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AI-DRIVEN PEOPLE ANALYTICS AND HR DECISION-MAKING EFFECTIVENESS

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Abstract—*This study examines the role of AI-driven people analytics in enhancing HR decision-making effectiveness within contemporary organizations. The primary objective is to analyze how key organizational and technological factors such as AI adoption, organizational readiness, data infrastructure quality, ethical governance, leadership support and HR analytics competency contribute to improved decision outcomes. Adopting a conceptual research approach supported by recent literature, the study proposes a framework in which predictive analytics capability acts as a mediating mechanism between AI-driven analytics and HR decision effectiveness. The findings suggest that while AI enables more accurate, timely, and evidence-based decisions, its impact is significantly strengthened when supported by robust data systems, skilled professionals, and responsible governance practices. The study further highlights that predictive insights derived from analytics play a critical role in transforming raw data into actionable strategies. The originality of this research lies in integrating technological, human, and ethical dimensions into a unified framework, offering a holistic understanding of AI-enabled HR decision-making. The study provides valuable implications for organizations seeking to leverage analytics for strategic HR management while maintaining accountability and sustainability.*

Keywords: *AI-Driven People Analytics, Human Resource Management, HR Decision-Making Effectiveness, Predictive Analytics Capability, Organizational Readiness.*

INTRODUCTION

The rapid advancement of artificial intelligence (AI) has significantly redefined the landscape of human resource management (HRM), particularly through the emergence of people analytics as a strategic decision-support tool. Organizations are increasingly leveraging AI-driven analytics to process vast volumes of workforce data, enabling more precise, timely, and evidence-based HR decisions. This transformation has shifted traditional HR practices from intuition-driven approaches to data-centric models that enhance recruitment, performance evaluation, and employee engagement outcomes. Recent studies emphasize that AI integration not only improves operational efficiency but also strengthens the strategic role of HR in achieving organizational objectives (Minbaeva, 2023; Margherita, 2024). Consequently, AI-driven people analytics is now considered a critical enabler of competitive advantage in contemporary organizations.

Despite its growing prominence, the effectiveness of AI-driven people analytics in improving HR decision-making remains contingent upon several organizational and technological factors. Issues such as data quality, ethical governance, leadership support, and the analytical capabilities of HR professionals play a crucial role in determining the success of analytics initiatives. Moreover, the ability to convert raw data into predictive insights is essential for realizing the full potential of AI in HR contexts. Scholars argue that while AI offers substantial opportunities for enhancing decision quality, challenges related to privacy, transparency, and organizational readiness continue to limit its widespread adoption (Davenport et al., 2023; Floridi et al., 2023). Therefore, examining the interplay between AI-driven people analytics and HR decision-making effectiveness is vital for understanding how organizations can harness technology responsibly and strategically.

REVIEW OF LITERATURE

Tyagi et al. (2023) examined the integration of artificial intelligence in human resource management and highlighted its transformative role in recruitment automation, performance evaluation, and employee engagement processes. The study emphasizes that AI-driven systems enhance accuracy of decision-making, operational efficiency, and strategic HR planning within modern organizations. Furthermore, the authors note that the adoption of AI technologies reshapes traditional HR functions by enabling data-driven talent management and predictive analytics.

McCartney and Fu (2022) examined the gap between the promised benefits and the actual practice of people analytics in organizations. The study analyzed key variables such as people analytics adoption, ethical and privacy concerns, ownership of analytics within organizations, organizational readiness, and the impact of analytics on decision-making and business outcomes**.** The findings revealed discrepancies in the definition of people analytics and concerns regarding ethics, privacy and readiness.

Peeters et.al (2020) conducted a narrative literature review to examine factors that influence the effectiveness of people analytics teams in organizations. The study analyzed variables such as enabling resources, stakeholder management, governance structures, and analytics outputs. The findings proposed the People Analytics Effectiveness Wheel, emphasizing that strong leadership support, data infrastructure, and skilled analytics teams are essential for improving organizational decision-making and performance.

Pagnozzi (2022) investigated how people analytics and big data improve organizational training processes using a conceptual literature-based approach. The study considered variables such as employee performance, training effectiveness, workforce data, and analytics tools. The findings indicate that people analytics enables personalized training programs, better evaluation of training outcomes, and improved organizational competitiveness, although issues such as privacy and cost remain challenges.

Chang and Ke (2023) used an integrative literature review of 75 studies to develop a framework for socially responsible AI-enabled people analytics. The study examined variables including AI-enabled people analytics, CSR, ESG factors, sustainability goals, and ethical governance. The findings proposed a Socially Responsible AI (SRAI) framework that highlights transparency, fairness, and stakeholder accountability to ensure sustainable and ethical use of AI in HR analytics.

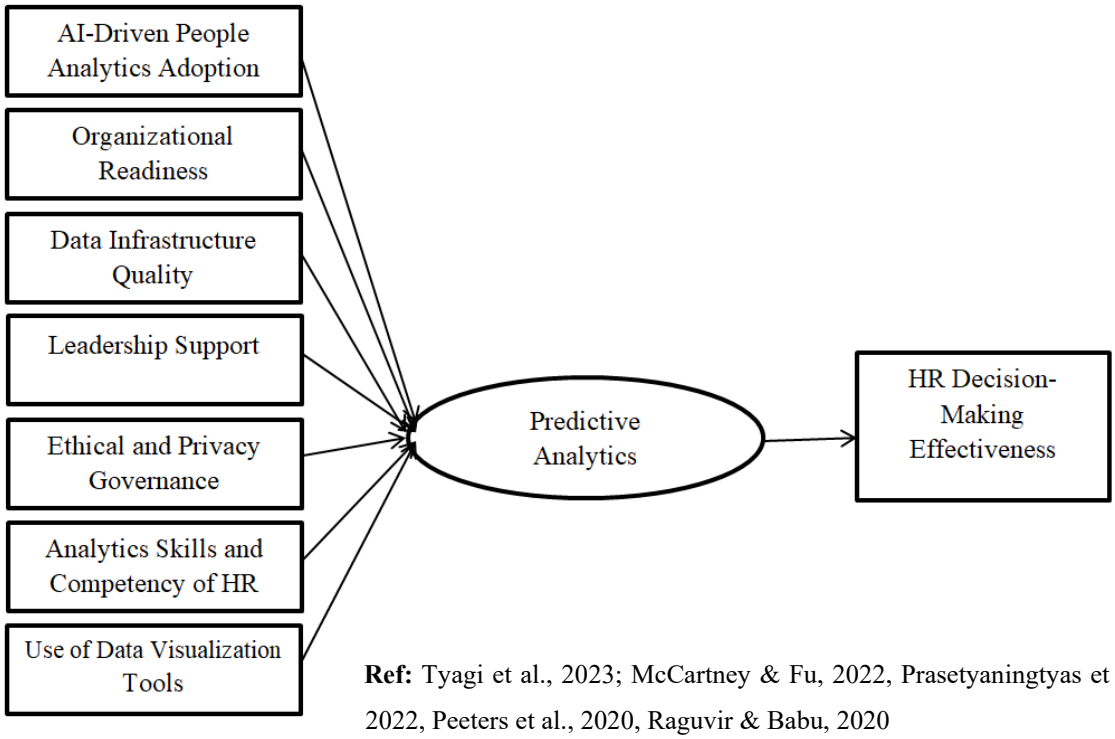
Prasetyaningtyas et al (2022) investigated the adoption of people analytics in higher education institutions. The research explored factors such as the roles of various stakeholders, processes for adopting people analytics, the readiness of the organization, and the challenges encountered during implementation. The results revealed that the incorporation of people analytics in universities is intricate.

Gal, Jensen, and Stein (2020) examined the ethical implications of people analytics and algorithmic management in organizations. The study analyzed variables such as datafication of employees, algorithmic opacity, nudging practices, and employee autonomy and well-being. The findings suggested that people analytics can resolve a vicious cycle of ethical challenges and develop virtues in the workplace.

Peeters et al. (2020) carried out a conceptual study to explore the factors affecting the effectiveness of people analytics teams within organizations. The research examined elements such as stakeholder engagement, governance frameworks, resource availability and analytics results. The findings revealed that the People Analytics Effectiveness Wheel, effective data infrastructure, highlighting that robust leadership backing, and proficient analytics teams were critical for enhancing organizational decision-making and performance.

Raguvir and Babu (2020) explored the improvement of employee productivity and decision-making in organizations by using talent analytics and data visualization. The study used a data analytics methodology, analyzing six months of employee data from a multinational HR company with visualization tools such as Kibana and Elasticsearch. Employee productivity, workforce performance metrics, talent analytics indicators, and decision-making parameters were the key variables examined. The findings showed that applying talent analytics and visual analytics helps organizations better understand workforce behavior, improve people management, and support more effective HR decision-making.

RESEARCH FRAMEWORK



Ref: Tyagi et al., 2023; McCartney & Fu, 2022, Prasetyaningtyas et al., 2022, Peeters et al., 2020, Raguvir & Babu, 2020

AI-DRIVEN PEOPLE ANALYTICS ADOPTION

This construct reflects the degree to which organizations embed artificial intelligence technologies into HR functions such as talent acquisition, performance monitoring, and workforce planning. The integration of AI enhances analytical precision and supports evidence-based managerial decisions. Recent scholarly work suggests that AI-enabled HR systems significantly strengthen data-driven decision environments and operational efficiency (George et al., 2024).

ORGANIZATIONAL READINESS

Organizational readiness represents the preparedness of firms in terms of digital infrastructure, cultural openness, and employee adaptability toward AI-based analytics systems. A well-prepared organization is more likely to leverage analytics tools effectively and minimize resistance to technological change. Empirical evidence indicates that readiness is a critical antecedent for successful AI implementation in HR contexts (Minbaeva, 2023).

DATA INFRASTRUCTURE QUALITY

Data infrastructure quality pertains to the robustness, integration, and reliability of organizational data systems that facilitate analytics processes. High-quality data environments enable accurate insights and strengthen predictive modeling capabilities in HR decision-making. Literature emphasizes that integrated and clean datasets are foundational for extracting meaningful insights from people analytics (Margherita, 2024).

LEADERSHIP SUPPORT

Leadership support denotes the extent to which top management actively endorses and invests in AI-driven HR initiatives. Effective leadership fosters a data-oriented culture and ensures the allocation of necessary resources for analytics adoption. Studies highlight that managerial commitment is instrumental in transitioning HR practices from intuition-based to analytics-driven decision frameworks (Davenport et al., 2023).

ETHICAL AND PRIVACY GOVERNANCE

This variable refers to the systems and policies established to safeguard employee data, ensure fairness, and promote transparency in AI applications. Ethical governance is essential in mitigating risks such as bias, discrimination, and

misuse of sensitive information. Recent discussions underscore that responsible AI practices are crucial for sustaining trust and long-term adoption of analytics in HRM (Floridi et al., 2023).

ANALYTICS SKILLS AND COMPETENCY OF HR TEAMS

This construct captures the analytical capabilities and data literacy of HR professionals in utilizing AI-based tools. Competent HR personnel can interpret complex datasets and translate them into actionable strategies. Contemporary research emphasizes that the effectiveness of people analytics largely depends on the analytical proficiency of HR practitioners (Van den Heuvel & Bondarouk, 2023).

PREDICTIVE ANALYTICS CAPABILITY

Predictive analytics capability refers to the organization's ability to forecast future workforce trends using advanced analytical techniques. It serves as an intermediary mechanism through which AI adoption translates into improved decision outcomes. Evidence suggests that predictive insights enable proactive HR strategies, thereby enhancing organizational responsiveness and performance (Boudreau & Cascio, 2023).

HR DECISION-MAKING EFFECTIVENESS

HR decision-making effectiveness indicates the extent to which HR decisions are accurate, timely, and aligned with organizational objectives. AI-driven analytics enhances this effectiveness by reducing uncertainty and supporting real-time, evidence-based decision processes. Recent studies confirm that analytics integration significantly improves both the quality and speed of HR-related decisions (George et al., 2024).

CONCLUSION

The study highlights that AI-driven people analytics has the potential to substantially improve the quality and consistency of HR decision-making by enabling data-informed and forward-looking practices. However, its effectiveness is not determined by technology adoption alone; rather, it depends on a combination of organizational readiness, robust data infrastructure, leadership commitment, ethical safeguards, and the analytical capability of HR professionals. The findings suggest that predictive analytics capability plays a pivotal role in translating data into actionable insights that enhance decision outcomes. At the same time, concerns related to privacy, transparency, and responsible use of AI must be carefully managed to sustain trust and long-term adoption. Above all, organizations that strategically align technological investments with human and governance factors are more likely to realize meaningful improvements in HR decision-making effectiveness.

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