

Role of AI on HRM Functions: An Empirical Study on Private IT and Educational Sectors in India

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Abstract: Artificial Intelligence (AI) has been a blessing to Human Resource Management (HRM) and has been helping to get rid of the manual processes, enhance the accuracy, and make HR more strategic. This research investigates the effect of AI on Human Resource Management (HRM) work in the private sector in India's IT and educational sectors. The research interests include applications of artificial intelligence in key HRM areas such as recruiting and selection, new employee induction training and employee development, employee appraisal, employee engagement and motivation, Human resource planning and talent management, and employee retention. The empirical research design is used to evaluate the perceptions of employees and HR professionals on using AI in HR functions, and how these tools have enhanced work performance. The design of the empirical research is developed in order to gather the perceptions of employees and HR professionals that how effective, useful and impactful the use of AI in HR practices is? Further, how effective has AI been with regard to improving work performance? The Primary information has been obtained from the Respondents of the Private IT Companies and Educational Institutions having a structured questionnaire. The data has been analysed on the basis of using relevant descriptive and inferential statistical techniques and differences in sectors' use of AI and perceived impact of AI are identified. These results will likely highlight numerous other transformative uses of AI that could revolutionize HR processes, unlock greater employee satisfaction, and improve administrative efficiencies, while also allowing HR leaders to make data-driven decisions. There are concerns with issues such as data privacy, algorithmic bias, employee acceptance, technological skills, and ethical use, though. This research is another step in the body of research on the use of AI in HRM, providing empirical evidence of the use and effect of AI in two important private sector scenarios in India.

Keywords: Artificial Intelligence, Human Resource Management, AI-enabled HRM, IT Sector, Educational Sector, Recruitment, Performance Management, Employee Engagement.

Introduction

Human resource management (HRM) has integrated decisively artificial Intelligence (AI) as one of the most tangible technological innovations of today and will surely influence future workplaces. The conventional functions were also broad and mostly related to the HRM aspects like recruitment of HR personnel, keeping track of their schedules, their career development, assessment of performance, management of benefits and salaries, along with their attitudes and efforts at work, and planning the future staff. AI's incorporation into these functions is altering the way HR departments gather and process employee data, discover talent and facilitate managerial choices, and offer HR services. By leveraging tools such as machine learning, natural language processing, predictive data analysis, chatbots, automation, and generative AI, organizations can handle vast amounts of data, promoting more quick and informed decisions in HR. The Administrative role in HR functions is being replaced by an analytical and strategic one more and more.

The private Information Technology (IT) sector is especially relevant to the adoption of AI in HRM, as it relies heavily on the power of technology and is one of the biggest industries to adopt and develop AI solutions. IT organizations have a large and changing workforce, geographically separated and very skilled, therefore having an ongoing need for strong recruitment, skill evaluation, employee development, performance tracking and employee retention strategies. Machine intelligence has shown promise in completing such tasks as reading

resumes, matching job skills and qualifications to job applications, flagging skill deficiencies, outlining training curriculum and career development routes, conducting employee attitude analysis and forecasting employee needs. Additionally, members can expect an AI-powered chatbot that can provide instant responses to common HR questions, making HR resources more readily available and taking the burden of the employee in administration. However, challenges also exist when AI tools are used for HR decisions and considering data privacy, transparency, algorithmic bias, employee surveillance and potentially the dependency upon AI-driven recommendations.

A other important context for the study of AI for HRM would be the seas of education. Private education facilities have many types of academic and non-academic staffing and more and more demand a structured system to acquire staff, as well as develop, evaluate, engage and strategically plan a group of employees. AI can help educational institutions in finding the right talent, evaluating performance data, providing recommendations for training and development, handling repetitive HR inquiries, and aiding in workforce analytics. Any way, human interaction, professional judgment, institutional culture and ethics rule in HR practices in educational institutes too. Therefore, AI-enhanced HR functions could have different effects on human resource management and consequences in highly tech-dependent businesses like IT firms. Hence, the implications and applications of using AI for HR management might not be the same in highly-tech businesses, such as IT firms, compared to those in other businesses.

Now, don't despair HRM as the role of AI is becoming critical, there is no need for you to wince at human involvement. Instead, AI can provide a valuable tool to support decision-makers along with HRDs, allowing them to concentrate on strategic and people management tasks. Organizational readiness, technological readiness, employee IT literacy, management commitment, with ease of use, trust, data usability, ethical governance, and more are pertinent factors to AI in HRM. The acceptance of AI technologies may differ among workers depending on their expectations, such as knowing how to work with AI, the context in which they are using it, fairness concerns, job security, and privacy concerns. Therefore, knowing how employees and HR professionals think about using AI is key to knowing if it leads to better HR results.

However, with the swift adoption of digitalization in private businesses in other parts of the world, notably in India, the prospects for the general use of AI in HRM are also expanding. But that doesn't mean empirical studies which ascribe HR practices to varying private sectors aren't significant. IT sector and an educational institution can be compared to see how they use AI industry-wide, as well as what they value and expect machine learning to contribute to decision making. These can assist in identifying some of the important challenges in Ai adoption and how Ai can impact the efficiency of HR and improve employee results. In this backdrop, this study entitled "Role of AI on HRM Functions: An Empirical Study on Private IT and Educational Sectors in India" discusses the involvement of AI in various HRM functions and assess the perceived role of AI in recruitment, Training and Development, Employee Performance Management, Workforce Engagement, Workforce Planning and Retention. It seeks to provide empirical evidence of the evolving nature of integration of AI in HRM and to provide insights to understand the potential opportunities and challenges of incorporating AI in HRM for the Indian private sector.

Literature Review

Basnet (2024) explored the potential and future scope of Artificial Intelligence (AI), and Machine Learning (ML) in Human Resource Management (HRM) and how these technologies are reshaping HR practices. The study further suggests that HR tasks, which are repeated often, can be automated using AI and ML; and that it helps in recruitment and selection, performance management, customised learning, and improves the workspace analytics. It also showcased the potential that AI brings in HR practice such as predictive logic and decision-making from data allowing HR professionals to make data-driven decisions that can improve the efficiency of their departments or organizations. The study also identified some implementation related issues such as data privacy issues; ethical issues; technological issues and HR employees or employee lack to develop digital skills. The results bear witness to the shift of HRM from a strictly functional and manual position to a strategic and analytical one fuelled by AI.



Bhardwaj, Singh and Kumar (2020) have done an empirical analysis of the Artificial Intelligence and its influence on HR activities. They explored the various applications of AI in HR, illustrating how AI can improve HR processes' efficiency, speed, and accuracy. AI systems can assist organizations in numerous aspects of recruitment, employee screening, performance management, employee engagement, and decision making, thanks to its ability to sift through large quantities of employee information. The research underscored the reduction in repetitive administrative tasks that automation can bring and help HR specialists focus on more strategic tasks. The authors also emphasized the importance of addressing real-life issues and the need for human involvement based on using AI to make decisions in HR.

Chattopadhyay (2020) analyzed different ways that AI is used in HRM and how emerging technologies are transforming HR. According to the study, sectors like recruitment and selection, HR training, performance management, employee engagement, and workforce management are ripe for the use of AI. AI recruitment tools can assist in sifting through the applicants and locate potential employees, and intelligent systems can support employee growth and company decisions. Apart from that, the research has seen that AI through technologies could also enhance the effectivity of operations by removing repetitive manual activities. The key to the success of such a technology, however, lies in scrutinizing topics such as employee acceptance, the technological infrastructure, data protection issues and ethical issues regarding automated decision-making.

In the second article Haefner et al. (2021) summarized the relationship between Artificial Intelligence and innovation management and inferred a framework and research agenda to understand the implications of the use of Artificial Intelligence. The study had a more general focus than HRM but the study outcomes are applicable in the context of the use of AI for HRM: For an organisation to be able to successfully implement AI, they need to have capability, knowledge, an innovation process as well as managerial support. The authors emphasized that AI cannot just be considered a technological agent, but also a technology that can impact how things get done and decisions are made throughout an organization. HRM on the other hand, requires a business to have certain capacities and learning as well as the right organizational structure and framework to utilise it properly from an HRM standpoint. Based on this, the present study provides a more comprehensive theoretical basis to study the application of AI in organizations - HRM.

In Ilic, Djuric, and Ostojic (2023), they discussed the impact of AI in HRM and found that the role of AI for HR is gradually gaining more importance in today's organization. The study mentioned the use of artificial intelligence in recruitment, employee selection, assessment of performance, training and others in HR functions. AI can help in quick information processing and provide HR managers with analytics regarding decisions that can be taken by an organization. The function of HR professionals and the constant transformation in what HR experts are doing in a world where intelligent technologies are increasingly enhancing HR processes are also emphasized by the authors. The study indicates that AI can help to improve HR efficiency; however, the most critical insights are the importance of ethics, transparency, trust, and ensuring that AI is used appropriately and combined with human input in HR tasks.

AI in HRM has been an in-depth area considered by Kharde (2023), under which they discussed the impact of AI technologies in enhancing HR practices in workplaces. This research considers several uses of AI within the recruitment process, employee management, employee evaluation and employee decision making. Based on the findings, AI can streamline the manual aspects of HR by automating repetitive tasks, and provide decision-making capabilities with analytical tools to the organizations. Furthermore, the research identified a few potential hurdles to AI implementation like privacy and security, job security, and employee acceptance. Thus, Companies should create the right procedures and appropriate procedures to ensure that the benefits of technical are implemented appropriately in relation to the employee and organisational issues.

Kumar and Thakur (2023) investigated the application of Artificial Intelligence in HRM and artificial intelligence's impact on changing the traditional HR activities. They discovered some AI's use in things like recruitment, selection, training, development, performance and employee engagement. By leveraging AI's power to analyze employee data, mitigate repetitive tasks, and provide real-time analytics, HR can become more efficient



in their processing of employee data, effectively handling repetitive tasks and getting insights for making real-time decisions. The authors theorized that HR processes could be improved because of the application of AI, and this tool could help them save time for strategic HR planning. They also acknowledged the significance of technological readiness, staff capabilities, ethical concerns and information security when it comes to successful use of AI.

Kumari and Hemalatha (2019) analyzed the perception about AI related HRM practices used in Chennai based IT Companies. The study is also relevant with respect to the current study because it targets the technology intensive industry-PRIVATE INFORMATION TECHNOLOGY. The authors analyzed how employees feel about using AI in HR practices and highlighted the crucial role AI intelligent technologies will play in HR in the future. The study revealed that within the IT environment, it is very relevant to study the adoption of AI since the employees have been surrounded by advanced digital technologies in an activity of their working field. In addition, the findings indicate that employees' perceptions and acceptance will play a significant part in the analysis of HRM practices effectiveness in the field of artificial intelligence. The empirical study of AI in HRM could provide a foundation to explore the relationship between them from a broader geographic and organizational view, going beyond collated data from a single study.

Mittal et al. (2024) examined the unfavorable aspect of the connection among AI and customers purchase intentions in an AI assisted on line shopping program. It is not a direct HRM-related study, but certainly has added to the overall understanding of potential negative aspects, and side-effects, to implementing AI. The study shows that the adoption of AI can bring with it negative perceptions and concerns which can affect how humans react to technologies. These learnings are also relevant for HRM as they could assess the trustworthiness, transparency, privacy, fairness, and potential risk of the AI systems. For this reason, the application of AI in HRM should not be only measured by its efficiency and the improvements it brings about in technology but also its involvement in human perception and possible harm.

In an empirical study of 23 (AI Experts) industry domain experts, Mittal, Singh and George (2023) analysed the significance of use of AI in the knowledge management sector using stepwise multiple regression. AI's growing role in organisational knowledge related processes and decisions proves itself from their research. AI can help in capturing, handling, decoding, and applying organizational knowledge and drive decision making by managers. The empirical method can indeed be very useful in comprehending the quantifiable impact of the organisation's involvement through the use of artificial Intelligence. The results of its study also imply that AI has a far-reaching impact beyond technology and can impact organizational capabilities. The TRIZ information is significant for HRM since the knowledge of employees relates to organization learning, talents development and workforce Analytics and is tightly connected to good KM.

The literature reviewed paints a picture of continued efforts to incorporate AI into key HRM activities, including: Recruitment and Selection, Training and Development, Performance Management, Employee Engagement, Workforce Planning and Decision Support. The potential applications of AI are a little more widespread, with the idea of automated the dull, more efficient, more analysis, data-driven HR decision making – and that's what it's done so far that it's more commonly cited for. However, in literature, there are some privacy, ethical, algorithmic bias, transparency, employee acceptance, technological skills and human oversight issues also noted. One of the significant voids in practicing HRM with AI are empirical comparisons of AI in HRM practices in different private sector HRM settings in India. Previous research explored issues related to AI and HRM in particular, but there are comparatively less studies looking at the comparison of individual private IT companies and educational institutes considering an empirical ground. This study fills this gap and examines the use and utility of AI in various HRM functions and compares the perceptions of application of AI and its contribution in various industry sectors of India such as private IT and education sectors.

Objectives of the Study

1. To examine the extent of Artificial Intelligence (AI) adoption and its application across major Human Resource Management (HRM) functions in private IT and educational sectors in India.
2. To assess the perceived impact of AI on HRM effectiveness, particularly in recruitment and selection, training and development, performance management, employee engagement, and workforce planning.
3. To compare the perceptions of employees and HR professionals regarding AI-enabled HRM practices between the private IT and educational sectors and identify the major challenges associated with AI adoption.

Hypotheses

H₀₁ (Null Hypothesis): There is no significant relationship between the extent of Artificial Intelligence (AI) adoption and its application across major Human Resource Management (HRM) functions in private IT and educational sectors in India.

H₁₁ (Alternative Hypothesis): There is a significant relationship between the extent of Artificial Intelligence (AI) adoption and its application across major Human Resource Management (HRM) functions in private IT and educational sectors in India.

Research Methodology

The present research takes an empirical and descriptive research design approach in knowing the role of Artificial Intelligence (AI) in Human Resource Management (HRM) functions in two private sectors of India such as IT sectors and Educational sectors. HR planning; HR induction; employee engagement, onboarding and offboarding; performance management; and training and development will be covered via study of key HRM roles. The study is data driven from both primary and secondary data sources. Structured questionnaire will be used to gather primary data from the selected private IT companies and Educational institutes, by inviting their employees and HR professionals. The questionnaire will consist of statements to be evaluated on a 5-point Likert scale (from "strongly disagree" to "strongly agree") on the level of AI adoption, the applications of which, perceived benefits from using the tool, and challenges of using AI in HRM. The identified private IT and educational sectors will use an appropriate sampling technique for respondents. Secondary resources will be research journal, books, report, government publishing, institutional report and credible sources available on online determined to the topic of AI and HRM. Analyses of the gathered data will be done using the statistical methods such as frequency, percentage, mean and standard deviation, correlation analysis, appropriate inferential tests through a systematic process of encoding, classification and analysis of hypotheses questioned. The test of reliability of the research instrument will be conducted by Cronbach's alpha test and appropriate valid test will be done to determine the sufficiency of the questionnaire. Comparative analysis will also be carried out, in order to explore differences in the use of AI and the perception of its role in the private IT sector in comparison with the educational field. Confidentiality and anonymity will be ensured with subjects and they will all be volunteers. The methodology is based in the Indian scenario of selected private sectors where data of empirical measurement of current levels of usage, adoption pattern, location of using AI and the impact of AI on effectiveness of Labor practices in HR in the selected sectors is sought.

Table: Descriptive Statistics of AI Adoption and Application across HRM Functions

Sr. No.	HRM Function	N	Mean	Std. Deviation
1	AI adoption in Recruitment and Selection	400	3.82	0.74
2	AI application in Employee Onboarding	400	3.68	0.81
3	AI application in Training and Development	400	3.76	0.77
4	AI application in Performance Management	400	3.71	0.79
5	AI application in Employee Engagement	400	3.59	0.83

Sr. No.	HRM Function	N	Mean	Std. Deviation
6	AI application in Workforce Planning	400	3.65	0.80
7	AI application in Employee Retention	400	3.54	0.86
Overall	AI Adoption and Application in HRM	400	3.68	0.80

Analysis

According to the descriptive analysis, the level of adoption and application of Artificial Intelligence (AI) in major HRM functions is relatively high in the private sector with the specific sectors of IT (information technology) and Educational (Education). The overall mean score of 3.68 and the standard deviation of 0.80 indicate that respondents have an overall positive perception regarding the use of AI in HRM practices. Adoption of AI for recruitment and selection has a higher mean score of 3.82 among the various functions, suggesting the AI-based tools are believed to be more useful in the screening of candidates, support of recruitment and selection, and in undertaking related activities. This is trailed by training and development (3.76) and performance management (3.71), meaning that AI is also being used more in the contexts of employee training and development, employee skill development, employee performance management, and related decision support. In comparison, the employee onboarding process (3.68) and workforce planning (3.65) applications are relatively similar. The mean scores for the Employee Engagement (3.59) and the Employee Retention (3.54) are relatively low, suggesting less perceived use of AI for both these variables. These values of standard deviation were between 0.74 to 0.86 which shows that there is moderate variation among respondents perceptions. The overall findings indicate a widespread application of AI in various HRM applications, with varying degrees of usage across the different functions.

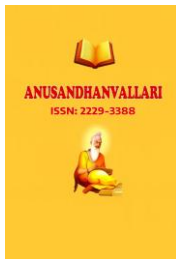
Table: Pearson's Correlation between AI Adoption and AI Application across HRM Functions

Variables	AI Adoption	AI Application across HRM Functions
AI Adoption	1	0.684
Sig. (2-tailed)	—	0.000
N	400	400
AI Application across HRM Functions	0.684	1
Sig. (2-tailed)	0.000	—
N	400	400

Note: Correlation is significant at the **0.01 level (2-tailed)**.

Analysis

The Pearson's Product-Moment correlation analysis results indicate that there is a positive correlation and the correlation is statistically significant when the adoption of AI is correlated with each major Human resource management (HRM) function using AI in them. The obtained correlation value ($r = 0.684$) indicates the moderate and high level of positive correlation between the two variables. The significance value ($p = 0.000$, $p < 0.001$) is not equal to the pre determined significance value ($p < 0.05$) hence the observed relation is said to be statistically significant. So the null hypothesis (H_{01}) is rejected and the alternative (H_{11}) is accepted. With every step toward implementing AI, organizations go a step further in implementing AI in HRM processes, such as recruitment and selection, onboarding, training and development, performance management, employee engagement, workforce planning, employee retention. The results confirm the idea that the barriers to uptake of AI for wider use in the workplace are also echoed in adapting to AI-driven HRM practices. But it does not mean that AI adoption would



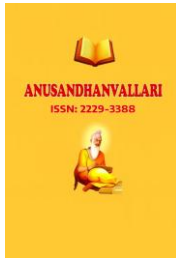
necessarily lead to more of the applications of the various HRM functions, it is just correlation, meaning correlating with association.

Overall Conclusion

Finally, it is concluded that Artificial Intelligence (AI) technologies are emerging as an impetus to Human Resource Management (HRM) functions in the private IT and Education Industry in India. The uptake of AI implies its potential for numerous HR tasks, including recruitment and selection, employee onboarding, training, and development, performance management, employee engagement, workforce planning, employee retention, and more. The overall perception of having adopted and applied AI in HRM processes is relatively positive and the perception rating in relation to other HRM processes is the highest in using AI in recruitment and selection. The Pearson's Product-Moment Correlation also reveals a positive and statistically significant correlation among level of AI adoption, used AI during HRM functions ($r = 0.684$, $p < 0.001$). Thus, the null hypothesis is rejected and the alternative hypothesis is accepted for the hypothesis tested. The findings revealed that there exists a positive relationship between the decision making and use of AI adoption within the organizations considering the adoption through HRM processes, it is found that the use of AI in HRM processes is positively correlated. By automating repetitive tasks, aiding data-driven decision-making, optimizing processes, and facilitating a more structured approach to managing employee-related information, AI can help HR professionals more effectively handle day-to-day challenges. With AI's assistance, HR teams can complete mundane tasks, utilize data to make informed choices, optimize processes, and efficiently handle employee-related details. For HRM to work effectively with AI, there are key requirements in protecting data privacy and ensuring responsible and ethical use, transparency in the process, engagement and buy-in from employees, technological proficiency and human oversight. Overall, the study underscores the potential significance of AI for the future of HRM in the private IT and educational industry in India, while the adoption of AI in HMR in India is conditioned on other factors to ensure sustained implementation, such as implementing sound AI policies, and adopting a careful approach to HMR in schools based on human judgment and proper functioning.

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