Influence of Artificial Intelligence on Selection Stage of Recruitment in Tanzania: A Case of Selected NGOs in Kinondoni Municipality

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DOI: https://dx.doi.org/10.47772/IJRISS.2024.8120284

Received: 06 December 2024; Revised: 20 December 2024; Accepted: 23 December 2024; Published: 20 January 2025

ABSTRACT

The study aimed to assess the influence of artificial intelligence (AI) during the selection stage of recruitment among selected NGOs in the Kinondoni municipality of Dar es Salaam. The study specifically assessed the involvement of AI in selection, candidate engagement and communication. This study employed descriptive case study design while primary and published secondary data from the internet were used for data collection. The result found that, innovations and developments that have culminated in computers, machines, and other artificial having human-like intelligence characterized by cognitive abilities, learning, adaptability, and decision-making capabilities. The findings of the study also revealed that AI-based HRM systems are useful for accomplishing several objectives, including reducing costs, solving recruiting delays, and effective resource consumption. The study recommends that the Ministry of Communication had to reduce the cost of data because the AI system operates online. Furthermore, the Ministry of Communication has to collaborate with the Ministry of Education to insist on the application of technology in schools, colleges, and universities.

Key words: Artificial Intelligence, Selection, recruitment

INTRODUCTION

Artificial Intelligence (AI) has garnered significant attention since World War II and was first introduced in 1956 (Stuart & Norvig, 2016). Salin and Winston (1992) define AI as a collection of processes that enable computers to perform tasks typically requiring human cognitive abilities including recruitment issues. Nilsson (2005) asserts that machines should be capable of executing various tasks. Moreover, the focus is on technological advancements in mechanics that help recruiters, resulting in a more computerized interface (Baxter, 2018). Consequently, it is reasonable to conclude that the personal touch in enrolment is diminishing (Bondarouk & Brewster, 2016). Baxter (2018) forecasted the trends that shape enrolment practices in 2019 and suggests conducting foresight studies to mitigate some of the uncertainties that arise before recruitment and also mentions artificial intelligence (AI) as a tool for engaging with candidates in human resources management.

Moreover, the introduction of new technologies like AI offers several advantages, particularly in terms of enhanced performance on recruitment process during selection stage (Martincevic & Kozina, 2018). The AI tools execute recruitment processes that previously required human judgment, significantly reducing the time spent on isolated and labour-intensive tasks. However, some individuals argue that human resource analytics could be a temporary trend if technological changes do not integrate into executive decision-making (Rasmussen & Ulrich, 2015). Many organizations perceive the adoption of AI as a significant threat to human resource practices, primarily due to concerns about data security and the fact that AI lacks emotional intelligence compared to humans.

Human resources management seeks to balance the work and human aspects of the organization and enhance the human element to boost productivity, efficiency, and the business's added value (Vardarlıer, 2014). As a

result, it is critical to conduct research and take the required actions to boost the productivity of human resources. Also, artificial intelligence is being used as one of the innovations in the human resources field. HRM practices encompass recruiting new employees, supervising staff, and facilitating employee development (Wall & Wood, 2005). These processes prioritize retaining new employees and ensuring their performance remains satisfactory, as human resources represent a unique and constantly evolving aspect of a business that requires effective management (Bibi et al., 2016). In addition, in human resources management, AI enhances data extraction solutions by automating the processes of resume screening and data extraction, particularly in the recruitment of new employees (Kaczmarek, Kowalkiewicz, & Piskorski, 2005). But, as the volume of job applications increases, automated systems designed to rank job candidates have been developed to expedite the hiring process, potentially overwhelming HR departments. Since HR typically handles the manual evaluation of job applications, AI-driven candidate placement systems can streamline the evaluation tasks of recruiters (Faliagka et al., 2012). AI powers these candidate placement systems, with human recruiters providing data that informs the AI algorithms, enabling them to learn about application scoring capabilities (Faliagka et al., 2012). Upadhyay and Khandelwal (2018) also note that, chatbots serve as AI-driven recruitment assistants, providing personalized interactions with candidates via messages, instant texts, or chat interfaces.

On the other hand, the importance of recruitment systems is to streamline and enhance the efficiency of organizational hiring processes through modernization (Dickson & Nusair, 2010). These systems are designed to accelerate recruitment by enabling users to conduct pre-screening, organize resumes, and match them to available job vacancies. Consequently, supervisors' efforts to identify qualified candidates for open positions have improved in terms of both speed and efficiency (Dickson & Nusair, 2010). The incorporation of AI into the recruitment process allows organizations to access a larger pool of applicants with reduced administrative effort.

The integration of AI into HRM represents the most significant trend among recruitment professionals globally (Tecuci, 2012). By automating tedious tasks traditionally handled by human recruiters, AI enhances the recruitment process, leading to its characterization as "the new HR" (Upadhyay & Khandelwal, 2018). However, the use of AI in Human Resource Management Practices (HRMPs) in developing countries, particularly in Sub-Saharan Africa, appears to be a novel innovation that is not widely adopted by many organizations in fulfilling their responsibilities.

Some scholars view AI as a threat to traditional management practices (Tecuci, 2012; Upadhyay & Khandelwal, 2018; Dickson & Nusair, 2010), while others argue that it represents a new innovation that enhances efficiency in managing human resources within organizations (Marti, 2019). The implementation of AI has sparked discussions regarding the future of human employment, ethical considerations regarding actions and responsibilities, and proposed policies to mitigate associated risks (Hislop et al., 2017).

Tanzania currently has roughly 3000 domestic and foreign NGOs and there are many NGOs in various aspects like human rights, gender, environment, advocacy, participatory development, etc. Dar es Salaam is the leading region in Tanzania and especially Kinondoni municipal. According to NaCoNGO (2020), there were 594 registered NGOs in Dar es Salaam, and 255 NGOs are in the Kinondoni District. These NGOs contributed to the development of civil society by enlightening and educating the public about a range of topics, such as their legal rights or service entitlements, or by helping they become aware of government policies (The National Policy on NGOs, 2001).

Therefore, an improved stage of development reached by NGOs in tackling environmental and socioeconomic problems, including joblessness, on a global scale in 2022 when their sustainability index ranged from 1 to 3.5 (UN, 2015). For this case, resource scarcity is a crucial factor when evaluating the sustainability of NGOs (Omeri, 2015). With an upward trend in programs and activities demanding persistent and ample funding, organizations often have to adapt to their finite funding possibilities. Therefore, the implementation of artificial intelligence, particularly during the selection stage of the recruitment, will hold significant importance for organizations. Also, the application of AI in Human Resource Management Practices remains a contentious topic for NGOs to reduce costs in the recruiting process. This situation calls for further investigation, and thus, this paper intends to examine the influence of artificial intelligence on human resource practices especially during the recruitment process in NGOs, specifically, to assess the selection stage involving candidate

engagement and communication.

LITERATURE REVIEW

Literature review for this paper consists of the definitions of the main concept, theoretical and empirical literature review, conceptual framework and the research gap.

Definition of Key Terms

Artificial intelligence

Artificial intelligence (AI) is a set of technologies that enable computers to perform a variety of advanced functions, including the ability to see, understand and translate spoken and written language, analyse data and make recommendations. Also, AI can be defined as the implicit intelligence exhibited by machines (Kaplan & Haenlein, 2019). AI can be utilized to enhance both defensive and offensive cyber operations, while also giving rise to new forms of cyber-attacks that exploit the specific vulnerabilities of AI technology. Effective global governance is crucial to ensure that this transformative technology fosters widespread safety and prosperity. Hence, AI in this study means the use of intelligent system to assist recruiters in the selection stage of the recruitment process.

Non-Governmental Organizations (NGOs)

NGOs are voluntary organizations that operate independently of government control, to fulfil public purposes and engage in activities that serve the public interest. Moon and Kim (2023) characterize NGOs as entities that pursue public interests within the non-profit sector, highlighting their voluntary nature and commitment to societal objectives. In this study, the NGOs in various aspects like human rights, gender, environment, advocacy, and participatory development in Kinondoni district were involved.

Theoretical Framework

The study was guided by Resource-Based View (RBV). The Resource-Based View (RBV) emphasizes that an organization's resources and capabilities are crucial for achieving competitive advantage. This theory focuses on how unique resources can be leveraged to enhance organizational performance. The RBV guides this study in examining how NGOs can effectively utilize their unique resources (e.g., skilled HR personnel, technological infrastructure) to implement AI in HRM practices. This perspective is supported by Böhmer and Schinnenburg (2023), who discuss the significance of organizational capabilities in adopting AI technologies. The application of RBV helps to explore how integrating AI in HRM can provide NGOs with a competitive edge in terms of efficiency, employee engagement, and overall organizational performance. Therefore, this study was guided by the Resource-Based View (RBV) because the resource-based view theory focuses on how unique resources especially on employees can be leveraged to enhance organizational performance.

Empirical Literature Review

Empirical literature review for this paper examines similar past empirical studies as explained underneath;

Lawler and Elliot (1993) conducted an experimental study of an expert system to aid job evaluation. It concentrates on the effect of expert system use on problem-solving accuracy along a variety of issues. The findings demonstrate that the program had an impact on performance, though the demonstrated connections differed from what had been hypothesized.

Mishra and Akman (2010) undertook an empirically-based study to look at how Information technology is used in human resource management. 106 IT managers and professionals from different industries in Turkey were the subjects of the study. It was concluded that IT affected all areas of HRM, with activities ranging from recruitment to maintenance and development. The findings showed that enterprises might not implement these technologies in performing HRM functions systematically and maturely. Bhardwaj et al. (2020) conducted an empirical study with 115 HR professionals in the Delhi/NCR region working in the IT business to explore the

use of AI and its impact on HRM as a result of technological advancement. The study's objective was to figure out whether the innovation and usability of HR functions moderate this relationship. Multiple regression-based hypotheses found a strong correlation between the two components demonstrating that enhanced utilization of AI in the workplace improves HR functional effectiveness. AI influences HR with innovations and usability since it has a strong association with both innovation and usability.

Khatri et al. (2020) conducted a study that focused on incorporating artificial intelligence-based technologies into an organization and the new opportunities and challenges in managing human resources while taking into account both the tech and non-tech resources of the companies. The researcher used a descriptive qualitative review methodology based on papers that provided secondary data. Researchers created two models that connect AI and HRM, raising awareness of the advantages and disadvantages of technology, improving skill sets to retain staff morale, and automating their performance through re-engineering are effective ways to integrate AI inside the organization. It was determined that technology and people work together to function and develop an enterprise. To compete with AI, people must improve their abilities and demonstrate their willingness to learn new ones using knowledge-based methods.

Arslan et al. (2022) investigated to concentrate on the difficulties HRM executives and departments in organizations experience as a result of the cooperative agreement between AI (robots) and human workers at the team level. The connection between AI (especially robots) and HRM in modern enterprises is examined in this research by integrating several streams of literature. The results showed that before putting human workers in teams with robots, organizational support mechanisms including the conducive environment, training opportunities, and assuring a feasible technological competence level are vital. Last but not least, we discovered that one of the most difficult problems for HRM was performance assessment in teams where humans and AI (including robots) coexist.

Kambur and Akar (2022) undertook a study to establish a valid and accurate scale as well as to uncover HR personnel’s perceptions of AI and assess the changes AI has brought about in the HR department. The largest firm in Turkey provided a sample of 821 HR managers and staff. It was concluded that HR staff members and managers believed technology would relieve them of monotonous labour, lessen the stress associated with finding qualified individuals, and giving them access to a larger pool of prospects. It was revealed that AI was incorporated into the process of employee training and development and that with AI, training’s lack of concentration will be reduced.

Oreo and Sposato (2022) did a study by examining the viewpoint of recruitment Experts to examine the benefits and concerns of using AI in recruiting and selection. A qualitative approach was used to perform an exploratory investigation. Ten experienced recruiters who worked for multinational corporations had face-to-face interviews. The findings showed that AI facilitates routine task performance via automation. The risks associated with AI technology in recruiting and selection cause recruiters to be wary and mistrustful of it. AI adoption done right can enhance hiring practices. The respondents believe that their employment would continue to exist because recruiters should always be humans, although pessimism remains because of concerns about mass layoffs due to automation. Korzynski et. al (2023) conducted a study with the purpose to examine generative Artificial Intelligence (AI) systems like ChatGPT could offer management ideas and concepts in new contexts.

Using AI technologies in HRM users in a new era of HR (version 5.0) and is innovative in today's world. In the long term, it will support the economy and a considerable a number of new jobs will be created as well. In numerous tasks was expanding and was now able to handle duties. Artificial intelligence is the technology used to perform a task that requires some level of intelligence to complete. It refers to a technology that has been trained to perform like a human. AI technologies provide numerous possibilities for enhancing HR functions such as recruitment, payroll, self-service transactions, access policies, and procedures in organizations. AI in numerous tasks was expanding and was now able to handle duties like hiring, analysis of data as well as workload reduction at the workplace, which enhanced organizational performance. The usage of AI in the workplace also improved HR functional effectiveness as well as reduced the lack of concentration in training. The advanced technology has focused on HRM activities, such as hiring, training, and job performance, as well as HRM tactics, such as job replacement, human-robot/AI collaboration, etc.

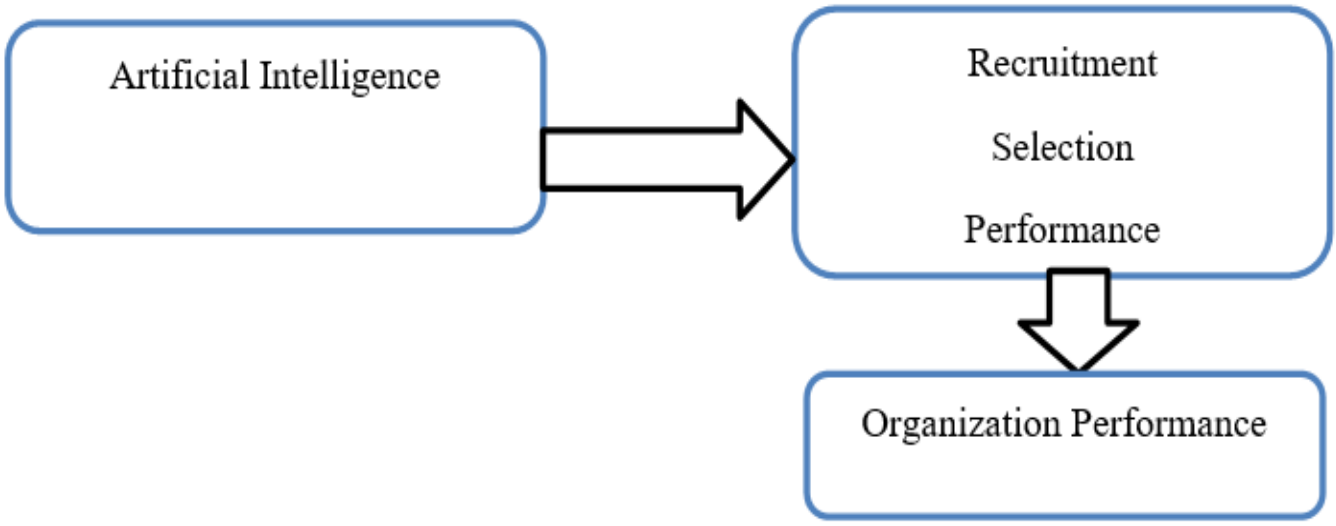
Research Gap

The idea of AI application on human resource practices in an organization's performance is still a debatable one. Some scholars claim that it's a threat to traditional management practices (Tecuci, 2012; Upadhyay and Khandelwal, (2018); Dickson and Nusair, (2010)) just to name a few, while other scholars argue that it's an innovation which creates efficiency in managing human resources within the organizations (Martincevic & Kozina, 2018); Faliagka et al., (2012); Montuschi et al., 2014). Due to these differences in views and ideas from various Scholars. However much have been said about the influence of AI on Human Resources Management Practices in mostly developed countries unlike developing countries. Therefore this study seeks to bridge the gap brought by different views from scholars as well as to bridge the gap between the influence of AI in Developed countries and that of developing countries. Thus the study aims at assessing the influence of artificial intelligence during stage of selection in recruitment process among non-governmental organizations.

Conceptual Framework

The conceptual framework of the study helps the researcher to show the relationship between variables that analysed, where framework involved independent variable and dependent variables (Creswell, 2013). The independent variable in this study is Artificial Intelligence while the dependable variables are Recruitment, Selection and performance management.

Figure 1: Relationship of Study Variables



Source: Developed by Researcher

The study variables illustrated in Figure 1 demonstrate the relationship between independent and dependent variables. In this research, Artificial Intelligence (AI) serves as the independent variable, while recruitment, selection, and performance management are classified as dependent variables.

Artificial Intelligence (AI) refers to an intelligent system capable of thinking and learning (Jarrahi, 2018). This system can be understood as one that emulates general human abilities such as information processing, learning, problem-solving, and speech, enabling it to behave similarly to an intelligent human (Jarrahi, 2018; Russell & Norvig, 2010). In this study, AI is utilized as the independent variable influencing the selection stage in recruitment process. Currently, AI is viewed as a powerful tool that can create new opportunities for organizations, businesses, and services, while also contributing to the development of new skills and working methods. It is considered a key driver of innovation and progress.

Reilly (2018) noted that recruitment is one of the organizational functions most likely to experience significant innovation and transformation soon. By 2018, a trend was observed among recruiters adopting AI software and solutions (Upadhyay & Khandelwal, 2018). Since then, AI has emerged as one of the most discussed trends in

the recruitment sector (Upadhyay & Khandelwal, 2018).

A primary reason for AI's increasing presence in the recruitment industry is the intensifying competition for skilled employees. For organizations, reducing the time-to-hire not only signifies an efficiency improvement but also provides a strategic advantage in the competition for human capital (Van Esch et al., 2019; Faerber et al., 2003). These advantages are further supported by AI's capability to process information and make decisions at volumes and speeds that far exceed human capacity (Van Esch et al., 2019).

RESEARCH METHODOLOGY

Data were collected from 17 respondents from NGOs in Kinondoni, Dar es Salaam region. The study used both primary and secondary data collection methods. The collection of primary data involved gathering first-hand information and the use of secondary data sources such as documents and published or internet sources. The questionnaire and interview method were used to generate detailed information from employees, made up of junior and senior staff at the district including Human Resources and ICT Officers. Further, this study employed a purposive sampling technique in which the information was collected from those knowledgeable with artificial intelligence.

The analysis of data obtained through questionnaires was cleared, coded, and analysed with the assistance of Statistical Package for Social Science (SPSS). The use of SPSS depends on the nature of the information collected. Structured questions generate mostly quantifiable information, hence making the use of SPSS more appropriate, and the output is presented in the form of frequencies, percentages, and tables.

FINDINGS AND DISCUSSIONS

Findings

In the recruitment process, the phase of selection is followed by candidate engagement and communication. The study involved HR and ICT officers in both selection and candidate engagement and communication.

Selection

This is the stage where shortlisted candidates are evaluated based on multiple selection criteria to determine the final list of candidates for hiring. The respondents asked if it is effective to use AI at this stage and their findings are presented in Table 1.

Table 1: Preference of using AI tool in selection

Response	**Frequency**	**Percentage**
Yes, It is effective	13	76.5
No, It is not effective	4	23.5
Total	**17**	**100**

Source: Field Data, 2024

Candidate Engagement and Communication

Effective communication and engagement with candidates are essential factors in the selection stage of the recruitment process and significantly affect talent acquisition rates. The respondents asked if agreed on the use of AI applications at the selection phase and results presented in Table 2. The findings revealed that 23.5% of respondent strongly agreed with the use of AI applications on candidate engagement and communication. However, 52.9% agreed, 11.8% were neutral, and 11.8% disagreed.

ISSN No. 2454-6186 | DOI: 10.47772/IJRISS |Volume VIII Issue XII December 2024

Table 2: The use of AI application on candidate engagement and communication

The use of AI application on candidate engagement and communication	**Frequency**	**Percent**
Strong Agree	4	23.5
Agree	9	52.9
Neutral	2	11.8
Disagree	2	11.8
Total	**17**	**100**

Source: Field Data, 2024

Furthermore, the findings in Table 3 revealed that 14 (82.4%) of HR and ICT officers said face-to-face interviews as the best compared to AI-based interviews. In addition, 3 (17.6%) said AI-based interviews as the best. This implies that the face-to-face interview is better than AI based interview.

Table 3: The use of AI on selection

Response	**Frequency**	**Percentage**
Face–to–face interview	14	82.4
AI-based interview	3	17.6
Total	**17**	**100**

Source: Field Data, 2024

DISCUSSIONS

The findings of the study revealed that 76.5% prefer the use of AI in the stage of selection as it is effective. During interviews, several ideas on the application of AI in the stage of selection were noted. Firstly, the use of artificial intelligence (AI) in recruitment considered AI suitable for the selection phase and can be used as a cost-saving measure to replace downsized hiring managers.

However, one respondent said;

"AI assessment in the selection is unreliable, and emphasized the importance of face-to-face interviews during selection in addressing the variability of human behaviour during the selection process. And candidates may be hesitant to participate in interviews conducted entirely by AI and perceived it as an indication of that organization's lack of commitment to invest in selecting the right workforce for the company".

This is supported by Bondarouk & Brewster (2016) said a significant challenge associated with AI-based recruitment is the issue of personal privacy, data handling, and analysis, which raises concerns for both HR professionals and users of online HRM systems regarding data analysis and information sharing.

Similarly, one of the respondent emphasized the need to meet and get to know the candidate before making a hiring decision. Most of the visited respondents agreed that face-to-face interviews are necessary to gain a sense of the candidate's suitability. One of the respondents provided an example of big firms hiring professionals such as auditors, Certified Practicing Accountants (CPAs), and financial advisors and the need for physical selection and not an AI system. In addition, the respondents oppose the use of AI in candidate

selection due to the skills shortage in this area and the limited candidate pool.

On the other hand, during the interview, one of the respondent said:

"Using a combination of AI and human evaluators to enhance the selection process, where AI to be used in the initial stage to collect data on potential candidates, and the insights gathered to verified through human evaluators during interviews to identify the top candidates".

Similarly, one of the respondent responsible for recruiting sales and marketing managers highlighted:

"There are complexities associated with the selection phase and the limitations of AI in assessing candidates for such positions".

However, Stuart and Norvig (2016) highlight several issues that can arise from the use of AI, including job losses due to automation and the potential for AI systems to produce undesirable outcomes. The risk of job displacement due to automation is particularly relevant to recruitment, as many positions are already being replaced by AI programs, potentially leading to increased unemployment. While AI systems are highly effective at identifying talent, there are still certain tasks that require human involvement, such as negotiations, assessing cultural fit, and building rapport (Upadhyay & Khandelwal, 2018).

The study findings revealed that the ideas of respondent provide unique perspectives on whether AI is used in the selection phase. Most respondents said were not included in using AI in the selection phase, and the rationales were based on the different types of assessments required in certain industries and job groups.

For the case of candidate engagement and communication, the study found that, (76.4%) agreed with the use of AI applications on candidate engagement and communication. During interview one respondent said:

"AI could automate certain recruitment activities, such as answering candidate questions, providing updates, and scheduling interviews. Despite the anticipated benefits of using AI in candidate engagement, there is concerns about the potential negative impact on candidate experience".

This is supported by Upadhyay and Khandelwal (2018) said, skill shortages represent one of the most significant challenges in the hiring industry, but AI programs can bypass candidates' names, genders, and ages, which are common sources of bias.

Also, during interview another respondent said;

"Using an AI tool for the first interaction with the company might signal a lack of commitment from the organization thus resulting in a decline in candidate experience".

The other respondent who was responsible for hiring high skills-level candidates, opposed by saying;

"Using AI in candidate engagement at the selection stage of recruitment process must be customized and involve human interaction".

Furthermore, it is worth noting that officers/recruiters, who had experience in managing high volumes of recruitment, did not express similar concerns. This observation suggests that the decision to use AI in candidate engagement is influenced by several factors, including the type of positions being recruited for and hiring volume.

Furthermore, the respondents were asked to state their suitable method of selection between face-to-face interview and IA based interview. The study employed interviews to get more information on the reasons why face-to-face interviews are better than AI based. One of the respondent said:

"The recruiting process's interview phase frequently takes the longest and costs the most money, which raises

hiring expenses and lengthens the process. However, when it comes to selection, I do not think AI is appropriate for the interview stage. Interview-based AI evaluation is unreliable. Before making a hiring choice, it is essential to meet and get to know the candidate throughout the selection process".

The other respondent added that,

"Using a combination of AI and human evaluators to enhance the selection process. It is better and more effective to use AI in the initial stage to collect data on potential candidates, and the insights gathered are verified through human evaluators during interviews to identify the top candidates. This is because AI is not effective in evaluating candidates' behavioural traits, such as politeness, communication skills, and empathy that need through interaction through face-to-face interviews".

The quotation from the respondents revealed that the AI system is the best in the initial stages of recruitment. However, the system is not effective in the stage of selection. The findings of this study is similar to Hewage (2023) who found that, AI is suitable for use in specific recruitment phases such as sourcing, pre-screening/pre-selection, and candidate engagement. However, there is a reluctance to use AI in the recruitment pre-planning and interview stages.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Thus, this study concludes as follows:

Based on the major findings of the study, AI-based HRM systems are useful for accomplishing several objectives, including reducing costs, solving recruiting delays, and effective resource consumption. AI has the potential to increase the number and diversity of employment criteria. AI is probably going to have a big impact on HRM goals including attracting top talent, improving employee retention, and developing leadership potential.

Automation based on AI is bringing to light the fact that staffing agencies can now pursue both high volume and high touch strategies, which results in a more meaningful connection with candidates and clients. This is in addition to the fact that AI-based automation streamlines the matching process. AI assistants may intelligently propose the next step in the recruiting process as they route qualified prospects to recruiters. This might be a useful way to expedite the process. The use of artificial intelligence allows for the identification of those job applicants who are the most qualified to fill a certain vacancy.

The AI tool has the advantage of reduction costs for NGOs as it can automate the screening process, significantly reducing the time and resources spent on reviewing resumes and applications of candidates. In addition, AI influenced an increase in the number of applications, an improvement in candidate matching, simplified application procedures for applicants, an expansion of the pool of available jobs, and an increase in the response rate from the company to gather feedback. Organizations need to use AI if they want to remain competitive, and those who do it first will have a significant competitive edge. In response to the fast development of AI and the competitive advantage, it gives to its early adopters, leadership and recruiting firms have already begun making substantial modifications to their operations.

These adjustments were made to keep pace with the industry. Artificial intelligence (AI) solutions will make it simpler for organizations to acquire access to top talent. Because of this, competition will intensify, and firms and HR managers will need to adapt their approach to recruiting to make advantage of AI. AI has the potential to change the income, profitability, and talent acquisition of firms, which in turn may have an effect on the recruiting sector as a whole as well as the norms of competition. It is crucial to have a firm grasp on the transformative possibilities of automation and AI to successfully absorb incoming talent and, eventually, acquire an edge over other businesses. However, the AI system requires a sufficient budget and appropriate skills and knowledge for both employees and employers.

Recommendations

The Ministry of Information, Communication, and Technology had a great role in creating the environment that supports AI systems. The Ministry had to improve the security of online users. In addition, the Ministry had to reduce the cost of data because the AI system operated online. Furthermore, the Ministry has to collaborate with the Ministry of education on insisting on the application of technology in schools, colleges, and universities.

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