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Original Researcher Article

Impact of AI on Talent Acquisition and Performance Management: Transforming HR Practices for the Digital Era

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ABSTRACT

Background: Artificial intelligence integrated into the organization talent acquisition and performance management with technological advancement like operational efficiency decision making an enhanced experience of the employee. ***Aim***: The Present study Analyses the role of AI on performance management and talent acquisition that transforms the HR practises in the Digital era. ***Method***: The study includes qualitative study involving convolutional neural network and genetic algorithm for analysing the role of AI on performance management and talent acquisition HRM practices by transforming HR practices for the digital Era. The performance metrics includes accuracy, recall, precision and ROC-AUC curve. ***Results***: The findings of the study include talent acquisition such as Resume Screening is 95%, Automated Interview Scheduling is 97%, assessment and Skill Testing with 98% and Onboarding with 96% for the hybrid model. ***Conclusion***: The hybrid CNN+GA model works superior than CNN model. The framework has high impact on performance management and talent acquisition HRM practices.

Keywords: talent acquisition, performance management, HR practices, digital era, transformation

INTRODUCTION

The rapid growth of digital technologies is reshaping all areas in the operations of businesses such as Human resource management. Advanced technique including artificial intelligence, machine learning, big data analytics and HR analytics transformed the way of recruitment and assessment of employee performance to be performed, that boosts the efficiency and productivity. On the other hand, new challenges and costs are brought by the digital transformation including handling crises, data security, promoting wellbeing and diversity reskilling and upskilling of employees, retaining and managing talents on building up of organisational capabilities effectively [1,2,3]. Since HRM is responsible for managing human capital while aligning with digital transformation and overall business strategy, it is essential for both researchers and practitioners to understand the dynamic relationship between people and technology.

The transformation of HRM lies in the fact that digital technologies are pervasive and multidirectional, influencing every aspect of an organization [4]. The digitalization of HRM is essential for achieving efficiency while remaining relevant and competitive in the evolving business environment [5]. The maintenance of modest advantages due to involvement of human resources has been extensively highlighted in existing literature. Based on the Resource-based View human resources hold a crucial strategic position in driving organizational success [6]. The RBV suggests that organizations can attain exceptional achievements by leveraging unmatched and unique human resources. Nevertheless, many firms continue to struggle with recruiting and retaining a highly skilled workforce [7].

The role of artificial intelligence is examined within the field of talent management. By reviewing existing literature, the research contributes with the intersection of AI and human resource management, highlighting current approaches, frameworks, and potential advantages. The results of the experiment indicates that talent management using artificial intelligence are at initial stage of development that evolves advancements

in technologies using artificial intelligence and machine learning techniques It further reveals that there is an clear relationship between the talent management practises and AI applications such as compensations, rewards, performance management, employee engagement, planning, recruitment and empowerment [8].

RELATED STUDIES

AI in HRM

The integration of artificial intelligence in the domain of hr management leads to significant shift in several ways followed by the organisations and its approach like retention talent acquisition and development. Several advanced techniques machine learning, natural language processing, robotic process automation and predictive analytics created major possibilities to streamline the operations in HR Department that boost the organisational efficiency and enhance decision making process. The researcher examined wide range of applications of artificial intelligence in the HRM domain, in specific the role of AI in transforming the conventional practises in the talent management. The recruitment process involves AI powered system for enhanced search, automated resume screening with the system powered by artificial intelligence for effective and quicker hiring. The talent Management process involves AI modified learning pathway and optimises the performance management that fosters skill growth and individual requirements. Moreover, the contribution of AI In employee retention for engagement platforms and predictive analysis for turnover that highlights the ability for reducing attrition one to build committed workforce for that particular organisation [9].

The impact of Artificial intelligence was studied in the human resource management that shapes the modern workplace with its key force. The study suggests an in-depth exploration for the role of AI in HRM by understanding the strategic recommendations future trends legal implications, ethical concerns, practical applications, challenges, core concepts and benefits. The conceptual framework helps in examining the multiple dimensions of artificial intelligence to outline the various capabilities and components in HRM practises. The contributions of artificial intelligence are highlighted for performance management, training, employee engagement and recruitment process that emphasize transformative influence. The study contrasts the advantages of artificial intelligence including employee engagement, data driven decision making and process efficiency for managing the critical challenges such as algorithmic transparency, privacy, security and bias. The legal and ethical aspects are addressed for adopting artificial intelligence for governance and responsible integration. The paper also anticipates offers and trends of artificial intelligence in strategic guidance to adopt transformation in the organisations. Finally, the study also involves human centred approaches for transparency and ethical clearance for implementing a by analysing the significant impact of workplace dynamics and HRM practises [10].

AI for Talent Acquisition

HRM functions are deeply transformed by Artificial intelligence including employee retention talent acquisition and human resource information system to enable greater efficiency and enhanced personalisation. The technological advancements including predictive analytics and machine learning techniques streamline the HR professionals for hiring the employees with minimised bias and enhanced engagement to tailor the experiences with predictive insights. the researcher highlighted recruitment of 5P model for product, performance, people, process and purpose that guides the integration of artificial intelligence in aligning the mental wellbeing of employees and organisational objectives. The study suggests that artificial intelligence helps in improving the efficiency of recruitment and strengthens the retention strategies as to anticipate the behaviour of employees and offers development pathways and overall satisfaction is boosted with individualization. The transition brought by the AI in HRM also examines the challenges in transformation such as algorithmic bias and ensures ethical deployment for effective integration of AI in HRM practises [11].

The organisational approaches for talent management are transformed digitally. Conventional talent management models focus mainly on structured process, practises and functions that directs the candidates for the suitable role with generic and broad view of talent management. However, with rapid technological advancements and increasing competition for talent, companies now require a more agile and well-informed decision-making approach that also aligns with sustainability goals. This study reviews the functions defined by applied research as the boundaries of talent management, which correspond to critical stages in the employee life cycle—talent attraction and acquisition, training, evaluation, and development. Additionally, emerging practices such as employee advocacy and brand ambassadorship are being incorporated to identify future trends in talent management. The article specifically analyzes how digital tools are being applied to these employee life cycle stages within Spanish national and multinational firms. Findings suggest that future investments will be essential to integrate digital tools more effectively and strengthen employee life cycle management [12].

AI for Performance management

Traditionally, performance management relied on annual reviews, subjective judgments, and retrospective assessments. With the advent of AI, this process is being transformed through more dynamic, objective, and data-driven methods for monitoring and improving employee performance. AI also strengthens the feedback process by generating actionable insights that are often more precise and relevant than those produced by conventional evaluations. For example, AI can detect recurring patterns or issues that may go unnoticed by human reviewers, allowing for timely interventions and targeted support. By analyzing individual performance data, AI further enables personalized development and

training recommendations tailored to employees' strengths, weaknesses, and career aspirations [13].

The effect of artificial intelligence transformed the performance appraisals explored the vital element of human resource management in the digital world. The integration of artificial intelligence the evaluation of performance has shifted from standardized, one-size-fits-all measures to personalized and dynamic indicators that provide real-time feedback and reduce bias. Leveraging AI-driven analytics, the paper examines how organizations can design individualized plans for development and strategies for predictive management aligns with employee career growth with organizational objectives. Case studies from leading companies are used to illustrate practical implementations, achieved outcomes, and the challenges encountered during the adoption of AI-enabled appraisal systems. The discussion also highlights ethical and privacy issues arising from the use of big data and AI for evaluation of performance. Finally, the paper offers strategic guidance for equipping HR professionals and organizations to embrace AI-driven appraisal systems while anticipating the future trajectory of performance management in the digital workplace. Overall, this research provides a comprehensive perspective on AI's potential to refine the appraisal process and strengthen talent management in an increasingly technology-driven environment. [14].

METHODS

The role of AI in HR management is analysed in the present. While perspectives differ on its role in workforce planning, AI leverages employee data to predict workforce patterns and support strategic decision-making. Increasingly, AI is also being applied in performance management and talent acquisition to improve accuracy, effectiveness and overall efficiency.

Research Design

The study involves on the combination of intelligent technologies, namely neural networks and genetic algorithms in the context of talent acquisition. As a result, it was decided to use neural networks that have the best function for processing and analyzing massive unstructured information, such as resumes and job descriptions, to determine candidate suitability. CNN and genetic algorithm have been used in the study.

Genetic Algorithm

The optimization technique genetic algorithm resolves multi-dimensional problems. The model provides enhanced accuracy. The properties like performance and talent acquiring are optimized. Then, the algorithm is further combined with CNN to obtained the enhanced output for selection of candidates and employee performance. The coding for genetic algorithm for examining the role of AI in HRM is given below;

Input: Employee details from an organization
Output: Optimized accuracy of candidate selection and employee performance
Initialization of nature-inspired algorithm
Population Size – 100
Selection, Mutation, Crossover Function
Define: Fuzzy membership function
For i=1 to all data instances
f_t = Alignement of candidate according to job role and performance of the employee
f_s = Feature properties of skill set, performance metrics
Call fuzzy_function (f_t, f_s)
Classification score is optimized
End
If Instance satisfies the fuzzy condition
Assign Low/Moderate/High potential fit and Performance
Create: Optimal Classification List
Else
Rejected
End

Talent Acquisition with AI

The following provides a comprehensive overview of how AI can be applied across different stages of the talent acquisition and recruitment process like Screening of resume, Sourcing of Candidates, Automated scheduling of Interview, Skill Testing and Assessment, Predictive Analytics and Onboarding. Enhancing HRM practices with AI is explained in figure 1.

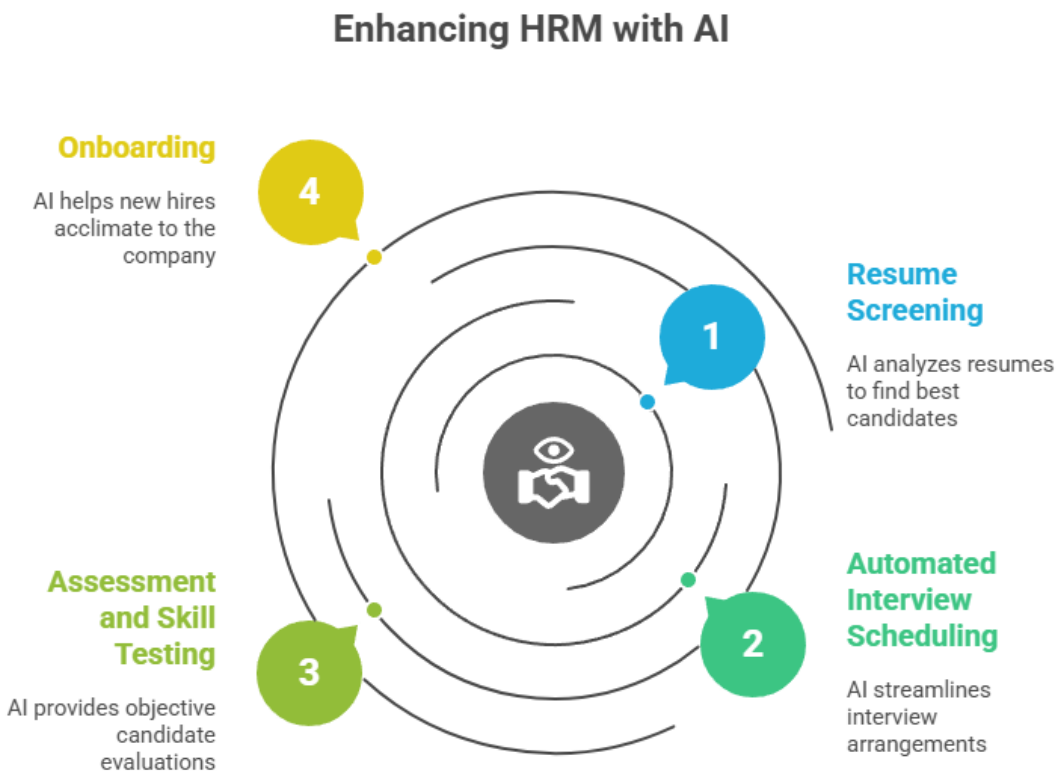

Figure Enhancing HRM practices with AI

Examining the Performance with AI

Incorporating the artificial intelligence in the appraisal process for examining the performance of the employee marks a forward-looking change in the way organizations assess and manage their workforce. Successfully navigating this shift calls for a well-rounded strategy that accounts for technological, cultural, and operational adjustments. As organizations move toward AI-driven appraisals, ensuring readiness across all levels becomes critical for seamless and effective implementation. Building Technological Readiness A strong and reliable technological infrastructure is the first step in enabling AI-based systems.

Table1. Achieved Accuracy for AI enabled Performance management

Variables	GA	CNN	Hybrid Model
Infrastructure Readiness	91%	94%	95%
Training and Development	93%	92%	96%
Feedback mechanism	94%	95%	97%
Workflow Design	93%	94%	98%

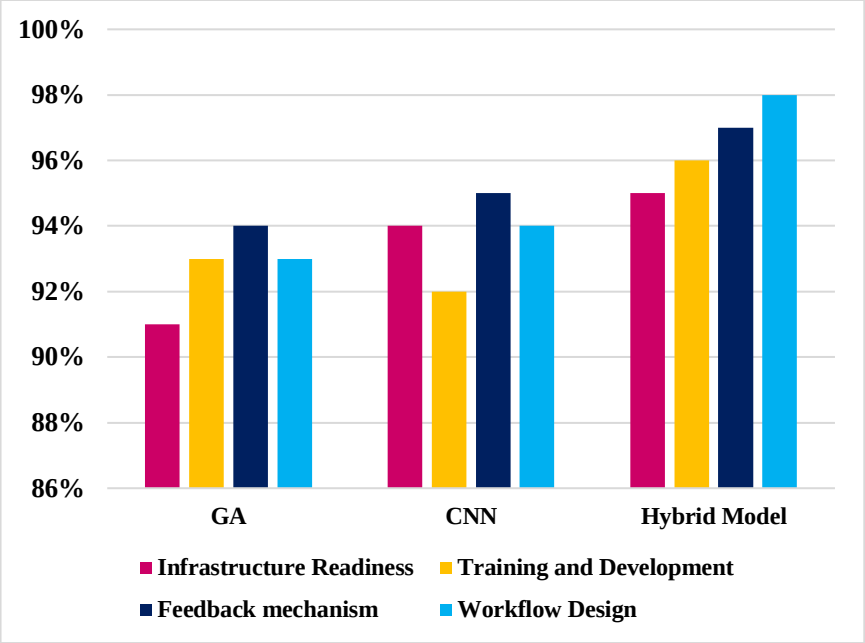

Figure 2. Achieved Accuracy for AI enabled Performance management

THIS INVOLVES:

Infrastructure Readiness

The successful adoption of artificial intelligence in the performance appraisal that require comprehensive approaches across various multiple dimensions. Most of the organizations verify that AI tools are integrated with the information technology with the infrastructure. The input data should be of high quality to make the organization and cleaning of current database with critical steps. Then output of artificial intelligence reliable to the provided data. The tools of AI are selected and aligned with the objectives to monitor the performance and appraisal of an organization that are scalable needs in future. The culture driven by data cultivated to maximize with the applications of artificial intelligence that secures the leadership support to ensure the advocacy and resources are in place for the transition. Moreover, the employees are engaged that are informed to highlight the advantages, the concerns are addressed and the changes updated for artificial intelligence for enhanced appraisal process for smother implementation and acceptance.

Training and Development

The Managers and HR professionals should invest more in training process is essential to ensure they can effectively use AI tools, interpret the insights generated, and make informed decisions based on the data. The introduction of AI also necessitates a redefinition of traditional appraisal strategies, including a careful re-evaluation of performance criteria. Performance metrics must be revised ensuring measurables using Artificial intelligence system and accurately reflect the real value that employees contribute to the organization.

Mechanism of continuous feedback

The mechanism of continuous feedback model transforms the real time data using artificial intelligence for processing the capabilities that allows wide range of actionable and timely insights. The clear ethical guidelines this establish for governing the usage of artificial intelligence that ensure transparency in the process of decision making and to protect from algorithmic bias. Moreover, the artificial intelligence integrated effectively in the workflow of hr to achieve the seamless adoption to support the objectives of organisation and to enhance the efficiency overall.

Redesign of Workflow

The performance management is examined to maximise the major advantages of artificial intelligence and its insights to leverage recommendations to adopt HR processes and systems. The changes in management are considered to be more essential and effective such as clearly set milestones, defined timelines and metrics for success that guides the transition of HRM practises using AI. During the process of integration, it should ensure with transparency by the stakeholders and to build the support for adopting the changes. The future trends are anticipated by the organisation with the updates to merge the technologies of AI to respond quickly for the evolving capabilities maintenance of an agile strategy of HR Management for enhanced appraisal practises. A regular evaluation is performed using artificial intelligence for the appraisal process effectively to make required modifications.

RESULTS

The experimental findings of the present study highlight the impact of artificial intelligence on talent acquisition through proposed CNN and GA hybrid model for performance management and talent recruitment to enable automated process

in candidate selection and appraisal process with minimised bias and errors. The practical implications shows that the organisation and HR professionals demonstrates the advanced computational methods for the overall performance in talent acquisition and enhanced recruitment process.

The CNN model alone achieves 92% accuracy in wrestling 93% for automated interview scheduling 94% for assessment and skill testing and 92% for onboarding. The genetic algorithm model that sort out various multi-dimensional problems attained accuracy of 93% accuracy in wrestling 96% for automated interview scheduling 95% for assessment and skill testing and 94% for on boarding. It is illustrated in table 2 and figure 3. But the highest performance metrics is obtained while combining CNN and Genetic Algorithm that achieved accuracy over 95% in each role of AI.

Table 2. Impact of AI on Talent Acquisition

Role of AI	CNN	Genetic Algorithm	CNN +GA
Resume Screening	92%	93%	95%
Automated Interview Scheduling	93%	96%	97%
Assessment and Skill Testing	94%	95%	98%
Onboarding	92%	94%	96%

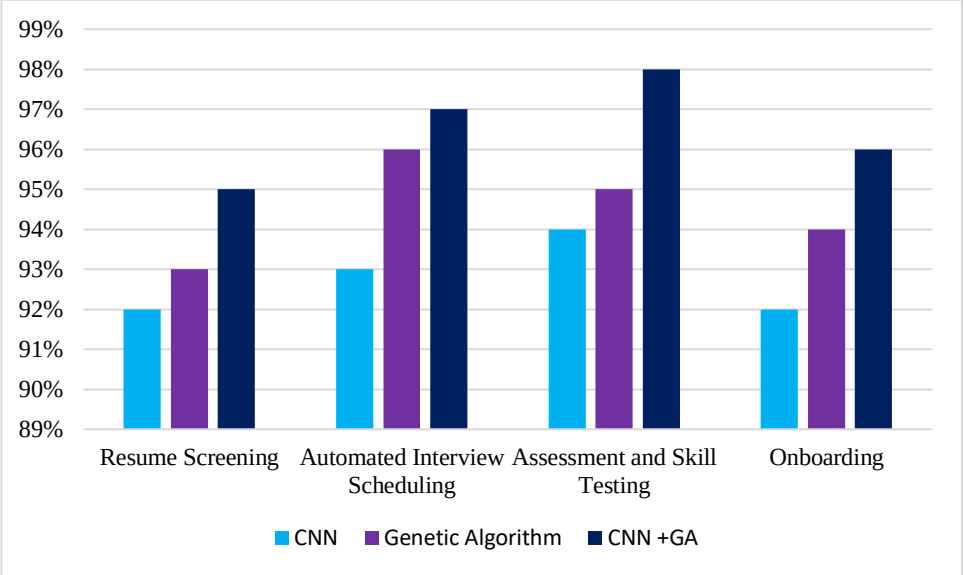

Figure 3. Impact of AI on Talent Acquisition

Table 3. Performance metrics

Role of AI	Accuracy	Recall	Precision	AUC-ROC
CNN	95%	91%	94%	94%
Genetic Algorithm	94%	92%	92%	90%
Hybrid CNN +GA model	96%	94%	94%	95%

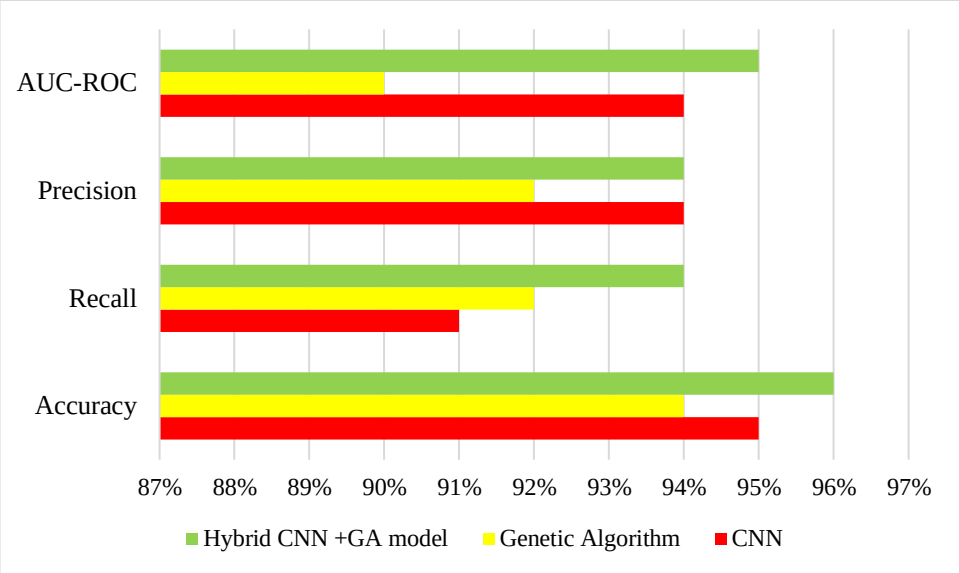

Figure 4. Performance metrics

The above table 3 and figure 4 shows the performance metrics in the AI has been implemented in different recruitment process and performance management.

Resume Screening

The recruitment process Can be enhanced with artificial intelligence by scanning the resumes based on keywords and compared with the job description that enables the recruiters To shortlist the candidates by understanding the skills and qualifications for the applied role.

Sourcing of Candidates

The study significantly streamlines various stages of talent acquisition. Automated sourcing tools enable AI for identification of potential candidates based on the database and scanning of online platforms based on predefined criteria, reducing the time spent by the recruiters in searching of candidates initially. Predictive sourcing goes a step further by identifying candidates who are likely to be receptive to new opportunities, allowing organizations to engage talent proactively.

AI-powered virtual assistants and chatbots enhanced the engagement of candidates by responding to the queries, providing company information, and guiding applicants through the recruitment process. They can also perform initial screening, conducting preliminary interviews, asking structured questions, and evaluating responses against set criteria.

During the interview process, AI can analyze video interviews to assess candidates' speech patterns, facial expressions and body language offering recruiters deeper insights beyond traditional evaluation methods

Automated scheduling of Interview

The scheduling of interview simplified with AI tools automatically coordinating availability between recruiters and candidates ensuring a smooth and efficient process.

Skill Testing and Assessment

AI-driven assessment tools can administer and evaluate tests designed to measure the cognitive, knowledge and skills of the candidates, offering a more standardized and objective approach to evaluation.

Additionally, adaptive testing enables AI algorithms by adjusting the questions based on difficulty level in real-time based on a candidate's responses, ensuring a more precise and personalized assessment of their capabilities

Predictive Analytics

AI can enhance decision-making in recruitment by predicting candidate fit, analyzing historical data to identify which candidates are most likely to succeed in a given role based on skills, past performance, and alignment with organizational culture.

Additionally, AI algorithms can estimate time-to-fill for open positions, allowing organizations to plan and allocate resources more effectively.

The candidate should be provided with fair and equal opportunities with the help of artificial intelligence by reducing bias among the candidate selection.

Moreover, the organisations enable a for tracking and evaluating the diversity metrics to build inclusive workforce.

Onboarding

The onboarding process can be enhanced with artificial intelligence with personalised experiences to offer tailored information And to guide with orientation activities.

DISCUSSION

Talent Acquisition

IT Companies in Bangalore, Pune, Chennai, Mysore and Hyderabad involves multi staging sampling technique to

obtain responses from talent acquisition and HR managers that focus on industry professionals. The valuable insights are offered by the approach based on the viewpoint to adopt mixed method approach for integrating quantitative analysis and qualitative assessment to understand the impact of ai on recruitment with implications effectiveness and efficiency among the workforce [15].

The significant role of artificial Intelligence in HR functions is understood for the recruitment process. The study focused on the impact of AI specifically on workforce. The organisational practises and case studies are examined for identifying the ways that challenges initiatives in diversity and unintentional bias [16].

Performance Management

The role of artificial intelligence Such as organisational culture predictive analytics and real time feedback is examined to strengthen the performance of performance management. The researcher used purpose sampling technique to identify the major works to understand the organisational behaviour data analytics and performance measurement. The collected data is examined systematically through the techniques including thematic coding and content analysis. The findings highlight significance of tracking the performance continuously to foster aligning the strategies and organisational agility. On the other hand, the difficulties in integration and other several challenges are addressed based on data quality and cultural resistance. The machine learning techniques and predictive analytics are used as effective tool to address the challenges with improved efficiency in the performance management system [17].

The implementation of the based on the performance management boost the productivity of an organisation in the competitive environment. The model used by the researcher is not similar to the conventional model, it integrates data analytics and technology to acquire feedback mechanism with effective and responsive management practises the strategies are helpful in adopting AI techniques effectively in the management practises, leadership commitment targeted training and organisational infrastructure for continuous improvement based on the cultural changes. The increased operational efficiency, enhanced retention and improved employee performance are examined based on the strategic framework to achieve long term productivity and modernization of performance management [18].

REFERENCES

1. Akter, Shahriar, et al. "Mastering Digital Transformation in Workforce Management." Production Planning & Control, vol. 35, no. 13, 2024, pp. 1525–1532.
2. Levenson, Alec. "Using Workforce Analytics to Improve Strategy Execution." Human Resource Management, vol. 57, no. 3, 2018, pp. 685–700.
3. Veile, Johannes W., et al. "Lessons Learned from Industry 4.0 Implementation in the German Manufacturing Industry." Journal of Manufacturing Technology Management, vol. 31, no. 5, 2020, pp. 977–997.
4. Larkin, Judy. "HR Digital Disruption: The Biggest Wave of Transformation in Decades." Strategic HR Review, vol. 16, no. 2, 2017, pp. 55–59.
5. Bansal, Anjali, et al. "A Study of Human Resource Digital Transformation (HRDT): A Phenomenon of Innovation Capability Led by Digital and Individual Factors." Journal of Business Research, vol. 157, 2023, p. 113611.
6. Colbert, Barry A. "The Complex Resource-Based View: Implications for Theory and Practice in Strategic Human Resource Management." Academy of Management Review, vol. 29, no. 3, 2004, pp. 341–358.
7. Gerhart, Barry, and Jie Feng. "The Resource-Based View of the Firm, Human Resources, and Human Capital: Progress and Prospects." Journal of Management, vol. 47, no. 7, 2021, pp. 1796–1819.
8. Dawson, Jennifer Y., and Emmanuel Agbozo. "AI in Talent Management in the Digital Era – An Overview." Journal of Science and Technology Policy Management, 2024.
9. Kadirov, Abduvali, et al. "AI in Human Resource Management: Reimagining Talent Acquisition, Development, and Retention." 2024 International Conference on Knowledge Engineering and Communication Systems (ICKECS), vol. 1, IEEE, 2024, pp. 1–8.
10. Gupta, Rakesh. "Impact of Artificial Intelligence (AI) on Human Resource Management (HRM)." International Journal for Multidisciplinary Research, 2024, doi:10.
11. Fathmalanshary, A. N. A. B. The Future of HR: Leveraging Artificial Intelligence for Talent Acquisition and Retention in the New Normal. SSRN, 2025, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5105685.
12. Martínez-Morán, Pablo C., et al. "The Digital Transformation of the Talent Management Process: A Spanish Business Case." Sustainability, vol. 13, no. 4, 2021, p. 2264.
13. Thirunagalingam, Anandarajan, et al. "AI in Performance Management: Data-Driven Approaches." Navigating Organizational Behavior in the Digital Age with AI, IGI Global Scientific Publishing, 2025, pp. 101–126.
14. Nyathani, Raphael. "AI in Performance Management: Redefining Performance Appraisals in the Digital Age." Journal of Artificial Intelligence & Cloud Computing, vol. 134, no. 2, 2023, pp. 2–5.
15. Vedapradha, R., et al. "Talent Acquisition–Artificial Intelligence to Manage

Recruitment." E3S Web of Conferences, vol. 376, 2023, p. 05001.

16. Krishnan, S. Gokula, et al. "A Study on the Role and Impact of Artificial Intelligence in Recruitment Processes: The Perspective of HR Professionals." Seybold Report, vol. 18, 2023, pp. 236–248.
17. Adawiyah, Anisah. "Unraveling the Dynamics of Performance Measurement: A Qualitative Study on Adopting Continuous and Data-Driven Approaches in Performance Management." Golden Ratio of Human Resource Management, vol. 4, no. 1, 2024, pp. 30–41.
18. Bristol-Alagbariya, Barinaadaa, et al. "Developing and Implementing Advanced Performance Management Systems for Enhanced Organizational Productivity." World Journal of Advanced Science and Technology, vol. 2, no. 1, 2022, pp. 39–46.