A Study on Application of HR Analytics in Improving Workforce Management

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ABSTRACT

This study looks at how HR analytics can be used to enhance workforce management in a particular company. HR analytics is essential for improving employee performance, workforce planning, and decision-making. A descriptive study design was employed to gather primary data from 165 respondents using a structured questionnaire. Spearman correlation, percentage analysis, and the normality test were used to examine the data. The results show that HR analytics greatly increases workforce productivity, lowers employee attrition, and aids in strategic decision-making. The study comes to the conclusion that implementing HR analytics improves organizational performance and workforce optimization.

Keywords: HR Analytics, Workforce Management, Employee Performance, Data-driven Decision Making.

1.INTRODUCTION

An emerging technology that aids businesses in making data-driven personnel management decisions is HR analytics. HR specialists can use it to analyse employee data and increase the effectiveness of hiring, training, performance reviews, and retention. Organizations are using HR analytics more frequently to obtain a competitive edge in today's market. It improves overall productivity and lessens decision-making ambiguity. This report emphasizes how crucial HR analytics are to enhancing workforce management procedures.

2. OBJECTIVE OF THE STUDY

1. To study the concepts of HR analytics and its significance for workforce management
2. To investigate how HR analytics contribute to efficient workforce planning and decision-making.
3. To determine how HR data influence turnover management and employee retention.
4. To assess how hiring, training, and performance management are supported by HR analytics.

3.SCOPE OF THE STUDY

The study specifically aims to analyse the application of HR analytics in workforce planning, recruitment, performance management, and employee retention. The study will look into the role of data-driven tools and metrics in increasing employee productivity and decision-making in HR functions. The scope of the study will include the evaluation of the impact of HR analytics in reducing employee turnover and increasing employee engagement. The study is limited to a specific set of organizations and HR data available during the period of the study. The study will look into the future opportunities and challenges in implementing HR analytics in workforce management.

4.REVIEW OF LITERATURE

Dr. P. Vanitha (2025) examined how HR analytics helps organizations improve talent management, workforce efficiency, and employee retention. The study found that it enables companies to make better hiring decisions using data-driven insights, helps track employee performance and monitor productivity effectively, and supports predictive analytics to reduce employee turnover by identifying risks and applying retention strategies early. It also supports workforce planning and fair hiring practices, helping organizations align employee skills with company goals

Nalin Dev Sharma et al. (2025) HR Analytics for Performance Tracking conducted research to track employee performance using HR data through Decision Tree and Random Forest methods. Results showed that productivity metrics were enhanced by data-driven HR systems. The study concluded that performance management systems are significantly improved by HR analytics.

5.RESEARCH METHODOLOGY

The research design used in the study is descriptive. Simple random sampling was used to choose a sample size of 165 respondents. Structured questionnaires were used to collect primary data, and websites and publications were used to obtain secondary data. Analysis was done using statistical tools like Spearman correlation, percentage analysis, and the normalcy test. Non-parametric tools were used because the data was not normally distributed.

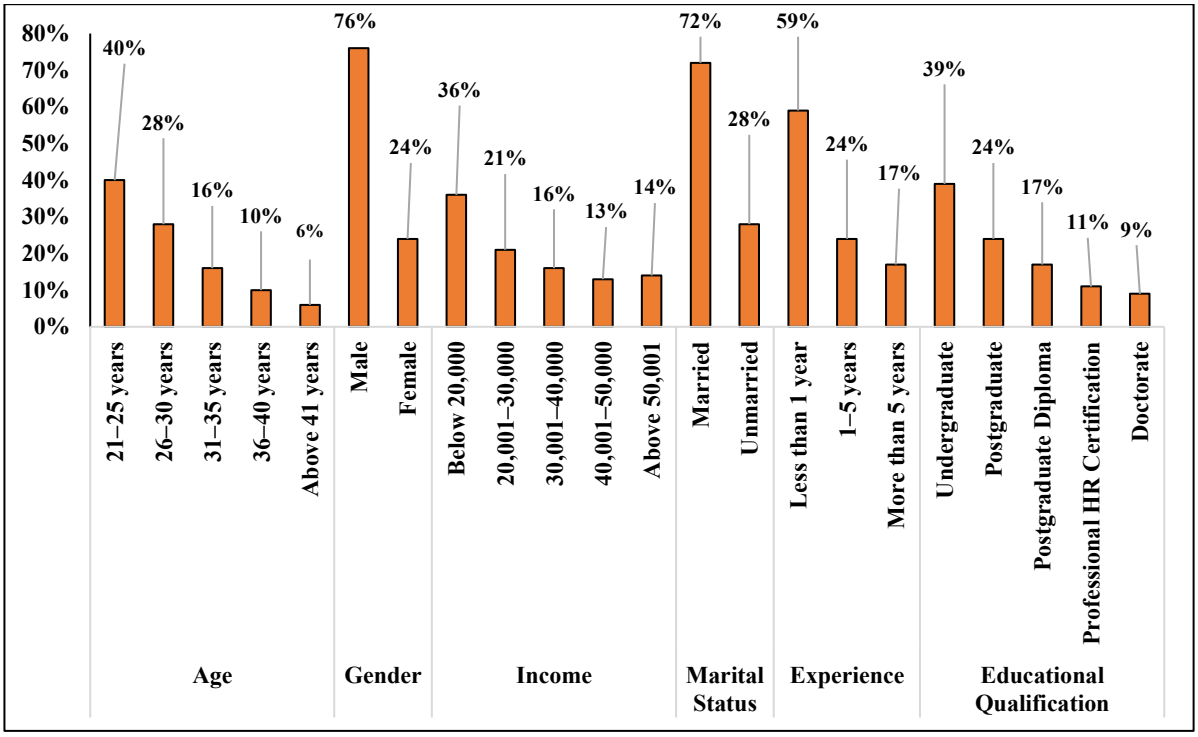
6.DATA ANALYSIS AND INTERPRETATION

Categories	Sub Categories	No. of Respondents	Percentage (%)
Age	21–25 years	66	40%
	26–30 years	46	28%
	31–35 years	26	16%
	36–40 years	17	10%
	Above 41 years	10	6%
Gender	Male	125	76%
	Female	40	24%
Income	Below 20,000	60	36%
	20,001–30,000	35	21%
	30,001–40,000	26	16%
	40,001–50,000	21	13%

	Above 50,001	23	14%
Marital Status	Married	119	72%
	Unmarried	46	28%
Experience	Less than 1 year	97	59%
	1–5 years	40	24%
	More than 5 years	28	17%
Educational Qualification	Undergraduate	64	39%
	Postgraduate	40	24%
	Postgraduate Diploma	28	17%
	Professional HR Certification	18	11%
	Doctorate	15	9%
Total	**All categories**	**165**	**100**

FINDINGS

The age group of 21–25 years old comprises the majority of responders (40%), followed by 26–30 years old (28%), 31–35 years old (16%), 36–40 years old (10%), and over 41 years old (6%). It may be deduced that 76% of the responders are men and 24% are women. 36% of employees make less than ₹20,000, followed by 21% who make between ₹20,001 and ₹30,000, 16% who make between ₹30,001 and ₹40,000, 14% who make more than ₹50,001, and 13% who make between ₹40,001 and ₹50,000. In terms of marital status, 28% of respondents are single and 72% are married. In terms of work experience, 59% have less than a year, 24% have between one and five years, and 17% have more than five years. In terms of educational background, 39% have undergraduate degrees, 24% have graduate degrees, 17% have postgraduate certificates, 11% have professional HR certifications, and 9% have doctorates.



INFERENCE

P-value < 0.05, Alternative Hypothesis (H1) is accepted. There is a significant relationship between HR analytics concepts and workforce management effectiveness

FRIEDMAN TEST

H0: HR analytics does not significantly contribute to efficient workforce planning and decision-making.

H1: HR analytics significantly contributes to efficient workforce planning and decision-making.

Test Statistics[a]

N	165
Chi-Square	19.051
df	3
Asymp. Sig.	.000

a. Friedman Test

INFERENCE

P-value < 0.05, Alternative Hypothesis (H1) is accepted HR analytics significantly contributes to efficient workforce planning and decision-making

SPEARMAN RANK CORRELATION

H0: HR data has no significant influence on turnover management and employee retention.

H1: HR data has a significant influence on turnover management and employee retention.

Spearman Rank Correlation

- **H0:** There is no significant relationship between HR analytics concepts and workforce management effectiveness.
- **H1:** There is a significant relationship between HR analytics concepts and workforce management effectiveness.

Correlations

			HR Analytics improves decision-making in workforce management	HR Analytics helps in reducing employee turnover	HR Analytics improves employee performance evaluation.	HR Analytics supports better workforce planning.	HR Analytics enhances employee engagement strategies.
Spearman's rho	HR Analytics improves decision-making in workforce management	Correlation Coefficient	1.000	.906**	.905**	.656**	.881**
		Sig. (2-tailed)	.	.000	.000	.000	.000
		N	165	165	165	165	165
	HR Analytics helps in reducing employee turnover	Correlation Coefficient	.906**	1.000	.984**	.686**	.955**
		Sig. (2-tailed)	.000	.	.000	.000	.000
		N	165	165	165	165	165
	HR Analytics improves employee performance evaluation.	Correlation Coefficient	.905**	.984**	1.000	.710**	.966**
		Sig. (2-tailed)	.000	.000	.	.000	.000
		N	165	165	165	165	165
	HR Analytics supports better workforce planning.	Correlation Coefficient	.656**	.686**	.710**	1.000	.687**
		Sig. (2-tailed)	.000	.000	.000	.	.000
		N	165	165	165	165	165
	HR Analytics enhances employee engagement strategies.	Correlation Coefficient	.881**	.955**	.966**	.687**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.
		N	165	165	165	165	165

Correlations

			Rate the effectiveness of HR analytics in reducing employee turnover.	Data analysis improves employee retention strategies	HR analytics helps identify reasons for employee turnover
Spearman's rho	Rate the effectiveness of HR analytics in reducing employee turnover.	Correlation Coefficient	1.000	.979**	.907**
		Sig. (2-tailed)	.	.000	.000
		N	165	165	165
	Data analysis improves employee retention strategies	Correlation Coefficient	.979**	1.000	.905**
		Sig. (2-tailed)	.000	.	.000
		N	165	165	165
	HR analytics helps identify reasons for employee turnover	Correlation Coefficient	.907**	.905**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	165	165	165

INFERENCE

P-value < 0.05, Alternative Hypothesis (H1) is accepted HR data has a significant influence on turnover management and employee retention.

CHI SQUARE TEST

H0: There is no significant association between work experience and the area benefiting from HR analytics.

H1: There is a significant association between work experience and the area benefiting from HR analytics.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.235	8	.001
Likelihood Ratio	33.816	8	.000
Linear-by-Linear Association	2.195	1	.138
N of Valid Cases	165		

INFERENCE

P-value < 0.05, Alternative Hypothesis (H1) is accepted There is a significant association between work experience and the area benefiting from HR analytics.

7.SUMMARY OF FINDINGS

- It is inferred that majority of responders are between the ages of 21 and 25.
- It is assumed that majority of responders are male.
- The majority of respondents are assumed to make less than 20,000.
- it is inferred that majority of respondents are presumably married.
- it is inferred that majority of responses appear to have less than a year's worth of job experience.
- It is assumed that undergraduates make up the majority of the responders
- P-value < 0.05, Alternative Hypothesis (H1) is accepted. There is a significant relationship between HR analytics concepts and workforce management effectiveness
- P-value < 0.05, Alternative Hypothesis (H1) is accepted HR analytics significantly contributes to efficient workforce planning and decision-making
- P-value < 0.05, Alternative Hypothesis (H1) is accepted HR data has a significant influence on turnover management and employee retention.
- P-value < 0.05, Alternative Hypothesis (H1) is accepted There is a significant association between work experience and the area benefiting from HR analytics.

8.SUGGESTIONS

- To enhance workforce planning and data-driven decision-making, organizations should increase the use of HR analytics technologies.
- Employees and HR professionals should receive regular training to improve their analytical abilities and make efficient use of HR analytics.
- Predictive analytics should be used by businesses to detect employee turnover issues and put proactive retention plans into place.
- To enhance candidate selection, lower hiring expenses, and improve hiring quality, management should include HR analytics into recruitment procedures.
- HR analytics should be used by organizations to identify employee training needs and conduct ongoing performance reviews.

9.CONCLUSION

The study comes to the conclusion that by improving decision-making, streamlining workforce planning, and lowering employee turnover, HR analytics greatly enhances workforce management. Organizations can use it to make data-driven, strategic decisions. Consequently, enhanced organizational performance and competitive advantage might result from the successful application of HR analytics.

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