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Original Article

Essential Human Resource Metrics and Analytics for Sustainable Work Environments: Literature Mapping and Conceptual Synthesis

Dr. Ann Gaceri Kaaria, PhD[1*]

[1] Kiriri Women's' University of Science and Technology, P. O. Box 49274-00100 Nairobi, Kenya.
* Correspondence Email: ann.gaceri.k@gmail.com

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ABSTRACT

Human resource (HR) metrics and analytics play a critical part in creating sustainable work environments in today's fast-paced and cutthroat business environment. The present study aims to investigate the critical HR metrics and analytics required for establishing and preserving sustainable work environments in organizations through a thorough mapping of the literature and conceptual synthesis. In order to evaluate and improve sustainability factors including employee engagement, retention, productivity, well-being, diversity, equality, and inclusion (DEI), and environmental sustainability practices, a wide range of HR metrics and analytics are examined in this study. By means of a methodical examination of extant literature and academic sources, this study pinpoints crucial HR metrics and analytics frameworks that facilitate sustainable work practices. In order to clarify the interactions and connections between these HR analytics and indicators and their effects on sustainable work environments, the study also performs a conceptual synthesis. The study intended to provide insights into how organisations may use HR metrics and analytics to promote sustainability initiatives and develop positive work cultures by synthesising actual facts and theoretical frameworks. The findings from this research contribute to advancing the understanding of the strategic role of HR metrics and analytics in promoting sustainability within organizations. By adopting a data-driven approach and utilizing relevant metrics and analytics tools, HR professionals and organizational leaders can make informed decisions, implement targeted interventions, and cultivate work environments that foster employee well-being, organizational resilience, and long-term sustainability. This research offers valuable guidance for HR practitioners, researchers, and policymakers seeking to enhance sustainability practices in the workplace.

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INTRODUCTION

Technological progress at a breakneck pace has resulted in a world where social media, cellphones, and the internet are commonplace. World events like the COVID pandemic, the 2008 financial crisis, and the turmoil in Ukraine recently all added to the sense of instability, peril and irregularity. The sense of certainty, stability, and familiarity that individuals were accustomed to has been replaced by a condition of change. The abbreviation "VUCA," which stands for "Volatile," "Uncertain," "Complex," and "Ambiguous," can be used to characterise this kind of situation (Mind Tools Limited, 2024). In the present Volatile, Uncertain, Complex, and Ambiguous (VUCA) landscape, numerous organizations are contending with conventional human resource (HR) data reporting systems, which are hindered by the challenge of handling unactionable data. HR data plays a pivotal role in delineating performance measures within this fiercely competitive business milieu. Regarded as raw and disorganized information, HR data comprises various facets including employee attendance, performance, compensation, and engagement-related metrics. Advancements in technology empower managers to assess performance at all organizational levels by leveraging Human Resource data. However, effective management of HR data is imperative to ensure its quality. Data quality denotes the suitability of data for utilization and its alignment with user requirements. This encompasses four critical aspects: completeness, accuracy, validity, and consistency. Ensuring high HR data quality is essential for accurately deriving HR metrics and making informed predictions based on data insights (Pillai & Sivathanu, (2022). Over the past decade, there has been doubt about the effect of human resource analytics (HRA) on HR practices and operations due to a lack of theoretical foundations and empirical data in this new discipline (Belizón, Majarín & Aguado,2023). Current literature provides an in-depth understanding of the concept and intent of human resource analytics (HRA). The essential elements of HR metrics, on the other hand, are unknown and must be understood by businesses in order to preserve sustainable work environments. Consequently, the researcher carried out an extensive examination of HRA procedures encompassing three fields: information technology, business metrics, analytics, and their relationship to human resource management. Scholarly research indicates that although the concept of human resources (HR) analytics has been around for more than two decades, it has not lived up to expectations with much speed. Belizón and Kieran (2022) conducted a literature analysis and found that there is still uncertainty regarding the added value that HR Analytics may offer to the core of HR, including its strategic position and contribution to operational deliverables across the organisation. This is because HR Analytics is a relatively new HRM innovation. HR analytics, in our opinion, is the process of making HR decisions based on data (Bonilla-Chaves, & Palos-Sánchez, 2023).

In order to properly support sustainable work practices, a number of key gaps are revealed by the existing state of HR metrics and analytics. First, there is an urgent need for all-encompassing frameworks that incorporate different HR indicators and data and offer a methodical way to promote sustainable work environments (Ben-Gal, 2019) . Likewise, there is a dearth of

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empirical research on the relationship between HR metrics and analytics and sustainability, underscoring the need for additional studies to develop best practices that are supported by data. It is also difficult to discern how various HR indicators interact and work in concert with one another, which makes it difficult to determine how these metrics affect sustainability outcomes as a whole. More research is specifically needed to determine how HR analytics and metrics affect DEI (diversity, equality, and inclusion) and environmental sustainability in businesses. There is still a large knowledge gap about the long-term effects of HR analytics and metrics on organisational sustainability and resilience. Moreover, not much is known about how these analytics and metrics should be customised for various industries and organisational settings in order to effectively advance sustainability (Edwards & Edwards, 2019; Tursunbayeva, Di-Lauro, & Pagliari,2018).

The adoption of HR analytics and metrics for sustainability reasons is further complicated by practical implementation issues. In-depth research on the obstacles HR professionals encounter in this area is lacking. Ultimately, additional research is required to optimise data-driven decision-making processes to strengthen sustainability initiatives through the use of HR metrics and analytics. The strategic use of HR metrics and analytics in promoting sustainability in organisations can be greatly advanced by filling in these gaps through thorough research and the creation of customised frameworks (Edwards, Charlwood, Guenole, & Marler, 2022; Huselid, 2018).HR metrics serve as instruments of accountability, facilitating the assessment of the outcomes of specific HR functions. These metrics are regarded as key performance indicators (KPIs) as they offer insights into the effectiveness of HR practices. While many HR metrics are descriptive, providing a snapshot of the current status of HR practice outcomes, predictive metrics utilize advanced analytical modelling to offer deeper insights into future outcomes (Strohmeier, Collet, & Kabst, 2022). These predictive metrics, derived from the realm of HR analytics, enable organizations to anticipate and prepare for future HR challenges (Reddy & Lakshmikeerthi, 2017; Falletta, & Combs, 2020).

LITERATURE REVIEW

HR analytics, characterized by an evidence-based approach, plays a critical role in informing decision-making on the people side of the business. It encompasses a spectrum of tools and technologies, ranging from basic HR metric reporting to sophisticated predictive modelling. Equipped with these tools, HR analytics empowers organizations to analyse data comprehensively and derive actionable insights to drive strategic HR decisions. By leveraging both descriptive and predictive metrics, HR managers gain a comprehensive understanding of HR performance and trends. This enables them to make informed decisions regarding HR management strategies, ensuring alignment with organizational goals and objectives. Ultimately, the integration of HR metrics and predictive modelling within HR analytics enables organizations to optimize HR practices and enhance overall business performance (Simón, & Ferreiro, 2018; Angrave, Charlwood, Kirkpatrick, Lawrence, & Stuart, 2016).

Descriptive metrics primarily centre on historical data, offering insights into past performance, while predictive metrics equip HR managers with foresight for future decision-making. HR metrics serve to assess past HR activities/processes and aid in forecasting future performance. These metrics serve as guiding indicators for HR managers, directing them towards strategic human resource management (HRM) practices and enhancing organizational performance. HR metrics are essential instruments utilized to assess the impact, efficiency, and effectiveness of HR operations, offering invaluable insights into various facets of organizational performance.

Efficiency measurements within HR metrics play a crucial role in quantifying any inefficiencies or wastage in HR investments, thereby enabling organizations to optimize the allocation of resources and enhance operational effectiveness (Edwards, & Edwards, 2019). Effectiveness,

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another key aspect of HR metrics, evaluates the extent to which HR programs align with organizational goals and successfully achieve their intended outcomes. This metric serves as a yardstick for assessing the efficacy of HR initiatives in driving organizational success. Furthermore, HR metrics also encompass the evaluation of impact, which entails assessing the strategic implications of HR outcomes on the overall performance and success of the organization. Understanding the strategic value of HR initiatives enables organizations to align their HR strategies with broader business objectives, fostering sustainable growth and competitive advantage (Angrave, et al, 2016).

Measuring HR metrics is critical for organizations that want to thoroughly evaluate HR outcomes and obtain insights into the HR department's success. By leveraging present data derived from descriptive metrics in HR practices, organizations can develop predictive analytical models. These models facilitate the anticipation of future trends and enable informed decision-making, empowering organizations to proactively address challenges and capitalize on opportunities for continuous improvement and growth. At times, HR managers may make decisions without sufficient evidence of the potential benefits of their investments. Nonetheless, HR metrics offer valuable support and guidance for strategically informed HR decision-making, particularly concerning financial investments. Descriptive financial HR metrics, such as cost per hire or cost per recruitment source, furnish insights into the efficiency of recruitment practices, aiding HR managers in strategically benchmarking and making decisions regarding recruitment source selection or enhancing cost per hire effectiveness (Edwards, Charlwood, Guenole, & Marler, 2022).

Moreover, HR managers can use these metrics to consider budget allocation for recruitment. Similarly, descriptive non-financial metrics, like employee engagement score, net promoter score, and satisfaction level, enable HR managers to gauge employee engagement and satisfaction levels. This insight helps HR managers make informed decisions regarding various HR practices and contributes to enhancing business outcomes. Furthermore, HR metrics assist HR managers in addressing HR challenges by facilitating strategic decision-making. Predictive HR metrics, developed through predictive modelling, offer guidance to HR managers in strategically planning future HR actions. Metrics such as future attrition rate and predicted offer decline by candidates equip HR managers to make decisions regarding employee retention practices and future recruitment plans, thereby enhancing organizational performance (Bohlouli, et al., 2017).

Relationship between Human Resource Metrics and Sustainable Workplaces

The relationship between essential HR metrics and sustainable work environments is multifaceted, intertwined with organizational culture, employee well-being, and overall business performance. By effectively measuring and leveraging HR metrics, organizations can foster sustainable work environments that prioritize employee satisfaction, engagement, and long-term success (Avrahami, Pessach, Singer, & Ben-Gal,2022). One of the fundamental aspects of this relationship is the alignment of HR metrics with organizational goals and values. Essential HR metrics serve as quantitative indicators of various HR processes and practices, including recruitment, retention, training, and performance management. By tracking metrics such as employee turnover rates, engagement levels, and training effectiveness, organizations can assess their progress towards creating sustainable work environments aligned with their strategic objectives. Opatha (2020) defines sustainable HRM practices as green HR practices, HR analytics, and HR metrics applied across diverse HRM functions. Rapid digital transformation has led to growing demand for HR analytics solutions and services, with Asia Pacific experiencing the highest growth.

Employee engagement is a cornerstone of sustainable work environments, and HR metrics play a crucial role in gauging and enhancing engagement levels. Metrics such as employee satisfaction surveys, turnover rates, and absenteeism can provide insights into the overall health of employee engagement within an organization. By regularly measuring these metrics and identifying areas for improvement, HR professionals can implement initiatives to enhance employee morale, motivation, and commitment to the organization. Moreover, essential HR metrics contribute to the creation of inclusive and diverse work environments, which are essential for sustainability in today's globalized world. Metrics related to diversity representation, inclusion initiatives, and pay equity can help organizations assess their progress in fostering diverse and inclusive workplaces. By measuring and monitoring these metrics, organizations can identify gaps and implement strategies to promote diversity, equity, and inclusion (DEI) throughout the organization, which in turn leads to greater innovation, creativity, and productivity (Pillai & Sivathanu, 2022).

Health and well-being are also critical components of sustainable work environments, and HR metrics can provide valuable insights into employee wellness initiatives. Metrics related to employee health outcomes, participation in wellness programs, and work-life balance can help organizations evaluate the effectiveness of their wellness initiatives and identify areas for improvement (Silwal, 2024). By prioritizing employee well-being and measuring relevant metrics, organizations can create environments that support physical, mental, and emotional health, leading to higher levels of employee satisfaction, productivity, and retention. The relationship between essential HR metrics and sustainable work environments is symbiotic and dynamic. By measuring and leveraging HR metrics effectively, organizations can create environments that prioritize employee engagement, diversity and inclusion, and health and well-being, ultimately driving long-term success and sustainability (Belizón, Majarín, Aguado, 2023). By aligning HR metrics with organizational goals and values, HR professionals can play a strategic role in fostering sustainable work environments that benefit employees, organizations, and society as a whole.HR metrics provide insights into the efficacy of HR practices, as well as a data-driven approach to human capital management and future projection. This has immediate effects on the organizational success. Businesses that employ people analytics effectively experience a 25% improvement in productivity (Silwal, 2024).

The HR department shoulders the responsibility of effectively managing the most vital asset of any business establishment: its workforce. Employee performance stands as a linchpin in dictating the success of an organization, underscoring the indispensable role of the human resources department in promoting motivation, engagement, and productivity among employees. Monitoring Key Performance Indicators (KPIs) constitutes a fundamental method employed by HR managers to gauge the achievements of their department. These HR KPIs serve as metrics to assess the efficacy of an organization's HR practices. KPIs serve as a collection of quantifiable metrics empowering HR managers to vigilantly oversee their department’s performance and enact decisions grounded in data. Through diligent tracking of KPIs, HR managers can pinpoint areas ripe for enhancement, assess the efficacy of their HR strategies, and make well-informed choices to refine and optimize their HR processes (Ng, 2023).

The utilization of data and analytics in management has garnered escalating attention as researchers and practitioners endeavour to grasp how data can be translated into actionable insights, thereby enhancing organizational performance. This surge in interest has extended across various management domains, including human resources management (HRM), as evidenced by the increasing adoption of HR analytics to sustain decision-making processes. Despite its growing popularity, HR analytics isn't a wholly novel concept. Instead, it has evolved

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from prior research examining the influence of HR practices like selection, training, and performance management, which boasts a rich history in social sciences encompassing industrial and organizational psychology, HRM, and organizational behaviour (Falletta, & Combs, 2020).

Cavanagh et al. (2024) reaffirms Integrating evidence-based human resource management (EBHRM) into the LAMP Model in HR Analytics holds immense potential to significantly enhance line manager decision-making concerning rostering and ultimately support the wellbeing of all employees. This integration involves a systematic approach that encompasses several key steps: Firstly, it's crucial to grasp the fundamentals of the LAMP (Logical, Analytics, Measurement and Peformance) Model in HR Analytics. This model comprises four interconnected components: Logic, Analytics, Measurement, and Performance. Each component serves a pivotal role in harnessing data to refine HR processes and strategies. Next, the identification of wellbeing metrics aligned with organizational objectives and employee needs is essential. These metrics may encompass various factors such as work-life balance, job satisfaction, stress levels, and employee engagement. Utilizing evidence-based practices ensures the selection of metrics that accurately reflect the wellbeing landscape within the organization. Robust data collection mechanisms must be implemented to gather both quantitative and qualitative data pertaining to employee wellbeing. Leveraging advanced HR analytics tools facilitates the effective analysis of this data, unveiling patterns, trends, and correlations that influence employee wellbeing and rostering decisions. Integration of evidence-based HRM principles into the analysis process is imperative. This involves leveraging insights from academic literature and industry benchmarks to inform decision-making. For instance, evidence-backed interventions such as flexible scheduling and workload management strategies can promote employee wellbeing and enhance organizational performance (Falletta, & Combs, 2020).

Utilizing predictive analytics within the LAMP Model enables line managers to forecast the impact of rostering decisions on employee wellbeing. By leveraging historical data and advanced techniques like machine learning algorithms, managers can anticipate outcomes and make informed decisions that prioritize employee wellbeing proactively. Implementing a feedback loop within the LAMP Model allows for continuous evaluation and improvement of rostering decisions' effectiveness on employee wellbeing. Monitoring key performance indicators related to wellbeing enables organizations to adjust rostering strategies in real-time based on data-driven insights. Fostering open communication channels with employees is crucial. Soliciting feedback on rostering preferences and wellbeing concerns empowers employees and enhances their engagement. Involving employees in decision-making processes fosters a supportive work culture conducive to employee wellbeing (Reddy, & Lakshmikeerthi, 2017).

Finally, providing training and development opportunities for line managers enhances their understanding of evidence-based HRM principles and analytics capabilities. Equipping managers with the necessary skills and knowledge empowers them to make data-driven decisions that prioritize employee wellbeing effectively. Integrating evidence-based HRM principles into the LAMP Model in HR Analytics enables organizations to optimize rostering decisions and support the wellbeing of all employees (Bakre,2019). This holistic approach fosters employee satisfaction, and engagement, and ultimately drives organizational performance. By using logic, organisations may establish clear objectives and match their analytics efforts with strategic goals. Analytics provides the tools and methodologies required to collect, analyse, and understand human resource data, allowing for evidence-based decision-making. Implementing the LAMP framework enables organisations to use the potential of HR analytics and generate data-driven insights for better talent management and organisational success. (Charvi,2007-2024;

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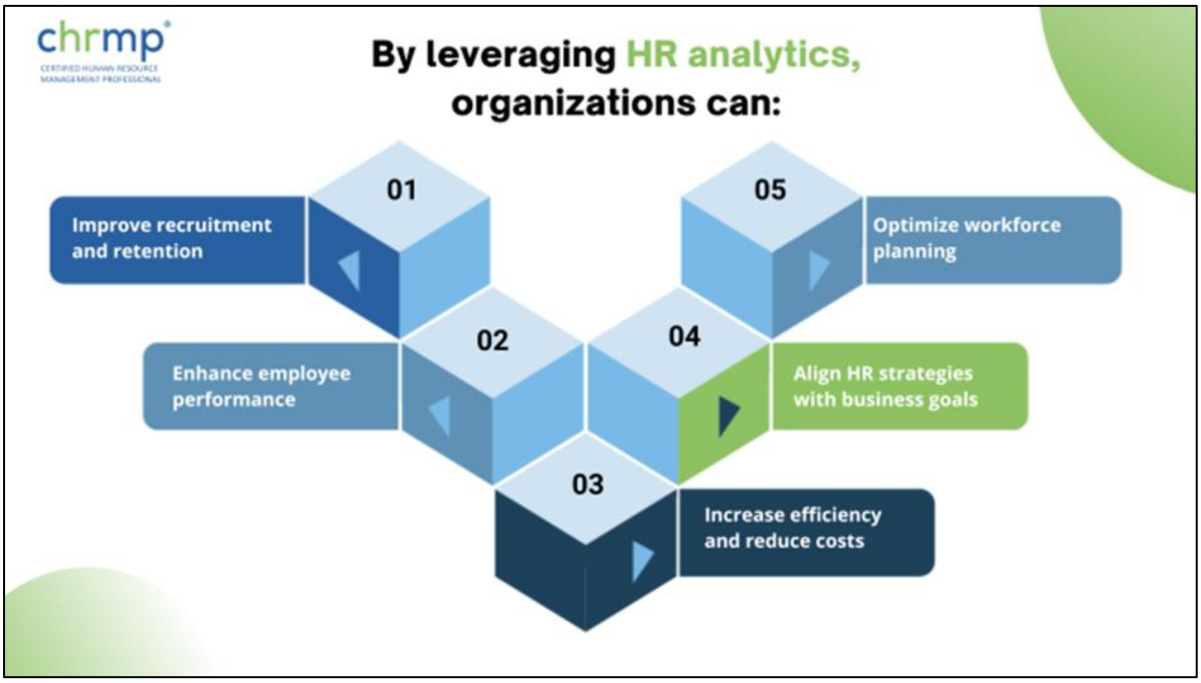
Bakre,2019). Measures ensure that appropriate and meaningful metrics are set to track progress and assess the performance of HR activities. Finally, process refers to a systematic and consistent approach to human resource analytics, which includes data collection, analysis, reporting, and continual improvement.HR analytics may offer insightful information about the workforce, including trends, patterns, and correlations that can be used to pinpoint areas in need of improvement and chances for optimization (Falletta, & Combs, 2020).Through the use of HR analytics, businesses can ***(Figure 1):***

Figure 1: Metrics for human resources' advantages



Source: CHRMP (2007-2024)

What Constitutes a Human Resource's KPI and Metrics?

HR metrics provide quantifiable information about your organization's HR operations, allowing you to rapidly identify what works and what doesn't. Lack of needed information will result in wasted efforts, money, and time spent on workforce management tactics that do not produce the desired results (Factor HR, 2024).HR KPI metrics represent a set of measurable indicators enabling Human Resource managers to meticulously monitor and assess their department's performance. These metrics are pivotal in identifying areas ripe for improvement, gauging the efficacy of HR strategies, and fostering data-driven decision-making to enhance HR processes (actiPLANS, 2004-2024). They encompass a broad spectrum of factors, including employee engagement, productivity, recruitment, retention, and beyond. Through diligent tracking of these metrics, HR managers glean invaluable insights into their department's effectiveness and can judiciously craft strategies to bolster the organization's overall efficiency. Among the plethora of HR KPI metrics lie stalwarts/proponents such as employee turnover rate, time to hire, cost per hire, absenteeism rate, training and development metrics, employee engagement, time to productivity, diversity and inclusion metrics, employee satisfaction, and retention rates, among others. Each metric serves a distinct purpose, offering a unique lens through which to assess HR departmental performance. For instance, the employee turnover rate metric aids in evaluating recruitment and retention strategies, while the employee engagement metric

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illuminates' areas of potential disengagement, prompting targeted interventions. HR KPI metrics stand as indispensable tools for HR managers, furnishing them with the means to evaluate performance, pinpoint improvement areas, and make informed decisions geared towards optimizing HR operations.

What Makes Monitoring HR Performance Essential?

The initial and pivotal step in crafting/designing metrics and analytics strategies for an organization is pinpointing the prevailing challenges they encounter. Given the dynamic nature of the global landscape, labour and industry evaluation methods also evolve. The primary focus remains on addressing the issues confronting both the organization and its human resources within the operational milieu. It's imperative for the management to promptly resolve these challenges, considering the competitive ethos prevailing in the world. Delays in making informed decisions could precipitate adverse circumstances for the organization. Recovering from such setbacks might be time-consuming, making it arduous for the organization to align with evolving global business requisites. Thus, the proactive approach entails identifying novel performance indicators. Metrics and analytics serve as invaluable tools in gauging organizational performance and facilitating timely decision-making. The organization should foster a robust Research and Development (R&D) framework wherein HR professionals can experiment with novel metrics and challenge existing assumptions about organizational systems. Such experimentation can foster innovation and pave the way for the development of fresh metrics and analytics paradigms (Durai et.al, 2019). Evaluating HR performance with KPI metrics is crucial for organizations to align their HR department with overall business strategy. Given the HR department's pivotal role in managing a company's most valuable asset—its employees—measuring its performance ensures effective management practices. Through the assessment of HR KPI metrics, organizations can discern strengths and weaknesses within their HR department, pinpointing areas for further improvement. This, in turn, enables the optimization of HR processes, enhances employee engagement and retention, and ultimately bolsters organizational success (Durai et al., 2019).

Measuring HR performance is critical for identifying patterns over time. HR managers can see patterns in the success of their strategy by tracking KPI data on a regular basis. For example, if a company experiences increased turnover, HR managers can analyse data to identify underlying issues and address them proactively. Moreover, measuring HR performance aids in substantiating decisions and strategies for senior management. Armed with objective data, HR managers can illustrate the influence of their HR strategies on organizational success. This data-driven approach not only ensures the HR department's contribution to the company's overall prosperity but also facilitates informed decision-making and optimization of HR processes, nurturing a more engaged and productive workforce.

Significance of Human Resource Management Systems in Assessing Human Resource Key Performance Indicators

Human Resource Management Systems (HRMS) are indispensable for measuring HR KPIs, playing a pivotal role in automating and streamlining HR processes, encompassing data collection and analysis. By leveraging an HRMS, HR managers gain effortless access to HR KPI-related data, empowering them to make informed decisions aimed at optimizing HR processes. A primary advantage of utilizing an HRMS for measuring HR KPIs lies in its capability to collect and analyse data in real-time. This real-time data functionality equips HR managers to promptly identify and address emerging issues, thereby enhancing organizational HR processes and bolstering overall efficiency. Furthermore, HRMS simplifies the tracking and reporting of KPI metrics for HR managers. By automating the data collection and analysis process, HRMS mitigate the risk of errors and save valuable time. HR managers can leverage HRMS to generate

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customized reports, furnishing insights into departmental performance, which can be shared with senior management and stakeholders.

Additionally, HRMS offer invaluable insights into workforce trends and patterns. Through longitudinal data analysis, HR managers can discern areas of improvement or decline in performance and implement targeted interventions. For instance, HRMS can pinpoint areas necessitating employee training and development or areas where retention strategies require enhancement. In essence, HRMS serve as essential tools for measuring HR KPIs, facilitating real-time data analysis, streamlined tracking and reporting of KPI metrics, and providing actionable insights into workforce dynamics. Leveraging HRMS to measure HR KPIs enables organizations to optimize HR processes and contribute decisively to overall success. HR metrics are essential tools for organizations, facilitating the measurement, tracking, and enhancement of various aspects of human resources management. They offer a host of benefits that contribute to organizational success and efficiency.

One of the primary advantages of HR metrics is their role in performance measurement. By providing quantitative data, these metrics enable organizations to assess employee performance, departmental effectiveness, and overall organizational success. This data-driven approach aids in evaluating progress towards set goals, identifying areas for improvement, and acknowledging high-performing individuals or teams. Moreover, HR metrics support data-driven decision-making processes within the organization. HR professionals and organizational leaders gain access to objective data and insights that guide informed decisions across various domains such as workforce planning, talent acquisition, training and development, and employee engagement initiatives. Analysing HR metrics over time allows organizations to identify trends, patterns, and correlations within their workforce. These insights help in proactively addressing issues such as employee turnover, absenteeism, productivity levels, and performance metrics while also capitalizing on opportunities for improvement.

Another significant benefit is resource allocation optimization. HR metrics assist in making informed decisions regarding resource allocation within HR departments. For instance, understanding recruitment metrics guides decisions on budget allocation for recruitment efforts, while analysing training metrics informs investment in employee development programs. Additionally, HR metrics enable organizations to benchmark their performance against industry standards or best practices. This benchmarking and comparison process facilitates a comparative analysis with peer organizations, aiding in identifying areas of strength and areas needing improvement.

HR metrics also play a crucial role in measuring the return on investment (ROI) for various HR initiatives and programs. For instance, metrics related to training can quantify the impact of training programs on employee performance, retention rates, and overall organizational outcomes. HR analytics also help with effective risk management by exposing potential hazards and obstacles in the workplace. These risks could include issues with diversity and inclusion, skill shortages, succession planning gaps, and compliance. Organizations should take proactive steps to reduce these risks by monitoring relevant KPIs. Utilizing HR metrics promotes enhanced accountability and transparency within the organization. Clear metrics and performance indicators enable employees, managers, and leaders to understand expectations, track progress, and take corrective actions as needed, fostering a culture of continuous improvement and accountability.HR metrics offer valuable insights that support strategic decision-making, enhance organizational effectiveness, and drive continuous improvement in human resources management practices, thereby contributing to overall organizational success. This subject encompasses various terms, including "Workforce analytics," "Talent analytics," "People analytics," "Human Capital analytics," "Human Resource analytics," and "HR analytics." Among these terms, "People

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analytics" stands out as particularly significant and is frequently utilized. Hence, this study incorporates the mentioned terms within its scope and analysis (Bonilla-Chaves, & Palos-Sánchez, 2023).

"People analytics" refers to a segment of Human Resource Management (HRM) practice, research, and innovation that leverages information technologies and employs descriptive and predictive data analysis alongside visualization tools. Its aim is to generate valuable insights regarding workforce dynamics, human capital, and individual as well as team performance. These insights are strategically utilized to enhance an organization's effectiveness, efficiency, and overall outcomes, while also improving the employee experience. HR professionals employ a variety of analytical techniques, collectively known as HR analytics, to gather information and make data-driven choices in their workforce. Below are the four main categories of HR analytics.

With the ability to gather and analyse HR data in novel and creative ways, HR Analytics has become a vital function for organisations in recent years. The way businesses manage their workforce is changing due to the adoption of new HR Analytics trends and technology, which has important ramifications for both employers and employees. Natural language processing, blockchain technology, a greater emphasis on employee experience metrics, social media data integration, AI and ML for predictive analytics, AR/VR for immersive training and onboarding, wearable technology for tracking employee health and wellness, and Internet of Things (IoT) for monitoring workplace productivity are some of the emerging trends and technologies in HR analytics (Suresh, 2023).

Descriptive Analytics: Using historical data to comprehend and characterise previous trends, patterns, and occurrences inside the company is known as descriptive analytics. It helps with "What happened?" inquiries and offers a retrospective perspective of HR metrics. Analysing employee turnover rates, diversity measures, recruitment sources, training completion rates, and workforce demographics are a few instances of descriptive analytics in HR. This kind of analytics establishes the framework for more complex analysis.

Predictive Analytics: By using statistical algorithms and machine learning approaches, predictive analytics makes predictions about the future based on patterns found in past data. It seeks to provide answers to queries such as "What is likely to happen?" HR departments can use predictive analytics to forecast workforce demand and supply, identify high-potential workers, predict skill gaps, and figure out the ideal staffing levels. Organisations can proactively plan and implement solutions to solve workforce difficulties by projecting future trends and scenarios.

Prescriptive Analytics: By suggesting actions or interventions based on anticipated outcomes, prescriptive analytics advances predictive analytics. It assists in addressing the query, "What should we do?" Prescriptive analytics makes use of sophisticated algorithms to maximise decision-making and offer useful insights. Prescriptive analytics can be used in HR to identify at-risk employees through predictive models, advise retention plans for them, and optimise workforce deployment strategies to effectively accomplish corporate objectives. It can also be used to provide personalised learning routes for employees based on performance data (Jaishi, 2024).

Diagnostic Analytics: The goal of diagnostic analytics is to identify the underlying causes and contributing variables of particular HR outcomes or problems. that contributes to the explanation of "Why did it happen?" In order to find correlations, linkages, and drivers that affect HR metrics, this kind of analytics entails a deeper examination of the data. Diagnostic analytics, for instance, can be used to investigate the causes of staff attrition, spot trends in performance evaluation scores, examine the effects of training initiatives on output or evaluate the success of diversity and inclusion programmes. Organisations can address issues and enhance HR results by implementing

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focused interventions and strategies after identifying the root reasons.

Together, these four main categories of HR analytics—prescriptive, diagnostic, predictive, and descriptive—offer a thorough insight of the workforce, support strategic decision-making, enhance HR procedures, and promote organisational success. Organisations can successfully exploit data and proactively manage their human capital for improved business outcomes by incorporating these analytics into HR operations.

Differences Between Metrics and Analytics

Analytics and metrics play key roles in data-driven decision-making across a range of industries, including human resources (HR). Although they seem similar, metrics and analytics are not the same thing.

Table 1: Differences between metrics and analytics

	Metrics	Analytics
Definition	Metrics are measurable/quantifiable measurements that are used to monitor and evaluate particular facets of operations, procedures, or performance. They offer numerical data that can be compared between various segments or over time.	Analytics is the methodical examination of data by statistical, mathematical, or computational methods in order to derive conclusions, forecast outcomes, or assist in decision-making. Analytics involves more than just displaying data; it also entails analysing data to draw insightful conclusions.
Purpose	Metrics are primarily used to compare performance or advancement to predetermined benchmarks, targets, or objectives. They assist in keeping an eye on vital indicators and offer an overview of the situation or results as of right now.	Finding patterns, trends, correlations, and causal linkages in data is the goal of analytics. In order to forecast future trends, understand why specific results happen, and inform strategic decision-making, entails deeper study.
Level of Complexity	Metrics are frequently given as percentages or numerical numbers, and they are usually simple to interpret. In terms of computation and understanding, they are easier.	Complex analysis methods including regression analysis, machine learning algorithms, clustering, and data modelling are all part of analytics. Accurately performing advanced analysis and interpreting the findings requires a solid foundation in data science and statistics.
Time Frame	Metrics are frequently used for reporting and monitoring in real-time or almost real-time. Regarding operational or performance measures, they offer prompt feedback.	Analysing recent data, historical data, and predicting future patterns are all possible in analytics. It can be applied to scenario analysis, forecasting, and long-term planning.
Actionability	Metrics provide a clear indication of performance but may not always offer insights into why certain outcomes occur or what actions to take.	By exploring data patterns and relationships in more detail, analytics seeks to deliver insights that may be put to use. Making educated decisions, figuring out where improvements can be made, and comprehending the underlying causes are all aided by it.

HUMAN RESOURCE MANAGEMENT KEY PERFORMANCE INDICATORS

Employee Turnover Rate

According to actiPLANS (2004-2024), employee turnover rate serves as a key performance indicator (KPI) utilized to gauge/measure the quantity or percentage of employees leaving an organization within a designated timeframe. Such

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turnover can manifest either through voluntary means (such as resignations) or involuntary actions (like termination or dismissal). Assessing the employee turnover rate holds significant importance for organizations as it provides insights into the efficacy of their recruitment, retention, and talent management endeavours. Elevated employee turnover can pose substantial financial burdens for organizations. The expenses associated with replacing an employee—encompassing recruitment, training, and onboarding costs—can escalate significantly. Moreover, heightened turnover rates have the potential to detrimentally affect employee morale, productivity levels, and overall customer satisfaction (Vulpen, 2024). To compute the employee turnover rate, Human Resource Practitioners should divide the number of employees who departed from the organization by the total number of employees, and then multiply the result by 100 (Jay, 2024).

This formula can be outlined as:

Employee Turnover Rate = (Number of Employees Who Left / Total Number of Employees) x 100

Time to Hire

Time to hire serves as a key performance indicator (KPI) utilized to gauge the duration it takes for an organization to complete the hiring process, starting from the moment a job opening is advertised to when a candidate formally accepts an offer. This metric holds significant importance for organizations as it enables them to assess the efficiency and effectiveness of their recruitment procedures, pinpoint any bottlenecks, and implement enhancements to streamline the entire process.

Prolonged time to hire can have adverse effects on an organization's capacity to attract and retain top-tier talent. Delays in hiring may lead to diminished productivity, lowered employee morale, and escalated costs associated with prolonged job vacancies. The measurement of time to hire empowers organizations to monitor their advancements in reducing the duration required to fill vacant positions, enhancing the candidate experience and ultimately contributing to the organization's overall success.

This formula can be represented as:

To determine the time to hire, organizations should subtract the date the job opening was posted from the date the candidate accepted the offer, expressed as:

Time to Hire = Date Candidate Accepted Offer – Date Job Opening was Posted

For example, if an organization posted a job opening on March 31st and a candidate accepted the offer on May 10th, the calculation would result in:

Time to Hire = May 10 – March 31 = 40 days

This indicates that it took the organization 40 days to fill the job opening. This metric serves as a valuable tool for evaluating the efficiency of the recruitment process. It enables organizations to identify areas for improvement, such as streamlining the screening process or reducing the time it takes to schedule interviews. Determining the time to hire is crucial for organizations to assess the efficiency of their recruitment process and make enhancements to attract and retain top talent. By calculating this key performance indicator (KPI) metric, organizations can identify “tailbacks” in their recruitment process, reduce the time it takes to fill open positions, enhance the candidate experience, and ultimately contribute to increased organizational productivity.

Cost per Hire

Cost per hire is a key performance indicator (KPI) metric employed to assess the total expenses accrued by an organization to fulfil a job opening. This metric holds significance for organizations as it aids in evaluating the efficiency of their recruitment strategies and ascertaining the budget necessary to attract and retain top-tier talent. By working out the cost per hire, Human Resource Professionals can pinpoint areas where they can mitigate recruitment expenditures, including optimizing job postings, enhancing the candidate

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experience, and refining the recruitment process (Vulpen, 2024). Utilizing this KPI metric enables organizations to make well-informed decisions aimed at minimizing recruitment costs while simultaneously enticing and retaining high-calibre talent. To determine the cost per hire, organizations must sum up all expenses linked to filling a job position and then divide this total by the number of hires made. This calculation can be represented by the following formula:

$$Cost\ per\ Hire\ = \frac{Total\ Recruitment\ Costs}{Total\ Number\ of\ Hires}$$

Recruitment costs encompass various expenses such as advertising, job postings, recruiter fees, travel costs, background checks, and onboarding expenditures.

Absenteeism Rate

The absenteeism rate serves as a key performance indicator (KPI) that gauges the proportion of days an employee is absent from work compared to their total scheduled working days (Ng, 2023; Jay, 2024). This metric holds significance for organizations as it enables them to assess the repercussions of absenteeism on productivity, discern patterns, and formulate strategies to mitigate absenteeism. Elevated absenteeism rates can detrimentally affect an organization's productivity, morale, and financial performance. By measuring the absenteeism rate, organizations can monitor their advancements in reducing absenteeism, enhance employee attendance, and ultimately contribute to the organization's prosperity (Khan, 2024).

The calculation formula

$$Absenteeism\ Rate\ = \frac{Total\ Number\ of\ Days\ Absent}{Total\ Number\ of\ Scheduled\ Working\ Days} x100\%$$

This methodical approach empowers organizations to quantify absenteeism accurately, identify areas for improvement, and implement measures that foster a culture of consistent attendance, thereby strengthening overall organizational performance.

Training and Development

Training and development effectiveness serves as a key performance indicator (KPI) utilized to gauge the success of an organization's training initiatives. This metric holds significant importance for organizations as it facilitates the assessment of the impact of their investments in employee training and development on various aspects such as employee performance, retention rates, and overall business achievements. The implementation of effective training and development programs can enhance employee skills, knowledge, and competencies, consequently leading to heightened productivity, innovation, and profitability within the organization (Lalwani, 2007-2024; Khan, 2024). Measuring training and development KPIs enables organizations to pinpoint deficiencies in their training schemes, assess the efficacy of their training endeavours, and devise strategies to enhance the calibre of their training and development programs (Jay, 2024; Ng, 2023). Evaluating training and development effectiveness allows organizations to not only improve employee performance but also foster a culture of continuous learning and development, which are fundamental for sustained success in today's competitive business landscape. The method for calculating training and development KPI metrics can vary based on the specific objectives and aims of the organization's training and development programs. Several common formulas are utilized to measure these metrics, including:

1. Training Cost per Employee: This metric assesses the total cost incurred for training and development activities per individual employee. The formula for calculating this metric is represented as *Training Cost per Employee = (Total Training Costs / Total Number of Employees)*
2. Training Return on Investment (ROI): This metric evaluates the return on investment derived from training and development endeavours. The formula for calculating this metric is expressed as *Training ROI = ((Total Benefits – Total Costs) / Total Costs) x 100%*

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These formulas provide valuable insights into the efficiency and effectiveness of training and development initiatives. By analysing these metrics, organizations can make informed decisions, optimize resource allocation, and enhance the impact of their training and development programs on employee growth and organizational productivity and success (Lalwani, 2007-2024).

Employee Engagement

The Employee Net Promoter Score (eNPS) is based on the Net Promoter Score (NPS) system, which was introduced by Fred Reichheld, a business strategist and author, in 2003. Fred Reichheld, along with Bain & Company and Satmetrix, developed the Net Promoter Score as a metric to measure customer loyalty and satisfaction (Yaneva, 2018).

The concept of eNPS, specifically focusing on employees and their likelihood to recommend their company as a place to work, is an adaptation of the NPS methodology. It has gained popularity in human resources and management circles as a way to gauge employee engagement, satisfaction, and loyalty (Jay, 2024; Siocon, 2024; Bhat, 2024). While Fred Reichheld is credited with the original NPS framework, various organizations and experts have contributed to the development and application of eNPS within the context of employee experience and organizational performance. The Employee Net Promoter Score (eNPS) is a metric used to measure employee loyalty and satisfaction within an organization. It is based on the Net Promoter Score (NPS) system, which was originally developed to gauge customer loyalty and satisfaction. The eNPS is typically derived from a single question asked to employees: "On a scale of 0 to 10, how likely are you to recommend [company/organization] as a place to work to a friend or colleague?" Based on their responses, employees are categorized into three groups:

- Promoters (score 9-10): These are employees who are highly satisfied and loyal to the company. They are likely to promote the company as a great place to work to others.
- Passives (score 7-8): These employees are generally satisfied but not as enthusiastic as promoters. They are considered neutral and may not actively promote or criticize the company.
- Detractors (score 0-6): Detractors are employees who are dissatisfied or unhappy with their work experience. They are unlikely to recommend the company to others and may even speak negatively about it.

To calculate the eNPS, the percentage of detractors is subtracted from the percentage of promoters. The Passives are not factored into the equation. The resulting score can range from -100 to +100, with a higher score indicating a more positive perception among employees.

eNPS can provide valuable insights into employee engagement, satisfaction levels, and overall organizational health. It is often used as a key performance indicator (KPI) in HR and management to track improvements in employee experience and identify areas for enhancement (Siocon, 2024).

In 2003, Reichheld advocated that the Net Promoter Score (NPS) was the pivotal metric for managers aiming to boost sales growth. Over time, numerous companies have embraced NPS, with more than two-thirds of Fortune 1000 firms from various sectors incorporating it into their business strategies (Kaplan, 2016). Despite its immediate and sustained popularity among managers, NPS faced criticism from academia. Researchers highlighted several methodological issues with the original NPS study. For instance, Reichheld (2003) focused on past sales growth rates using basic correlations and assessed static NPS levels measured at a single point in time. These identified issues, among others raised by critics, cast doubt on the validity of Reichheld's (2003) assertion and consequently question the efficacy of NPS as a reliable predictor of future sales growth (Baehre et al., 2022). Companies are shifting their focus from solely measuring

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employee satisfaction to evaluating employee engagement. Nowadays, there is a growing trend where organizations are placing emphasis on the Employee Net Promoter Score (eNPS). This metric not only reflects how engaged employees are with the products or services offered by the company but also how they view the company as an employer (Yaneva, 2018).

Employee engagement is a key performance indicator (KPI) that measures a worker's commitment and emotional investment in their job and the firm for which they work. Organizations should assess employee engagement because it has a direct impact on productivity, job satisfaction, staff retention, and overall business success. High levels of employee engagement can lead to increased staff motivation, better customer service, greater sales, and a more positive work environment. Conversely, low employee involvement can have a negative impact on the whole company's bottom line by increasing turnover, diminishing productivity, and other concerns. Organizations can identify areas for improvement and build plans to increase employee engagement levels by measuring employee engagement KPIs. Employee engagement is characterized as a person's dedication, motivation, and satisfaction with their job and work environment. It has a significant impact on productivity, performance, retention, and innovation, making it an essential component of human resource management. Organizations can use metrics such as employee happiness, employee turnover, and employee Net Promoter Score (eNPS) to monitor, quantify, and estimate employee engagement levels (Bhat, 2024). The eNPS weigh up the likelihood that employees will recommend their organization to others as a place to work. Employee satisfaction assesses how satisfied employees are with aspects of their occupations and workplace, such as development, recognition, leadership, and culture. Employee turnover refers to the number of employees who leave their jobs, either voluntarily or involuntarily, within a given time period. A high turnover rate can suggest low engagement, a terrible match, or a lack of opportunities. The method for calculating key performance indicators (KPIs) related to employee engagement can vary based on the specific objectives of the organization's engagement strategies (Siocon, 2024; Jay, 2024). Various formulas are utilized to gauge this metric, including:

- Employee Net Promoter Score (eNPS): This KPI assesses the likelihood of employees recommending their workplace as a favourable environment. The eNPS formula is typically represented as: eNPS = (% of Promoters – % of Detractors) x 100% Promoters refer to employees who rate their likelihood of recommending the organization as a 9 or 10 on a 10-point scale. Detractors are those who rate it as a 6 or below on the same scale (Siocon, 2024).
- Employee Engagement Survey: This metric evaluates employees' perceptions of their workplace and their level of involvement in their roles and the organization. The survey encompasses inquiries regarding job contentment, managerial effectiveness, communication channels, recognition practices, and other elements influencing employee engagement (Eqtble, 2022).

Example:

Suppose a company conducts an employee engagement survey and gathers responses from 200 employees, covering aspects like job satisfaction, communication effectiveness, and recognition practices. After analysing the survey data, the organization discovers the following insights:

- ✓ *70% of employees' express satisfaction with their current roles.*
- ✓ *60% of employees believe they receive sufficient recognition for their contributions.*
- ✓ *50% of employees feel that communication from leadership is clear and effective*.

To determine an overall employee engagement score, the organization might allocate weights to

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each survey question based on its significance and then compute an average score. For instance, if the company assigns a weight of *40% to job satisfaction, 30% to recognition, and 30% to communication, the calculated overall engagement score would be:*

Overall Engagement Score = (70% x 40%) + (60% x 30%) + (50% x 30%) = 63%

This score indicates that the organization's overall employee engagement level stands at 63%. Using this information, the organization can pinpoint areas needing enhancement and devise strategies to boost employee engagement. These strategies could include initiatives like implementing an employee recognition program or enhancing communication channels between leadership and staff. Measuring employee engagement through KPI metrics is crucial for organizations as it helps gauge employee commitment and emotional attachment to their roles and the company. By assessing this metric, organizations can identify areas for growth and implement strategies to elevate employee engagement levels, leading to improved employee retention, job satisfaction, productivity, and overall organizational productivity (Eqtble, 2022; Tambe et al., 2019).

Employee Retention

Employee retention refers to an organization's capability to keep its employees within a defined timeframe. It stands as a critical HR Key Performance Indicator (KPI) as it mirrors the success of the organization's strategies in preserving its skilled workforce, diminishing turnover rates, and fostering stability among its employees (West, 2019). The significance of employee retention for organizations is paramount, as elevated turnover rates can lead to heightened recruitment and training expenses, decreased productivity, disturbance in team synergy, and a detrimental effect on the organizational culture. Preserving top-performing employees is fundamental for sustaining a high-performing workforce, ensuring seamless business continuity, and attaining enduring organizational victory (Munshi, 2022; Ng, 2023).

Calculation Formula

> *Employee Retention Rate = ((Number of Employees at the End of a Period – Number of Employees Who Left During the Period) / Number of Employees at the Beginning of the Period) x 100*

This formula computes the retention rate of employees within a defined timeframe, typically presented as a percentage.

Cost of Training per Employee

The average training cost per employee stands as a pivotal HR Key Performance Indicator (KPI) that quantifies the expenditure an organization allocates toward providing training and development opportunities for its workforce. This encompasses the expenses related to designing, implementing, and managing various training programs such as workshops, seminars, e-learning modules, certifications, and other employee development initiatives (Munshi, 2022; West, 2019; Vulpen, 2024).

This KPI is of significant importance as it aids organizations in evaluating the efficiency and effectiveness of their training endeavours and assessing the return on investment (ROI) for their training initiatives. It enables HR managers and executives to gauge the cost-effectiveness of their training strategies, allocate resources judiciously, and make well-informed decisions based on data to optimize their training budgets (FactorHR, 2024).

> *Cost of Training per Employee = Total Cost of Training / Number of Employees Trained*

The comprehensive training cost encompasses expenses related to the creation, implementation, and management of training initiatives. This includes factors like trainers' salaries, training materials, software or platforms, facilities, travel expenses, and associated costs. The count of trained employees represents the total number of individuals who actively participated in training programs within a specified timeframe.

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Time to Promotion

Time to Promotion serves as a crucial HR Key Performance Indicator (KPI) that gauges the average duration employees take to attain a promotion within the company. This metric carries significant importance as it reflects the efficacy of the organization's talent management and career development initiatives (Jay, 2024). A shorter Time to Promotion can symbolize a culture emphasizing growth, development, and acknowledgement, fostering heightened employee motivation, engagement, and retention. Conversely, a prolonged Time to Promotion may suggest limited career progression prospects or a sluggish advancement process, potentially dampening employee morale and satisfaction levels (Rani, 2024; Ng, 2023).

Time to Promotion = (Total time spent by employees in their current position) / (Total number of employees promoted)

Employee Referral Rate

The employee referral rate serves as a pivotal HR Key Performance Indicator (KPI) that assesses the proportion of new hires acquired through employee referrals. It is derived by dividing the number of new hires recommended by current employees by the total number of new hires within a specified timeframe, then multiplying by 100 to express the result as a percentage (Ng, 2023; Khan, 2024). Employee referral programs are gaining popularity in organizations due to their propensity to yield hires of higher quality, enhanced cultural alignment, and increased retention rates. Consequently, monitoring the employee referral rate enables HR managers to evaluate the efficacy of their referral initiatives and make informed decisions grounded in data to enhance their recruitment strategies (Ng, 2023; Jay, 2024; Profitco, 2024).

The employee referral rate can be determined using the subsequent formula:

Employee Referral Rate = (Number of New Hires from Employee Referrals / Total Number of New Hires) x 100

For instance, let's consider a scenario where a company recruited a total of 40 new employees during a quarter, with 10 of them being referred by current employees. To compute the employee referral rate, the given figures are inserted into the formula as follows:

Employee Referral Rate = (10 / 40) x 100 = 25 %

This implies that 30% of the new hires during that quarter originated from employee referrals.

Cost of Turnover per Employee

The expense of turnover per employee refers to the financial outlay incurred when an employee departs from the organization and necessitates replacement. The significance of gauging this metric lies in its potential to significantly deplete the organization’s resources, encompassing time, finances, and productivity (Oluwaniyi, 2024; Khan, 2024). These costs may manifest in both direct forms, such as expenses associated with recruiting and training a replacement, and indirect forms, including lost productivity during the vacancy period, depletion of institutional knowledge and expertise, and the potential repercussions on employee morale. To compute the cost of turnover per employee, the following formula is utilized: (Cost of Separation + Cost of Replacement) / Number of Employees (Profitco, 2024; Ng, 2023).

The "Cost of Separation" encompasses any expenses linked to the departure of an employee, such as severance pay, accrued vacation pay, and other termination benefits. Meanwhile, the "Cost of Replacement" includes expenditures associated with filling the vacant position, including recruitment, advertising, interviewing, and training costs (Oluwaniyi, 2024).

For Instance: Consider an organization with 500 employees experiencing a turnover rate of 20% over a year. Throughout that period, they incurred $50,000 in separation costs and $100,000 in replacement costs. To determine the cost of turnover per employee, the formula is applied as follows: ($60,000 + $100,000) / 100 = $1,600 This signifies that, on average, the cost incurred to

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replace each departing employee within the organization amounted to $1,600. By monitoring this metric longitudinally, HR managers can assess the financial ramifications of employee turnover on the organization and pinpoint areas necessitating enhancement within their employee retention strategies.

Relationship between HR Metrics and Analytics and Sustainable Work Environments

Data-driven insights are at the forefront of modern Human Resources (HR) practices, offering a comprehensive view of various aspects crucial to organizational success. HR metrics and analytics play a pivotal role in uncovering actionable information related to employee performance, engagement, well-being, diversity, inclusion, and sustainability. By harnessing the power of data analysis, organizations gain valuable insights into their workforce dynamics. For instance, HR metrics can reveal patterns and trends that highlight areas for improvement in sustainability practices within the work environment. This analytical approach goes beyond surface-level observations, allowing businesses to make informed decisions based on evidence rather than assumptions (Gurusinghe et al., 2021). Performance monitoring is another area where HR metrics shine. They enable organizations to monitor and measure employee performance and productivity effectively. This data-driven approach is essential for fostering sustainable business practices by identifying strengths, weaknesses, and opportunities for enhancing workforce efficiency (Bonilla-Chaves & Palos-Sánchez, 2023).

Moreover, the use of analytics enhances performance monitoring by providing real-time insights and predictive analytics. This proactive approach helps anticipate performance trends and potential issues, allowing HR teams to implement timely interventions and optimize outcomes. Employee engagement, satisfaction, and well-being are critical pillars of a sustainable work environment. HR metrics related to these areas provide quantifiable measures of organizational health and employee morale (Yahia, Hlel, & Colomo-Palacios, 2021; Yuan, Kroon, & Kramer, 2021; Oluwaniyi, 2024). By leveraging analytics, organizations can identify factors contributing to high engagement levels and proactively address risks to employee well-being, fostering a positive and sustainable work culture. Retention and talent management are also central to sustaining a skilled workforce. HR metrics on retention rates, turnover, and talent management strategies provide essential data for strategic decision-making (Fastercapital, 2024; Belizón, & Kieran, 2022). Analytics further enrich these insights by uncovering the drivers of turnover, predicting attrition risks, and optimizing talent acquisition and development efforts. Diversity, equity, and inclusion (DEI) are fundamental values in modern workplaces. HR metrics and analytics are instrumental in assessing and improving DEI initiatives within organizations. They facilitate the measurement of diversity metrics, identify gaps, promote inclusive practices, and ensure equitable opportunities for all employees, thus contributing to a more sustainable and inclusive work environment (Profitco, 2024; eqtble, 2022).

While traditionally not part of HR metrics, environmental sustainability is gaining importance within HR responsibilities. HR analytics can support sustainability efforts by tracking employee behaviours related to resource conservation, promoting green practices, and aligning HR policies with sustainability goals. This integration reflects a holistic approach to sustainable business practices, encompassing both human and environmental well-being. Ultimately, HR metrics and analytics empower HR professionals and organizational leaders with actionable insights for strategic decision-making. These insights inform resource allocation, policy development, training and development programs, and organizational culture initiatives that collectively contribute to creating and sustaining healthy, productive, and sustainable work environments (Oluwaniyi, 2024; Eqtble, 2022).

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CONCLUSION

The investigation of critical human resource (HR) metrics and analytics for sustainable work environments using literature mapping and conceptual synthesis has yielded useful insights into the strategic significance of HR practices in promoting sustainability within organisations. The research process included a rigorous evaluation of the existing literature, the identification of essential HR indicators and analytics frameworks, and a conceptual synthesis to better understand their impact on sustainable work practices. The literature mapping shows that organisations are increasingly recognising the value of HR metrics and analytics in driving long-term success. Metrics for employee engagement, retention, productivity, well-being, diversity, equity, and inclusion (DEI), and environmental sustainability have emerged as critical markers of organisational sustainability. By leveraging data-driven insights and analytics tools, HR professionals and organizational leaders can make informed decisions, design targeted interventions, and cultivate work environments that support employee well-being and organizational resilience. The conceptual synthesis deepened our understanding of how these HR measurements and data interact and contribute to sustainable work environments. It emphasised the importance of integrated approaches that take into account both classic HR measures and modern analytics tools for addressing complicated sustainability concerns. Furthermore, the synthesis emphasised the significance of connecting HR strategies with organisational sustainability objectives and cultivating a culture of continual improvement and innovation. This study emphasises the strategic importance for organisations to prioritise HR metrics and analytics in their sustainability efforts. Organisations may develop positive work cultures, improve employee engagement and well-being, and achieve long-term organisational success through a comprehensive approach that blends HR practices with sustainability concepts. This study adds to the growing discussion about HR's involvement in sustainability and lays the groundwork for future research and practical applications in the field.

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