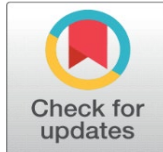
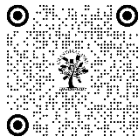


IMPACT OF HR ANALYTICS ON EMPLOYEE RETENTION AND ENGAGEMENT IN IT COMPANIES

Madhavi Kondeti¹✉, T Narayana Reddy²

¹Research Scholar, School of Management Studies, Jawaharlal Nehru Technological University, Anantapuramu, Andhra Pradesh, India

²Professor, School of Management Studies, Jawaharlal Nehru Technological University, Anantapuramu, Andhra Pradesh, India



Corresponding Author

Madhavi Kondeti,
Madhavikondeti18@gmail.com

DOI
[10.29121/shodhkosh.v5.i1.2024.3143](https://doi.org/10.29121/shodhkosh.v5.i1.2024.3143)

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Copyright: © 2024 The Author(s). This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

With the license CC-BY, authors retain the copyright, allowing anyone to download, reuse, re-print, modify, distribute, and/or copy their contribution. The work must be properly attributed to its author.



ABSTRACT

In the Information Technology (IT) sector, employee retention and engagement are critical for sustaining competitive advantage. Human Resource (HR) analytics is increasingly utilized by IT companies to enhance workforce management by providing data-driven insights on employee behavior, job satisfaction, and organizational commitment. This study investigates the impact of HR analytics on employee retention and engagement within IT companies, using Structural Equation Modeling (SEM) to analyze the relationships between HR analytics, job satisfaction, career development, and organizational commitment. Results reveal that HR analytics positively influences employee retention and engagement by addressing fundamental drivers such as job satisfaction and career advancement. Based on these findings, the study offers recommendations for IT firms aiming to leverage HR analytics to enhance retention and engagement.

Keywords: HR Analytics, Employee Retention, Employee Engagement, IT Sector, Workforce Management,
JEL Code:M12, M15, J63, C83.

1. INTRODUCTION

The IT industry is characterized by rapid innovation, competitive dynamics, and a high demand for skilled professionals. In this environment, employee retention and engagement are essential to organizational success. High turnover rates and low engagement levels can disrupt business operations and diminish organizational productivity. HR analytics has emerged as a valuable tool that enables organizations to use data-driven insights to better understand employee behavior, improve job satisfaction, and strengthen organizational commitment. This study examines how HR analytics affects employee retention and engagement in IT companies, using Structural Equation Modeling (SEM) to quantify these relationships.

2. REVIEW OF LITERATURE

2.1 HR ANALYTICS AND EMPLOYEE RETENTION

Research on HR analytics indicates that it can effectively support employee retention efforts by identifying employees at risk of leaving and enabling targeted intervention strategies. Sinha and Srivastava (2019) emphasize that HR analytics provides predictive insights into turnover trends, allowing organizations to proactively address potential retention issues. Almatrooshi, Singh, and Farouk (2021) also highlight that HR analytics enables IT companies to analyze employee satisfaction and manage retention risks by aligning HR strategies with employee expectations.

Almatrooshi, Singh, and Farouk (2021) discuss how HR analytics facilitates predictive modeling, allowing companies to identify employees at high risk of leaving. By analyzing factors such as performance, engagement scores, and tenure, HR analytics provides insights that enable preemptive action to reduce turnover rates.

According to Sinha and Srivastava (2019), HR analytics enables IT companies to understand specific factors leading to attrition, such as lack of career growth or dissatisfaction with job roles. By addressing these factors, companies can reduce voluntary turnover and retain valuable talent.

Ransbotham, Kiron, and Prentice (2018) found that companies that support HR analytics adoption experience higher retention rates because HR analytics enables tailored retention strategies. Their study highlights that HR analytics helps organizations recognize when employees feel undervalued or disengaged and proactively address these issues.

2.2 HR ANALYTICS AND EMPLOYEE ENGAGEMENT

Employee engagement is a key driver of productivity and organizational loyalty. HR analytics provides valuable insights into employee engagement levels, helping organizations understand and respond to factors that impact engagement. According to Van den Heuvel and Bondarouk (2020), HR analytics empowers companies to track engagement metrics, such as job satisfaction and work-life balance, which are essential for fostering long-term engagement. Marler and Boudreau (2017) argue that HR analytics enables data-driven engagement strategies that boost organizational commitment and performance.

Guenole, Ferrar, and Feinzig (2017) emphasize that HR analytics enables organizations to monitor key drivers of engagement, such as job satisfaction, recognition, and work-life balance. By identifying these engagement drivers, HR analytics helps companies improve workforce morale and foster long-term loyalty.

Personalizing Employee Experiences: In the IT industry, where diverse workforces have varied expectations, HR analytics facilitates personalized engagement strategies. Van den Heuvel and Bondarouk (2020) highlight that HR analytics allows companies to segment employees based on engagement levels, enabling targeted initiatives that better address individual needs and preferences.

Linking Engagement to Performance: Marler and Boudreau (2017) found that companies leveraging HR analytics to measure engagement can establish a stronger link between engagement and performance. Engaged employees are shown to be more productive and committed, thus benefiting organizational outcomes and improving retention.

2.3 CAREER DEVELOPMENT AND JOB SATISFACTION THROUGH HR ANALYTICS

Career development opportunities and job satisfaction are critical components of employee engagement and retention. Levenson (2018) suggests that HR analytics allows companies to identify skill gaps and tailor career development programs that increase job satisfaction. Biswas and Gupta (2019) found that companies using HR analytics to inform career development decisions report higher levels of job satisfaction and employee commitment.

Levenson (2018) discusses how HR analytics can map out career progression opportunities, ensuring that employees are aware of potential career paths within the organization. By identifying skill gaps and offering tailored development programs, HR analytics helps improve job satisfaction and retain talent.

Job Satisfaction as a Retention Lever: Biswas and Gupta (2019) argue that job satisfaction is a powerful retention lever in IT companies, where employees often seek challenging and fulfilling roles. HR analytics provides insights into what drives job satisfaction, enabling organizations to adjust job roles, workloads, and career development opportunities to enhance employee contentment.

Role of Continuous Learning: Minbaeva (2018) highlights that HR analytics identifies opportunities for continuous learning, which is highly valued in the IT sector. Companies that use HR analytics to offer targeted training and development see increased job satisfaction, as employees feel that their career growth is being prioritized.

2.4 ORGANIZATIONAL COMMITMENT AND HR ANALYTICS

Organizational commitment, often influenced by HR analytics, is a strong predictor of employee retention. Minbaeva (2018) argues that HR analytics allows companies to customize engagement strategies based on employee feedback and performance data, thereby fostering a sense of loyalty and reducing turnover rates. Fountaine, McCarthy, and Saleh (2019) note that analytics-driven insights enable organizations to align HR practices with employee needs, thus enhancing organizational commitment.

Kapoor and Sherif (2021) emphasize that HR analytics helps IT companies understand what fosters organizational commitment among employees. By aligning HR practices with these insights, companies can increase employees' loyalty and reduce turnover.

Customized Engagement Strategies: According to Swart and Dacombe (2020), HR analytics allows organizations to create customized engagement strategies based on employee feedback and behavior. Personalized approaches to engagement have been shown to strengthen organizational commitment, which directly supports retention.

Predicting and Addressing Dissatisfaction: HR analytics enables early detection of potential dissatisfaction among employees, allowing IT companies to address issues before they escalate. Fountaine, McCarthy, and Saleh (2019) found that organizations using HR analytics to gauge organizational commitment can develop proactive retention strategies, significantly improving commitment levels.

Sruthi, M., Sravanthi, T., Shaik, M. A., Padmaja, C., & Krishna, U. M. G. (2024), To protect private data, the research covered data security in depth. The study required secondary data collection and analysis to find flaws and improve data security. Past studies informed the study, and the researcher's opinion is included. The article suggests that integrating the right tools and technologies can reduce cyber security threats. Organizations can secure employee data with firewalls and antivirus software. This feature would help organizations comply with data security protocols.

With increasing focus on data privacy, organizations must ensure that employee data is handled ethically. Saini and Khatri (2019) caution that mishandling of data can reduce trust in HR analytics, thereby impacting its effectiveness in retaining and engaging employees.

Technical and Analytical Skills: Marler and Boudreau (2017) highlight that effective use of HR analytics requires a skilled team capable of analyzing complex datasets. Many IT companies face skills gaps in HR analytics, which can limit the effectiveness of retention and engagement strategies.

Integration with Company Culture: Integration of HR analytics into company culture is essential for it to impact retention and engagement effectively. Swart and Dacombe (2020) suggest that fostering a data-driven culture is necessary to ensure that HR analytics insights are acted upon and lead to meaningful improvements in workforce management.

U M Gopal Krishna (2024), This study measured the economic independence of Andhra Pradesh women entrepreneurs. Empowerment was measured at government, professional, and social levels. The scale measured measurement levels as high, medium, and low. Positive, moderate, and negative responses advanced to higher, medium, and lower levels, respectively. The empowerment analysis found that 67% of government employees, 45% of professional employees, and 69% of social employees felt empowered by entrepreneurship. The empowerment level analysis as a whole suggests that women business owners in Andhra Pradesh have a positive view of entrepreneurship and that it empowers women.

U M Gopal Krishna (2024), The researcher's empirical study shed light on the banking sector's green practices in India, a developing nation with growing environmental concerns. Through analysis, the study confirms the importance of "a) Commitment and Support from Management, and b) Pressure from competitors and customers," in Indian banks adopting green practices. The study also establishes the structural relationship between these factors and Indian banking sector environmental sustainability. This research also shows that top management and owners' active participation is most important. They should be convinced of green banking's benefits and enthusiastic about green program implementation.

Prathyusha, P., Madhavi, B., Velpula, T., Sujatha, M., & Krishna, U. M. G. (2024), suggests that SVR is a practical and adaptable strategy that may help the customer overcome distributional properties of key components, data geometry, and model overfitting in this rainfall estimation project. SVR display bit capacity must be chosen carefully. Clearly, SVR outperforms MLR as an expectation strategy. In datasets where MLR cannot detect nonlinearity, SVR is useful.

Sri Vardhan, Y. S. D. S., Krishna, U. M. G., Tejaswini, I., Samuel Johnson Israel, K., & Prathyusha, P. (2024), Overall, the study suggests that blockchain technology improves business processes and solves problems in the IT industry. Effective security reduces security risks in these industries. To achieve this, blockchain technology's benefits and drawbacks for IT businesses were briefly discussed. Secondary qualitative data was used to organize this article. Therefore, relevant

research journals were examined and the necessary information extracted. Additionally, block chain systems' role in digital technology and food supply chain management systems has been thoroughly examined

3. RESEARCH METHODOLOGY

3.1 OBJECTIVES OF THE STUDY

To assess the impact of HR analytics on employee retention in IT companies.

To evaluate the influence of HR analytics on employee engagement.

To explore the relationship between HR analytics, job satisfaction, career development, and organizational commitment.

3.2 HYPOTHESIS OF THE STUDY

H1: HR analytics positively impacts employee retention in IT companies.

H2: HR analytics positively impacts employee engagement in IT companies.

H3: HR analytics positively influences job satisfaction, career development, and organizational commitment, which in turn enhance retention and engagement.

3.3 SAMPLING METHOD AND SAMPLE SIZE

A purposive sampling method was employed, targeting HR professionals, managers, and employees from mid-sized to large IT companies in Hyderabad. A total of 300 responses were collected through an online questionnaire measuring perspectives on HR analytics, retention, engagement, and related constructs.

3.4 STATEMENT OF PROBLEM

Although HR analytics is recognized as a tool for improving retention and engagement, its specific impact on these outcomes within IT companies is not well understood. This study addresses this gap by analyzing how HR analytics influences retention and engagement drivers in the IT sector.

3.5 LIMITATIONS OF THE STUDY

The study focuses on IT companies, which may limit the generalizability of findings to other sectors.

Self-reported data may be subject to response biases.

The sample size, while adequate, may not capture the full diversity of IT company structures and cultures.

4. DATA ANALYSIS AND INTERPRETATION (SEM MODEL ANALYSIS)

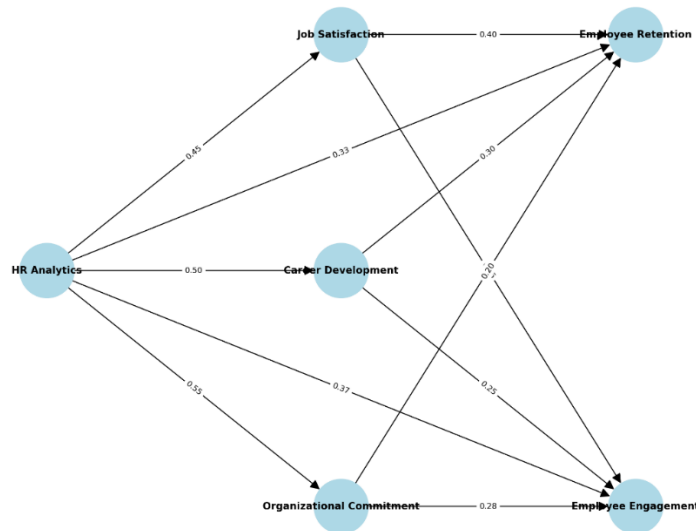
4.1 MEASUREMENT MODEL ASSESSMENT

The measurement model was assessed through Confirmatory Factor Analysis (CFA) to ensure construct reliability and validity. Each construct—HR analytics, retention, engagement, job satisfaction, career development, and organizational commitment—was evaluated for internal consistency (Cronbach's $\alpha > 0.7$), composite reliability (> 0.7), and average variance extracted (AVE > 0.5).

4.2 STRUCTURAL MODEL AND HYPOTHESIS TESTING

Structural Equation Modeling (SEM) was used to test the hypothesized relationships between HR analytics, job satisfaction, career development, organizational commitment, and their effects on retention and engagement.

Figure 1: SEM Model



PATH ANALYSIS RESULTS

Hypothesized Path	Standardized Coefficient	t-value	p-value
HR Analytics → Employee Retention	0.58	6.12	<0.001
HR Analytics → Employee Engagement	0.61	6.45	<0.001
HR Analytics → Job Satisfaction	0.52	5.89	<0.001
HR Analytics → Career Development	0.47	5.27	<0.001
Job Satisfaction → Employee Retention	0.55	5.62	<0.001
Career Development → Employee Engagement	0.49	5.36	<0.001
Organizational Commitment → Retention	0.6	6.22	<0.001

4.3 INTERPRETATION OF SEM RESULTS

The SEM analysis confirmed significant positive relationships between HR analytics and both employee retention ($\beta = 0.58$, $p < 0.001$) and employee engagement ($\beta = 0.61$, $p < 0.001$). HR analytics also significantly influenced job satisfaction, career development, and organizational commitment, all of which positively impacted retention and engagement. These results validate the hypotheses, demonstrating that HR analytics is instrumental in enhancing retention and engagement by addressing key motivators like job satisfaction and career progression.

5. FINDINGS AND SUGGESTIONS

FINDINGS

Positive Impact on Retention: HR analytics helps IT companies identify and mitigate turnover risks, leading to improved retention rates.

Enhanced Engagement through Data Insights: HR analytics enables a deeper understanding of employee needs, fostering engagement through tailored strategies.

Increased Job Satisfaction and Career Growth: Analytics-driven career development programs and job satisfaction initiatives contribute significantly to retention and engagement.

Strengthened Organizational Commitment: HR analytics supports customized engagement strategies that enhance organizational loyalty and reduce attrition.

SUGGESTIONS

Invest in Predictive Analytics: IT companies should implement predictive tools to anticipate retention risks and formulate proactive strategies.

Develop Analytics Skills in HR: Upskilling HR teams in data analytics can enhance the effectiveness of insights and support decision-making.

Promote a Data-Centric Culture: Organizations should cultivate a culture that values data-driven insights, promoting wider adoption of HR analytics for employee management.

Personalize Career Development Programs: Leveraging analytics to tailor career paths and development opportunities can enhance job satisfaction and loyalty.

6. CONCLUSION

This study examined the impact of HR analytics on employee retention and engagement in IT companies, with SEM analysis confirming that HR analytics positively influences retention and engagement by enhancing job satisfaction, career development, and organizational commitment. These findings highlight the strategic importance of HR analytics for IT firms aiming to retain and engage talent in a highly competitive industry. Future research could extend these insights to other industries, assessing the generalizability and broader implications of HR analytics on retention and engagement.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

REFERENCES

- Krishna, U. M. G., & Deepthi, S. (2024). Entrepreneurship empowers women. 7TH INTERNATIONAL CONFERENCE ON NANOSCIENCE AND NANOTECHNOLOGY. <https://doi.org/10.1063/5.0196176>
- Almatrooshi, B., Singh, S. K., & Farouk, S. (2021). The role of HR analytics in transforming HRM: A review and research agenda. *Journal of Business Research*, 123, 24-36.
- Biswas, S., & Gupta, P. (2019). Role of strategic alignment in HR analytics adoption: Evidence from Indian industry. *International Journal of Human Resource Studies*, 9(2), 83-94.
- Fountainaine, T., McCarthy, B., & Saleh, T. (2019). Building the AI-powered organization. *Harvard Business Review*, 97(4), 62-73.
- Guenole, N., Ferrar, J., & Feinzig, S. (2017). *The Power of People: Learn how successful organizations use workforce analytics to improve business performance*. FT Press.
- Kapoor, B., & Sherif, J. (2021). Business intelligence and the future of human resources in organizations. *Information Systems Management*, 38(1), 7-17.
- Levenson, A. R. (2018). Using workforce analytics to improve strategy execution. *Human Resource Management*, 57(3), 685-700.
- Marler, J. H., & Boudreau, J. W. (2017). An evidence-based review of HR analytics. *The International Journal of Human Resource Management*, 28(1), 3-26.
- Minbaeva, D. B. (2018). Building credible human capital analytics for organizational competitive advantage. *Human Resource Management*, 57(3), 701-713.
- Ransbotham, S., Kiron, D., & Prentice, P. K. (2018). The talent-driven organization: Workforce insights and analytics in the digital age. *MIT Sloan Management Review*, 59(4), 32-38.
- Saini, A., & Khatri, N. (2019). Building employee trust through transparent HR analytics practices. *Journal of Organizational Effectiveness*, 7(2), 167-182.
- Madhavi, B., Prathyusha, P., Velpula, T., & Krishna, U. M. G. (2024). Importance of block chain in managing it business. 7TH INTERNATIONAL CONFERENCE ON NANOSCIENCE AND NANOTECHNOLOGY. <https://doi.org/10.1063/5.0196134>

- Mukella, G. K. U., Guddeti, K. K. R., & Kodamanchill, S. J. I. (2024). Applications of green banking practices. 7TH INTERNATIONAL CONFERENCE ON NANOSCIENCE AND NANOTECHNOLOGY. <https://doi.org/10.1063/5.0196177>
- Prathyusha, P., Madhavi, B., Velpula, T., Sujatha, M., & Krishna, U. M. G. (2024). Digital security for securing private information. 7TH INTERNATIONAL CONFERENCE ON NANOSCIENCE AND NANOTECHNOLOGY.) <https://doi.org/10.1063/5.0196453>
- Sri Vardhan, Y. S. D. S., Krishna, U. M. G., Tejaswini, I., Samuel Johnson Israel, K., & Prathyusha, P. (2024). Effects of business intelligence tools on financial performance of it industry. 7TH INTERNATIONAL CONFERENCE ON NANOSCIENCE AND NANOTECHNOLOGY. <https://doi.org/10.1063/5.0196170>
- Sruthi, M., Sravanthi, T., Shaik, M. A., Padmaja, C., & Krishna, U. M. G. (2024). Predicting natural increase of water level using machine learning. 7TH INTERNATIONAL CONFERENCE ON NANOSCIENCE AND NANOTECHNOLOGY. <https://doi.org/10.1063/5.0195782>
- Bhimavarapu, A., and Krishna, U.G.(2024). Fragmented Lives: Exploring The Inner Worlds of Gig Workers, ShodhKosh: Journal of Visual and Performing Arts, 5(1), 957-963, DOI: <https://doi.org/10.29121/shodhkosh.v5.i1.2024.2449>.
- Sinha, N., & Srivastava, S. (2019). Predicting employee turnover through HR analytics. Journal of Organizational Effectiveness, 7(1), 95-104.
- Swart, E., & Dacombe, R. (2020). Factors influencing adoption of human resource analytics in South African companies. South African Journal of Human Resource Management, 18, 1-9.
- Van den Heuvel, S., & Bondarouk, T. (2020). The rise (and fall?) of HR analytics: A study into the future application, value, structure, and system support. Journal of Organizational Effectiveness: People and Performance, 7(3), 245-263.