



A STUDY ON AI DRIVEN APPROACH OF RECRUITMENT AND SELECTION PROCESS IN TALENT MANAGEMENT

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Abstract: In a business context with recent innovative mechanics, A study was conducted to understand the relevance of tools of Artificial intelligence (AI) and other new technologies that not only streamline the business processes but also supports an adaptive, flexible, and fluid workforce. The rise of this system would possibly make the recruitment process more effective by identifying quality candidates. The study focuses on the role of talent metrics that ensures for operational efficiency by decreasing the risk of hiring the wrong candidate. The core objective is to determine the functions of artificial intelligence in hiring process of human resource Management.

Design/Methodology: Primary data was gathered from 100 respondents and was analyzed through (EFA) Exploratory factor analysis to identify the relationship between the variables.

Results: The advantages in implementing the AI were seen as a speeded quality and elimination of routing tasks in recruitment and selection process.

Paper type: Research paper

I INTRODUCTION

Organizations deemed to be matured to work digitally and explore ways to take a systematic stance on talent management. The contemporary human resources practice being employed to reduce dependence of physical man power and to enhance the hiring and retention process. Moving with the fast pace digitalization, various technologies are driving the transformation of functionality from professionals to automation. Artificial Intelligence is one among the technology, which is an effect of human intelligence gaining importance for future interactions across all industries. AI is a human like intelligence demonstrated by machines that is advancing rapidly. From last year to 2023, Gartner estimates an increase of 16.2% in conversational AI platforms driving worldwide contact center market (IT Research and consultancy company provides actionable insights that enable smarter decisions). It is an emerging spectrum of algorithms and machine learning tools that leverages the machine to exhibit the decision making and problem-solving potential of a human mind. It also alerts the people with the appropriate skill to meet the available job prior to their posting. Recruitment and Hiring are the prevalent areas where the HR needs being supported by artificial intelligence.

II LITERATURE SURVEY

Ranjitha (2021) in her article “A study on application of artificial intelligence and its challenges in HR” reveals the application of AI in human resource. The study states that AI is used mostly in training and development area. Dr Owais Ahmed (2018) highlights on how AI and automations influences the company’s success in the speed of modern business and Tessler’s theorem. Dr. RA Rathi (2018) characterized as AI enable HR professionals to be more efficient by contributing to strategic planning on an organizational level rather holding the administrative task. Joshbersin (2018) In this research paper, author mentioned how the algorithms such as pymetrics, a gamified assessment contributes towards employee recruitment and selection process. Prarthana

Ghosh (2021) in their study stated how the recruitment process is elevated with the prescreening process associated with the essential changes in the technology. Also explained the aspects of candidate selection. Talya N Bauer (2021) examine the various factors of effective onboarding that results in engaged workforce and faster learning curves for new hires.

III RESEARCH GAPS

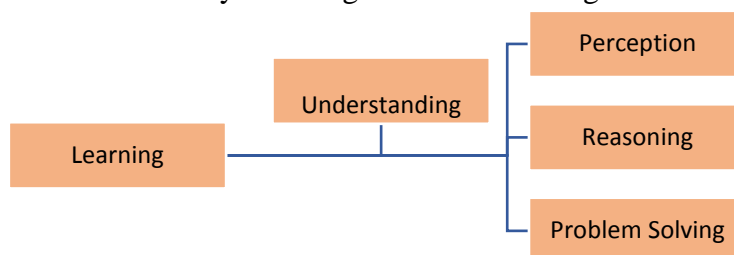
The literature survey mentioned in the preceding section shows that the existing research work is considerably less in terms of application of artificial intelligence contributing towards the candidate selection process. This paper takes further study to understand in specific, what Artificial intelligence have for the several stages in HRM. It aims to investigate the challenges faced by the professionals while implementing the technology. This study was commenced to identify the relationship between the talent management tools and recruitment process.

IV OBJECTIVES

- To identify the functions of artificial intelligence in recruitment process of HRM.
- To study the effect of AI powered Talent management tools towards the recruitment life cycle.
- To understand the challenges of human resource while practicing artificial intelligence

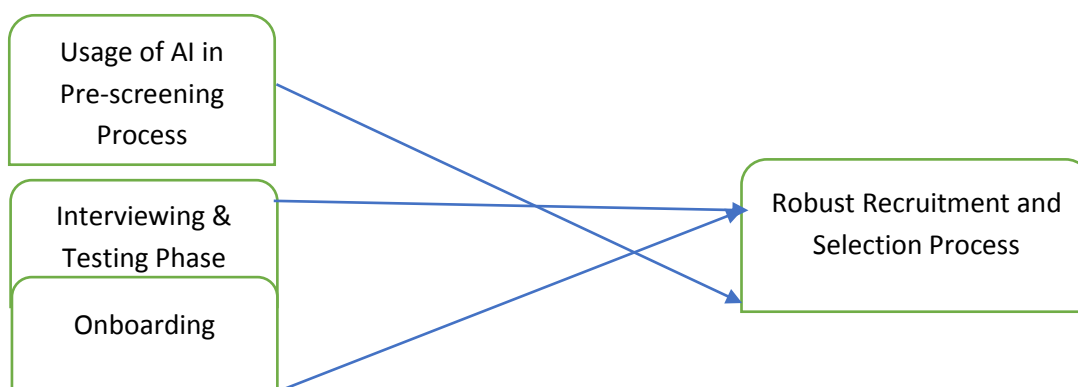
Figure 1. Components of Artificial Intelligence

The learning is basically done in input data by recognizing the patterns, speech, photos etc. in the recruitment and selection process with the limited facts. Conclusions are drawn basis the logical process, predictions and further the operators could reach from the initial state to the final state of problem solving. AI involves pattern recognition, data analysis, natural language processing, self-learning models etc which in turn can forecast problems and modeling possible solutions by imitating the human intelligence.



Having different forms of learning in AI, the simplest part is by trial and error. Learning leads to reasoning. To reason is to draw an inference appropriate to the situation. Specifically in AI, Possible actions are defined to reach a predefined objectives in a systematic way, that is characterized under problem solving. Perception in AI is the maximum ability of the machine language to utilize the input in different ways.

Figure 2. Proposed Framework Among Research Variables



V CONCEPTUAL MODEL

The model basically has three constructs and are integrated together as shown in figure2. The hypothetical relationship between the variables and the construct is verified with the help of structural equation model.

VI RESEARCH METHODOLOGY

The survey consists of 100 respondents who are human resource managers, talent acquisition managers and other employees of IT companies, who were taken as a sample for the study. Primary data was gathered through the set of structured questionnaires. Secondary data was collected through the existing literature, survey reports, research papers, e articles, HR blogs and journals.

STATISTICAL TOOLS: Simple Percentage Analysis, Factor Analysis, Weighted Average and ANOVA

VII SCOPE OF THE STUDY

The research paper titled “A Study on AI driven approach of recruitment and selection process in Talent management” limits its scope to the HR professionals and recruitment managers of IT sector in Chennai city. Further the study is restricted to the companies that have adopted artificial intelligence in talent management.

VIII PILOT STUDY

The questionnaires were standardized and administered through a google form. Factors were measured with a Five-point Likert scale ranging from strongly disagree to strongly agree. Reliability test was conducted through Cronbach’s Alpha method & the score was found to be .571, .782, .591 and .758 respectively for Prescreening, Interview/testing phase, Onboarding and Recruitment process.

IX ANALYSIS AND INTERPRETATION OF DATA**Table 1 - Demographic Details**

Personal profile	Respondents Details	Number of Respondents	Percentage of Respondents
Age	25-35	21	13.2
	36-50	65	40.3
	Above 50	14	8.8
Total		100	62.3
Gender	Male	59	37.1
	Female	41	25.2
Total		100	62.3
Educational background	Diploma	9	5.7
	Undergraduates	43	27.0
	Postgraduates	48	29.6
Total		100	62.3

Age of the respondents: 40.3% of the respondents below to the age group of 36 – 50 years followed by 13.2% from the age group of 25 – 35 years and 8.8 % were from the age group of 50 years and above.

Gender of the respondents: 37.1 % of them are male and 25.2 % were female. Majority of the respondents belong to the male category.

Educational Background: 29.6% were post graduates, 27% of them were undergraduates and 5.7% of the respondents were in diploma. The highest number of respondents were people with postgraduates.

Table 2 - Kaiser – Meyer - Olkin and Bartlett's Test

		Pre-screening Process	Interview/ Testing Phase	Onboarding
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.622	.801	.688
Bartlett's Test of Sphericity	Approx. Chi-Square	74.408	197.987	79.011
	df	10	15	10
	Significance	.000	0.000	0.000

The Kaiser-Meyer-Olkin (KMO) test measures the sampling adequacy and to assess if the data in the model is suitable for Factor Analysis. All factors loading 0.6 and above were identified with Exploratory factor analysis (EFA). The KMO value is .622, .801 and .688 respectively. Bartlett's Test of Sphericity is done to detect the approximate Chi – Square value. Values stated in the above table are significant at 5% level and hence the sample size is adequate and can be considered for research.

Table 3 - Factor Analysis – Prescreening

Factor Analysis is performed to extract the common factor by simplifying the variables into lesser number. The objective of this technique is to summarize and reduce the interrelated data. Exploratory factor analysis is used in this study to explore the structure.

F. No	Variable	Factor Loading	Name given to the Factor
F1	AI convert smart card into resumes for quick filtering	.812	Filtering process
	AI in storing database and future use	.791	
F2	Promotes diversity by preventing discrimination	.879	Screening candidates
	Create assessments based on job description	.764	
	Prioritize expertise over practical knowledge	.450	

The Rotated Component Matrix shows that total of 6 variables have been grouped under two set of Prescreening process with the total variance of 63.703. All factors loading 0.4 or above were identified with varimax rotation using exploratory factor analysis.

Table 4 - Factor Analysis – Interview/Testing Phase

F.No	Variable	Factor Loading	Name given to the Factor
F1	Decrease in employee attrition as the machine language uses predictive analysis	.821	Interview Process
	Interview process preferred is computer than a human	.818	
	Easy for the employers to screen the candidates remotely	.761	
	Fair recruitment procedure with recording tones & facial tactics	.737	
F2	Analyze individual assessment through grading verbal response.	.986	Candidates Segregation
	AI saves time by providing a ranked list of candidates	.808	

In the above table, the variables are predominantly reduced with factor Analysis. Total of 6 variables have been grouped under 2 set of factors with Rotated Component Matrix with the total variance of 69.420. All factors loading 0.6 or above were identified with varimax rotation using exploratory factory analysis.

Table 5 - Factor Analysis – Onboarding

F.No	Variable	Factor Loading	Name given to the Factor
F1	Document automation of new hires	.759	Successful Onboarding
	Employee adaption easier as they access everything under one roof	.715	
	Candidates' segregation based on specialized skills	.695	
F2	AI depends on present data given & experience	.897	AI on Current data
	Employee gain tools and knowledge	.738	

Factor Analysis is used to reduce the total of 5 variables into 2 set of Onboarding process with the total variance of 66.502. Factors loading 0.6 or above were identified with varimax rotation using exploratory factory analysis.

Table 6 - Factor Analysis - Recruitment and Selection Process.

F.No	Variable	Factor Loading	Name given to the Factor
F1	AI/Machine language predicts the candidate likelihood to succeed in a position.	.828	Cost reduction
	AI reduces the cost of the hiring process	.795	
F2	AI automate searches through various repositories helps in data management process	.901	Technology leads to data management
	As AI technology is reliable it will contribute to fair recruitment & selection process	.607	
	AI Implementation & adaptation enhances present hiring process	.935	

Factory Analysis is used for variables under recruitment and selection process to reduce the number of variables from total of 5 to set of three with Rotated component matrix. The total variance is 76.317. The factors are named with the respective variables in the above-mentioned table. All factors loading 0.6 or above were identified with varimax rotation using exploratory factory analysis.

Result of One- way ANOVA

ANOVA is performed to understand, how different groups respond to Null hypothesis. Two set of variables have been chosen in this study from Prescreening and Interview process with the chosen demographic variable to understand the chance of occurring/ a measurable effect on recruitment and selection process.

Table 7: ANOVA

To analyze if the candidate prefers an interview process via computer or a human in recruitment and selection process.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.546	2	1.273	.921	.402
Within Groups	132.747	96	1.383		
Total	135.293	98			

Null Hypothesis: There exist no significant difference amongst the respondents with respect to candidate preference in Interview process based on age.

Alternative Hypothesis: There exist a significant difference amongst the respondents with respect to candidate preference in Interview process based on age.

In the above table 7, χ^2 is 0.402 the value higher than 0.05 and hence the null hypothesis is accepted. This signifies that the age of the candidate does not influence the preference of their interview process as computer or a human.

Table 8: ANOVA

To analyze if there is a relationship between the gender and AI separating candidates based on skills.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.129	1	3.129	4.271	.041
Within Groups	71.053	97	.733		
Total	74.182	98			

Null Hypothesis: There is no significant relationship between the gender and candidates' segregation.

Alternative Hypothesis: There is a significant relationship between the gender and candidates' segregation.

In the above table 8, χ^2 is 0.041 is the significant value lesser than 0.05. Hence the null hypothesis is rejected. This signifies that the gender impacts the segregation of candidates in prescreening process as the alternative hypothesis is accepted.

X FINDINGS AND CONCLUSION

Artificial Intelligence support the complete range of HR function such as recruitment, hiring & talent retaining, selection, training, development, compensation, risk management, performance management, exit process and so forth in a unified platform. AI based recruitment encroach towards prescreening the candidates and shortlisting the meritocratic set of candidates. Thus, it creates more competence in the recruitment and selection process. Hiring and recruiting managers seamlessly schedule and conduct synchronous and asynchronous video interview online and contributes to fair recruitment process. Apparently, the traditional recruitment techniques lag far behind modern methods. Since the AI into human resource management can analyze, predict, and diagnose to assist HR teams on better decisions, they take the business a step ahead.

The implementation of AI should be observed as an optimistic opportunity that actively transforms the workplace and creates a better future if utilized in a proper way.

XI SUGGESTION

It is difficult at times for the people to get adopted to different AI tools and techniques proficiently and employees must also be given required training on digital skills periodically. Management should also realize the degree of importance and implement the tools as per the requirement. Further, People may not understand the designed hiring decision, as these algorithms does not disclose the facts that leads to decision.

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