



ANALYZING THE ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING EFFICIENCY AND EFFECTIVENESS IN HUMAN RESOURCE MANAGEMENT PRACTICES

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ABSTRACT

In the context of Human Resource Management (HRM), this study investigates the role that Artificial Intelligence (AI) and the Internet of Things (IoT) play in becoming more efficient and effective. For the purpose of gathering primary data from human resource professionals, the research project utilized a descriptive research design and a positivist research philosophy. "The questionnaire was structured. Using PLS-SEM, the analysis reveals that artificial intelligence and the internet of things make a significant contribution to the improvement of HR processes." These contributions include the streamlining of recruitment, the enhancement of employee engagement, and the monitoring of employee health. Based on the findings, it can be concluded that the incorporation of these technologies results in significant improvements in the efficiency and function of the organization. The research reveals that, despite the positive effects, there are a number of challenges associated with data security, concerns regarding privacy, and the requirement to improve the skills of HR personnel. It is essential to address these challenges in order to make the most of the benefits that AI and IoT hold for human resource management. Both the potential benefits and the challenges that need to be managed are brought to light by the findings, which provide organizations that are looking to effectively implement these technologies with valuable insights.

Keywords: Artificial Intelligences, HRM, HR Functions, IoT, efficiency, organizational outcomes, etc.

I. INTRODUCTION

The combination of Artificial Intelligence (AI) and the Internet of Things (IoT) has become increasingly widespread across a variety of sectors in recent years, thereby bringing about a revolutionary change in the way in which businesses function and the way in which they manage their resources. These technologies offer transformative potential in the areas of streamlining HR processes, improving efficiency, and enhancing organizational outcomes. Human Resource Management (HRM) is not an exception to this rule. Applications of artificial intelligence, such as chatbots for employee engagement and predictive analytics for recruitment, along with Internet of Things devices, such as wearables for health monitoring, are reshaping traditional HR practices and providing new avenues for optimizing workforce management.

Increasing operational efficiency, decreasing administrative errors, and improving employee satisfaction are just some of the significant benefits that are expected to result from the implementation of AI and IoT in human resource management. "HR professionals are able to devote their attention to strategic initiatives and decision-making thanks to the automation of routine tasks made possible by these technologies." Furthermore, the data collected through applications of artificial intelligence and the internet of things can provide valuable insights into employee performance and engagement, which can facilitate management strategies that are more informed and effective. This transition towards human resource practices that are driven by technology represents a significant step forward in the process of adapting to the ever-changing requirements of the modern workplace.

On the other hand, the implementation of AI and IoT in human resource management also brings about a number of challenges that businesses need to address in order to fully realize their potential. Concerns about data security and privacy, as well as the requirement for human resources personnel



to acquire new skills, are examples of significant obstacles that can have an effect on the likelihood of successfully implementing these technologies. This article examines the degree to which artificial intelligence (AI) and the internet of things (IoT) are incorporated into human resource (HR) procedures, assesses the impact that these technologies have on workplace productivity and outcomes, and identifies the obstacles that organizations must overcome in order to make effective use of these technologies.

II. REVIEW OF LITERATURE

In their study, **Buzko et al. (2016)** discovered that the net income of a company from the previous year is the primary determinant of the amount of training provided. "Additionally, transitioning from a discrete paradigm of information processing to a continuous paradigm enables quicker and more precise adaptation to environmental demands." The authors have determined that in contemporary business circumstances, it is increasingly important to use artificial intelligence technology for the purpose of decision making.

The article titled 'Artificial Intelligence in Human Resource Management' by **Merlin and Jayam (2018)** was published in the International Journal of Pure and Applied Mathematics. This paper aims to explore the ways in which Artificial Intelligence (AI) is changing and assisting Human Resource (HR) functions such as recruitment, training, talent management, and retention. It provides real-time examples to illustrate the intersection of AI and HR management, and discusses the potential future impact on the HR workforce. In his study, **Kapoor B. (2010)** investigates prominent business intelligence providers to analyse the inclusion of business intelligence and data analytics functionalities in human resource management modules. The author analysed how the human resources department may establish itself as a crucial department that adds value to the organisation by using business information.

Dr. Priya. (2021). The use of AI-based HR services significantly enhances the productivity and innovation of the HR staff. It not only facilitates the enhancement of their knowledge or abilities, but also contributes to the elevation of workers' motivation and performance. AI should not be relied upon to make judgements; instead, it serves as a tool to assist HR managers in making strategic or operational decisions. AI's ability to offer accurate responses and make optimal judgements is not guaranteed. Therefore, it is crucial for the HR manager to thoroughly review and assess the algorithms and reasoning before making any critical decisions. Efficiency in monotonous HR duties will enable managers to allocate more time towards creative and strategic responsibilities, ultimately contributing to the success of the organisation. The company's success hinges on its ability to skilfully and astutely integrate and oversee people, processes, and technology in order to provide transformative value at the most efficient cost. AI-enabled HR solutions has the capability to analyse, diagnose, forecast, execute, and evolve into a more effective and influential resource. The paper has determined that AI plays a crucial role in performing many duties within the human resource department. AI can effectively manage recruiting, hiring, performance assessment, training and development, job allocation, workload reduction, and enhancing workplace efficiency. The research will provide a concise comprehension of the future objective of artificial intelligence.

Sanyaolu, Eniola & Atsaboghena, Rebecca. (2022). This study examines the use of Artificial Intelligence (AI) technology in human resource departments, namely in the areas of recruiting and selection, onboarding, employee retention, compensation management, general staff management, and employee retention. The integration of artificial intelligence (AI) with human resource management (HRM) strategies is transforming the way firms hire, oversee, and motivate their employees. Artificial intelligence enables robots to make judgements with more precision than humans by analysing historical data and behavioural patterns. Due to this transition, machines have



replaced all manual work, leading HR professionals to take on greater strategic responsibilities. "The advantages of using artificial intelligence (AI) in several departments of human resource management (HRM) have been shown, along with an analysis of the difficulties encountered while adopting AI in HRM." This article will give a discussion on the advantages of AI for organisations aiming to improve the efficacy and efficiency of their human resource activities.

III. OBJECTIVES OF THE STUDY

The main objectives of the research study are stated as:

1. To assess the effects of AI and IoT integration on HR processes, including improvements in efficiency, error reduction, and employee engagement, and to determine their overall impact on organizational performance.
2. To explore the challenges faced in the adoption of AI and IoT in HRM, with particular emphasis on data security, privacy concerns, and the need for upskilling HR personnel to effectively manage these technologies.

IV. RESEARCH METHODOLOGY

4.1 Research Philosophy

This study examines the function of AI and IoT in HRM using a positivist research philosophy and objective, quantitative data.

4.2 Research Design

To methodically outline the degree of AI and IoT integration in HRM and their effects on organizational outcomes, a descriptive study design was selected.

4.3 Data Collection

Principal Information HR professionals were the target audience for a structured questionnaire. There were three questions about demographics and seven about the adoption of AI and IoT, their advantages, difficulties, and effects on HR procedures.

4.4 Data Analysis

The data was analyzed using PLS-SEM, with an emphasis on identifying the main advantages and difficulties and examining the connections between AI/IoT adoption and HRM outcomes. Consent from the participants was obtained, and the study maintained participant confidentiality.

V. ANALYSIS AND INTERPRETATION

5.1 Demographic Profile of the Respondents

Table 1: Demographics of the Respondents

Particulars	No of Respondents	Percentage
Gender of the Respondents		
Male	10	18.18%
Female	38	69.09%
No Response	7	12.73%
Total	55	100%
Age of the Respondents		
25-35 years	7	12.7%
15-25 years	17	30.9%
No Response	13	23.7%
35-45 years	18	32.7%
Total	55	100%
Income Rate of the Respondents		
Above ₹60,000	12	20.1%
₹45,000 - ₹60,000	13	23.6%



₹35,000 - ₹45,000	7	12.7%
₹25,000 - ₹35,000	8	14.5%
Below ₹25,000	16	29.1%
Total	55	100%

According to the demographic analysis, there were 38 female and 10 male respondents included in this data gathering procedure. In addition, there are 7 persons that are unable to participate in this procedure. It aids in determining the pace at which individuals respond. Thus, 69.09% of the female participants actively engage in this procedure, making it the highest recorded response rate. Conversely, 18.18% of the participants are male. It does demographic analysis by categorising individuals into age groups. Thus, the data indicates that there are 17 participants in the age range of 15-25 years, while 7 respondents fall into the age group of 25-35 years. Meanwhile, there are 18 individuals that fall between the age range of 35-45. The study reveals that 30.9% of the respondents are within the age range of 15-25 years. Additionally, 32.7% of the participants belong to the age category of 35-45 years, which represents the highest percentage of responses. The study examines the participants based on their income level. In addition, there are 12 participants with an income rate over 60000 and 16 participants with an income rate below 25000. However, there are 13 people whose income falls between the range of 45000 to 60000. Examining the data gathering procedure in relation to the income rate is beneficial. Furthermore, 29.1% of the participants had an income below the rate of 25000, which was the highest income rate among the respondents. Furthermore, those with the lowest income fall between the range of 35000 to 45000 in terms of income.

Table 2: Multiple regressions

Model	R	RSquare	AdjustedR Square	Std.Errorof theEstimate	ChangeStatistics				
					RSquare Change	FChange	df1	df2	Sig. Change
1	.749 ^a	.562	.507	.496	.562	10.246	6	48	.000

Analysis of the model summary, therefore, it is highlighted that the R-value of DV is .000.

Table 3: ANOVA Testing

ANOVA ^a						
Model		Sumof Squares	df	MeanSquare	F	Sig.
1	Residual	11.830	48	.246		
	Regression	15.152	6	2.525	10.246	.000 ^b
	Total	26.982	54			

Table 3 analyzes the significance value of the different variables. Moreover, it is highlighted that the significance value is .000 according to the ANOVA table.

Table 4: Coefficient Values

Coefficients ^a						
Model		UnstandardizedCoefficients		Standardized Coefficients	t	Sig.
		B	Std.Error	Beta		
1	(Constant)	-.235	.405		-.579	.565
	IV6	-.007	.202	-.005	-.034	.973
	IV5	.108	.183	.078	.591	.558
	IV4	-.017	.157	-.016	-.106	.916
	IV3	.126	.183	.091	.689	.494
	IV2	.270	.172	.204	1.568	.123
	IV1	.692	.130	.572	5.328	.000

Table 4 determines the coefficient value of the research topic. Therefore, it is highlighted that the significant value of the variables is .000 for IV1, .123 for IV2, therefore, .494 for IV3. Table 3 determines the coefficient value of the research topic.

Table 5: Reliability Test

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of Items
.842	.847	7

Table 5 determine the reliability statistics, moreover, Cronbach's Alpha value is 0.842.

Table 6: Validity Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.780
Bartlett's Test of Sphericity	Approx. Chi-Square	162.743
	df	21
	Sig.	.000

Table 6 based on the validity test, and significance value according to 'KMO and Bartlett's test' is .000, which is highly signified.

Table 7: Correlation Test

Correlations								
		DV	IV1	IV2	IV3	IV4	IV5	IV6
IV6	Pearson Correlation	.344*	.298*	.488**	.459**	.669**	.604**	1
	Sig.(2-tailed)	.010	.027	.000	.000	.000	.000	
	N	55	55	55	55	55	55	55
IV5	Pearson Correlation	.316*	.275*	.326*	.295*	.638**	1	.604**
	Sig.(2-tailed)	.019	.042	.015	.029	.000		.000
	N	55	55	55	55	55	55	55
IV4	Pearson Correlation	.340*	.320*	.380**	.532**	1	.638**	.669**
	Sig.(2-tailed)	.011	.017	.004	.000		.000	.000
	N	55	55	55	55	55	55	55
IV3	Pearson Correlation	.418**	.337*	.597**	1	.532**	.295*	.459**
	Sig.(2-tailed)	.001	.012	.000		.000	.029	.000
	N	55	55	55	55	55	55	55
IV2	Pearson Correlation	.511**	.412**	1	.597**	.380**	.326*	.488**
	Sig.(2-tailed)	.000	.002		.000	.004	.015	.000
	N	55	55	55	55	55	55	55
IV1	Pearson Correlation	.702**	1	.412**	.337*	.320*	.275*	.298*
	Sig.(2-tailed)	.000		.002	.012	.017	.042	.027
	N	55	55	55	55	55	55	55
DV	Pearson Correlation	1	.702**	.511**	.418**	.340*	.316*	.344*
	Sig.(2-tailed)		.000	.000	.001	.011	.019	.010
	N	55	55	55	55	55	55	55

Table 7 identifies the correlation between the variables. Therefore, these variables are highly co-related to each other as their significance value.

Hypotheses Testing

Table 8: represents the result of the hypotheses formulated in the study

Hypotheses	Decision
H01- There is a significant relationship between AI and HR Department.	Accepted
H02- There is an existing relationship between the Internet of Things and AI.	Accepted



This section of the study addresses the broad discussion of the research issue. Conversely, emphasising the attainment of a firm's intended objective enhances the effectiveness of AI. The study paper states that the development of the organisational structure must be established in order to enhance the organisational culture. "AI technology is being used to enhance the decision-making power of people." The study's results indicate that the integration of AI and IoT in HR procedures may promote productivity, minimise mistakes, and boost employee engagement. Promising applications that need further exploration include the use of chatbots for employee engagement, the implementation of predictive analytics for recruiting, and the adoption of wearables for employee health monitoring. Nevertheless, it is essential to confront the obstacles associated with data security, privacy, and the need to enhance the skills of HR workers.

VI. CONCLUSION

This research emphasises the capacity of artificial intelligence (AI) and the Internet of Things (IoT) to revolutionise human resources (HR) procedures and enhance organisational results. Integrating artificial intelligence (AI) and the Internet of Things (IoT) into HR procedures may boost operational efficiency, minimise inaccuracies, and elevate employee involvement. Utilising chatbots to enhance employee engagement, employing predictive analytics for recruiting purposes, and implementing wearables to facilitate staff upskilling. "It is recommended for organisations to allocate resources towards cybersecurity measures, implement data privacy rules, and give training to HR people to provide them with the necessary skills for working with AI and IoT applications in the future." This research article provides an analysis of the background of the study issue. Additionally, it emphasises the problem statement. Furthermore, the examination of the study results must be established inside this section. Furthermore, this research study is being used to analyse the effect of the factors on the HR department.

The results of this research are anticipated to enhance the current body of knowledge on artificial intelligence (AI), Internet of Things (IoT), and human resources (HR) management. "The findings derived from this study may provide valuable guidance to organisations when making decisions about using AI and IoT technology into their HR procedures." Moreover, the analysis will emphasise possible areas for improvement, obstacles to be tackled, and suggestions for effective execution.

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