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RESEARCH PAPER

Impact of Artificial Intelligence on HR Functions by the Mediation of Technological Factors

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ABSTRACT

Artificial intelligence is the fastest growing field among the different fields of the digital technology. Almost every sector is adopting the AI based applications to increase the efficiency of the respective sector. This study aims to examine the impact of the artificial intelligence on the HR functions by the mediation of the technological factors like technological awareness, social media influence and personal innovation. A quantitative based approach is used to address the issue in question. Both primary and secondary data were used. Secondary data was used for the theoretical model development while the primary data was used to confirm the hypothetical arguments. Primary data was gathered from HR managers of the different industries across the Pakistan. PLS-Smart was used for the analysis of the primary data. The findings of this study shows that artificial intelligence has a significant impact on the HR functions by the mediation of the different technological tools like technological awareness, social media influence and innovation. However this study was conducted via using a qualitative based approach further researchers are suggested to analyze the problem in qualitative methods to further dig out new insights.

Keywords: Artificial Intelligence, Innovation, Social Media Influence, Technological Awareness, Technological Tools

Introduction

Artificial intelligence (AI) has fundamentally transformed Human Resource (HR) functions, reshaping the way organizations manage talent, streamline processes, and foster a data-driven approach to decision-making (Ahmad et al., 2021). The mediation of technological factors such as machine learning algorithms, data analytics, natural language processing, and robotic process automation (RPA) has amplified AI's impact on HR, making it an indispensable tool in modern workforce management (Ahmad et al., 2022). These technologies have revolutionized recruitment, enabling AI-driven platforms to sift through resumes, assess candidates based on predefined metrics, and even conduct preliminary interviews through chatbots (Ahmad, Han, et al., 2023). This automation reduces biases, accelerates hiring processes, and ensures a more objective candidate evaluation . AI-powered performance management systems now provide continuous feedback rather than traditional periodic reviews, leveraging data analytics to track employee productivity, engagement, and overall contribution in real-time (Li et al., 2023). Furthermore, AI has redefined employee training and development by utilizing adaptive learning platforms, which personalize training content based on individual skill gaps and learning preferences. Such systems continuously evolve, providing dynamic learning modules that keep employees aligned with emerging industry trends. AI's role in employee retention strategies is equally critical, with predictive analytics identifying at-risk employees and allowing HR to proactively address potential concerns before they lead to turnover. These predictive

capabilities rely heavily on data collected from various touchpoints within the organization, such as employee satisfaction surveys, performance data, and behavioral trends (Shahzad et al., 2023). The integration of AI into HR also enhances the diversity and inclusion efforts of organizations, as AI tools, when properly calibrated, can mitigate unconscious biases in hiring and promotion processes by focusing purely on data-driven assessments. Additionally, AI is increasingly being used in workforce planning, where predictive models help HR forecast future talent needs based on current trends, helping businesses stay agile in a rapidly changing market environment (Al-Ayed, 2024). However, the extent of AI's impact is profoundly shaped by the technological factors that mediate its deployment. For instance, the quality of machine learning models used in recruitment depends on the richness of the datasets available, while natural language processing technology determines how effectively AI can engage with candidates or employees in conversational AI platforms. The speed and accuracy of data analytics are also influenced by the underlying hardware infrastructure, with high-performance computing systems enabling more complex and accurate models (Vrontis et al., 2023). Cloud computing facilitates the widespread adoption of AI in HR by providing scalable solutions that reduce the need for costly on-premises systems. Security and ethical considerations, however, play a crucial role in determining the extent to which AI can be trusted in HR functions (Peng, Ahmad, Irshad, et al., 2023). Organizations must ensure robust data governance policies to protect sensitive employee information and avoid any breaches that could erode trust. Furthermore, ethical concerns about AI's decision-making processes such as the potential for perpetuating existing biases if models are not correctly trained or audited necessitate transparency in how AI systems are designed and deployed. In conclusion, AI's transformative impact on HR is undeniable, and its potential is continuously expanding as technological factors evolve, enhancing the efficiency, accuracy, and fairness of HR processes (Feng et al., 2024). However, the successful integration of AI in HR requires not just cutting-edge technology, but also careful consideration of the ethical, legal, and social implications that accompany its use.

Literature Review

Artificial intelligence (AI) has revolutionized Human Resource (HR) functions in ways that have reshaped organizational dynamics, and the mediation of technological factors such as technological awareness, social media influence, and personal innovation has amplified AI's transformative potential (AL-Shboul, 2024). In today's digital era, HR departments are leveraging AI technologies to enhance decision-making, improve efficiency, and foster a more inclusive and innovative work environment. The impact of AI is far-reaching, touching on everything from recruitment and employee engagement to performance management, learning and development, and even retention strategies. The mediating role of technological awareness is particularly crucial, as HR professionals must be knowledgeable about AI tools and how they can be integrated into existing processes to optimize human capital management (Zhou et al., 2024). Technological awareness allows HR teams to understand the capabilities and limitations of AI-driven systems, whether it be in the form of machine learning algorithms for candidate selection, predictive analytics for workforce planning, or natural language processing for improving employee communication. By staying informed about the latest advancements in AI, HR professionals are better equipped to implement these technologies in ways that align with their organization's goals, ultimately leading to more strategic and effective talent management. Social media influence, another critical factor, has also reshaped HR functions by expanding the scope of talent acquisition and branding . AI algorithms that analyze social media data enable HR teams to identify potential candidates who may not be actively seeking employment but possess the desired skills and experiences (Chang et al., 2024). This shift in recruitment strategies, powered by AI, has broadened the talent pool and allowed organizations to tap into passive candidates who may have otherwise been overlooked. Additionally, social media platforms have become essential for employer branding, as AI tools analyze online sentiment, enabling HR departments to gauge public perception of their

company culture, leadership, and workplace environment. This feedback loop, influenced by social media and powered by AI, helps organizations refine their strategies for attracting top talent and retaining employees by understanding what factors contribute to job satisfaction and engagement (Kot et al., 2021). Moreover, AI can curate personalized social media content to improve recruitment marketing efforts, targeting specific demographics with tailored messaging that resonates with their values and career aspirations. Personal innovation, meanwhile, has emerged as a key mediator in the successful adoption of AI in HR functions (Dong et al., 2023). As AI systems automate routine tasks, HR professionals must embrace personal innovation by upskilling themselves to manage more complex responsibilities, such as interpreting AI-driven insights, navigating ethical considerations, and fostering employee relations in a tech-driven world. Personal innovation in this context involves HR professionals' ability to creatively adapt to the changing landscape by integrating AI technologies with human-centered practices. This could include the development of new approaches to performance management, where AI systems offer continuous, data-driven feedback, but HR professionals are responsible for contextualizing that feedback and ensuring it aligns with the company's broader goals (Arora & Mittal, 2024). Personal innovation also extends to fostering a culture of continuous learning within organizations. AI-enabled adaptive learning platforms, which tailor training content based on individual employees' needs and skill gaps, are increasingly being used to deliver customized development opportunities (Alshammari et al., 2023). HR professionals play a crucial role in promoting these platforms and encouraging employees to take ownership of their learning journeys, further enhancing innovation at the individual and organizational levels. In addition to its impact on recruitment and training, AI has profoundly influenced the performance management process. Traditional performance reviews, which were often annual and subjective, are being replaced by AI-driven systems that provide real-time feedback and objective assessments based on data analytics (Suseno et al., 2023). These systems monitor employee performance through key performance indicators (KPIs), track project milestones, and even analyze behavioral patterns to offer insights into employee productivity and engagement. However, while AI enhances objectivity, it is the HR professional's responsibility to ensure that the data is interpreted in a way that considers the human element of performance, including emotional intelligence, creativity, and teamwork qualities that AI may struggle to assess (Luo et al., 2024). Thus, the mediation of personal innovation is critical to ensuring that AI-driven performance management systems are used effectively and ethically, balancing the benefits of automation with the need for a personalized, human touch. The influence of technological awareness is also evident in how AI is used for employee engagement and retention. AI-powered chatbots, for example, can enhance employee communication by providing instant responses to common HR inquiries, offering 24/7 support, and improving overall accessibility to HR services. These virtual assistants are designed to handle routine tasks, allowing HR professionals to focus on more strategic activities (Ahmad, Alam, et al., 2023). However, the success of these AI tools depends on the HR team's understanding of how to configure, maintain, and optimize them to ensure they meet employees' needs (Jaweria, Saqib, et al., 2023). Furthermore, AI can be used to predict employee turnover by analyzing patterns in behavior, engagement, and performance. Predictive analytics can identify employees who may be at risk of leaving, allowing HR teams to proactively address their concerns and implement retention strategies, such as offering career development opportunities or improving work-life balance (Pereira et al., 2023). The effective use of these predictive models requires HR professionals to not only be aware of the technological capabilities but also to innovate in how they apply these insights to create a supportive and engaging work environment. Social media influence extends beyond recruitment and employer branding; it also plays a role in employee engagement and communication. AI-driven sentiment analysis tools can scan social media posts, employee feedback platforms, and internal communication channels to gauge the mood and morale of the workforce (Peng, Ahmad, Ahmad, et al., 2023). By understanding the sentiments expressed by employees on social media, HR teams can address issues such as dissatisfaction, burnout, or disengagement before they escalate.

Additionally, AI can help HR departments personalize communication strategies, ensuring that messages resonate with different employee groups based on their roles, preferences, and work habits (Jaweria, Jan, et al., 2023). The mediation of social media influence thus allows HR to stay attuned to the pulse of the organization and foster a more connected, engaged workforce. On the strategic front, AI's role in workforce planning is becoming increasingly important as organizations face the challenge of navigating a rapidly changing labor market. AI-driven predictive models analyze industry trends, economic data, and internal workforce metrics to forecast future talent needs, helping organizations stay competitive in an ever-evolving business landscape. This capability allows HR teams to make more informed decisions about recruitment, training, and succession planning (Ogbeibu et al., 2024). However, technological awareness is essential for HR professionals to interpret these AI-generated insights accurately and align them with the organization's long-term goals. Moreover, AI can support diversity and inclusion initiatives by eliminating biases in recruitment and promotion processes. Algorithms that focus solely on skills, experience, and performance data can help level the playing field for candidates from diverse backgrounds (Liu et al., 2022). However, the risk of AI perpetuating biases still exists if the data used to train these algorithms is itself biased. This highlights the importance of HR professionals being both technologically aware and innovative in their approach to mitigating biases by continuously auditing AI systems and ensuring they are transparent, fair, and ethical. In conclusion, the impact of AI on HR functions is profound and multifaceted, with technological awareness, social media influence, and personal innovation serving as key mediators in its successful adoption and implementation (Wang et al., 2023). AI has transformed recruitment, performance management, employee engagement, and workforce planning, offering HR teams powerful tools to make data-driven decisions, streamline processes, and foster a more innovative work environment (Zhang, Ahmad, Nutakki, et al., 2024). However, the successful integration of AI in HR requires a deep understanding of the technology, an ability to leverage social media effectively, and a commitment to personal innovation to ensure that AI enhances rather than replaces the human element of HR. As organizations continue to adopt AI technologies, the role of HR will evolve, but the need for a balance between technological efficiency and human-centered practices will remain crucial (Jan et al., 2023). The future of HR lies in its ability to harness AI's potential while fostering a culture of continuous learning, ethical decision-making, and innovation that empowers both employees and the organization as a whole (Zhang et al., 2024).

H1: Technological awareness mediates the impact of the artificial intelligence on the HRM functions

H2: Social media influence mediates the impact of the artificial intelligence on the HRM functions

H3: Innovations mediates the impact of the artificial intelligence on the HRM functions

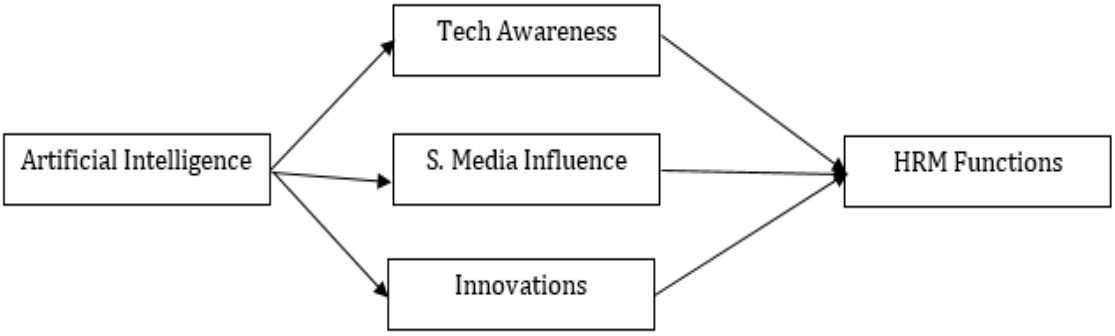

Fig.1: Research Model

Material and Methods

The philosophical roots of this study are rooted from the post positivism paradigm. This paradigm is a scientific paradigm which relies on the basic principles of the sciences but considering the possibility of the error and omission. Secondary data was gathered from the previous literature based on the published work in the field of the artificial intelligence. Upon which the model of this study is based. While the developed model was tested via primary data which was gathered from the managerial level employees from the different sectors who are currently or in future willing to use the artificial intelligence based applications in the daily HR practices. The gathered data was analyzed with the SmartPLS to test the model adopted from the literature. Primary data was gathered from a closed ended questionnaire which was adopted from the prior studies.

Results and Discussion

Table 1
Respondent Demography

Gender	Number	Percentage
Male	300	60%
Female	200	40%
Total	500	100%
Age Group	**Number**	**Percentage**
35 and less than 35 Years	165	33%
35 to 45 Years	200	40%
More than 45 Years	135	27%
Total	500	100%

Table 1 of the respondent demography shows the demographic distribution of the respondent. This table shows that among the 500 respondents 300 were males and 200 were females. The next section of the table defines their age wise distribution which shows that among the 500 respondents 165 were between the age group of 35 and below years, 200 were between the 35 to 45 years while the rest of 135 were above 45 years.

Reliability of the items

Table 2
Outer Loadings

Construct	Items	Outer Loadings
Artificial Intelligence	AI1	0.722
	AI2	0.842
	AI3	0.742
	AI4	0.852
	AI5	0.772
	AI6	0.714
Technological Awareness	TA1	0.774
	TA2	0.726
	TA3	0.741
	TA4	0.742
	TA5	0.825
Social Media Influence	SM1	0.715
	SM2	0.815
	SM3	0.792
	SM4	0.775
Innovation	IN1	0.752
	IN2	0.812
	IN3	0.811
	IN4	0.714
HRM Functions	HR1	0.772
	HR2	0.774

	HR3	0.831
	HR4	0.779
	HR5	0.749
	HR6	0.779

When using an approach based on the SmartPLS the most common method to identify the reliability of the items is the outer loading values. The threshold value for the outer loading value is 0.7 and above. Below table of the reliability of items shows that all the items of the model have the reliability value greater than the threshold value which indicates that all the items of the model are reliable for the further analysis.

Table 3
Construct Reliability

Construct	Cronbach Alpha
Artificial Intelligence	0.774
Technological Awareness	0.762
Social Media Influence	0.774
Innovation	0.772
HRM Functions	0.781

Construct reliability is a major reliability test used in all primary data software's. Different measures are used to conduct this test. When using an approach based on the SmartPLS the most common measure is the Cronbach Alpha to identify the reliability of the construct. The threshold value for the construct reliability is 0.7 and above. The table below shows that all the constructs have the reliability have greater than the threshold value which indicates the construct of the model has achieved the reliability of the model.

Table 4
Convergent Validity

Construct	AVE
Artificial Intelligence	0.574
Technological Awareness	0.562
Social Media Influence	0.574
Innovation	0.572
HRM Functions	0.581

When it comes to the validity of the scales there are two major types of the validity named convergent validity and discriminate validity. Convergent validity defines how much the items of a construct reflect the overall construct. The measure used for the convergent validity is the AVE. The threshold value for the AVE is 0.5 and above. Below table of the convergent validity shows that all the AVE values are greater than the threshold value which indicates that model has achieved the convergent validity.

Table 5
HTMT Ratios

Construct	AVE
Artificial Intelligence	0.522
Technological Awareness	0.410
Social Media Influence	0.502
Innovation	0.320
HRM Functions	0.429

Another test used for the validity is the discriminant validity. Discriminant validity defines the theoretical validity of the scale. The measure used for the discriminant validity is the HTMT ratios. The threshold value for the HTMT ratios is 0.85 or less. The table of the HTMT shows that all the HTMT ratios are smaller than the threshold value which confirm the discriminant validity of the scales.

Table 6
Hypotheses Testeng

Hypothesis	Beta	T value	P value	Results
H1: AI >>> Tech Awareness >>> HRM	0.365	12.537	0.000	Supported
H2: AI >>> Social Media Influence >>> HRM	0.254	18.442	0.000	Supported
H3: AI >>> Innovation >>> HRM	0.153	8.417	0.000	Supported

The most common test used for the hypothesis testing is regression analysis. The measure used for the hypothesis testing is p and t value. The threshold value for the p is 0.05 and less while the threshold value for the t is 1.96 or above. The table below hypothesis testing shows that all the hypotheses based on the model of this study have significant threshold values which indicates the findings of this study support the model of study.

Table 7
Coefficient of Determination

Construct	R Square	P value
HRM Practices	0.370	0.000

The collective impact of the model of regression is always calculated via the coefficient of determination. The measure used for the coefficient of determination is R square. The R square value explains the overall impact of the predator's variables on the dependent variables. The table of R square shows a value of 0.37 which indicates that the overall predators explains the 37% variation in the model.

Conclusion

Artificial intelligence is the fastest growing field among the different fields of the digital technology. Almost every sector is adopting the AI based applications to increase the efficiency of the respective sectors. This study aims to examine the impact of the artificial intelligence on the HR functions by the mediation of the technological factors like technological awareness, social media influence and personal innovation. The findings of this study shows that artificial intelligence has a significant impact on the HR functions by the mediation of the different technological tools like technological awareness, social media influence and innovation.

Recommendations

However this study was conducted via using a qualitative based approach further researchers are suggested to analyze the problem in qualitative methods to further dig out new insights. The population of this study was only limited to Pakistani industry further researcher can cover other geographical regions to enhance the reliability of the findings.

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