



Understanding the Antecedents & Outcomes of HR Analytics in Organisations

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Abstract

As technology implementation increases day by day, HR analytics implementation is also increasing. HR analytics analyses data using advanced tools, helping HRM functions be carried out effectively and efficiently. In this paper, the researchers explore the key predictors of HR analytics and its various outcomes. The researchers selected papers that provided in-depth knowledge and were of good quality. This study revealed various predictors such as data-driven culture, HR data quality, IT infrastructure, training & development, analytical skills, resource availability, leadership support, and the evaluation system. HR analytics outcomes revealed are attrition rate, employee performance, job satisfaction, organisational performance, work-life balance, and succession planning. This paper helps future researchers explore additional variables, such as talent intelligence and machine learning readiness.

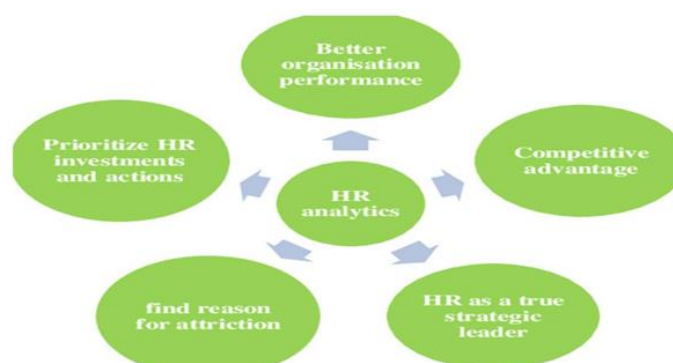
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Introduction

HR analytics is also known as “People Analytics”, “Talent Analytics”, and “Workforce Analytics”—terms that reflect its meaning (Marler & Bourdreau, 2017) ^[14].

To stand out among competitors in the market, organisations are adopting new technological upgrades. HR analytics has introduced a new technology (Koirala & Mishra, 2022) ^[11]. HR analytics provides a great advantage in the decision-making process (Levenson, A., 2011). With HR analytics, the quality of the decision-making process ultimately increases employee productivity, which improves organisational and employee performance effectively and efficiently (Bassi, 2011). HR analytics is a technology upgrade technique that increases employee performance, helping organisations compete with competitors (Chandrakrant Varma *et al.*, 2019) ^[26]. With HR analytics, organisations can make data-driven decisions, including employee engagement, performance evaluation, and workforce planning (Maanyika *et al.*, 2011). With the implementation of HR analytics, managers can easily analyse and access HR data, which helps them make decisions effectively (Ranjan & Basak, 2013) ^[22].



Source: Mourad *et al.*, 2024 ^[17]

Fig 1: HR Analytics

Methodology

Papers were collected from conference papers, well-published articles, and reports published between 2011 and 2025. The data were collected from various well-published sites, including Web of Science and Google Scholar.

After 320 redundant articles were removed from a total of

614 articles, 294 articles were examined. In a further round, the researcher excluded 273 articles because they were not relevant to the predictors and outcomes of HR analytics. Thus, 21 articles were appropriate for a structured review.

Results

Table 1: Overview of the Study

Study Authors	Objectives	Findings	Predictors	Outcomes
Heuvel & Bondarouk (2017)	To know the future of HR Analytics.	HR Analytics will have a greater influence on organisational decision-making and future growth. It facilitates an agile structure by integrating employee characteristics and skills with strategic business goals.	Employee characteristics, employee skills, HR data, strategic alignment.	Better decision-making, organisational growth, agile organisational structure.
Sharma & Sharma (2017) ^[23]	To understand the function of HR analytics on employee willingness to improve performance.	HR data quality plays an important role as an HR analytics predictor. HR analytics enhances the accuracy and objectivity of employee engagement and supports appraisal processes.	HR data quality, employee engagement, performance data.	Improved employee performance, accurate appraisal, enhanced engagement.
Nurbaiti (2021) ^[19]	To examine how HR analytics predicts and improves financial performance and identify workforce trends and patterns influencing productivity, innovation and profitability.	HR analytics has strong predictive power in forecasting financial performance. Integration of HR and financial data enables proactive decision-making and workforce-risk management.	Employee engagement, talent management, workforce trends, HR-financial data integration.	Improved financial performance, productivity, innovation, profitability, proactive decision-making.
Marler & Boudreau (2016)	To assess how data-driven decision-making through HR analytics predicts organisational performance and evaluate HR analytics capability in strategic HR outcomes.	Data-driven decision-making strongly influences organisational performance. Predictive HR analytics improves employee productivity, engagement and retention and aligns HR activities with organisational goals.	HR analytics capability, employee performance, engagement, retention, data-driven decision-making.	Improved organisational performance, productivity, engagement, employee retention, strategic alignment.
Mondore <i>et al.</i> (2011) ^[16]	To identify HR analytics predictors, understand how HR analytics generates organisational results, and examine how predictors work.	HR analytics identifies HR initiatives that drive outcomes. Employee surveys, leadership development, performance management and work-life balance significantly predict organisational outcomes.	Quality, productivity, satisfaction, engagement, performance, employee surveys, leadership development.	Improved organisational outcomes, talent management, succession planning, leadership effectiveness.
Kakulapati <i>et al.</i> (2020)	To understand how predictive analytics supports employee training and development and HR tasks.	Clustering generates employee performance data and identifies employees requiring training. HR analytics makes complex HR tasks easier and faster.	Employee performance data, clustering, training requirements.	Improved training and development, faster HR processes, improved employee performance.
Penpokai <i>et al.</i> (2023)	To examine how HR analytics predictors support large organisations in Thailand.	Appropriate use of HR analytics can provide significant organisational benefits and support long-term growth. Upgraded technology enhances HRM functions and employee productivity.	HR analytics usage, technology, employee productivity.	Higher profits, long-term growth, improved HRM, increased productivity.
Gal (2018)	To examine how organisations can achieve profits through HR analytics predictors.	HR analytics identifies why problems occur and provides alternative courses of action to overcome them.	Problem identification, data analysis, corrective actions.	Organisational growth, improved problem-solving, increased profitability.
Ramchandran <i>et al.</i> (2023)	To analyse organisational outcomes generated by HR analytics, including decision-making, forecasting and talent management.	HR analytics enhances decision-making, workforce forecasting, talent optimisation and HR process efficiency.	Workforce data, predictive analytics, talent data.	Better decision-making, workforce forecasting, talent optimisation, HR efficiency.
Bibi & Ali (2020) ^[3]	To analyse how HR analytics-based performance predictors improve individual and organisational performance.	HR analytics tracks KPIs, behaviour patterns and real-time performance metrics, enabling accurate identification of strengths and weaknesses.	KPIs, behaviour patterns, real-time performance metrics.	Improved individual performance, organisational performance, faster completion of complex tasks.
Barbar <i>et al.</i> (2019) ^[2]	To examine the impact of HR analytics on training and development in private organisations in Lebanon.	HR analytics helps identify employee training and development needs and evaluate employee performance. It also supports record keeping and decision-making.	Training needs, employee performance, HR records.	Improved training and development, better performance evaluation, informed decision-making.

Prasad (2019) ^[19]	To examine how HR analytics predictors help predict employee turnover.	Identifying patterns, data collection, intervention strategies and IT infrastructure are key HR analytics predictors.	Pattern identification, data collection, intervention strategies, IT infrastructure.	Improved turnover prediction, risk assessment, performance monitoring and adjustment.
Alsuliman & Elrayah (2021)	To examine how HR professionals implement HR analytics.	HR professionals must be willing to use HR analytics. Analytics supports the collection of employee data related to job satisfaction, attrition, retention and performance.	HR professionals' willingness, employee data, job satisfaction, attrition, retention.	Improved employee data management, satisfaction, retention and performance.
Kale & Anute (2022) ^[8]	To explore the advantages of HR analytics predictors.	HR analytics enables effective and efficient HR planning and simplifies HR tasks. It also supports selection of talented candidates for suitable positions.	HR planning, employee data, talent identification, recruitment data.	Effective HR planning, easier HR processes, improved talent selection.
Nagpal <i>et al.</i> (2024) ^[18]	To examine how HR analytics predicts employee attrition, identify factors contributing to attrition and explore ways to overcome HR analytics challenges.	Data-driven culture and HR data quality are major predictors. Decision trees, clustering, ML models and regression support attrition prediction.	Data-driven culture, HR data quality, decision trees, clustering, ML models, regression.	Reduced employee attrition, improved prediction, skill development, training and employee engagement.
Bangura (2024)	To examine how HR analytics predictors support HRM functions and enhance decision-making.	Organisations with a strong data-driven culture can implement HR analytics more effectively. Skilled employees improve performance and productivity through HR analytics.	Data-driven culture, HR analytics skills, employee opinions.	Better workforce planning, improved efficiency, productivity and decision-making.
Madhuri & Kumar (2025)	To examine the outcomes of HR analytics and its dimensions in data-driven decision-making.	Training and development is a strong predictor of HR analytics and identifies employees requiring training. HR analytics supports recruitment, selection, strategic planning and decision-making.	Training and development, recruitment data, selection data.	Improved recruitment and selection, employee development, strategic planning and organisational growth.
Chaturvedi <i>et al.</i> (2025) ^[5]	To examine how HR analytics influences data-driven decision-making and assess its impact on productivity, retention and organisational performance.	HR analytics significantly enhances data-driven decision-making. Talent acquisition, training and development, and employee engagement analytics have positive effects.	Talent acquisition analytics, training analytics, employee engagement analytics.	Higher productivity, employee retention, organisational performance, efficiency and competitive advantage.
Hardevianty <i>et al.</i> (2025) ^[7]	To apply HR analytics to predict employee satisfaction in hybrid work environments, improve decision-making transparency and identify effective satisfaction-prediction approaches.	HR analytics can predict employee satisfaction in hybrid work settings. Transparent tools improve trust and clarity. Job resources, including monetary and non-monetary benefits, increase job satisfaction.	IT infrastructure, evaluation systems, job resources, monetary and non-monetary benefits.	Improved employee satisfaction, transparency, trust and ethical decision-making.
Kapoor <i>et al.</i> (2025) ^[9]	To examine how predictive analytics supports employee retention and improves decision-making.	Predictive analytics identifies employees at high risk of leaving and enables targeted retention actions. HR analytics strengthens evidence-based decision-making.	Employee turnover risk, employee data, predictive analytics.	Improved employee retention, early intervention and effective decision-making.
Thakur <i>et al.</i> (2025) ^[24]	To examine the advantages provided by HR analytics predictors.	HR analytics predictors provide effective solutions to operational problems and support organisational activities.	HR data, predictive analytics, operational data.	Improved operational problem-solving, efficiency and HR decision-making.

Discussion

RQ1: To know key predictors of HR Analytics

The paper concluded various predictors of HR analytics. Since HR analytics usage is increasing in every organisation nowadays, everyone should know about HR analytics predictors. This paper examined various types of HR analytics predictors from previous studies. Organisational-based predictors include leadership support, organisational culture, and data-driven culture (Mondore *et al.*, 2011; Chaturvedi *et al.*, 2025; Nagpal *et al.*, 2024; Bangura, 2024)^[16, 18, 1, 5].

Human-based predictors include training & development and evaluation systems (Nagpal *et al.*, 2024; Hardevianty *et al.*, 2025; Barbar *et al.*, 2019)^[18, 2, 7].

Technologically based predictors are HR data quality and IT infrastructure (Sharma & Sharma, 2017; Prasad, 2019; Hardevianty *et al.*, 2025)^[23, 7, 19].

RQ2: To identify various outcomes of HR Analytics

This paper concludes by outlining the various outcomes of HR analytics.

Organisational outcomes include organisational performance, organisational efficiency, work-life balance, and succession planning (Mondore *et al.*, 2011; Kakulapati *et al.*, 2020; Heuvel & Bondarouk, 2017; Bibi & Ali, 2020; Chaturvedi *et al.*, 2025; Nagpal *et al.*, 2024; Bangura, 2024)^[16, 1, 3, 5, 18].

Human-based predictors include training & development and

evaluation systems (Nagpal *et al.*, 2024; Hardevianty *et al.*, 2025)^[18, 7].

Decision-making outcomes include evidence-based and data-driven decision-making (“Marler & Boudreau, 2016; Kale & Anute, 2022; Ramchandran *et al.*, 2023; Kapoor *et al.*, 2025; Chaturvedi *et al.*, 2025”)^[8, 5, 9].

This paper also examined various planning-based outcomes, such as workforce, forecasting, and accuracy (Nurbaiti, 2021; Sharma & Sharma, 2017; Ramchandran *et al.*, 2023; Bibi & Ali, 2020)^[19, 23].

Employee Work Behaviour outcomes include retention, employee engagement, job satisfaction, attrition rate, and employee performance (“Kakulapati *et al.*, 2020; Sharma & Sharma, 2017; Mondore *et al.*, 2011; Alsuliman & Elrayah, 2021; Bangura, 2024; Sharma & Sharma, 2017; Hardevianty *et al.*, 2025; Nagpal *et al.*, 2024; Mondore *et al.*, 2011”)^[1, 23 7, 18, 16].

Recommendation on Future Research Directions

Future research can focus on primary sources, collecting data directly from employees in organisations that use HR analytics tools and techniques better to understand the predictors and outcomes of HR analytics. Furthermore, studies can be conducted after 2025 to obtain the latest data. This paper identifies a few new variables that future authors can use to find data and research papers that include talent intelligence and machine learning readiness; these variables will help future researchers collect more data effectively and efficiently for their studies. Additionally, future researchers can compare studies from the 2000s on predictors and outcomes of HR analytics with studies from the mid-2020s, since a major technological transformation occurred during the 2020s after the pandemic.

Implications of the Study

The paper will have a positive influence on various stakeholders as follows:

HR Professionals: HR Professionals will gain insight into the predictors and outcomes of HR analytics, which can support effective decision-making in organisations.

Policymakers: This paper will provide in-depth knowledge of the predictors and outcomes of HR analytics, which helps policymakers develop policies for organisational growth and plan for organisational and employee performance.

Government: This paper will also help the government by forecasting, which will help in planning well in advance for future uncertainties.

Limitations

This paper concluded studies only after 2011. Only well-published studies were included in the study. Data collection relied solely on secondary sources. Not all types of organisations were covered in these studies. This paper is based on studies conducted worldwide, not in a particular country.

Conclusion

This study is based on a comprehensive review of prior research on this topic. The findings concluded that predictors of HR analytics are human-based, technology-based, and organisational predictors. It also concluded that the outcomes of HR analytics are employee work Behaviour, decision-making outcomes, and planning outcomes.

Additionally, this paper concluded that implementing HR analytics in organisations has a greater influence on employee and organisational growth, as it upgrades technology, which helps many employees perform HRM functions effectively and efficiently. The outcomes revealed in these studies not only provide technological support but also help in understanding employee attrition rates, employee retention rates, and satisfaction, which also help in performance management. This study also provided a few new variables for future researchers, helping them explore this topic further.

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