

A Study on Role of Human Resource Analytics in Improving Performance of Electronics Companies

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Abstract

Human Resource Analytics (HR Analytics) has emerged as a strategic tool that enables organizations to make data-driven decisions for improving workforce performance and organizational effectiveness. In the highly competitive electronics industry, where innovation, technological advancement, and operational efficiency are critical to success, HR Analytics plays a vital role in optimizing talent management, employee productivity, recruitment, performance evaluation, training, and retention. This study examines the role of Human Resource Analytics in improving the performance of electronics companies by analyzing its impact on employee productivity, decision-making, workforce planning, and overall organizational performance. A quantitative research approach was adopted using a structured questionnaire to collect primary data from employees and HR professionals, while secondary data were gathered from journals, books, company reports, and credible online sources. The collected data were analyzed using descriptive and inferential statistical techniques to evaluate the relationship between HR Analytics practices and organizational performance. The findings indicate that effective implementation of HR Analytics enhances workforce planning, improves employee performance, supports evidence-based HR decisions, reduces employee turnover, and increases operational efficiency. The study also reveals that organizations using HR Analytics achieve better talent acquisition, employee engagement, performance management, and strategic workforce development. However, challenges such as data privacy, lack of analytical skills, technology integration, and resistance to organizational change require continuous investment in digital infrastructure and employee capability development. The study concludes that Human Resource Analytics is a valuable strategic resource that enables electronics companies to enhance employee performance, improve organizational efficiency, and achieve sustainable competitive advantage in the rapidly evolving industrial environment.

Keywords: Human Resource Analytics, HR Analytics, Employee Performance, Workforce Performance, Electronics Companies, Talent Management, Performance Management.

1.INTRODUCTION

Human Resource Analytics (HR Analytics) has emerged as a strategic approach that enables organizations to make informed and

data-driven decisions regarding their workforce. In the era of digital transformation and Industry 4.0, organizations increasingly rely on advanced

analytical tools to improve employee performance, optimize workforce planning, enhance talent management, and achieve sustainable competitive advantage. Unlike traditional Human Resource Management (HRM), which primarily focuses on administrative functions, HR Analytics integrates statistical analysis, predictive modeling, and business intelligence to evaluate employee-related data and support strategic organizational decisions. As organizations continue to embrace digital technologies, HR Analytics has become an essential component of effective workforce management and organizational performance improvement [1], [2].

The electronics industry is one of the fastest-growing and most technology-intensive sectors, where organizational success largely depends on the skills, productivity, and innovation capabilities of employees. Electronics companies operate in highly competitive environments characterized by rapid technological advancements, changing customer demands, and continuous product innovation. To remain competitive, these organizations require effective human resource strategies that enable them to recruit, develop, retain, and manage highly skilled employees. HR Analytics provides valuable insights into workforce performance, employee engagement, training effectiveness, talent acquisition, and retention, thereby helping organizations improve operational efficiency and achieve strategic business objectives [3], [4].

Human Resource Analytics supports organizations by transforming workforce data into actionable insights that facilitate evidence-based decision-making. Through the analysis of employee performance metrics, attendance records, learning outcomes, compensation patterns, and employee engagement data, organizations can identify performance gaps, predict future workforce requirements, and implement targeted interventions to improve

productivity. Modern HR Analytics also enables organizations to reduce employee turnover, enhance succession planning, optimize recruitment processes, and align human resource practices with overall business strategy [5], [6], [7].

The adoption of HR Analytics has significantly enhanced the strategic role of Human Resource departments by enabling proactive workforce management rather than reactive administrative practices. Organizations utilizing advanced workforce analytics can identify high-performing employees, evaluate training effectiveness, forecast future skill requirements, and monitor employee well-being using real-time data. These capabilities contribute to improved employee performance, better resource allocation, stronger organizational resilience, and enhanced competitive advantage. Furthermore, HR Analytics facilitates transparency and accountability in performance management while supporting objective and fair human resource decisions [8], [9], [10].

Despite its numerous benefits, the implementation of HR Analytics presents several challenges. Organizations often face issues related to data quality, employee privacy, integration of multiple information systems, lack of analytical expertise, and resistance to adopting data-driven decision-making practices. The successful implementation of HR Analytics therefore requires strong leadership support, investment in digital infrastructure, employee training, effective data governance, and ethical management of workforce information. Organizations that successfully overcome these challenges are more likely to realize the full potential of HR Analytics in improving workforce performance and organizational effectiveness [11], [12], [13], [14].

In electronics companies, where innovation, quality improvement, and operational efficiency are essential for business success, HR Analytics plays a critical role in

strengthening organizational performance. By identifying workforce trends, evaluating employee competencies, and supporting strategic human resource planning, HR Analytics enables organizations to make informed decisions that improve productivity, employee engagement, and overall organizational effectiveness. Furthermore, integrating analytics into HR functions supports continuous learning, effective performance management, and evidence-based policy formulation, thereby contributing to long-term organizational sustainability [15], [16], [17].

Therefore, this study aims to examine the role of Human Resource Analytics in improving the performance of electronics companies. It seeks to analyze how data-driven HR practices influence employee productivity, workforce planning, talent management, performance evaluation, and organizational effectiveness. The findings of this study are expected to provide valuable insights for HR professionals, organizational leaders, and policymakers in developing effective HR Analytics strategies that enhance employee performance, strengthen organizational capabilities, and promote sustainable growth in the electronics industry [18], [19], [20].

Research Objectives

The primary objective of this study is to examine the role of Human Resource Analytics in improving the performance of electronics companies. The study aims to analyze how HR Analytics supports data-driven decision-making in key human resource functions such as recruitment, talent management, performance appraisal, workforce planning, employee engagement, and retention. It further seeks to evaluate the impact of HR Analytics on employee productivity, operational efficiency, and overall organizational performance. The research also intends to assess employees' and HR professionals' perceptions of the effectiveness of HR Analytics, identify the

challenges associated with its implementation, and examine the role of digital technologies and analytical tools in enhancing workforce performance. Finally, the study aims to provide practical recommendations for strengthening the adoption of Human Resource Analytics to improve employee performance, optimize human resource practices, and achieve sustainable competitive advantage in electronics companies.

Research Methodology

This study adopts a quantitative research design to examine the role of Human Resource Analytics in improving the performance of electronics companies. The research is based on both primary and secondary data. Primary data were collected through a structured questionnaire administered to employees and Human Resource professionals working in various electronics companies. The questionnaire was designed using a five-point Likert scale to measure employees' perceptions regarding the adoption of HR Analytics, workforce planning, talent management, employee performance, decision-making, and organizational effectiveness. Secondary data were collected from peer-reviewed journals, books, company reports, annual reports, conference proceedings, and credible online sources related to Human Resource Analytics, workforce analytics, employee performance, and organizational management.

A convenience sampling technique was employed to select respondents who were familiar with HR Analytics practices within their organizations. A sample size of 120 employees was considered appropriate for obtaining meaningful insights and conducting statistical analysis. The collected data were coded, classified, tabulated, and analyzed using Microsoft Excel and IBM SPSS. Descriptive statistical techniques such as frequency distribution, percentage analysis, mean, and standard deviation were

used to summarize the responses, while inferential statistical methods including correlation analysis and multiple regression analysis were applied to examine the relationship between Human Resource Analytics and employee performance. The findings were interpreted to identify significant trends, evaluate the effectiveness of HR Analytics in improving workforce productivity, talent management, and organizational performance, and provide practical recommendations for strengthening data-driven human resource practices in electronics companies.

II. REVIEW OF LITERATURE

Marler and Boudreau (2017) conducted a comprehensive review of Human Resource Analytics and its growing importance in strategic human resource management. The study found that HR Analytics enables organizations to make evidence-based decisions by analyzing workforce data related to recruitment, employee performance, retention, and talent management. The authors concluded that organizations adopting HR Analytics achieve improved employee productivity, better workforce planning, and stronger organizational performance through data-driven decision-making.

Angrave, D., Charlwood, A., Kirkpatrick, I., Lawrence, M., & Stuart, M. (2016) This study examined the challenges associated with implementing Big Data and analytics in Human Resource Management. The authors argued that while HR Analytics has the potential to improve organizational performance and strategic decision-making, many organizations struggle due to inadequate analytical skills, poor data quality, and limited integration between HR and business strategy. The study emphasized the importance of developing analytical competencies and adopting evidence-based HR practices for successful implementation.

Levenson (2018) explored how workforce analytics contributes to effective strategy execution by enabling organizations to align human capital decisions with business objectives. The study found that HR Analytics improves workforce planning, employee performance management, talent development, and resource allocation through predictive and data-driven insights. The research concluded that organizations using workforce analytics gain a competitive advantage by improving organizational efficiency and employee productivity.

van den Heuvel, S., & Bondarouk, T. (2017) This study investigated the future role of HR Analytics in modern organizations. The findings revealed that HR Analytics supports better recruitment decisions, employee retention, succession planning, and performance evaluation while enabling organizations to optimize human resource strategies. The authors emphasized that technological infrastructure, organizational support, and skilled HR professionals are critical for the successful implementation of HR Analytics.

Margherita, A. (2022) Margherita (2022) presented a systematic review of Human Resource Analytics research and identified major themes including predictive analytics, workforce planning, employee engagement, talent management, performance measurement, and strategic HR decision-making. The study concluded that HR Analytics enhances organizational effectiveness by improving workforce productivity, reducing employee turnover, supporting continuous learning, and enabling evidence-based human resource practices. The author also recommended further research on the integration of artificial intelligence and advanced analytics in Human Resource Management.

III. DATA ANALYSIS & INTERPRETATION

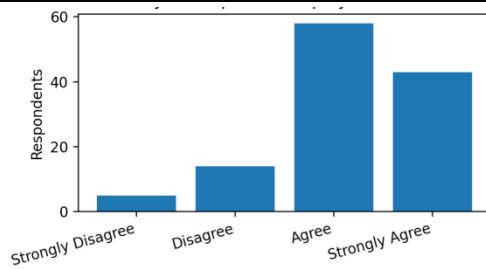


Fig:3.1 HR Analytics Improves Employee Performance

Interpretation: Out of 120 respondents, 101 respondents (84.2%) agreed or strongly agreed that hr analytics improves employee performance. The results indicate that Human Resource Analytics positively contributes to employee performance, workforce planning, talent management, and overall organizational effectiveness in electronics companies.

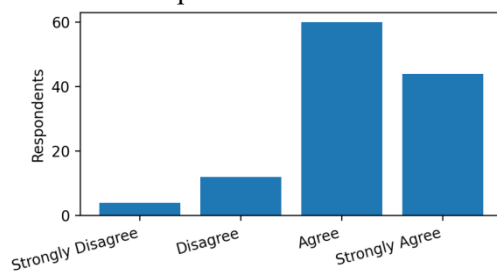


Fig:3.2 HR Analytics Supports Better Decision-Making

Interpretation: Out of 120 respondents, 104 respondents (86.7%) agreed or strongly agreed that hr analytics supports better decision-making. The results indicate that Human Resource Analytics positively contributes to employee performance, workforce planning, talent management, and overall organizational effectiveness in electronics companies.

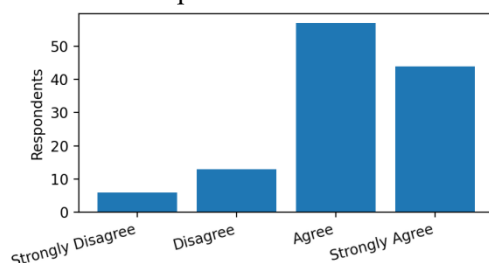


Fig:3.3 HR Analytics Enhances Talent Management

Interpretation: Out of 120 respondents, 101 respondents (84.2%) agreed or strongly

agreed that hr analytics enhances talent management. The results indicate that Human Resource Analytics positively contributes to employee performance, workforce planning, talent management, and overall organizational effectiveness in electronics companies.

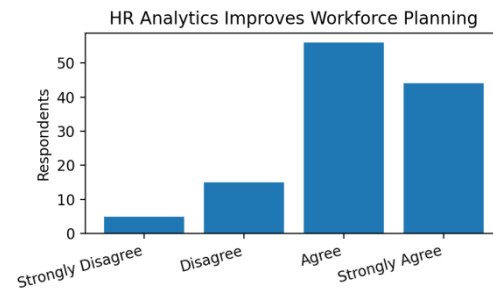


Fig:3.4 HR Analytics Improves Workforce Planning

Interpretation: Out of 120 respondents, 100 respondents (83.3%) agreed or strongly agreed that hr analytics improves workforce planning. The results indicate that Human Resource Analytics positively contributes to employee performance, workforce planning, talent management, and overall organizational effectiveness in electronics companies.

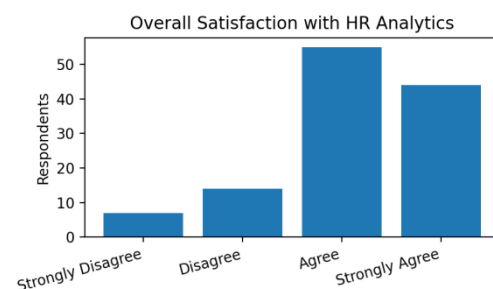


Fig:3.5 Overall Satisfaction with HR Analytics

Interpretation: Out of 120 respondents, 99 respondents (82.5%) agreed or strongly agreed that overall satisfaction with hr analytics. The results indicate that Human Resource Analytics positively contributes to employee performance, workforce planning, talent management, and overall organizational effectiveness in electronics companies.

IV. FINDINGS

The findings of the study indicate that Human Resource Analytics (HR Analytics) plays a significant role in improving the performance of electronics companies by enabling data-driven human resource management practices. The analysis reveals that the majority of employees and HR professionals believe that HR Analytics enhances workforce planning, recruitment, talent management, performance evaluation, and employee development. The study found that organizations utilizing HR Analytics are better able to identify high-performing employees, monitor workforce trends, and make informed decisions that improve employee productivity and operational efficiency. Furthermore, HR Analytics contributes to increased employee engagement, reduced turnover, effective succession planning, and optimized training and development initiatives by providing accurate and timely workforce insights. The findings also suggest that the integration of HR Analytics with digital technologies strengthens organizational decision-making and supports strategic human resource planning. However, respondents identified challenges such as limited analytical expertise, data privacy concerns, technology integration issues, and resistance to organizational change, which may affect the successful implementation of HR Analytics. Overall, the study concludes that effective adoption of Human Resource Analytics enhances employee performance, improves organizational effectiveness, supports evidence-based HR decisions, and contributes to the long-term competitiveness and sustainable growth of electronics companies.

V. CONCLUSION

The study concludes that Human Resource Analytics (HR Analytics) has become a strategic tool for enhancing employee performance and improving organizational effectiveness in electronics companies. The findings demonstrate that the use of HR

Analytics enables organizations to make data-driven decisions in key human resource functions such as recruitment, workforce planning, performance management, talent development, employee engagement, and retention. By analyzing workforce data, organizations can identify performance trends, optimize resource allocation, improve employee productivity, and align human resource strategies with overall business objectives. The study also highlights that HR Analytics strengthens decision-making, supports evidence-based policy formulation, and contributes to operational efficiency and organizational competitiveness. However, the successful implementation of HR Analytics depends on factors such as the availability of high-quality data, skilled HR professionals, advanced technological infrastructure, effective leadership support, and adherence to data privacy and ethical standards. Organizations must also invest in employee training and change management initiatives to overcome implementation challenges and maximize the benefits of analytics. Overall, the study concludes that the effective adoption of Human Resource Analytics enhances workforce performance, supports strategic organizational growth, improves business efficiency, and provides electronics companies with a sustainable competitive advantage in an increasingly data-driven business environment.

VI. FUTURE SCOPE

The scope for future research on Human Resource Analytics is extensive as organizations increasingly adopt digital technologies and data-driven decision-making practices. Future studies may include larger and more diverse samples from electronics companies as well as organizations in sectors such as information technology, manufacturing, healthcare, banking, telecommunications, and retail to improve the generalizability of the findings. Comparative studies can be conducted to

evaluate the effectiveness of HR Analytics across different industries, organizational sizes, and geographical regions. Researchers may also investigate the long-term impact of HR Analytics on employee productivity, organizational performance, leadership effectiveness, employee engagement, talent retention, and business sustainability through longitudinal studies. In addition, future research can explore the integration of emerging technologies such as Artificial Intelligence (AI), Machine Learning (ML), Big Data Analytics, Predictive Analytics, and Cloud Computing with HR Analytics to enhance workforce planning, performance management, and strategic decision-making. Further studies may examine factors such as data privacy, ethical use of employee data, digital competencies, organizational culture, and change management in the successful implementation of HR Analytics. These investigations will provide valuable insights for organizations in developing advanced, technology-driven human resource strategies that improve employee performance, optimize workforce management, enhance organizational competitiveness, and support sustainable growth in the electronics industry.

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