

From Human to Virtual Human: An Empirical Study of AI (Artificial Intelligence) in Transforming HR Operations

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How to cite this article: Lakshminarayana.K, Divya J, Sudip Basu, Shelly Verma (2024) From Human to Virtual Human: An Empirical Study of AI (Artificial Intelligence) in Transforming HR Operations. *Library Progress International*, 44(3), 2242-2248.

ABSTRACT

Human Resource (HR) operations are being changed by artificial intelligence (AI), which is turning old methods into more efficient, data-driven, and personalized systems. AI-powered virtual humans are being used more and more to handle jobs like hiring, training, and managing employee performance. These systems are powered by AI and can quickly look at huge amounts of data. This helps HR workers make better decisions. For example, AI can speed up the hiring process by using algorithms to sort through resumes and find the best candidates, which saves time and avoids bias. AI-powered virtual assistants also help workers 24 hours a day, seven days a week, answering their questions and making the whole work experience better. AI frees up HR teams to work on more important tasks, like developing talent and getting employees involved, by handling routine tasks. As AI keeps getting better, it's likely that its use in HR will grow, which will change even more how companies handle and help their employees. Sample of 200 people from HR department were surveyed to know the factors that determines different role of AI (Artificial Intelligence) in Transforming HR Operations and found that Automated recruitment procedures, Onboarding Processes, Employee Engagement and Retention and Performance Management are the factors that determines different role of AI (Artificial Intelligence) in Transforming HR Operations.

Keywords: Artificial Intelligence (AI), HR operations, Data-driven systems, Virtual humans, Hiring process, Employee performance management, AI-powered virtual assistants, Talent development.

INTRODUCTION

Human resource (HR) management is becoming more and more dependent on artificial intelligence (AI), which is revolutionizing traditional HR activities into data-driven, more effective procedures. Pandey (2020) claims that artificial intelligence (AI) is transforming HR departments by automating tedious processes like screening resumes, shortlisting candidates, and setting up initial interviews. This automation promotes a more inclusive

and diverse workplace by speeding up the hiring process and minimizing human bias. HR managers may make better educated decisions, particularly in areas like performance management and talent acquisition, because to AI's capacity to evaluate massive volumes of data. The phrase "AI-driven HR analytics" describes how data is now used to anticipate employee attrition, evaluate employee engagement, and even find future leaders within the company. AI frees up HR personnel to concentrate on strategic projects like organizational culture, succession planning, and employee development by handling repetitive administrative duties. Therefore, the goal of integrating AI into HR is to fundamentally change the function of HR from one of support to one of a strategic partner in the success of the business, not merely to increase efficiency.

In HR, the term "virtual humans" refers to AI-driven systems that are intended to communicate with workers, offer assistance, and improve the work environment as a whole. According to Tewari and Pant (2020), virtual humans are becoming more and more common in HR departments, especially in large companies where handling employee questions and complaints can be very difficult. These AI-powered virtual assistants are capable of performing a wide range of duties, such as assisting with onboarding procedures, responding to inquiries from staff members, and giving them details on corporate guidelines. The use of virtual persons in HR guarantees that workers receive consistent and correct information while also speeding up reaction times. In remote work contexts, where employees might not have instant access to HR staff, this technology is very helpful. Virtual humans assist in bridging the gap between HR and employees by offering round-the-clock support, creating a more supportive and connected work environment. Further boosting the general efficacy and efficiency of HR operations is the use of AI in these interactions, which enables the collection of useful data that can be evaluated to spot trends and areas where HR procedures need to be improved.

AI and "HR analytics" are revolutionizing HR management decision-making by increasing its precision and data-drivenness. According to Arora et al. (2021), AI-enhanced HR analytics allows businesses to go beyond conventional measures like employee satisfaction surveys and instead focus on more complex analysis that forecast employee behavior and results. AI, for instance, can identify trends in employee performance data to forecast which workers are most likely to succeed in leadership positions or who might be in danger of leaving the organization. HR managers can be proactive in people management by providing specialized training programs or retention incentives, for example, thanks to this predictive capability. Moreover, AI-powered analytics can shed light on how well HR programs and policies work, enabling businesses to improve the alignment of their plans with their objectives. The phrase "transforming HR management" captures the essence of how AI is facilitating the transition of HR practices from being reactive to being proactive, with choices being made based on predictive models and real-time data instead of gut feeling or afterthoughts. AI is likely to play an increasingly important role in HR analytics as it develops, making it a vital tool for HR managers looking to maximize labor management and promote organizational success.

Literature Review

Artificial intelligence (AI) has completely reshaped human resource management (HRM), changing it from a strictly "human-centric" strategy to one that depends more and more on "virtual human" interventions. The integration of AI-driven tools and technologies that automate and optimize HR operations, greatly increasing accuracy and efficiency, is what defines this evolution. Haque et al. (2021) assessed that artificial intelligence (AI) has made it possible for HR departments to switch from labor-intensive, manual processes to automated ones that expedite hiring, onboarding, and staff management. For example, AI-enabled "virtual assistants" can now handle the preliminary screening of candidates, relieving HR experts of some of the labor and freeing them up to concentrate on more strategic areas of talent management. Additionally, by reducing human error and bias, AI is used in HR operations to ensure more objective and data-driven decision-making. The authors go on to say that the use of AI has resulted in the development of "virtual human" entities that communicate with staff members and offer assistance and direction in areas like employee engagement and performance management. This change to AI-driven HR operations is especially noteworthy in India, where big businesses are using these tools more and more to effectively manage their sizable labor force.

AI-driven "chatbots" are currently managing first-contact candidate exchanges, responding to questions, and

even setting up interviews, as Kalia and Mishra (2023) pointed out. These improvements lead to a more uniform and objective hiring procedure in addition to increasing efficiency. By providing "personalized experiences," such specialized learning and development plans catered to each employee's career goals, AI is also significantly changing employee engagement. Even though these technologies are changing HRM, the shift to AI-driven operations needs to be handled cautiously to maintain the importance of fundamental human traits like empathy, discernment, and moral judgment in HR roles. Maintaining trust and authenticity in HR procedures requires striking a balance between artificial intelligence and human factors.

Developing a "human-AI synergy" that capitalizes on the advantages of both human judgment and machine efficiency is the goal of integrating AI into HRM, not only automating tasks. As per Chowdhury et al. (2023), a "AI capability framework" that harmonizes AI technologies with the organization's overall HR strategy is necessary for the effective integration of AI in HRM. This approach emphasizes how critical it is to develop a culture of "continuous learning" in the HR division and make sure HR specialists have the know-how needed to function well with AI tools. HR personnel, for example, need to be taught to effectively analyze "AI-generated data" so that they can make decisions that support the strategic objectives of the firm. Furthermore, in order to guarantee that moral principles and equity are maintained in HR procedures, the authors stress that AI should be used to supplement human oversight rather than to replace it. In addition to improving operational efficiency, this "balanced approach" to AI in HRM highlights the vital role that human judgment plays in fostering an inclusive and equitable workplace.

AI in HRM has many advantages, but in order to realize its full potential, businesses must overcome a number of key obstacles. The "implementation challenges" that HR departments have while implementing AI technologies are assessed by Vishwakarma and Singh (2023). A few of these difficulties are the "high cost" of AI systems, "data privacy concerns," and the requirement for significant company cultural changes. Furthermore, HR specialists must immediately acquire "new skills" in order to successfully handle and analyze data created by AI. The authors contend that in order to overcome these obstacles, a "strategic approach" that includes funding both AI technologies and "training and development programs" for HR professionals is necessary. Organizations also need to set up explicit "guidelines and policies" to guarantee that AI is applied morally and sensibly in HRM. It is imperative that these issues be resolved if HR operations are to successfully transition from "human" to "virtual human." Through deliberate management of these obstacles, companies may fully leverage AI's potential to improve HR operations while retaining the human oversight required to guarantee moral behavior and employee confidence.

The difficulties and possible HRM approaches related to this relationship were examined by Arslan et al. (2022), who emphasized the necessity of efficient cooperation between human workers and AI-driven tools. Organizations must create plans that enable the smooth integration of AI into HR procedures without diminishing the importance of human workers in the Indian setting, where the HR landscape is changing quickly. They suggested that HRM initiatives have to center around "augmented intelligence," in which AI serves to augment rather than to replace human talents. There is continuous discussion among professionals over the question of "when AI will exceed human performance" in HR operations.

Grace et al. (2018) evaluated that during the next several decades, AI could perform better than humans in a variety of HR-related tasks. In India, where AI use is still in its infancy, this prediction has important ramifications for HRM. Indian firms have to get ready for a future in which AI-powered "virtual humans" may handle increasingly sophisticated HR tasks like strategy planning, employee relations, and talent management. This is because AI technologies are still developing. Concerns over job displacement and the moral ramifications of using AI to make decisions are also raised by the shift to AI-dominated HR operations. Indian businesses should use a well-rounded strategy that leverages the advantages of both AI and human labor to overcome these issues.

Objective

1. To know the factors that determines different role of AI (Artificial Intelligence) in Transforming HR Operations.

Methodology

Sample of 200 people from HR department were surveyed to know the factors that determines different role of AI (Artificial Intelligence) in Transforming HR Operations. “Random sampling method” and “Factor Analysis” were used to collect and analyze the data.

Findings

Survey population finds that males are 33.5% and 66.5% are female. Among them 34.5% are below 38 years of age, 42.0% are between 38-48 years of age and rest 23.5% are above 48 years of age. 25.5% of the respondents are HR manager, 29.0% are Recruiter, 33.5% are working as HR assistant and rest 12.0% are working at other positions in HR department.

Table 1 “General Details”

“Variables”	“Respondents”	“Percentage”
Gender		
Male	66	33.5
Female	133	66.5
Total	200	100
Age (years)		
Below 38	69	34.5
38-48	84	42.0
Above 48	47	23.5
Total	200	100
Designation		
HR manager	51	25.5
Recruiter	58	29.0
HR assistant	67	33.5
Others	24	12.0
Total	200	100

Table 2 “KMO and Bartlett's Test”

“Kaiser-Meyer-Olkin Measure of Sampling Adequacy”		.848
“Bartlett's Test of Sphericity”	“Approx. Chi-Square”	2228.686
	“df”	120
	“Sig.”	.000

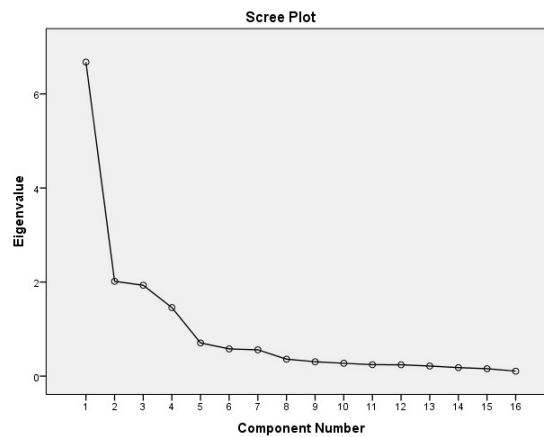
KMO value in table 2 is 0.848 and the “Barlett’s Test of Sphericity” is significant.

“Table 3 Total Variance Explained”

“Component”	“Initial Eigen values”			“Rotation Sums of Squared Loadings”		
	“Total”	“% of Variance”	“Cumulative %”	“Total”	“% of Variance”	“Cumulative %”
1	6.677	41.729	41.729	3.272	20.450	20.450
2	2.016	12.600	54.329	3.147	19.670	40.120
3	1.932	12.073	66.401	2.900	18.124	58.244
4	1.457	9.108	75.509	2.762	17.265	75.509
5	.705	4.407	79.916			

6	.578	3.613	83.529			
7	.559	3.493	87.022			
8	.360	2.247	89.269			
9	.305	1.906	91.175			
10	.273	1.703	92.879			
11	.243	1.521	94.400			
12	.240	1.499	95.899			
13	.214	1.337	97.236			
14	.180	1.128	98.364			
15	.157	.981	99.345			
16	.105	.655	100.000			

In “principal component analysis” it is found that 16 variables form 4 Factors. The factors explained the variance of 20.450%, 19.670%, 18.124% and 17.265% respectively. The total variance explained is 75.509%.



The graph above depicts the Eigen values generated from the "Total Variance Explained table" for an elbow with 4 components.

“Table 4 Rotated Component Matrix”

“S. No.”	“Statements”	“Factor Loading”	“Factor Reliability”
	Automated recruitment procedures		.907
1	AI-powered systems quickly scan and evaluate thousands of resumes	.875	
2	Properly designed AI algorithms help minimize human biases	.851	
3	AI powered systems help in Candidate Sourcing and Matching	.842	
4	Chatbots conduct Interview Scheduling and initial assessments	.813	
	Onboarding Processes		.885
5	AI analyzes new hires' roles and backgrounds	.895	
6	Automated systems monitor onboarding progress, identifying areas where additional support is needed	.866	
7	AI streamlines the completion and processing of necessary documents	.829	
8	Intelligent systems ensure that all onboarding processes adhere to legal and regulatory standards	.595	
	Employee Engagement and Retention		.861
9	AI analyzes employee communications and feedback	.895	
10	Early detection of dissatisfaction allows HR to address concerns proactively	.866	
11	AI models forecast which employees are at risk of leaving	.829	

12	AI recommend personalized career development opportunities, training programs, and benefits	.595	
	Performance Management		.858
13	AI tools provide ongoing assessment of employee performance	.871	
14	Automated prompts encourage regular feedback exchanges between employees and managers	.859	
15	Interactive dashboards display performance trends	.726	
16	Intelligent platforms identify and highlight achievements	.685	

Table 4 shows factors that determines different role of AI (Artificial Intelligence) in Transforming HR Operations. First factor is Automated recruitment procedures which includes the variables like AI-powered systems quickly scan and evaluate thousands of resumes, properly designed AI algorithms help minimize human biases, AI powered systems help in Candidate Sourcing and Matching and Chatbots conduct Interview Scheduling and initial assessments. Second factor is Onboarding Processes and its associating variables are AI analyzes new hires' roles and backgrounds, Automated systems monitor onboarding progress, identifying areas where additional support is needed, AI streamlines the completion and processing of necessary documents and Intelligent systems ensure that all onboarding processes adhere to legal and regulatory standards. Third factor is Employee Engagement and Retention which includes the variables like AI analyzes employee communications and feedback, Early detection of dissatisfaction allows HR to address concerns proactively, AI models forecast which employees are at risk of leaving and AI recommend personalized career development opportunities, training programs, and benefits. Fourth factor is Performance Management which includes the variables like AI tools provide ongoing assessment of employee performance, Automated prompts encourage regular feedback exchanges between employees and managers, Interactive dashboards display performance trends and Intelligent platforms identify and highlight achievements.

“Table 5 Reliability Statistics”

“Cronbach's Alpha”	“N of Items”
.904	16

Total reliability is 0.904 for 4 constructs including sixteen items.

Conclusion

To sum up, the incorporation of Artificial Intelligence (AI) into the HR sector in India is revolutionizing labor management, increasing productivity, and stimulating creativity within enterprises. AI-powered solutions that streamline repetitive HR operations and offer deeper insights into employee behavior, performance, and engagement include virtual assistants, predictive analytics, and automated recruitment procedures. HR specialists are able to concentrate on more strategic tasks like organizational development and talent management thanks to the advancement of technology, which has a major positive impact on the company. AI is also helping to address long-standing issues with diversity and inclusion by reducing biases in decision-making processes, which promotes more egalitarian and inclusive workplaces. Yet, there are drawbacks to moving from human to virtual HR operations, such as the requirement for ongoing HR staff upskilling and moral issues with AI-driven decision-making and data privacy. Artificial Intelligence (AI) is expected to play an increasingly larger part in HR operations in India as it develops, calling for a well-rounded workforce management strategy that balances technology with human interaction. Artificial Intelligence is expected to play a significant role in the continuous HR function transformation, enabling Indian firms to become more competitive, efficient, and agile in the global market.

The study was conducted to know the factors that determines different role of AI (Artificial Intelligence) in Transforming HR Operations and found that Automated recruitment procedures, Onboarding Processes, Employee Engagement and Retention and Performance Management are the factors that determines different role of AI (Artificial Intelligence) in Transforming HR Operations.

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