behavior [3]. The present study aims to explore the plausible link between HR policies and employee behavior [1].

In pursuit of this objective, a sample comprising 174 distinct work groups was subjected to scrutiny, with specific attention directed towards the intermediary influence of collective attitudes on the interplay between HR practices and collective behaviors. The findings discernibly reveal that attitudes indeed operate as a mediating factor within the nexus of HR policies and employee behavior. These results substantiate the notion that attitudes and actions function as pivotal intermediaries, bridging the gap between HRM practices and business consequences. The study places a spotlight on the critical significance of adopting multilevel theoretical frameworks and methodologies to comprehensively grasp the multifaceted impacts of HR policies.

The growing importance of implementing tailored arrays of HR practices to foster well-being and performance among older employees gains prominence as retirement ages rise and the workforce ages accordingly. Anchored in lifespan development and self-regulation theories, this study classifies HR practices into two distinct categories: developmental HR policies, which facilitate individuals in attaining higher levels of functionality, and maintenance HR practices, which aid individuals in sustaining their current functionality levels despite emerging challenges [4].

Furthermore, drawing from lifespan theories, it was hypothesized and subsequently substantiated that the correlation between developmental HR practices and well-being diminishes with advancing age. In contrast, the bond between maintenance HR practices and well-being, as well as the connection between developmental HR practices and employee performance, grows stronger. Intriguingly, a third category labeled "job enrichment" HR practices emerges, exerting a positive influence on job performance among the elderly workforce.

Human resources are universally acknowledged as an organization's most prized asset and a pivotal means for gaining competitive advantage. The intricacies of managing human resources transcend those of managing technology or finances, thereby necessitating the establishment of a robust HRM system for effective leadership [5]. This system should lend support to sound HRM practices, constituting a collection of organizational actions aimed at managing a cohort of human resources to fulfill corporate objectives. The study's aim is to investigate how HRM procedures, including selection, training, career planning, compensation, performance assessment, job description, and employee engagement, shape employee perceptions of their performance [6].

The study's findings provide insights into why HRM decisions are prone to wielding a significant and distinctive impact on organizational success. This academic pursuit serves to advance research concerning the link between human resource management and organizational effectiveness [7]. Furthermore, the study identifies unresolved matters warranting further exploration and presents several concepts to aid scholars in crafting a more comprehensive knowledge base that holds practical implications for both theory and practice [8].

The study undertakes an extensive exploration of the connection between High-Performance Work Systems and company performance. Drawing from a nationally representative sample of organizations, the results distinctly indicate that these strategies exert economically and statistically significant effects on employee performance [9]. However, there exists no empirical support for the assertion that the influence of High-Performance Work Practices on business performance is contingent upon their interconnections and alignment with strategic plans [2].

The research underscores the substantial investment made by the Information and Communication Technology (ICT) sector in high-involvement HR practices as a strategy to retain and motivate their invaluable human capital assets, particularly professionals in the information technology domain. The study introduces a multifaceted approach to HR practices and delves into their impact on turnover intentions (TOI) among ICT professionals. In this context, organizational commitment, functioning as both an employee attitude and a cohesive force within the organization, occupies a pivotal role [10].

It's noteworthy that the research landscape lacks studies probing the impact of organizational commitment on TOI within the ICT field. Consequently, the present study endeavors to fill this void by scrutinizing the mediating effect of organizational commitment on the relationship between HR practices and TOI. The findings from this study corroborate the initial predictions to some extent. Specifically, HR practices pertaining to compensation and training manifest a noteworthy direct influence on TOI [10]. Furthermore, when integrated into the model, organizational commitment's contribution to TOI becomes evident.

The implications of these findings are thoroughly discussed, underscoring the significance of factoring in both HR practices and organizational commitment when addressing turnover intentions among ICT professionals.

3. METHODOLOGY

3.1 Problem Statement

Considering that HR Analytics remains in its nascent stages and prevailing studies predominantly adopt a qualitative approach, the

researcher has chosen to employ a mixed methodology to bolster the research's robustness. The existing body of research concerning the influence of HR policies on organizational performance within the IT industry is notably limited, particularly in relation to factors like operational efficiency and its broader implications for overall organizational success, encompassing profitability and employee contentment [9].

The prime aim of this study is twofold: first, to pinpoint pivotal HR practices that wield a significant impact on organizational performance; second, to furnish management with actionable recommendations for the prospective incorporation of these practices. By adopting a mixed methodology, this research seeks to enrich the comprehension of the intricate interplay between HR policies and organizational performance [11], with a specific emphasis on efficiency and its reverberations on overarching success.

3.2 Objectives of the Study

1. To evaluate the current HR practices implemented in the IT industry and explore the underlying reasons for the adoption of HR Analytics in this sector.
2. To examine the impact of Human Resource Analytics on organizational performance within the IT industry
3. To generate recommendations and suggestions for the IT industry based on the findings and insights gathered from the study.

4. SIGNIFICANCE AND SCOPE OF THE STUDY

The main focus of this study is to examine the key parameters of HR practices within the Indian IT industry. The research specifically aims to explore various factors associated with these parameters and investigate their significant impact on organizational performance. This includes analyzing how HR practices contribute to performance improvement within the organization and its employees.

The study also considers the influence of HR practices on cost reduction and the enhancement of employee morale. These factors are expected to have a direct impact on the overall performance of both employees and the organization as a whole. By examining the

relationships between HR practices, performance improvement, cost reduction, and employee morale, the research aims to provide valuable insights into the effective management of HR practices in the Indian IT industry.

4.1 Sampling Design

Sample Size: For the qualitative aspect of the study, interviews were conducted with 16 middle and upper-level HR employees from various IT firms in India. These interviews aimed to gather in-depth insights and perspectives from HR professionals regarding the research topic.

Regarding the quantitative analysis, a total of 100 samples were collected from different IT firms in India. This sample specifically included both top-level and middle-level HR employees within the organizations. The quantitative analysis aimed to analyze and quantify the data collected from the survey responses of these HR professionals.

Sampling Technique: Snowball Sampling

4.2 Data Collection Tools and Techniques

To ensure comprehensive data collection, an open-ended questionnaire was utilized, and in-depth interviews were conducted with HR professionals. The interview responses were then validated through respondent validation, which involves seeking feedback and confirmation from participants on the accuracy and interpretation of their responses.

Following the validation process, the interview data was analyzed to identify recurring themes and patterns. These themes were then utilized to develop a structured questionnaire. The questionnaire utilized a 5-point Likert scale, ranging from 'Not At All' to 'Very Great Extent', to measure the extent to which HR practices were employed and their perceived influence on organizational performance.

The structured questionnaire was administered to both top-level and middle-level HR employees. This enabled the identification of the most important HR practices utilized within the organizations and the measurement of their impact on organizational performance.

By employing a mixed-method approach that combined open-ended interviews and structured questionnaires, this study aimed to gather comprehensive and meaningful insights into the

HR practices used in the Indian IT industry and their influence on organizational performance.

4.3 Variables of the Study

The qualitative study conducted in this research identified several themes related to HR practices and their impact on organizational performance. The themes derived from the qualitative analysis are as follows:

1. **Data-Driven Practices:** HR practices that rely on data analysis and metrics to inform decision-making and strategic planning.
2. **Artificial Intelligence:** HR practices incorporating AI technology to automate and streamline processes such as recruitment, employee evaluation, and performance management.
3. **Statistical Evaluations:** HR practices that involve analyzing and interpreting statistical data to assess employee performance, training effectiveness, and other HR-related metrics.
4. **Assess & Analyze:** HR practices focused on assessing and analyzing various aspects of employee performance, satisfaction, and engagement.
5. **HR Information Systems:** HR practices that involve the use of HRIS (HR Information Systems) for managing employee data, processes, and workflows.
6. **Decision Making:** HR practices that emphasize effective decision-making processes, particularly in areas such as talent acquisition, career development, and succession planning.
7. **Revising the training structure & material:** HR practices aimed at improving the training structure and materials to enhance employee skills and performance.
8. **Key parameters identification:** HR practices focused on identifying the key parameters or factors that influence employee performance and organizational success.
9. **Work Culture:** HR practices that shape and promote a positive work culture, fostering employee satisfaction, collaboration, and productivity.
10. **Understanding the Employee:** HR practices centered around understanding and addressing the needs, preferences, and motivations of employees.

In addition to the HR practices themes, the qualitative study also identified themes related to

the impact of these practices on organizational performance, including:

1. **Reduced Costs:** HR practices that contribute to cost reduction through efficient resource allocation, improved processes, and effective budget planning.
2. **Increased Employee Performance:** HR practices that enhance employee performance through training, skill development, performance evaluations, and feedback mechanisms.
3. **Employee Retention:** HR practices that promote employee retention by creating a supportive work environment, providing growth opportunities, and recognizing employee contributions.
4. **Effective and Efficient Budget Planning:** HR practices that facilitate the development and execution of budget plans aligned with organizational goals and HR priorities.
5. **Employee Engagement:** HR practices that foster employee engagement and commitment, leading to improved productivity, satisfaction, and overall organizational performance.

These themes obtained from the qualitative study provide valuable insights into the HR practices and their impact on organizational performance in the IT industry.

4.4 Hypothesis of the Study

The Hypothesis of this study has been mentioned below:

H0: There is no significant correlation observed between the factors of HR practices in India and the benefits derived from their successful implementation in the IT industry.

H1: There is a significant correlation between the factors of HR practices in India and the benefits that have been obtained after the successful implementation of these practices in the IT industry.

Null: No association exists between HR Analytics and Organizational Performance.

Alternative: There exists a relationship between HR Analytics and Organizational Performance.

5. RESULTS AND DISCUSSION

It is evident that the HR practices implemented in many IT companies in the Indian context have been assessed for their importance by IT employees. The findings indicate that the highest level of importance is attributed to practices related to Statistical Evaluation and HRIS (Human Resource Information Systems). These practices are considered to be crucial and widely used in the IT industry. Following these, the practices of Data Driven approaches and Assessment and Analysis are also recognized as significant by the employees. On the other hand, the utilization of Artificial Intelligence in HR practices appears to be relatively less common compared to the other mentioned practices.

The analysis reveals that the dimensions of Sourcing the Job Applicant and Reduced Biasness exhibit greater significance compared to the dimensions of Decision Making, Work Culture, and Revision of Training Structure & Material. As a result, the null hypothesis is rejected for the former dimensions, indicating that they have a significant impact. However, the null hypothesis is accepted for the dimensions of Employee Participation, Tracking the Employee Background, and Attrition Reasons, suggesting that they may not have a significant impact based on the analysis conducted.

Table 1. Assessing HR practices in it industry

HR PRACTICES	t-Value	Sig(1- tailed)	Mean	Mean Difference	Decision	Result
HRIS	28.953	.000	4.15	1.508	Reject Ho	Significant
Assessment & Analyze	26.505	.000	3.58	1.405	Reject Ho	Significant
Statistical Evaluation	27.272	.000	4.35	1.153	Reject Ho	Significant
Artificial Intelligence	26.372	.000	3.10	1.203	Reject Ho	Significant
Data Driven	26.501	.000	3.61	1.458	Reject Ho	Significant

Table 2. Analytical result

Coefficients		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.222	.212		1.101	.271		
	Sourcing the Job Applicant	.163	.042	.241	5.869	.000	.859	1.164
	Chat Bots	.125	.041	.178	4.336	.000	.865	1.156
	Tracking The Employee Background	.005	.042	.006	.150	.982	.816	1.225
	Decision Making	.102	.038	.137	3.166	.002	.772	1.296
	Revision Of Training Structure & Material	.055	.037	.086	2.073	.039	.844	1.185
	Attrition Reasons	.051	.030	.079	1.863	.078	.811	1.232
	Work Culture	.132	.031	.180	4.388	.000	.863	1.159
	Employee Participation	.045	.037	.061	1.458	.175	.831	1.204
	Reduced Biasness	.175	.031	.230	5.697	.000	.892	1.122

a. Dependent Variable: HR_Analytics

Table 3. Assessing the association between using HR analytics and organizational performance

Correlations		HR_Analytics	Reduced Costs	Employee Performance	Employee Retention	Effective and Efficient budget planning	Employee Engagement
HR_Analytics	Pearson Correlation	1					
Reduced Costs	Pearson Correlation	.725**	1				
Employee Performance	Pearson Correlation	.727**	.482**	1			
Employee Retention	Pearson Correlation	.657**	.556**	.529**	1		
Effective and Efficient budget planning	Pearson Correlation	.554**	.524**	.602**	.553**	1	
Employee Engagement	Pearson Correlation	.493**	.491**	.437**	.554**	.493**	1

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

Reason for using HR Analytics

- 0.222 + .163 (AI for Sourcing the Job Applicant)
- + .125 (Chat Bots) + 0.005(AI in Tracking the Employee Background)
- + .102(Right Decision Making)
- + .055(Revision of Training Structure & Material)
- +0.051(Identifying the Attrition Reasons)

5.1 Analysis

It can be inferred that all the Pearson's correlation coefficients indicate a strong positive correlation between HR Analytics and the variables of Reduced Costs, Employee Performance, Employee Retention, Effective and Efficient Budget Planning, and Employee Engagement. This suggests that there is a significant relationship between the implementation of HR Analytics and these outcome variables. Therefore, the null hypothesis can be rejected, and the alternative hypothesis, which states that there is a positive correlation between HR Analytics and these variables, can be accepted.

6. CONCLUSIONS

The study conducted among IT employees in the Indian context aimed to assess the effectiveness of HR policies and their successful implementation. The findings revealed that Artificial Intelligence Practices were the least used among the HR practices examined. Furthermore, HR Analytics was not utilized for tracking employee background, identifying attrition reasons, and promoting employee participation. On the other hand, the study indicated that the implementation of HR practices, particularly with the support of HR Analytics, positively impacted organizational performance. The benefits derived from the successful implementation of these HR practices were significant, highlighting their importance in enhancing overall organizational performance.

7. RECOMMENDATIONS OF THE STUDY

The findings of the above study provide valuable insights for companies to recognize the importance of Artificial Intelligence (AI) from the perspective of various stakeholders, including the company itself, employees, government, and HR practitioners, in a highly competitive market. The study highlights the need to implement HR Analytics across all areas of HR management to enhance decision-making and optimize HR practices. Additionally, it emphasizes the importance of improving and expanding the utilization of AI practices in HR processes. By embracing AI technologies and leveraging HR Analytics, companies can gain a competitive edge, improve operational efficiency, and meet the evolving needs of employees, industry standards, and regulatory requirements.

8. DIRECTIONS FOR FUTURE RESEARCH

Due to the relatively early stage of development for HR Analytics, the full potential of new technologies like Artificial Intelligence (AI) has not yet been realized. It is crucial to focus on enhancing data extraction tools that can be effectively utilized in AI applications within HR Analytics. However, it is important to note that studying the effectiveness of AI in HR Analytics should be done once AI has been fully integrated and utilized in HR processes. This will allow for a comprehensive evaluation of the impact and benefits of AI in optimizing HR practices, decision-making, and overall organizational performance.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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