THE APPLICATION OF ARTIFICIAL INTELLIGENCE (AI) IN HUMAN RESOURCE MANAGEMENT: CURRENT STATE OF AI AND ITS IMPACT ON THE TRADITIONAL RECRUITING PROCESS

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Abstract

Screening resumes efficiently and fairly is perhaps the biggest challenge in human resource acquisition. The study sought to analyze current challenges of human resource management practices, determine the current state of artificial intelligence in the recruitment process and to show the pros and cons of the use of artificial intelligence in human resource management using the grounded theory approach. The paper is entirely based on secondary data which were sourced from books, research papers and articles from internationally recognized journals. The study finds that; in terms of the current state of Artificial Intelligence in human resource management, while general-purpose Artificial Intelligence is still a long shot in any area of human activity, the advancement towards specialized AI-systems in health-care sector, automobile industry, social media, advertising and marketing is significant.

Keywords: Artificial Intelligence, Human Resource Management, Marketing, Social Media JEL: J5, M50

Introduction

Screening resumes efficiently and fairly is perhaps the biggest challenge in human resource acquisition. Artificial Intelligence for recruiting entails the application of AI-based algorithms to the talent acquisition process, where machine learning can learn to shortlist an organization's ideal candidate, and also automate simple tasks in the recruiting process. Recruitment process is one of the strategic actions carried out by firms to meet their organizational goals of business growth, expansion, profitability, and sustainability

(Lievens & Chapman 2010). Every organization sets out to solve a problem either by providing products, or services, or both. This defines an organization's mission, vision, and value statements. In order to attain this, there is a need for human labour. Therefore, the process necessary to attract, evaluate, select and deploy human labour that best-fits a particular job description in an organization, is known as recruitment. The choice of a firm's work organization determines the needed workers' skill set. An organization is either engaged in production or in rendering of services or both. These focuses define a firm's job design. Deciding a job design entails outlining the needed job responsibilities and job description in a firm, which in turn define the needed skill set of labour in a firm. Firms engage in recruitment to hire individuals with the required skill set to fill up job roles. These recruitment processes are usually expensive and could be time consuming and tiring if not properly arranged. Thus, firms have adopted artificial intelligence to simplify recruitment processes, get the best competent hands without bias at the most efficient time frame and cost (Yu-Shen et al 2020). There has been a vast progression in business rhetoric in management from big data (BD) to machine learning (ML) to artificial intelligence (AI) (Tambe et al., 2018). However, there has been a mis-match between the rhetoric and reality. The purpose of this paper is to investigate the evolution and use of artificial intelligence throughout time, particularly in the field of human resources management, and to demonstrate the influence of the present level of artificial intelligence on the traditional recruiting process.

Objectives

- to analyze current challenges of human resource management practices
- to determine the current state of artificial intelligence in the recruitment process
- and to show the pros and cons of the use of artificial intelligence in HRM.

To achieve the objectives of this study, the grounded theory approach will be used. The application of AI in HR is a recent development that scholars and professionals are still weighing its merits and demerits on the balance of value and efficiency. Grounded theory is useful for new fields such this. To arrive at an unbiased result, this study employs it (grounded theory approach) to analyze current challenges of human resource management practices; to determine the current state of artificial intelligence in the recruitment process; and to show the pros and cons of the use of artificial intelligence in HRM.

Methodology

The research design of the study is descriptive in nature. The paper is entirely based on secondary data. Secondary sources of data include books, research papers and articles from internationally recognized journals which are listed in the bibliography. This study will be employing a mono-method of qualitative data to study the application of artificial intelligence in human resource management, especially in its recruitment processes.

Literature Review and Data Sources

Bhumika Dutta, (2021) posits that AI has the potential to revolutionize employee experiences in a variety of ways, from recruiting to talent management, by processing massive amounts of data quickly and accurately. This is because AI has a wide repertoire of applications ranging from; talent acquisition and recruitment which significantly reduces the hiring process and time, allowing the HR team to focus on more essential tasks like sourcing, personnel management, recruitment marketing, and other productive activities; orientation of newer recruits where new workers get all necessary information, such as job profile data, business regulations, task assignments, team member information, and so on, via a mobile application or structured information on their PCs; training the recruits in the way of assisting them in staying current by providing information on current technologies and software advancements in the industry. By evaluating the papers and exams, the AI will automatically comprehend and assign appropriate training to the employee; enhancement of employee experience since AI may be efficiently integrated across the employee lifecycle, from recruiting and onboarding through HR service delivery and career pathing, resulting in a personalized employee experience. The study, however, highlighted AI in HR challenges such as; security and privacy concerns; Also according to Oracle's survey, in the workplace, 31% of respondents said they would prefer to engage with a human than a machine; the maintenance of AI since Artificial Intelligence needs constant evaluations and upgrades, making it a time-consuming maintenance procedure. The study concluded that productivity is boosted by AI-based HR solutions if organizations adopt AI solutions that meet their business's needs and are compatible with their company's culture, and create the necessary digital maps.

Singh & Shaurya (2021) investigated the effect of Artificial Intelligence (AI) on Human Resources (HR) practices in UAE companies with the help of mixed-method design. Semi-structured interviews and survey were conducted, respectively for both the study designs. AI and HR personnel were approached as sample participants for this study. Thematic analysis and PLS-SEM (Partial least squares path modeling) were used to

analyze the data, respectively. The findings show that removal of routine tasks and speeded quality were the main benefits brought by AI. Similarly, lack of training and technological readiness were the main challenges. Due to AI, certain limitations make it less implementable in the overall recruitment process and can make questionable outcomes with respect to its validity. AI is assumed to replace administrative tasks in both the recruitment process and HRM in the recruitment activities, which will intervene job applicable factor, and the recruitment outcomes.

Kshetri, (2021) examined the use of artificial intelligence (AI) in human resource management (HRM) in the Global South. The paper explored the roles of AI in expanding recruitment pools. It also advances our understanding of how AI-based HRM tools can help reduce biases in selecting candidates, which is especially important in the Global South. Multiple case studies of AI tools used in HRM in these countries in recruiting and selecting as well as developing, retaining and productively utilizing employees were used. The study found that with AI deployment in HRM, organizations can enhance efficiency in recruitment and selection and gain access to a larger recruitment pool. With AI deployment in HRM, subjective criteria such as nepotism and favoritism are less likely to come into play in recruitment and selection of employees. AI deployment in HRM also has a potentially positive impact on the development, retainment and productive utilization of employees.

O'Connor (2020) enumerated three top applications of AI in HR as 1) recruitment and onboarding – in this case, AI can be used to the benefit of not only the hiring organization but its job applicants, as well. For example, AI technology can streamline application processes by designing more user-friendly forms that a job applicant is more likely to complete, effectively reducing the number of abandoned applications 2) internal mobility and employee retention - through personalized feedback surveys and employee recognition systems, human resources departments can gauge employee engagement and job satisfaction more accurately today than ever before. This is incredibly beneficial considering how important it is to understand the overall needs of employees, however there are several key organizational benefits to having this information, as well 3) Automation of administrative tasks - smart technologies can automate processes such as the administration of benefits, pre-screening candidates, scheduling interviews, and more.

According to Pavlou (2020), some of the benefits of AI in HR include - streamlining hiring and removing biases in recruitment, simplifying HR functions, improving on-boarding process, and developing a more useful training strategy. However, according to this paper, if used too frequently to replace regular human interactions, the technology can also start to make work environment feel distant and alienating and may risk making

hiring and HR processes less useful and more painful for current and potential employees. This, in turn, will hurt employee satisfaction and your company's retention rates. Some other cons associated with over-use of AI includes - introducing machine-generated errors as a result of errors in programming; perpetuating biases in hiring If the initial parameters set up in the program include implicit bias, some instances where AI can't always pick up on important, non-technical nuances for instance, it can't consider things like company culture and values when evaluating job candidates. If decisions are left completely up to AI, you may end up with a pool of candidates who are technically proficient but who won't thrive in your office environment; increased risks to cyber-security. The paper concludes that no technology can fully replace humans. Even those AI-based tools that automate tasks are made by humans and, therefore, prone to errors. However, artificial intelligence does have a place in HR. You just need to remember the keys that will help you take advantage of its good points while avoiding potential dangers. Build and use AI tools with equity and empathy in mind and take proper precautions when it comes to security.

Oracle & Future Workplace (2019) conducted a survey of more than 8,000 HR leaders, managers, and other employees across 10 countries on their attitudes toward and behaviors regarding AI. They found that as many as 50% of survey respondents in 2019 said they're currently using some form of AI at work. That's an impressive jump from the 32% who said this in 2018 survey. Equally striking, people's perceptions of these technologies—and how they interact with them—are changing as swiftly as the rate of adoption. While some individuals still express worry about potential job losses that could come with greater use of AI in the workplace, the study findings suggest that the majority of employees feel enthusiastic about these technologies. Other findings of the study include; Employees are increasingly giving their trust to AI-enabled technologies (the survey shows about 64% of respondents would trust a robot more than their manager); AI is reshaping managers' traditional role, with more individuals making distinctions between what robots do best and what managers do best. That has big implications for how managers spend their time as well as for how companies manage talent and develop future leaders (about 36% think robots are better than managers at providing unbiased information); Also, concerns about the complexity of AI technology (as well as about data security and privacy) present the biggest obstacles to increased adoption of the technology (about 71% of the respondents say security concerns prevent them from using AI at work)

Werner, (2019) evaluated the options of Artificial Intelligence (AI) in Human Resource Management for the Aviation industry. The paper purports AI will transform jobs in many industries in the future. Moreover, as change takes place everywhere and at an increasingly faster pace, the need for organisations to follow up is crucial if one does not

want to be thwarted by competition. According to this paper, automation will take over many jobs and processes will also be more automated, augmented and amplified. It will be exciting how roles in HR will change. AI might certainly replace some jobs, but also new ones will arise. Indeed, the transformation in HR will provide many opportunities for the aviation industry.

Tambe, Cappelli & Yakubouch (2018) used an Evidence-Based Management theoretical framework to evaluate Artificial Intelligence in human resource management. According to this study, the speed with which the business rhetoric in management moved from big data (BD) to machine learning (ML) to artificial intelligence (AI) is staggering. However, the match between the rhetoric and reality is a different matter. The study considered the gap between the promise and reality of artificial intelligence in human resource management and suggested how progress might be made. It identified four challenges in using data science techniques in HR practices: 1) complexity of HR phenomena, 2) constraints imposed by small data sets, 3) ethical questions associated with fairness and legal constraints, and 4) employee reaction to management via databased algorithms. The study proposed practical responses to these challenges and converge on three overlapping principles - causal reasoning, randomization, and process formalization—that could be both economically efficient and socially appropriate for using data analytics in the management of employees.

The perceived and real benefits or AI-based HRM systems: Views of the creators and users of AI-based HRM tools

Recruiting and Selecting	
Harambee's youth employment accelerator CEO Tamera Campbell	"We have secured 2600 jobs for young people since our inception in 2011" (Nhlabathi, 2013)
Zhang Xiuwen, Talent Acquisition Group, DBS	"Candidates used to have a 15% drop off rate but with Jim it's 3%" (dbs.com, 2018)
Max Armbruster, CEO of Talkpush	"We enable recruiters to easily receive valuable input by listening to candidates via recorded audio, video or via a live conversation. It provides a more accurate, human and emotional connection with the applicant." (NEXMO, 2018)
CEO & Co-Founder of AIRA, Gonzalo Sanzana	"We asked ourselves how we could reduce recruiting time from 30 days to 3, with two

	hours [human time per candidate] instead of 20" (Fajardo, 2018)
Eric Fiedler, Chairman and CEO at Ajinga.com	"Our innovative technology allows companies to promote and track their jobs across social media networks. Our system then uses AI to help companies focus on applicants that are a best fit for the company and the job"
Developing, retaining and productively utilizing employees	
Zhao Binjian, a manger of Ningbo Shenyang Logistics	"It [Deayea] has significantly reduced the number of mistakes made by our workers" (Durden, 2018)
Cloda O'Dea, Human Resources Executive at EY	"We set it up in 2 months and fed in Q and A. We were blown away over the course of a month. In the first month, it had answered 1 million questions. They would have gone to the contact centre otherwise." (Brooks, 2019)
Mark Koh, a co-founder and CEO of Supahands	"Our technology also helps us match the right job with the right agent. We have historical data on all our agents, so we know who is good at doing which particular type of work" (Kim, 2018)
Ge Jia, an influential Chinese technology blogger	"This [emotion recognition] technology is still a bit of a gimmick and is unlikely to be rolled out on a large scale in the next 3–5 years" (Wong and Liu, 2019)

Data Culled from Kshetri, (2021)

Findings

AI technology is found to perform well with regard to input efficiency such as time and costs for recruitment and selection as well as in terms of output efficiency such as the drop off rates during the application process Kshetri, (2021). For example, according to Glassdoor, on the average, an employer spends about US$3,900 to hire a new worker and the process takes 27.5 days. With AI deployment in human resource management, organizations can significantly decrease recruiting costs. Talkpush charges a minimum of

US$300 per month, which allows 100 interviews (US$3 per interview). High-volume packages reduce the cost per interview to US$0.50. Also by automating recruitment processes, organizations typically can reduce the time required to hire a candidate from 10 weeks to 2 weeks. The time to shortlist candidates can be cut from 2–3 weeks to almost instantaneous (Strusani and Houngbonon, 2019). Talkpush uses AI technology to hasten the recruitment process and make it more real-time and conversational.

Secondly, AI tools have shown high level of efficiency in the aspect of productivity. For instance, Ajinga connects recruiters, hiring managers and candidates in order to increase applicant conversion rates and better facilitate hiring decisions. The Phenom Talent Experience Management platform is built on AI. It aims to increase personalization, automation and accuracy for candidates, recruiters, employees and management. Phenom People and Ajinga extract and feed insights from career sites and WeChat into the applicant tracking system (ATS). With Ajinga, companies can create a dedicated account that can be used for recruiting and branding. Ajinga uses geolocation data. Kshetri, (2021).

Thirdly, AI tools have also been found to be more efficient in the area of resource utilization. For example, the Chilean company Artificial Intelligence Recruitment Assistant's (AIRA) system publishes vacancy announcements in recruitment websites. It reads and ranks the résumés and uses psychometric tests. It also conducts video interviews with applicants. An applicant's performance is measured with indicators related to emotion analytics. Factors such as attention levels and facial expressions are converted into numeric scores. After these processes are completed, human recruiters conduct in-depth interviews with the best-ranked candidates (Ovanessoff and Plastino, 2017).

AI tools are also expected to perform well in terms of output efficiency. This is important because the application process is reported to have an average drop off rate of 80% (Avature, 2019).

A major limitation observed with the current state of the application of Artificial Intelligence in Human Resource Management is that employees/potential employees are capable of gaming or adversely reacting to algorithmic based decisions. For instance, most applicants already know, for instance, to answer the question "why should we employ you" with an attribute that is not negative, such as, "I work too hard."

Conclusion and Recommendation

In terms of the first objective, some of the current pertinent challenges of human resource management practices include; Recruiting – which focuses on securing good candidates;

Selection – which deals with offering jobs to applicants who will be the best employees; Onboarding – which deals with helping new hires to become useful faster; Training – what interventions make sense for which individuals, and do they improve their performance; Performance management – do practices improve job performance; Advancement – can potential best performers for a new role be predicted; Retention – can we predict who is likely to leave in order to manage the level of retention; Employee benefits - Can the benefits that matter most to employees be identified in a bid to know what to give to whom and what to recommend when there are choices, and what are the effects of those benefits?

In terms of the current state of Artificial Intelligence in human resource management, while general-purpose Artificial Intelligence is still a long shot in any area of human activity, the advancement towards specialized AI-systems in health-care sector, automobile industry, social media, advertising and marketing is significant. However, way less advance has been made in issues surrounding the management of human resources even on the basic first cadre of the AI path, which are decision-making guided by algorithms. For instance, Tambe, Cappelli & Yakubouch (2018) identify four of such reasons why: complexity of HR phenomena, data challenges from HR operations, fairness and legal constraints, and employee reactions to AI-management.

On recruitment, the outcomes of human resource decisions (for instance hiring and firing) have serious implications for individuals and society which borders around fairness – including procedural and distributive justice - are of utmost importance. Nuanced legal frameworks place considerable restrictions on how employers must go about making those decisions. Cardinal to those frameworks is the concern with causation, which is usually absent from Artificial Intelligence algorithm-based analyses

By automating repetitive administrative activities such as personnel reporting and record keeping, HRM professionals can focus more on organizational activities. More benefits will be accrued when organizations move beyond simple, basic automation. For instance, Coca-Cola Vietnam uses Leena AI's chatbot. This cuts 60% of the time of the CEO and the Director. The bots can be integrated with workplace chat apps Slack or Facebook's Workplace. They are trained to use information in policy documents. They pull data from back-end systems such as Oracle and SAP. Kshetri, (2021).

In China, businesses and the military use AI technology to observe employees' brain activity and emotions (Chan, 2018). They place wireless sensors in employees' caps or hats. The data are combined with AI algorithms in a bid to evaluate various emotions such as happiness, anxiety, sadness, and emotion-neutral state. Employers can identify workers' mood shifts, which can help them to take interventions such as changing break

times, the nature of the task, or even asking them to take off time from work in order to increase productivity and profits. Kshetri, (2021).

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