

# Impact Of HR Analytics On Performance Appraisal System For Employees' Satisfaction And Willingness To Improve Their Performance In IT Sector

<sup>1\*</sup> Premlal Prejith & <sup>2</sup>Praveen Kumar

<sup>1\*</sup>Research Scholar, Department of Management Studies, Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu - 600126, India, E-mail: [prejithpinfotech@gmail.com](mailto:prejithpinfotech@gmail.com)

<sup>2</sup>Dean, Department of Management Studies, Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu - 600126, India. Email: [praveenkumar.mba@bharathuniv.ac.in](mailto:praveenkumar.mba@bharathuniv.ac.in)

## Abstract

**Purpose:** The major aim of this research work is to investigate the impact of Human Resource (HR) analytics on the employees' satisfaction and willingness on Performance Appraisal (PA) for enhancing their performance in the Information technology (IT) sector. By the way, this paper explores the problems associated with the PA that proportionally influences the satisfaction and willingness of the employees' on enhancing their performance. Furthermore, this paper explains how HR analytics can be applied in such a scenario to solve such problems.

**Design/Methodology/Approach:** The paper conducts a quantitative study by analyzing a sample of 145 expertise, qualified, and knowledgeable employees in the IT sector of Kerala. The hypotheses were verified using statistical, regression, and ANOVA tests.

**Findings:** From the findings, it is evident that the PA practices accomplish a straight and positive impact on the performance of IT employees' job satisfaction and willingness. Moreover, HR analytics possesses a negative relationship among subjectivity bias in the PA framework and a positive impact on the improvisation of employees' perception of satisfaction and fairness.

**Research Limitations/Implications:** As for researchers and practitioners, this study implies implementing HR analytics in place of strategic tools can help enhance employees' satisfaction and performance through the PA framework.

**Originality/Value:** The paper propositions perceptions on consistency, and the dimension of PA framework strength using HR analytics. Also, it delivers HR analytics can cope with the problems of subjectivity bias of the PA framework.

**Keywords:** Performance Appraisal, HR Analytics, Employees' Satisfaction, Employees' Willingness, IT Sector.

## 1. Introduction

In the 1980s and 1990s, as IT investments grew, there was a significant difference in both the returns on IT investments [1] and the effectiveness of incentive compensation plans across firms [2]. According to [3], the authors stated that two phenomena are intertwined and that the benefits of IT and incentive systems are mutually dependent. Employees are a crucial

investment for businesses since they have the ability to influence the effectiveness of the firm. They are expected to perform higher and better in order to keep up with the growing competition [4]. Organizations are progressively investing in various development activities such as coaching, developmental centers, and career planning for performance enhancement, as the importance of employee performance for organizational success and

competitive advantage grows [5], [6], [7]. Employees' performance improvement and effectiveness are proven to be influenced significantly by their performance evaluations during PAs [8]. The PA system is regarded as the most important of all HR practices, but it also accounts for a significant portion of employee dissatisfaction in terms of perceived fairness and effectiveness, as biased performance evaluations pose a threat to ethical decision-making in organizations and frequently result in employee dissatisfaction with the appraisal process [9] [10].

Employee dissatisfaction with the performance process has also been connected to negative outcomes such as increased turnover intentions and lower commitment levels, both of which have a detrimental impact on employee performance [11]. However, there has been little research into how a PA system might assist employees to perform better. This could be one of the reasons why most businesses simply report on the PA system's overall effectiveness and efficiency, rather than its impact on employee performance. One of the most critical difficulties that HR professionals confront when it comes to performance improvement is establishing an effective PA system [12] [13].

As a result, there is a pressing need for research into ways to improve employee acceptance of PA systems and to investigate their impact on staff performance [14]. According to a review of the literature on PA systems, further research is needed to look at the effects of new technologies on PA systems, as it is clear that the adoption and deployment of new information technologies improve organizational performance [15]. According to [16], introducing technology into the PA system provides a number of advantages over traditional PA systems, and can help both organizations and employees. When employed for HR reasons, new-age technology such as analytics, sometimes known as HR analytics, can have a substantial impact on individual and organizational performance [17].

Top-performing firms are also seen to use analytics rather than intuition in their decision-making, which distinguishes them from their low-performing rivals. HR analytics, on the other hand, appear to play a minor part in the formulation of HR strategy and decision-

making [18]. Effective PA practices are made up of a closely-knit incentive system that integrates performance compensation with HR analytics and appropriate IT tools. Also, implementing PA and HR analytics methods without the necessary information technologies will be ineffective [19] [20]. Allowing them to do so reduces the PA provided by performance compensation as well as the insights gained through analysis, and technologies for performance monitoring and management have been adopted without remuneration for performance, and HR analytics are ineffective as well [21]. As a result, the purpose of this research is to investigate the influence of HR analytics in the PA system and, as a result, on employees' satisfaction and willingness to improve performance in the IT sector.

## 2. Literature Review

HR analytics [22] is an umbrella phrase that refers to a variety of methodologies, i.e., tools, for analyzing HR-related data and information [23][24]. Moreover, HR analytics, as a subset of business analytics, can be characterized as a set of approaches that enhance HR decision-making by giving insights from data and information, according to mainstream business analytics definitions [25]. As a result, using these analytics allows (HR) managers to better address HR issues by improving planning, evaluating, and even quantifying risk, and providing better and more options for decision making.

The authors of [26] used a framework synthesis technique to identify the barriers to HRA practice and then create a framework to explain the various aspects that influence HRA adoption within businesses. This research examines the important features of HRA adoption that are influenced by technological, organisational, environmental, data governance, and individual variables. The framework's implications for HR executives, HR managers, CEOs, IT managers, and consulting practitioners for effective HRA adoption in organisations were also discussed.

Furthermore, HR analytics is critical for firms to improve their people-driven performance. The advent of the global workforce, as well as the growing importance of business analytics as a strategic organisational skill, have had a substantial

impact on human resource management. While HR analytics has received a lot of attention in the previous decade, there has yet to be a systematic identification and classification of significant themes. Such as technological and organisational, descriptive and diagnostic/prescriptive, and HR analytics. From the standpoint of a practitioner, the study provided information to aid in the development of innovative analytics projects within enterprises [27].

This conceptual study investigated the role of subjectivity in influencing employees' perceptions of fairness in PAs. It is attempted to comprehend the concept of subjectivity, which states that every human judgment is subjective, regardless of how objective a situation may appear to be in actuality. Furthermore, it aims to investigate the relationship between subjectivity and fairness. Fair PA is critical in every business to ensure that no victim is injured intentionally or unintentionally. In general, subjectivity is a primary unfair feature that contributes to performance rating inequity [28].

Here, the study was conducted with 108 HR members of data from India's largest service organisations to investigate the latest technologies and strategies for HR analytics that they use. It is observed that analytics is a driving factor for HR to become a strategic business partner and take the next step in role transformation. In addition, this study investigated the impact of analytics on various HR data and decisions [29].

Firms can attain higher productivity through increased efficiency and customization when line workers are empowered with an additional choice [30]. This study constructed an analytical model to show how the presence of IT and incentive practises can explain variation in both the returns to IT and the effectiveness of performance pay contracts and HR analytics methods that monitor and provide feedback on performance [31].

### 3. Objectives

- 1) To find the relationship between HR analytics and PA of the IT sector
- 2) To recognize the major impacts affecting HR analytics on the performance of IT employees

- 3) To recommend the appropriate factors to enhance the IT employee's satisfaction and willingness to accomplish performance

### 4. Research Question

This paper intends to investigate the following two questions.

**RQ1:** What effect does the PA system have on the willingness of employees to improve their performance?

**RQ2:** What effect does the usage of HR analytics in the PA system have on the willingness of employees to enhance their performance?

### 5. Methodology

#### A. PA system and Problems with subjectivity bias

Generally, the performance of the IT employees is governed by measuring the performance [32]. For enhanced performance measurement and governance, it is necessary to quantify the multi-dimensional components of performance that play a prominent role in performance measurement systems. Subjectivity is defined as the amount to which the rater has a direct personal impact on the ratee's performance rating, while objectivity is defined as the extent to which the rater has no direct personal influence on the ratee's performance rating. Although, subjectivity in performance measurement was introduced to reduce distortion by taking into account those aspects of the employee's job that cannot be captured through quantitative measures or in cases where the employer is unable to measure what he requires from employees, subjectivity in performance measurement was introduced to reduce distortion by taking into account those aspects of the employee's job that cannot be captured through quantitative measures or in cases where the employer is unable to measure what he requires from employees. As a result, it is hypothesized that subjective bias in the PA system will reduce employees' perceptions of the PA system's accuracy and fairness.

#### B. HR Analytics and PA system

Biases lead to workplace discrimination, and methods should be used to combat them.

Scholars have emphasized the need of resolving difficulties with subjective bias in performance evaluation. One strategy to eliminate biases in supervisory ratings is to provide objective measures. One strategy to improve inaccuracy by lowering performance information recall bias, according to the researchers, is to keep a structured journal. According to the principal-agent model, favoritism and prejudice may be eliminated in the PA by emphasizing objective rather than subjective metrics and using observable, objective assessment criteria. Performance assessment is never viewed as a fully scientific endeavor, and there is always a need to create frameworks that yield precise and reliable data for HR purposes. As a result of the foregoing discussion, it is claimed that HR analytics may assist in improving the perceived accuracy of the PA system by providing more objective, accurate, and impartial data relating to employee performance behavior.

### **C. PA system and Employees' Satisfaction**

Researchers need to look into characteristics including perceived accuracy, fairness, and contentment with the PA system to see what factors predict favorable employee reactions to assessments. Employees' perceptions of the PA system's efficacy are gauged by its perceived correctness and fairness. Employees' perceived fairness of the PA system is discovered to be influenced by the fulfillment of their psychological contracts and was found to influence organisational commitment. When employees do not believe the PA system is fair, they lose faith in it and the performance assessments. These judgments impact fairness perceptions, which leads to satisfying the performance feedback and the PA system. Justice is also viewed as a determinant of PA system approval. Administrative PA actions (such as compensation adjustments, promotion choices, and performance requirements) and organizational commitment, as well as satisfaction with the PA system, have been found to be mediated by justice perceptions. The PA system's effectiveness is determined by workers' views of fairness. As a result, employees' perceptions of accuracy and fairness become key antecedents that might influence their satisfaction with the PA process.

### **D. Employees' Willingness for the Enhancement of the Performance**

According to research, how well employees perform after getting performance feedback is greatly determined by their opinion toward the PA system. According to the literature on performance feedback, most feedback interventions have a negative influence on performance, because performance development is more likely to occur when the receiver has a positive feedback orientation and responds favorably to change. Also, if employees accept the PA system, the supervisor/rater is more likely to offer honest feedback and not resort to alternative methods of performance improvement since he or she recognizes that employees are more likely to accept it. Employee reactions to feedback also have a role in the link between performance evaluations and feedback acceptance. Lack of agreement with the PA system is one of the grounds for the non-acceptance of performance feedback. Even negative comments can boost performance if the negative criticism is acknowledged by the employee. Employees may only accept and trust the system if they believe it is authentically favorable (both positive and negative) replies to their performance comments make an effort to enhance their performance. As a result, it is believed that employee satisfaction with the PA system would lead to increased productivity and an increase in the willingness of workers to improve their performance.

### **6. Procedure and Sample**

The sample collected for this study comprised 134 individuals working in various IT industry of Kerala in India, all of whom had extensive knowledge positions. A total of 50 questions were sent to collect the data through e-mail. HR, IT, and research and development were among the departments represented. Employees who worked in firms that competed with new goods and/or sophisticated manufacturing technology were chosen. Furthermore, they worked in departments where knowledge and learning were essential to their success. The study's participants were particularly interested in determining the extent to which their employees' views of implemented HR Analytics, particularly in terms of PA, influenced the link between these practices with

respect to employees' willingness and satisfaction to improvise their performance.

**7. Data Analysis**

The hypotheses, H1, H1a, H1b, H2, H2a, and H2b are the proposals. Here, H2 and H2a represent negative relationships. On the other hand, H1, H1a, H1b, and H2b imply positive associations. H2 shows how subjective bias in the PA system decreases employees' perceptions of the PA system's accuracy and fairness in this section. Similarly, H2a demonstrates how the usage of HR analytics in the PA system has a detrimental impact on the PA system's subjective bias. The other four hypotheses (H1, H1a, H1b, and H2b) describe positive links such as how employees' perceptions of the PA system's accuracy and fairness boost their happiness with it, increasing their satisfaction and willingness to improve performance.

**8. Results and Discussion**

**A. Descriptive Data Concerning the Factors and Correlation**

The participating IT industry with various departments is analysed through the factors such as subjectivity bias, fairness, employees' satisfaction, employees' willingness, experience, gender, and PA. Table 1 explains the effects of HR analytics and PA practices through a statistical analysis and reliability test using Cronbach's/KR20 concerning the above-mentioned factors. From the investigation, it is clear that the HR analytics practices regarding employees' satisfaction and willingness to improve their performance attained better reliability scores such as .93, .91, .9, .89, .76, .56, and .93 for the factors such as subjectivity bias, fairness, employees' satisfaction, employees' willingness, experience, gender, and PA respectively. To attain performance through improving employees' satisfaction and willingness in the IT sector, the above-mentioned factors are reliable. Herein, 58% of

the employees are men and the rest are women. However, gender diversity has no detrimental impact on performance. According to experience, almost 79% of employees are sustained for a prolonged period i.e., more than 25 years. Subjectivity Bias is a critical factor and has a significant impact on PA, employees' satisfaction, and willingness with respect to correlation [0.42\*\* , .35\*\* , and .59\*\*\*] and statistics [(mean 7.86, 7.45, and 8.21), (median 6.98, 7.14, and 8.1), and (SD 1.95, 1.64, and 1.98)] respectively. The study revealed that the subjectivity bias considerably impacts all the factors which help to attain performance (\*\*\*P < .001). Although subjectivity bias possesses a negative impact, fairness HR analytics followed by the IT organization accomplished trust of the employees and achieved a positive effect on employees' satisfaction and willingness to enhance performance. The following hypotheses are investigated using statistical tests, reliability, and correlation.

From the earlier research, this study formulates the following hypotheses,

H1: PA system favor employees' satisfaction and willingness to improve their performance.

H1a: Employees' satisfaction with the PA system will be positively related to their perceptions of its accuracy and fairness.

H1b: Employees' willingness to increase performance will be favourably related to their satisfaction with the PA system.

H2: Subjectivity bias and fairness impact the relationship between PA and employees' performance.

H2a: The practice of HR analytics in the PA system will have a negative impact on the PA system's subjective bias.

H2b. The practice of HR analytics in the PA system will be favourably related to employee's perceptions of the PA system's accuracy and fairness.

Table 1 Descriptive Data concerning the Factors including Subjectivity Bias, Fairness, Employees' Satisfaction, Employees' Willingness, Experience, Gender, and PA in terms of Statistics, Reliability, and Correlation

Factors	1	2	3	4	5	6	7
Subjectivity Bias	1.00						

Fairness	.51***	1.00					
Employees' Satisfaction	0.42**	.55**	1.00				
Employees' Willingness	.35**	.48**	.49***	1.00			
Experience	.15*	.28*	.19*	.29*	1.00		
Gender	.68*	.42*	.39*	.59*	.54*	1.00	
PA	.59***	.68**	.41**	.52**	.51*	.53*	1.00
<b>Mean</b>	7.86	7.09	7.45	8.21	9.11	2.84	15.45
<b>Median</b>	6.98	7.92	7.14	8.1	8.01	2.11	14.58
<b>SD</b>	1.95	1.89	1.64	1.98	3.75	.31	5.61
<b>Cronbach's <math>\alpha</math>/KR20</b>	.93	.91	.9	.89	.76	.56	.93
*P < .05; **P < .01; ***P < .001							

## B. ANOVA Test

Analysis of Variance (ANOVA) is a statistical analysis technique that is extensively used to determine how considerably the means (average) of two or more sets differ from one another. Furthermore, ANOVA confirms the impact of one or more business aspects by comparing the means of numerous samples in comparison research. In the case of HR Analytics and PA Practices, Table 2 displays the results of an ANOVA test performed. The interplay between the two primary stages supplied by the IT industry is investigated using a one-way ANOVA test. The abbreviation for a sum of squares is SS, the degree of freedom is DF, the mean of squares is MS, the F-ratio is F, and the probability is P. The ANOVA test excludes the components that are not reliable. Therefore, major factors are those that achieved Table 2. Results of ANOVA test with respect to HR Analytics including Subjectivity Bias, Experience, and PA

a higher F-ratio than F-critical. Among all the factors, three of them are considered as the major HR analytics factors that critically impact performance such as subjectivity bias, experience, and PA. The significance level is set as 0.05. Now, the null hypothesis and the alternative hypothesis for a one-way analysis of variance are given as follows.

H0: There is no effect on the performance in any samples.

H1: The samples have an effect on performance.

Table 2 shows the one-way ANOVA test results showing the impact of HA analytics to enhance the performance. Here, the f-ratio is 11.524 and the probability is 0.021. It shows that the samples have an impact on the performance of the IT employees regarding subjectivity bias, experience, and PA.

Source	SS	DF	MS	F-	P
Performance	1794.784	2	897.392	11.524	0.021
Error	2102.457	27	77.869		
Total	197.241	24			

## C. Regression Analysis

Finding the link between a dependent variable and one or more independent variables is the goal of regression analysis. A relationship model is hypothesized, and parameter values are approximated to create an estimated regression analysis. The following hypotheses are investigated using linear regression analysis.

H1: There is no significant impact exists between Performance and PA.

H2: There is a significant impact that exists between Performance and Experience.

H3: There is no significant impact exists between Performance and Subjectivity Bias.

H4: There is a significant impact that exists between Performance and employees' satisfaction.

Table 3. Results of Linear Regression Analysis with respect to HR Analytics including Subjectivity Bias, Fairness, Employees' Satisfaction, Employees' Willingness, Experience, Gender, and PA

Coefficients <sup>a</sup>					
Model	Unstandardized Coefficients		Standardized Coefficients	t	sig
	B	Std. Error	Beta ( $\beta$ )		
(constant)	0.886	0.421		2.114	0.037
Subjectivity Bias	0.092	0.17	0.041	0.548	0.558
Employees' Satisfaction	0.245	0.098	0.168	2.258	0.021
Experience	0.307	0.088	0.251	3.542	0.001
PA	0.245	0.098	0.168	2.258	0.21

a: dependent variable HR Analytics; significant level  $P \geq 0.05$

From Table 3, H1: There is no significant impact exists between Performance and PA with a significant level  $P \geq 0.05$ . Therefore, H1 is not significantly associated.

H2: There is a significant impact that exists between Performance and Experience with a significant level  $P \geq 0.05$ . Therefore, H2 is significantly associated.

H3: There is no significant impact exists between Performance and Subjectivity Bias with a significant level  $P \geq 0.05$ . Therefore, H3 is not significantly associated.

H4: There is a significant impact that exists between Performance and employees' satisfaction with a significant level  $P \geq 0.05$ . Therefore, H4 is significantly associated.

## 9. Findings

1. From statistical analysis, reliability, and correlation test, the gender factor has not attained a reliability score above 0.7 (i.e., Cronbach's  $\alpha$ /KR20 of gender factor is 0.56). Moreover, subjectivity bias exposed a negative association with performance.
2. From ANOVA test, it revealed the factors PA, experience, and

subjectivity bias have an impact on the performance of the IT employees.

3. In linear regression analysis, it is evident that subjectivity bias has a negative impact on performance. Furthermore, PA increases the willingness of the employees to improve their performance.

## 10. Conclusion

To summarise, data analytics in HR analytics is not a new-fangled concept. Although it has been in use for years, processing analytics through an organization's HR department still needs a particular amount of belief, expertise, and skill. This research found that the impact of HR analytics on PA for the performance improvisation in the IT industry with respect to employees' satisfaction and willingness has a strong and substantial link. Employees' analytics mindsets, analytics training, access to HR data, suitable technology, and willingness to adapt in a fast-paced environment are all elements that impact this connection. The use of HR analytics in the IT industry, according to this research, creates the platform upon which organizations may establish proactive analytics capabilities.

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