ISSN: 2582-5526 www.thevoiceofcreativeresearch.com

The Voice of Creative Research

Vol. 8 & Issue 2 (April 2026)

DOI: https://doi.org/10.53032/tvcr/2026.v8n2.41

AI-Driven Predictive Analytics and Strategic HR Planning in the IT Sector: A Study of Selected Multinational IT Corporations

Dr Misha V
Assistant Professor,
Department of Commerce,
Sree Narayana College, Kollam,
Email: mishavkiran@gmail.com

Anil Raj V
Assistant Professor,
Department of Commerce,
Sree Narayana College, Punalur,
Email: anilvaradaraj@gmail.com

Abstract

The quick development of artificial intelligence (AI) has drastically changed how multinational companies handle their human resources. AI-driven predictive analytics, in particular, has become an effective instrument for improving strategic HR planning by empowering businesses to make data-driven choices about talent management, workforce forecasting, employee retention, and performance optimisation. This study examines at how AI-driven predictive analytics might help some global IT companies, like Infosys, Tata Consultancy Services, and Wipro, improve their strategic HR planning. Both primary and secondary data sources are used in this descriptive and analytical research design. Structured questionnaires were used to collect primary data from HR specialists and managerial staff, while corporate reports, research articles, and pertinent industry journals were used to collect secondary data. The association between AI-driven predictive analytics and strategic HR planning techniques was examined using statistical techniques like regression analysis, correlation, and descriptive statistics. The results show that using predictive analytics greatly increases the accuracy of workforce planning, strengthens talent acquisition tactics, and encourages proactive decision-making in HR departments. Furthermore, the use of AI technologies helps global IT businesses achieve long-term strategy alignment and increased organisational efficiency. The study emphasises the increasing significance of digital

transformation in human resource management and offers guidance to businesses intending to use advanced analytics tools to improve strategic HR planning.

Keywords: Artificial Intelligence, Predictive Analytics, Strategic Human Resource Planning, Multinational IT Corporations, Workforce Analytics, Workforce Forecasting, Employee Retention, Data-Driven Decision Making, Multinational IT Corporations, Organizational Performance.

Introduction

Globally, organisational management techniques have undergone a substantial transformation due to a rapid progress of digital technologies. Among these technologies, predictive analytics and artificial intelligence (AI) have become potent instruments that facilitate data-driven decision-making across a range of corporate operations. AI-driven predictive analytics is being used more and more in the field of human resource management (HRM) to enhance performance management, talent acquisition, workforce planning, and employee retention. To improve efficiency and competitiveness in the global market, multinational IT companies like Infosys, Tata Consultancy Services, and Wipro have started using advanced analytics technologies into their HR strategy.

In order to make sure that businesses have the right amount of workers with the right capabilities at the right time, strategic human resource planning, or SHRP, is essential. The accuracy of workforce forecasting was occasionally constrained by the reliance of traditional HR planning techniques on managerial judgement and historical data. However, AI-driven predictive analytics makes it possible for businesses to examine massive amounts of personnel data, spot trends, and more precisely forecast future HR requirements. This technological transformation has helped organizations align human resource strategies with long-term organizational goals.

The use of predictive analytics in HR planning has grown in significance in multinational IT companies, where labour dynamics are extremely complex and global talent competition is fierce. Organisations may predict talent gaps, optimise recruitment strategies, and enhance employee engagement and retention by implementing AI-based technologies. Thus, a major topic of study in modern human resource management is comprehending how AI-driven predictive analytics affects strategic HR planning.

Review of Literature

According to Thomas H. Davenport and Jeanne G. Harris (2017), organisations are depending more and more on advanced analytics in order to assist strategic decision-making across all business departments, including human resources,. According to their research, companies may improve talent management and strategic workforce planning by using predictive analytics to analyse workforce data and forecast employee behaviour.

The significance of HR analytics in connecting human resource practices with organisational success was highlighted in the article by John W. Boudreau and Peter M.

Ramstad (2007). The authors contended that data-driven HR systems enable businesses to match long-term business goals with human capital strategies, a crucial component of strategic HR planning in international firms.

Prashant Bansal and John McKnight (2018) investigated the use of predictive analytics in workforce management. According to the results, companies can use predictive analytics tools to uncover trends in skill requirements, employee attrition, and recruitment efficacy. These insights enable HR managers to put proactive workforce development and retention plans into practice.

The article of Wayne F. Cascio and John W. Boudreau (2016) covered the increasing impact on human resource management. According to their findings, businesses that use predictive analytics are better equipped to foresee workforce issues and create effective HR strategies. The survey also showed how international firms are using AI-based HR solutions more frequently to improve productivity and decision-making.

Bernard Marr (2018) investigated the application of artificial intelligence in HR functions. The research shows that AI-powered predictive analytics can significantly improve recruitment processes, employee engagement, and workforce planning. By analyzing large datasets, organizations can make more accurate predictions regarding employee performance and future talent requirements.

Need and Significance of the Study

Human resource planning is facing both new opportunities and challenges due to the growing integration of artificial intelligence and predictive analytics in organisational management. Effective strategic HR planning is crucial for multinational IT companies to manage global people, stay competitive, and adapt to quick changes in technology. Large and complicated workforce data might be difficult for traditional HR planning techniques to handle. By empowering businesses to make more precise projections and well-informed labour management decisions, AI-driven predictive analytics helps get over these constraints.

This study is important because it examines how strategic HR planning practices in global IT companies might be improved by predictive analytics. The findings of the research may provide insight into the advantages of implementing AI-based analytical tools in HR operations. Additionally, it helps organisations in comprehending how predictive analytics may improve talent management, workforce forecasts, and employee retention tactics.

Additionally, by studying the relationship between AI-driven predictive analytics and strategic HR planning in the context of multinational IT businesses, the study contributes to an existing body of academic research. The results may also assist HR managers, policymakers, and organizational leaders in developing more effective HR strategies that align with digital transformation trends. Thus, the study holds practical as well as theoretical importance in the evolving field of human resource management.

Statement of the Problem

Effective workforce planning is essential for organisational success in the highly competitive and dynamic business environment that multinational IT businesses compete in in the modern digital era. Many businesses continue to rely on conventional HR planning

techniques, which may not be sufficient to handle the complexity of contemporary workforce management, despite the growing availability of innovative technologies. These traditional methods frequently fall short in forecasting workforce demand, future skill needs, and employee turnover, which can result in inefficient recruitment, training, and talent retention.

Although AI-driven predictive analytics has the potential to improve strategic HR planning by providing data-driven insights and accurate workforce forecasts, its adoption and effectiveness in multinational IT corporations remain an important area of investigation. Organizations may face some challenges related to technology adoption, data integration, and the effective utilization of analytics in HR decision-making.

Therefore, there is a need to examine how AI-driven predictive analytics influences strategic human resource planning in multinational IT corporations and to understand the extent to which these technologies contribute to improved HR strategies and organizational performance. Therefore, this study attempts to address this issue by analysing the role and impact of predictive analytics in enhancing strategic HR planning within selected multinational IT corporations.

Scope of the Study

The present study focuses on examining the role of Artificial Intelligence driven predictive analytics in enhancing strategic human resource planning within multinational IT corporations. The scope of the study is limited to some selected multinational IT companies such as Infosys, Tata Consultancy Services, and Wipro, which are widely recognized for adopting advanced digital technologies in their organizational processes.

The study mainly analyses how predictive analytics tools are utilized in HR functions such as workforce forecasting, talent acquisition, employee retention, and performance management. It also examines how AI-based analytical systems support strategic HR decision-making and help organizations align their human resource strategies with long-term organizational objectives. Geographically, the research focuses on multinational IT corporations operating in India, where the adoption of digital technologies in human resource management is rapidly increasing. The study includes the perspectives of HR professionals and managerial staff involved in workforce planning and HR analytics.

Additionally, the study also attempts to understand the extent to which AI-driven predictive analytics contributes to improving the efficiency and effectiveness of strategic HR planning. However, the scope of the study is limited to selected organizations and does not cover all multinational corporations or industries. Despite these limitations, the findings are expected to provide valuable insights into the application of predictive analytics in strategic human resource planning within multinational IT corporations

Objectives of the Study

1. To examine the adoption of AI-driven predictive analytics in strategic human resource management in selected multinational IT corporations such as Infosys, Tata Consultancy Services, and Wipro.
2. To evaluate the impact of AI-driven predictive analytics on HR decision-making in multinational IT corporations.

3. To identify the benefits and challenges associated with the use of predictive analytics in HR planning within multinational organizations.
4. To assess how predictive analytics contributes to improving employee retention, recruitment strategies, and overall organizational efficiency.

Research Methodology

The present study adopted a descriptive and analytical research design to examine the impact of AI-driven predictive analytics on strategic human resource planning in multinational IT corporations. The study is based on both primary and secondary data sources. Primary data were collected through a structured questionnaire administered to HR professionals, managers, and employees working in selected multinational IT corporations such as Infosys, Tata Consultancy Services, and Wipro. Secondary data were collected from journals, books, research articles, company reports, and credible online sources related to artificial intelligence, predictive analytics, and strategic human resource management. The study adopted a convenience sampling technique, and a total sample of 100 respondents was selected for data collection. The collected data were analysed using statistical tools such as percentage analysis, mean, standard deviation, correlation analysis, and regression analysis to examine the relationship between AI-driven predictive analytics and strategic human resource planning.

Results and Discussion

The collected data from 100 respondents were analysed using percentage analysis, mean, standard deviation, correlation, and regression analysis to examine the role of AI-driven predictive analytics in strategic human resource planning in selected multinational IT corporations such as Infosys, Tata Consultancy Services, and Wipro.

Table 1

Level of Awareness of AI-Driven Predictive Analytics among Respondents

Awareness Level	Number of Respondents	Percentage (%)
Highly Aware	30	30
Moderately Aware	43	43
Slightly Aware	18	18
Not Aware	9	9
Total	**100**	**100**

Interpretation:

Table 1 shows that 30% are highly aware of AI-driven predictive analytics while 43% of respondents are moderately aware. Only a 9% of respondents reported that they are not aware of such technologies. This indicates that awareness of AI-based analytics is relatively high among employees in multinational IT corporations, reflecting the growing adoption of advanced HR technologies.

Table 2

Descriptive Statistics of Key Variables

Variable	Mean	Standard Deviation
Adoption of AI Predictive Analytics	3.82	0.64
Workforce Forecasting Efficiency	3.91	0.59
Talent Management Improvement	3.76	0.66
Strategic HR Decision-Making	3.87	0.61

Interpretation:

The mean values indicate that respondents generally agree that AI-driven predictive analytics improves HR planning practices. The highest mean score (3.91) is observed for workforce forecasting efficiency, suggesting that predictive analytics significantly enhances the ability of organizations to anticipate workforce requirements. The relatively low standard deviation values indicate moderate consistency in respondents' opinions.

Table 3

Correlation between AI Predictive Analytics and Strategic HR Planning Variables

Variables	1	2	3	4
Adoption of AI Predictive Analytics	1			
Efficiency of Workforce Forecasting	0.612**	1		
Talent Management Improvement	0.574**	0.641**	1	
Strategic HR Decision-Making	0.598**	0.673**	0.629**	1

(**Significant at 0.01 level**)

Interpretation:

The results of correlation show a strong positive relationship between AI predictive analytics adoption and various strategic HR planning variables. For example, AI adoption shows a correlation of 0.612 with workforce forecasting efficiency, indicating that increased use of predictive analytics improves workforce planning. Similarly, positive correlation between talent management (0.574) and strategic HR decision-making (0.598) suggest that AI analytics plays a crucial role in enhancing HR strategies in multinational IT corporations.

Table 4

Regression Analysis – Impact of AI Predictive Analytics on Strategic HR Planning

Variable	Beta Coefficient	t-value	Significance (p)

Adoption of AI Predictive Analytics	0.584	6.85	0.000
R^2	0.358		
Adjusted R^2	0.343		
F-value	48.85		

Dependent Variable: Strategic HR Planning Effectiveness

Interpretation:

The regression analysis indicates that AI predictive analytics has a significant positive impact on strategic human resource planning. The beta coefficient (0.584) shows that an increase in the adoption of predictive analytics leads to a considerable improvement in HR planning effectiveness. The R^2 value of 0.358 indicates that approximately 35.8% of the variation in strategic HR planning effectiveness is explained by AI predictive analytics adoption. The significance value ($p < 0.001$) confirms that the relationship is statistically significant.

Discussion

The study's findings show that AI-driven predictive analytics significantly affects strategic HR planning in global IT firms like Infosys, Tata Consultancy Services, and Wipro. The percentage analysis highlights the increasing digital transformation within HR functions by showing that the majority of respondents are aware of predictive analytics solutions. Descriptive statistics reveal how predictive analytics significantly improve strategic decision-making and workforce forecasts.

The adoption of predictive analytics is positively correlated with important HR outcomes, such as workforce planning and talent management, according to the correlation analysis. Furthermore, the regression results provide empirical evidence that predictive analytics significantly improves the efficacy of strategic HR planning. According to these results, multinational IT corporations that use AI-based analytics into their human resources processes are better positioned to foresee labour requirements, manage personnel efficiently, and preserve a competitive edge in the global market.

Conclusion

The present study examined the impact of AI-driven predictive analytics on strategic human resource planning in selected multinational IT corporations. The findings of the research show that the efficiency and efficacy of HR planning procedures have been greatly enhanced by the incorporation of modern analytical technology in human resource management. The findings show that predictive analytics helps businesses to examine vast amounts of workforce information, identify patterns, and make wise choices about talent management, employee retention, and workforce forecasts.

The statistical research reveals a strong correlation between the use of predictive analytics and important elements of strategic HR planning, such as effective workforce forecasts, better talent management, and strategic HR decision-making. The regression results provide more evidence that AI-driven predictive analytics significantly improves the efficacy of HR planning procedures. These results imply that companies that successfully apply

predictive analytics are better equipped to match long-term organisational goals with their human resource strategy.

In the context of multinational IT corporations such as Infosys, Tata Consultancy Services, and Wipro, the adoption of AI-based predictive analytics tools has contributed to improved workforce planning and strategic decision-making. The study highlights the growing importance of digital transformation in human resource management and emphasizes the need for organizations to invest in advanced analytics technologies to remain competitive in the global business environment.

Overall, the study concludes that AI-driven predictive analytics plays a crucial role in strengthening strategic human resource planning and supports organizations in developing more proactive and data-driven HR strategies. Future research may extend this study by including a larger sample size and examining other industries to gain broader insights into the application of predictive analytics in human resource management.

References

1. Thomas H. Davenport, T. H., & Jeanne G. Harris, J. G. (2017). *Competing on Analytics: The New Science of Winning*. Harvard Business Review Press.
2. John W. Boudreau, J. W., & Peter M. Ramstad, P. M. (2007). *Beyond HR: The New Science of Human Capital*. Harvard Business School Press.
3. Wayne F. Cascio, W. F., & John W. Boudreau, J. W. (2016). *The Search for Global Competence: From International HR to Talent Management*. Journal of World Business, 51(1), 103–114.
4. Bernard Marr, B. (2018). *Data-Driven HR: How to Use Analytics and Metrics to Drive Performance*. Kogan Page Publishers.
5. Josh Bersin, J. (2019). *HR Technology Disruptions and the Rise of Digital HR*. Deloitte Insights.
6. Thomas H. Davenport, T. H., & Julia Kirby, J. (2016). *Only Humans Need Apply: Winners and Losers in the Age of Smart Machines*. Harper Business.
7. David Ulrich, D., & Wayne Brockbank, W. (2015). *The HR Value Proposition*. Harvard Business School Press.
8. Jac Fitz-enz (2010). *The New HR Analytics: Predicting the Economic Value of Your Company's Human Capital Investments*. AMACOM.