Talent acquisition-artificial intelligence to manage recruitment

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Abstract. The research aims to examine the awareness of Artificial Intelligence among the HR managers and Talent Acquisition managers in the process of Talent Acquisition, Investigating the factors influencing the adoption and usage of Assisted Intelligence, and evaluating the impact of Artificial Intelligence on Talent Management. Multi-Stage sampling method was adopted to collect the responses from the 384 customers across the HR and TA managers working across the IT companies situated in Bangalore, Mysore, Pune, and Chennai & Hyderabad. SAS was applied to perform the Simple Percentage Analysis, Correlation Analysis, Multiple Linear Regression Analysis to validate the hypothesis. The demographic & construct variables considered were Adoption, Actual usage, Perceived usefulness, Perceived Ease of Use, & Talent Management. Awareness of the Artificial Intelligence technology and its adoption in managing Talent Acquisition has the positive and high correlation and followed by its actual usage. Candidate experience is the most influencing variable from the first factor, Competency and Easy to use is the most influencing variable from the second factor, Effectiveness in the adoption and actual usage of Artificial Intelligence in Talent Acquisition. Talent Management is the highest predictor of using the technology and its adoption is the most influencing predictor in the effective implementation of the technology among the Information Technology Companies. **Keywords:** Artificial Intelligence, Talent Acquisition, Recruitment, and Technology

1 Introduction

Talent acquisition (TA) is defined as an ongoing HR process to acquire skilled workers in alignment with a company's broader business goals, regardless of immediate vacancies. It is an ongoing strategy to find specialists, leaders, or future executives for your company. It tends to focus on long-term human resources planning and finding appropriate candidates for positions that require a very specific skillset. A fierce hiring landscape and rising demand for highly skilled labour are changing the very definition of talent acquisition. Talent acquisition specialists have a challenging task ahead as how to ensure that talent acquisition is an ongoing, continuously monitored activity. AI technology in talent acquisition has transformed and improved many traditional processes but human interaction

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is still essential. The widespread usage of AI can be attributed to its several advantages, which include making recruitment easier, more accurate, and efficient. In comparison to previous approaches. It allows recruiters and hiring managers to assess and interview prospects with far more ease. Some of the key areas of recruitment in which AI is applied comprises candidate sourcing, screening, posting jobs, hiring remote workers, diversity hiring, data collection and on boarding (Bilal & Varallyai, 2021).

AI has become increasingly important in human resource management, and it now exists at three levels: Assisted Intelligence, Augmented Intelligence, and Autonomous Intelligence. Assisted Intelligence is an artificial intelligence (AI) tool that standardizes the amount of time spent on repeated tasks at work. Chatbots and AI-based technologies are supporting employees with a variety of duties. Artificial Intelligence (AI) technology that allows humans and machines to collaborate and make choices. The workplace is undergoing a complete transformation as a result of autonomous intelligence. AI technology is self-contained and produces outcomes on a subconscious level, it collects and analyses data (Albert ET, 2019).

The research aims to examine the awareness of Artificial Intelligence among the HR managers and Talent Acquisition managers in the process of Talent Acquisition, Investigating the factors influencing the adoption and usage of Assisted Intelligence, and evaluating the impact of Artificial Intelligence on Talent Management.

Finding and employing the proper people is a critical component of an organization's business plan, and it has a direct impact on the company's future performance. A company's productivity, decision-making, and motivation will all suffer if it doesn't hire the proper people. Recruiters will be able to become more proactive in their hiring, help assess a candidate's cultural fit, and strengthen their connections with hiring managers by using data to measure KPIs such as quality of hire, thanks to AI's augmented intelligence. Recruiters can use AI for recruiting to save time on repetitive, time-consuming operations like automating resume scanning, automatically triggering evaluations, and arranging applicant interviews (Jose S, 2019). Hence, ***RQ$_1$:*** Are the HR managers of Information Technology Organizations aware of the AI in the TA process?

Talent acquisition refers to the process employers' use for recruiting, tracking and interviewing job candidates, and on boarding and training new employees. It is usually a function of the human resources (HR) department. Employers utilise talent acquisition as a strategic approach to the early stages of talent management, which includes hiring, deploying, training, and reviewing employee performance and remuneration.

An effective talent acquisition strategy also decreases risk throughout the business because it reduces the chances of an unsuccessful hire. This, in turn, saves time and money that could otherwise be wasted on training bad hires, while also improving productivity. The TA strategy often involves lead generation and sourcing, recruiting, interviews, assessments, reference checking, final hiring, and on boarding. Therefore, ***RQ$_2$:*** What are the predictors of the adoption and actual usage of Assisted Intelligence for Talent Acquisition by the HR Managers?

Assisted Intelligence is an artificial intelligence (AI) tool that standardizes the amount of time spent on repeated tasks at work. Chatbots and AI-based technologies are supporting employees with a variety of duties. Artificial Intelligence (AI) technology that allows humans and machines to collaborate and make choices. The workplace is undergoing a complete transformation as a result of autonomous intelligence. AI technology is self-contained and produces outcomes on a subconscious level, it collects and analyses data.

AIT is primarily used in recruitment, training, employee engagement, and employee retention, and it aids in cost reduction, time savings, and more accurate completion of HR duties. "Strategic approach to discovering, acquiring, and onboarding elite talent to quickly and effectively meet the evolving company needs" is what Talent Acquisition (TA) means

(Bugg, 2015, p. 4). However, there is a scarcity of study on the use of AIT for the TA function in HR in enterprises. HR managers will be able to improve the efficiency of the talent acquisition function and the HR department's performance by implementing AIT for TA. ***RQ3:*** Can the TAM model be applied in Talent acquisition using Assisted Intelligence?

Artificial intelligence in talent acquisition is about more than just obtaining applicant data; it's about exploiting it at scale to help businesses find the best candidate for the position. Hence, the study is focused on examining the adoption and usage of Assessment Intelligence in the process of Talent acquisition by various Information Technology Organizations operating in the districts of Bangalore, Mysore Pune, and Chennai & Hyderabad.

HR managers will be able to improve the efficiency of the talent acquisition function and the HR department's performance by implementing AIT for TA. ***H_0^1:*** There is no relationship between application of AI in Talent Acquisition process and awareness among the managers. It saves practitioners and researchers time by showcasing AI applications in the recruiting sector in a succinct and easy-to-understand way (Upadhyay & Khandelwal, 2018). ***H_0^2:*** Competency and Effectiveness don't influence the adoption & actual usage of AI in Talent Acquisition.

The TA function entails a significant investment in the process of attracting, hiring, and training new employees (Dastin, 2018). ***H_0^3:*** Perceived Ease of Use and Perceived Usefulness have no impact on adopting Artificial Intelligence in Talent Management. Assisted Intelligence in the talent acquisition process portraying the impact of Artificial Intelligence in Talent Acquisition. Therefore, Technology Acceptance Model (TAM) is integrated in the research facilitating in providing insightful and comprehensive focus to predict the adoption of AI in TA.

The Technology Acceptance Model (Davis, 1989), or TAM, posits that there are two factors that determine whether a computer system will be accepted by its potential users: (1) Perceived Usefulness (PU), and (2) Perceived Ease of Use (PEOU). The key features of this model in figure 1 are its emphasis on the perceptions of the potential user. This theory posits that a person's intent to use (acceptance of technology) and usage behaviour (actual use) of a technology is predicated by the person's perceptions of the specific technology's usefulness (benefit from using the technology) and ease of use.

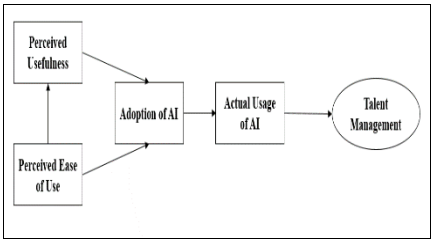

Fig 1. Proposed Conceptual Research Model.

2 Methods & Materials

The study is deductive and descriptive in nature. The research aims to examine the awareness of Artificial Intelligence among the HR managers and Talent Acquisition managers in the process of Talent Acquisition, Investigating the factors influencing the adoption and usage of Assisted Intelligence, and evaluating the impact of Artificial Intelligence on Talent Management. A self-administered 480 questionnaires were circulated to collect the responses from the respondents. It consists of 20 items based on the constructs Adoption & Actual usage (Pillai & Sivathanu, 2020), Perceived usefulness & Perceived

Ease of Use (Davis, 1989) and Development (Talent Management) R. Lewis et al. (2006) which were refined to suit the current study on a five-point Likert scale. The study portrays multiple data collection techniques and sources strengthens the credibility of outcomes and enables different interpretations and meanings has been included using Triangulation (Flick, 2014). The current study includes sources from Literature review, Interviews, and Survey Questionnaire based on Triangulation method (Rabindarang et.al, 2014). The study involves multistage sampling technique. The first stage of sampling was based on cluster sampling method where the population has been grouped into different Zones like North, East, West, and South. The second stage of sampling technique was based on simple random sampling applied on the population to arrive at a sample size of 384 (Kadam P, 2010).

The study has included the TA and HR managers as respondents working across the Information Technology companies operating in Bangalore, Mysore, Pune, Chennai, and Hyderabad who are using AI in their recruitment process at least at minute level. These respondents were appropriate as they were HR managers and executives working in the TA function and aware of AI technology and using some kind of AIT for TA.

The demographic variables defining the attributes and characteristics of the respondents includes age, gender, qualification, work experience, designation, recruitment & awareness on technology (Artificial Intelligence). The construct specific variables include Adoption, Actual usage, Perceived usefulness, Perceived Ease of Use and Development (Talent Management). The statistical tools used in testing the hypothesis framed includes Simple Percentage Analysis, Multiple Regression Analysis, Exploratory Factor Analysis, with the help of statistical package, Statistical Analysis System (SAS – Academic Version).

3 Results

Reliability analysis was performed on the variables comprising of 22 items. The Cronbach's alpha reflected the questionnaire with acceptable reliability ($N = 384$, $\alpha = 0.908 > 0.70$, Campbell et.al., 2020). All the items appeared to be worthy of retention, confirming the items' high and excellent ($\alpha \geq 0.9$) reliability.

The descriptive statistics show that the sample of HR and TA managers consisted of 35 per cent male, 33.33 per cent female, and 30 per cent others respondents. 27.60 per cent of them are aged between 26-30 years, 21.61 per cent between 31-35 years, 24.22 per cent between 36 - 40 years, and 26.56 per cent between 41- 45 years.

A Pearson correlation coefficient in Table 1 was computed to assess the linear relationship between Awareness, Adoption, Actual usage, and Development. There was a positive correlation between awareness and adoption of the technology ($r = .901$, $p < 0.001$), awareness and actual usage of the technology ($r = .856$, $p < 0.001$), awareness and talent acquisition ($r = .856$, $p < 0.001$), adoption and actual usage ($r = .885$, $p < 0.001$), adoption and talent acquisition ($r = .731$, $p < 0.001$), actual usage and talent acquisition ($r = .837$, $p < 0.001$).

Table 1. Correlation Summary.

	Awareness	**Adoption**	**Actual Usage**	**Talent Acquisition**
Awareness	1	.901**	.894**	.856**
Adoption		1	.885**	.731**
Actual Usage			1	.837**
Talent Acquisition				1
** Significant at 1 per cent level.				

Therefore, it confirms that there is positive and strong correlation between application of AI in Talent Acquisition process and awareness among the managers. The relationship is statistically significant at 1 per cent level.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's test reveals (KMO = 0.930, $\chi 2 = 3085.67$, $p < 0.001$) the sample adequacy confirms the validity (Bucci et.al., 2018) as reflected in table 2.

Table 2. Sampling Adequacy Test.

Particulars	Values
Kaiser–Meyer–Olkin measure of sampling adequacy	.930
Bartlett's test of sphericity ($\chi 2$)	3085.678
Sig.	.000**

Exploratory Factor Analysis (EFA), which is an analysis that extracts factors from a number of measured variables (Nunnally & Bernstein, 1994), was conducted to verify whether the three categories extracted from theoretical backgrounds of the reviewed literature regarding 16 items of the chosen constructs would be categorized into the same factors. EFA is used for theory generation, which favors the results of the data over theoretical backgrounds of previous studies (Brown, 2006).

Table 3. No of Items in Factors and Alpha Values.

Factors	No. of Variables	Cronbach's α
Adoption	4	.856
Perceived Ease of Use	4	.843
Perceived Usefulness	4	.818
Talent Management	4	.840
Source: Primary Data		

For factor extraction, a Principal Component Analysis (PCA) was performed. Factor rotation was conducted using varimax rotation. The factors were extracted if the eigenvalue was greater than 1.0. In the analysis, goodness-of-fit indices were confirmed by the Bartlett test for sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy, which tests whether the partial correlations among variables are small. Kaiser-Meyer-Olkin (0.930) measure of sampling adequacy showed a statistical significance among the variables ($p<0.001$), indicating that factor analysis was suitable for this analysis. Communalities of each variable were in the range of 0.559 to 0.773 for all 16 items, so the items could be included in the analysis in table 3. From the EFA, 2 factors (eight factors in Effective, eight factors in interactive) were extracted (Table 4). Considering the 16 factors explain a total variance of 61.861 per cent (Table 5).

Table 4. Principal Component Analysis.

TA Variables	Factor 1	Factor 1
AD1	.801	
AD2	.794	
AD3	.752	
AD4	.691	
AC1	.757	
AC2	.733	
AC3	.790	

AC4	.722	
EU1		.660
EU2		.600
EU3		.789
EU4		.710
PU1		.741
PU2		.703
PU3		.779
PU4		.713
Total	**8.091**	**1.806**
Variance (%)	**50.570**	**11.290**
Cumulative (%)	**50.570**	**61.861**
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations.		

The first factor indicated an eigen value of 8.091explaining the variance among the factors by 50.570 per cent influencing the usage of Artificial Intelligence in managing Talent Acquisition during the recruitment across the Information Technology Companies. The key factors influencing the usage of the technology are Candidate experience (0.801), function (0.794), cost reduction (0.752), data sharing (0.691), access (0.757), candidate engagement (0.733), attracting candidates (0.790), and decision making (0.722).

The second factor indicated an eigen value of 1.345 explaining the variance among the factors by 4.484 per cent influencing the usage of chatbot technology for the purpose of availing customer support from their respective banks. The key factors influencing the usage of the technology are understandable (0.660), mental effort (0.600), easy to use (0.789), requirement (0.710), control (0.741), productivity (0.703), effectiveness (0.779), and aspects (0.713).

Hence, the results reflect that the first factor, “Competency” and second factor, “Effectiveness” are statistically significant in influencing the adoption and actual usage of Artificial Intelligence in Talent Acquisition.

A Multiple Linear Regression analysis was performed to predict the impact of the Artificial Intelligence technology on Actual Usage through the variable (Y) based on the two independent variables Development (X1), and Adoption (X2). The results of the analysis as shown in Table 5 describes the obtained coefficients and indices of the regression.

Table 5. Prediction of Artificial Intelligence Usage in Talent Management.

Artificial Intelligence	**B**	**β**	**t-Value**	**Sig.**
Constant	1.433	-	4.392	0.000**
Adoption	.574	.586	20.877	0.000**
Talent Management	1.347	.409	14.562	0.000**

A statistically significant regression equation was found ($F = 1173.1$, $p < 0.001$), with R^2 of 0.860 ($R^2 > 0.75$, Sannigrahi et.al., 2020). The fitness of indices ($R = 0.928$) and Durbin-Watson (1.903) confirm the model suitability in predicting the Artificial Intelligence usage in Talent Management by the predictors. Therefore, the estimated Actual Usage (Y) = 1.433 + 0.574 (Adoption) + 1.347 (Development). Table 6 describes the model fitness threshold summary.

Table 6. Regression Summary.

Indices	Value
R	0.928
R^2	0.860
F – Statistic	1173.1
Durbin-Watson	1.903
Sig.	0.000**

The actual usage of the AI technology increases with every increase in the adoption of the technology (B =0.574) and development (B = 1.347) respectively. The standardized coefficients of adoption (β = 0.586), and development (β = 0.409), influence in prediction. It is thus concluded that usage of AI Technology in Talent Acquisition has a significant impact on the determination of Talent Management.

4 Discussion & Conclusion

Intelligent talent acquisition and HR analytics are becoming major sources of competitive advantage for any firm. The advancement of deep learning has been made possible by our current computing power and the exponential expansion of the amount of data we can gather, process, store, and use in our models. Since the cost of data storage and processing time is so minimal now, any business can afford to use this technology to improve their operations. Businesses have the chance to use investments to accelerate the adoption of data-driven insights into decision making with AI.

5 Implications

Awareness of the Artificial Intelligence technology and its adoption in managing Talent Acquisition has the positive and high correlation and followed by its actual usage. Candidate experience is the most influencing variable from the first factor, Competency and Easy to use is the most influencing variable from the second factor, Effectiveness in the adoption and actual usage of Artificial Intelligence in Talent Acquisition. Talent Management is the highest predictor of using the technology and its adoption is the most influencing predictor in the effective implementation of the technology among the Information Technology Companies. This ground-breaking study examines how AI is being used for TA in businesses. This research will help AI marketers, designers, developers, and HR managers better assess AI's adoption and practical use in TA. It will aid organizations in the development of AI-based TA technologies. It will assist HR managers in determining the appropriate AIT for the TA function and benchmarking it during implementation. The findings of this study will aid in the formulation of strategies for the adoption of AIT for TA in order to improve the TA department's performance. In India, AIT adoption is in its early stages, and it is critical to understand the adoption and real use of AI-based technology for TA.

Reaching out to the respondents was a challenge because of the confidential nature of work. It is simpler to find talent, evaluate skills and qualifications, onboard new employees, manage employee strengths, and reward top performers thanks to talent management tools. Business executives can devote more of their time to focusing on becoming a top employer now that they are free of administrative duties. The aspiring researchers can conduct a detailed study on Talent Management Systems, Application of specific Talent Management tools in the corporate firms.

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