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ARTIFICIAL INTELLIGENCE AS A CATALYST FOR HR TRANSFORMATION: "A STUDY ON THE INFLUENCE OF AI ON HUMAN RESOURCE MANAGEMENT FUNCTIONS"

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ABSTRACT

This study delivers valued understandings about the integration of Artificial Intelligence into people resource management. The primary goal of the study is to investigate the relationship between effectiveness of human resource Management functions and the ultimate use of artificial intelligence. Human resource management functions include in this research people analytics, hiring and selection and, acquiring talent. This study used quantitative research design to conduct a research. Questionnaire Design to conduct data from three major cities of Pakistan (Karachi, Lahore, Islamabad) and random sampling used to collect data. Data analysis of 50 participants analyzed through SPSS software that strengthens the reliability of the findings, which suggest that AI tools can significantly optimize HRM processes. Additionally, this study contributes to academic literature by empirically demonstrating the positive impact of AI on HRM functions, encouraging further research into specific AI applications within HR contexts and their implications for organizational effectiveness.

Keywords: *Artificial Intelligence in HRM, AI-driven HR processes, AI and HR effectiveness, AI impact on HR, HR Transformation, Recruitment and Selection, People Analytics, Talent Acquisition.*

INTRODUCTION

One of the organization's assets is its human capital. An organization can accomplish its aims and objectives by making effective and efficient use of its people resources. To accomplish this, To find a qualified workforce, hiring, selection, paying and overall planning regarding to HR, training, development, performance management, and analysis of job all are the features of HRM. Therefore, they should use the proper resources to get all jobs done. Study of (Loosemore, Dainty, & Lingard, 2003), stress the significance and difficulty of human resource management. Make a distinction between HR functions and HR regulations: HRM rules are processes, while its roles are the gears used to carry out these developments. Its effective support provides an opportunity for leaders and executives that they can make better decisions pertaining to HR management that includes the hiring, training, pay, and promotions (Kinnie, Hutchinson, Purcell, Rayton, & Swart, 2005).

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The researcher (Rich, 1983), defines artificial intelligence (AI) as the capacity to enable computers to perform human-like tasks. Furthermore, AI is described as a type of machine learning that mimics human abilities and conduct (Jia, Guo, Li, Li, & Chen, 2018). The study of (Schank, 1990), highlights the following characteristics of AI:

1. **Representation**: This is about encoding knowledge within a machine in a format it can interpret and use. Various approaches include symbolic representations (like logic-based systems), statistical models, and neural networks. Each method has implications for how flexible and interpretable the knowledge can be.

2. **Decoding**: Decoding involves translating real-world data into the machine's chosen representation. This is where data processing and feature extraction are essential—identifying the core information in raw data so it fits into the machine's model and contributes to actionable knowledge.

3. **Inference**: Inference is the logical process of drawing conclusions based on available knowledge. Machines can apply deductive reasoning (applying general rules to specific cases), inductive reasoning (forming generalizations from specific data), or even probabilistic methods, depending on the type of representation used.

4. **Prediction and Recovery**: Prediction leverages current knowledge to anticipate future states or outcomes, which is core to applications in forecasting, planning, and decision-making. Recovery is the system's capacity to correct or adapt when a prediction is incorrect, which is essential for real-world deployment and robustness in dynamic environments.

5. **Generalization**: Generalization is the process of deriving broader insights from specific examples or data, enabling systems to make sense of new data. This skill underpins the adaptive and flexible learning capacities of AI, allowing systems to handle unseen scenarios and novel contexts.

6. **Curiosity**: Curiosity in AI refers to the system's ability to actively explore beyond provided information, autonomously seeking out new knowledge or posing questions. This is often done through methods like reinforcement learning, where agents are encouraged to explore their environments.

7. **Creativity**: Creativity in AI often involves synthesizing novel insights or connections from seemingly unrelated information, generating innovative outputs or solutions. This capacity is closely related to generalization and curiosity and is crucial in domains requiring original, non-obvious solutions.

1. Literature Review & Hypothesis

2.1 Functions of Human Resource Management

The integration of the application of artificial intelligence into HRM is changing & transforming the landscape of traditional HR functions helping in better decision-making, enhancing efficiency and increasing employee experience. This literature review studied Key functions of HRM-recruitment and selection and, training and development, performance management, compensation and benefits, and employee relations to highlight how AI in each of these domains being applied. There is a dearth of research on AI and HRM functions in the literature. The few research that have already been done on HRM and AI, including (Maduravoyal, 2018), (Cappelli, Tambe, & Yakubovich, 2019), (Rana, 2018), and (Ruby & Jayam, 2018), show the advantages of AI as a whole. Nevertheless, studies that look into the connection or relationship between HRM's efficacy tasks, such as hiring and choosing personnel AI, talent acquisition, and analytics are still insufficient.

HRM combined the study of human resource Management and capability to handle these resources effectively. For any organization HRM is effective and vital part of organization's division and holds responsibility of people's management with respect to appointment, dismissal, and advancement in careers of individual. Rendering to the idea of HRM comprises diverse Areas, which includes the philosophy and business of management. Adding to this, the functions of HRM

are responsible to achieve organisational objectives and a strategy along with managing people (Supriyanto & Maharani, 2015). Thus, Researcher (Boxall & Purcell, 2000) shows that there are two models available for organization they should focused while designing of policies and regulations related to human resource. These two models provide the concept of Best-to-Fit and Best-to-Practice. The Best-to-fit model of people resource Management stressing upon the amalgamation of organisational strategies and HR practice in the context for enhancing overall effectiveness. This model emphasize that organizations should design HR strategies in such way where they can adopt or adjust any critical incident. According to the contingency theory, this model tells that there is no universal approach to human resource management, therefore organizations should adopt strategies that can be tailored to fit in their unique environment (Boxall & Purcell, 2016). A study by Wright et al. (2020) highlighted that those companies who employed best fit strategy has reported better and improved engagement of employees in terms of productivity as compared to those using generic HR strategies.

The difference between as compared to best fit, the best practices method is stressing upon the idea of best practice into practice. Implementation of Best practice approach helping the organization to accomplish its goals and aims with respect to the seven areas of HRM. The use of AI in organizations HRM system can enhance the overall function of HR. The use of AI can help the organization's CEO and manager along with overall employee of HR to make right decisions with your relation to recruitment, selection, training, and development of employees. Also, this will help in hiring and performance evolution evaluation. Furthermore, (Malinowski, Weitzel, & Keim, 2007) described that manager are getting help through AI to formulate teamwork based upon skill of employees as traditional HRM using longer time for data analysis in HR system therefore, (Jain, 2016) emphasized the usage of AI HRM to mitigate delays in processing time of analysis of employee data or hiring data. Along with the usage of AI in HRM helping the manager for assessment and monitoring of employee in effective and efficient ways. This research thoroughly focusing on three areas of HR functions (1) Recruitment and Selection (2) People Analytics, and (3) Talent Acquisition.

1.1.1 Recruitment and Selection

HRMS foundation is recruitment and selecting people those are qualified to achieve companies' goal and objective, in case the inappropriate candidate if employed the companies can be at risk and there are two types of recruitment; (I) Internal recruitment, and (II) External recruitment. The use of AI in a recruitment and selection has significantly increased because advancement in machine learning language processing and the usage different applications of artificial intelligence in hiring process and the ultimate and primary goal of artificial intelligence usage in a recruitment are to streamline over all the process that will improve the quality of candidates requirements matching with the job this process also minimizing the biases with human decision making that are already happening in traditional HR. After the COVID-19 different digital dance transformations accelerated for the integration of HRM functions for recruiting and selecting along with the settings for Remote work as modern AI using advance technology based applications that include chatbots for initial candidates screening and identification of skilled and potential candidates through predictive analysis (Albassam, 2023; Chen, 2022).AI is used to optimized Hiring and selecting by accelerating the step of hiring that includes resume scanning, and use of keywords for required qualities for certain criteria's along with offline video interviews for observing candidates behavior, skills ,and critical thinking to solve job related questions (Jatoba, Gutierrez, Fernandes, Teixeira, & Moscon, 2019).

The use of AI tool in selection process also optimizing cost comma time and reducing hurdles which are presented by geographic distance (Almeri, Martins, & Paiva de Paula, 2013). In recruitment justice-based approaches is used to maintain ethics by using ethical framework; this framework guiding organization to ensure accountability through AI-driven recruitment and selection practices (Paul et al., 2021; Malik et al., 2022).

H1: The use of AI in recruitment and selection has been shown to have great impact and association in terms of effectiveness.

2.1.2 People Analytics

The employee's performance, engagement, and retention has been driven by AI-powered tools which has changed landscape of people analytics. In human resource Management by providing insightful plans that are strengthen overall talent strategy by the help of predictive and comparative analysis along with data mining tools people analytics helping managers to take timely decisions (Shrivastava, Nagdev, & Rajesh, 2018).This process helping organization to get competitive advantage by a aligning organization data with employee data (Tursunbayeva,Di Lauro, & Pagliari, 2018).According to the study of (Mishra, Lama, & Pal, 2016) it is a stated that data analytics is powerful tool that can be used to train employees, help in retention competencies ,and employee engagement.

H2: The use of AI in people analytics has been shown to have great impact, effectiveness, and association.

2.1.3 Talent Acquisition

In 21th century organization's using the concept of "war of talent". the study of (Hansen, 2007), is that "talent" is the term that includes leader and employee that are real assets of any organization who are helping the organization to accomplish objectives and streamline its strategies. Those companies which has competitive edge over other are those who has talented employees, as to create pool of talent management the primary function is talent acquisition that further depend on development, deployment and retention (Huselid, 1995).In the same way "talent" represent only those employee which are smaller in portion inside organization among overall number of employees (Dawn & Biswas, 2013). This study focusing on diversity, equality, and inclusion that are integral part of talent acquisition and this is an ongoing process that is evolving and integrating time to time for finding at talented employees, candidates, and visionary talented leader internally and externally. The overall process from start to finish provides benefit to organization (Berger & Berger, 2003) (Ronn, 2007).

In talent acquisition planning, acquisition, engagement, development, leadership, retention ,and evaluation that are essential parts of talent life cycle all together are integrated time by time for suitable talent acquisition in HR. Addition to this talent management is the strategy of hiring talent while recruitment deal with the sourcing, screening, hiring, and interviewing candidates and this process is not on going as compare to talent acquisition (Ronn, 2007).

The use of AI in talent acquisition evolving at rapid speed because AI-driven tools providing benefits in the process of talent acquisition (Walford-Wright & Schott-Jackson, 2018). The use of AI in this domain actually reshaping traditional task easier and highly effective. Furthermore, the use of AI is helping through social media for better search of talented people throughout the globe without any limitations to meet the requirements of talent acquisition companies are using different tool nowadays (Van Esch, Northey, Heller, Duffy, & Striluk, 2018).

H3: There is a noteworthy association between the efficiency of talent acquisition and the use of AI.

2.2 Artificial Intelligence

The AI which encompasses variety of applications and sub branches. The story of this system, started after the WW1 specially in 1940 (Muller, 1998). The concept of AI was given by one of the great man McCarthy; he had supported the concept about the computer that machine can think and act like human if they designed in a such a way by human (Harasim, 2015). Researcher Bellman (Bellman, 1978) also define that AI can be utilized to imitate human action and thinking. The study Russel and Norvig (Russel & Norvig, 2010), it has acknowledged that AI is used in many different fields to deal with intellectual task. The attention it got due to the term big data and organization using software and AI application to get benefit out of it. In the same way HRM of any organization's key functions from human deployment to return on investment from the operations associate with HR functions, along with that it is energy and time-consuming process therefore, AI is reducing the overall time for such process. Thus, all these

challenges motivate organization's HR department to look forward for AI-driven ways to optimize cost and save money. The use of AI in HRM functions providing advantages in generating recommendations and data analysis with urgent respond (Cintra, Barbosa, Barbosa, & Franco, 2017). In addition to this AI is most highlighted application of 21th century as it is helping from first stage to last stage of HR cycle (Unahabhokha, Platts, & Tan, 2007).

2. Methodology

3.1 Research design & data collection

This is study proposed to examine the relationship among the efficiency of HRM functions that include the complete recruitment cycle in which recruitment and selection, people analytics and talent acquisition are focused and the relationship of these three factors with the use of artificial intelligence at different organization in Pakistan. Quantitave method was used to determine variable association was examined and data collected online through surveys and non-probability sampling was used along with that randomly questionnaire submitted to employees and managers who are employed in organizations of Pakistan in these cities (Karachi, Lahore, and Islamabad) all have answered voluntary. Researcher Ortinau and Bush (Hair, Bush, & Ortinau, 2003), stated that, target population is defined as "specific group of individuals or object to whom the finding and observations can be developed for required data in information" (Hair, Bush, & Ortinau, 2003). Furthermore, more importantly, the study of Roscoe (Roscoe, 1975) suggested that sample size greater than thirty and less than six hundred is appropriate for such kind of study for this reason randomly questionnaire was utilized among diverse people and fifty questionnaires were returned back from participants. Furthermore, questionnaire was adopted from previous researches and literature reviews; the questionnaire was design on two sections that includes: demographic information is the first action and second section was related to the variable of HRM and AI.A total of 23 questions divided among recruitment and selection (7 questions), people analytics (6 questions), talent acquisition (5 questions), and AI application (5 questions), each using a 5-point Likert scale from "strongly agree" to "strongly disagree." The designed questionnaire reviewed by university professors, experts of AI and HRM to check the validity of contents. Necessary modification and correction were made on the basis of comments provided by professors and HRM & AI specialist to serve the purpose of study. The final questions were made are as follows: related to demographic of participants questions seven questions over related to recruitment and selection, people analytics related questions were six, five questions were related to talent acquisition, and artificial intelligence related questions were five. The analysis of data done with the help of SPSS software by using the correlation and descriptive analysis.

3. Results

4.1 Details & Description of Participant's Demographics:

The details and description of research participants is displayed in Table: A

Table: A participant's Demographics

Variables	Rate	Proportion
Sex/Gender		
Male	40	80%
Female	10	20%
Age Group		
18-29	18	36%
30-44	32	64%
Company Type		
Commercial	22	44%
Industrial	13	26%
Services	15	30%

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AI Knowledge		
Yes	48	96%
No	2	4%
Department		
HRM	39	78%
Other Departments	11	22%

4.2 Participant's Demographics Description:
Description about demographics of participant there were 40 (80%) male; female participants were 10 (20%). As shown in Table: A out of 50 participants 32 (64 %) those age was between 30 to 44 and 18 (36%) belongs to age between 18 to 29. Furthermore, positions related to participants are manager and employees of company where 28 (56%) related to manager position and 22 (44%) belongs to employee of company positions. Table further shows that 22 (44%) participants related to the commercial company is 13 (26%) belongs to industrial organization's and 15 (30%) are related to service provider companies. The knowledge of AI among participant was 48 (96%) whereas 2 (4%) did not know about artificial intelligence. The participant who work in HRM are 39 (78%); and only 11 (22%) were employed in other departments.

4.3 Reliability Test:
Table displays the Cronbach's alpha values for each variable: recruitment and selection (α = .795), people analytics (α = .786), talent acquisition (α = .936), and artificial intelligence (α = .875). Each variable's alpha exceeds .70, which is deemed suitable for analysis, as indicated by (Sekaran, 2005).

Table: B Cronbach's alpha

Variable	Cronbach's Alpha (α)
Recruitment and Selection	0.795
People Analytics	0.786
Talent Acquisition	0.936
Artificial Intelligence	0.875

4.4 Testing Hypothesis
Using SPSS software, correlation analysis was carried out to assess the study's hypotheses. The relationship between two variables is tested via correlation, which varies from -1 to +1. Zero denotes the absence of any correlation. the two variables' relationship [46]. As stated by [47], A perfect correlation is one of +1; between 0.70 and 0.90 indicates strength, 0.4 to 0.69 indicates moderateness, and between 0.39 is weak, while 0.1 is weak. Table 3 illustrates the association r = 0.612 between AI and recruiting and selection, which is significant and moderate (sig < 0.01). The relationship between AI and people analytics is r = 0.738, indicating that a strong and significant link exists (sig < 0.01). Lastly, there is a high and significant (sig < 0.01) correlation between AI and talent acquisition, with r = 0.847. H1, H2, and H3 are therefore all approved.

Table: C Pearson correlation

Variables	Recruitment and Selection	People Analytics	Talent Acquisition	AI
Recruitment and Selection	1.000			0.612**
People Analytics		1.000		0.738**
Talent Acquisition			1.000	0.847**
AI	0.612**	0.738**	0.847**	1.000

The values with "" indicate significant correlations at $p < 0.01$.**

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4. DISCUSSION

As the use of AI and its publicity is growing at rapid speed but the research studies paying low attention on AI and its impacts on human resource Management, especially with the reference to recruitment selection, people analytic, and talent acquisition. This study reveals and emphasize on the significant relationship among AI and HRM functions which is also aligning with the findings of (Ruby & Jayam, 2018). Research presented in his study shows that the use of AI-driven application is actively reshaping how companies attract and manage talent. Thus, AI is helping companies to enhance their functionality in affective and efficient way. Moreover, in the result organization are getting competitive advantage but study of (Ruby & Jayam, 2018) shows that it not only strengthening an organization's HRM function but also streamlining the overall strategic positioning. The study of (Dickson & Nusair, 2010), strongly supporting the results of this research and providing base that HRM functions should understand the benefits of using technology.

This study highlights a significant and strong relationship between people analytics and AI, affirming previous research (Mishra, Lama, & Pal, 2016), that suggests organizations must implement data-driven programs and software to remain competitive. Additionally, the study reveals a link between AI and talent acquisition, aligning with prior findings (Wiblen, Grant, & Dery, 2010), on AI's impact on recruitment and its evolving role in talent management. From a managerial perspective, this research underscores the value of AI in human resource management (HRM). To stay efficient and competitive, HR managers should consider integrating AI into key HRM functions, particularly in recruitment, selection, people analytics, and talent acquisition (Nawaz, 2019) & (Guillermo, Dim, Fernando, & Young, 2019).

5. LIMITATIONS

This study acknowledges three key limitations. First, the sample was limited to employees and managers from companies in three Pakistani cities. Future research could broaden this scope by including participants from various cities in Pakistan and other countries for a more diverse perspective. Second, data was gathered solely through questionnaires. Incorporating interviews alongside questionnaires in future studies may provide deeper insights into the interplay between HRM functions and AI. Lastly, the study focused on only three HRM functions; subsequent research should expand to include all six HRM functions—recruitment and selection, human resource planning, compensation, job analysis, performance appraisal, and training and development—for a more comprehensive analysis.

According to the study's findings, managers and employees at a firm reported a moderate to significant correlation between the usage of AI and the efficacy of specific HRM tasks, such as talent acquisition, people analytics, and recruiting and selection. Using SPSS software, the three study hypotheses were examined, and each was found to be significantly accepted. Employing AI in the hiring and selection process ought to assist businesses in selecting qualified candidates when implementing proper AI initiatives. Artificial intelligence can assist by quickly scanning resumes, providing virtual answers to candidates' enquiries, and conducting international recruiting and interviews without the need for in-person visits.

6. Conclusion

The findings of this study indicate a moderate to strong correlation between AI usage and the effectiveness of certain HRM functions—specifically recruitment and selection, people analytics, and talent acquisition—as reported by employees and managers in a corporation. SPSS software was used to test the study's three hypotheses, all of which were significantly accepted. The study suggests that incorporating AI in the recruitment and selection process can enable organizations to quickly scan resumes, answer candidate inquiries virtually, and recruit talent globally without the need for in-person interactions. People analytics, powered by AI, also facilitates generating reports, conducting analyses, and detecting patterns in employee behavior and activities.

7. Recommendations

Based on these insights, the study makes the following recommendations:

-Skill and Criteria-Based Sorting: Organizations should clearly list required skills, knowledge, and abilities for each job and use AI to sort and organize resumes according to these criteria.

-Strategic Use of AI in HRM: Given the significance of selecting the right individuals, organizations are encouraged to leverage AI in recruitment, people analytics, and talent acquisition to gain a competitive edge.

-Comprehensive AI-HRM Studies: Further studies are needed to explore AI's impact on additional HRM functions, such as recruitment, human resource planning, compensation, training and development, retention, and organizational behavior.

-Gender-Based Perception Studies: Research on differing male and female perceptions of AI use in HRM functions could provide valuable insights.

-HR Department Readiness for AI: Investigating the readiness of HR departments to implement AI could identify potential gaps and training needs.

-AI in Academic Institutions: Additional studies could focus on the relationship between AI and HRM functions in academic settings, such as universities and colleges.

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