



The Impact of Artificial Intelligence on the Human Resource Industry and the Process of Recruitment and Selection

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Abstract. In the contemporary world, artificial intelligence (AI) is an industry that continues to transform human lives and has a profound impact on business in almost all spheres. Organizations are searching for bright, dynamic, and potential employees to remain competitive in this digital age. Managing the digital world and developing the business environment will require organizations to employ a suitable individual with an effective recruitment strategy. Hence, hiring skilled employees who are experienced and efficient in achieving the job objectives is a crucial part of any organization's recruitment strategy. Artificial Intelligence has a key role to play in recruiting, its ultimate goal is to allow computers to carry out the same work as normally performed by humans. Artificial intelligence functions and reacts as if it were a human leading with incredible speed and accuracy. This study aims at analyzing how Artificial Intelligence (AI) impacts the Human Resource Industry. The study sheds light on the way artificial intelligence is used during the recruiting and selection process. The study finds that artificial intelligence technology capabilities can significantly improve the Human Resource and recruitment process with potential benefits such as increased productivity, reduced costs, improved accuracy, reduced workload, and improved candidate experience.

Keywords: Artificial intelligence · Human resource · Natural language processing · Recruitment · Selection

1 Introduction

AI, also referred to as artificial intelligence is a term that was developed by the computer scientist and mathematician John McCarthy who pioneered the field of artificial intelligence in his published paper "Computing Machinery and Intelligence". He describes it as "Artificial intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs". Which opened a whole new field called artificial intelligence. In simple words, artificial intelligence mimics human intelligence using computers that function in similar ways to human beings by learning, adapting, identifying, and resolving problems (McCarthy 1950).

Organizations are utilizing AI technology to automate repetitive tasks and aid in rapid and more accurate strategic decisions by using predictive algorithms. Recently, a growing number of enterprises have shown interest in implementing AI systems for Human Resource practices, such as recruiting, screening, and selecting candidates. Artificial intelligence technologies are already being used by leading companies to make better decisions and give workers predictive analytics. Organizations equipped with artificial intelligence can successfully compete in the market, and they can also experience operational excellence.

A key aspect of organizational performance is how the organization's Human Resource Management, and manpower impact its results and performance. Therefore, one of the most challenging tasks of the human resource manager is to hire the right aspirant with the requisite skill set to match the job specification and meet the organizational goals and objectives. In order to plan the recruitment pool for new millennials that can fit into their organizations, human resource managers need to identify how they plan to retain and attract new talent and how to assess the strategies, functions, and conditions of their organizations. Artificial intelligence technologies make organizational competence and knowledge challenges more complex and requires a new approach to human resource management. The purpose of engaging humans and machines together in human resources is not to put people out of work, but rather to restructure difficult processes and lead to a radical shift in how organizations recruit people, learn from them, and develop them. It is artificial intelligence, which plays one of the most significant roles in transforming Human Resource functions and has had a positive impact on Human Resource employees, organizations, and people. As a result, the purpose of this research paper is to demonstrate the role of artificial intelligence in improving the efficiency of administrative systems in the human resource industry, and more specifically, is to answer the key question: what is the effect of artificial intelligence in the human resource field? (Garg and Sharma 2021). Therefore, analyzing how Artificial Intelligence affects the Human Resource industry and the recruitment and selection process in organizations as technology has increasingly been recognized as playing a role in the organizations as they deal with enormous amounts of information and data and must embrace technology like artificial intelligence to transform themselves digitally. This reason has led to the advent of AI in corporate management, which has not only transformed the way employees work but has also completely changed business models. Human Resources is no exception to this situation; it, too, must embrace innovative technology (A. Waheed et al. 2019).

2 Literature Overview

Human resources' responsibilities include accepting thousands of resumes, nominating a few, conducting individual interviews, employing the best candidate, and other chores linked to the employee, such as benefits, training, and managing affairs. On average, more than 500 requests for leave, medical insurance, pay information, evaluation, interview results, and other topics are received each day. Artificial intelligence is having an increasingly large impact on all aspects of life and work, including human resource management. Artificial intelligence techniques have made it possible to mimic human

intellectual functions such as decision-making, profiling, learning, problem-solving and evaluation, allowing human resource managers to automate many of their tasks, such as screening the Curriculum Vitae-CV examination and the usage of conversation tools that are very interactive to answer employee inquires. These AI technology free up time for human resources managers to focus on more productive duties, such as motivating employees and enhancing their cultural and creative perspectives, by eliminating tedious manual processes that consume the majority of their working hours. This section includes an overview of the effect of artificial intelligence technologies on the human resource industry and the future view of using AI in the selection process of recruiting. This research will cover the impact and outcomes of using artificial intelligence in the Human Resource Industry and recommendations on how to use artificial intelligence in the recruitment process, and how Humans and artificial intelligence can work simultaneously (Attfield 2020).

2.1 Human Resource Algorithms

Based on a BBC Research, it was found that AI has grown 20 percent per year on average for the past five years, Artificial intelligence is superior to human performance in its capability to do more than one job, advance the Interaction with employees, and quality of hire, However, to create an Artificial Intelligence system, a large amount of data must be gathered, which is tedious, costly, and expensive process. The best way to utilize artificial intelligence is to feed it with neutral data to reduce racial discrimination between employees and bias for any new job seekers, with AI, companies can also narrow their search for qualified candidates by deciphering the answers provided-or to the words and phrases on a resume. For example, looking at the choice of words can reveal any potential bias in the responses or even in the way that the company frames the questions to the candidates. Intelligent systems should be highly secure when dealing with information about both candidates and employees. Using predictive analytics in human resources means using an advanced set of analytical capabilities that includes machine learning, mining data, real-time logging, text analysis, and statistical methods. By creating formulas and algorithms that simulate the results, these analyses can reveal patterns in the data and predict what will happen in the future. All with the goal of allowing managers to make better decisions in order to reduce costs. A decision tree algorithm can also be used to predict business outcomes and candidate performance, which is an easy and ordinary method that consists of tree models consisting of decisions and their possible outcomes. The nodes represent the tests for a specific attribute, the branches represent their outcomes, and decision trees are used to predict business outcomes and candidate performance (Jing 2009).

2.1.1 Natural Language Processing (NLP)

In the field of human resources, the interaction between humans is the main focus of the use of artificial intelligence and for this reason, the use of natural language processing is the main target, which aims to automatically process (human) natural language in a written form by helping computers to interpret, understand and process human language, By using these algorithms, it allows us to handle huge amounts of text, audio, and other

data, in order to perform Artificial intelligence can be used to transform human resource management techniques by automating tasks such as content classification, modeling, context extraction, sentiment analysis, as well as the translation of text-to-speech and speech-to-text. There are still very few organizations able to build predictive models because of a lack of access to HR data and the difficulty in using it. When applying NLP to human resource management, NLP can be employed for forecasting the future job performance of applicants through asynchronous video interviews, together with other AI technologies such as voice analysis, chatbots, and facial expressions. NLP's powers can be employed to automatically evaluate and translate text and implement a user-centered communication and information system (Beysolow 2018).

2.2 Recruitment and Selection Process in Artificial Intelligence

2.2.1 The Impact of Using Artificial Intelligence (AI) on Recruiters

The future of recruiting using artificial intelligence is augmented intelligence. Human intellect cannot be completely replaced with technology. An augmented intelligence approach calls for the creation of technologies that improve human aptitude and efficiency.

2.2.1.1 Hiring The Best Candidates

Quality in recruiting is one of the top KPIs in Human resources as data has become easier to collect, access, and analyze over the years. Artificial intelligence's promise for improving the quality of hiring lies in its ability to use data to standardize the matching between candidates' experience, knowledge, skills, and job specifications. It is predicted that this improvement in job matching will lead to happier, more productive employees who are less likely to leave.

2.2.1.2 Automating High-Volume Tasks Save Time

Screening resumes manually remains the most time-consuming part of recruiting, especially when the majority of resumes are unqualified. A recruiter's time for a single hire is estimated at 23 h for screening resumes and interviewing shortlisted candidates. Automated assessment of resumes, scheduling interviews with candidates, and automating the screening of resumes are some of the tasks recruiters can automate with artificial intelligence for recruiting. AI-powered technology can not only automate a part of your recruiting workflow but integrate seamlessly with your existing recruiting stack so that it does not disrupt your workflow. Automating these aspects of recruiting can reduce time-to-hire, which means you're less likely to lose the best candidates.

2.2.2 What is Artificial Intelligence (AI) for Recruiting Process?

By using an artificial intelligence algorithm, companies can collect more data about applicants, such as information on social media, past work records, and educational background based on the job description. Artificial intelligence may replace traditional methods of screening resumes and selecting a new candidates. As a result, it is possible to reduce the recruitment time by conducting searches that are unbiased or free from bias based on race, gender, or religious stereotypes. In addition to collecting data about candidates. Machines now scan the CVs of candidates and select those who are suitable

for a personal interview for recruitment and qualification. It is particularly effective in the case of large firms with hundreds of employees on a yearly basis. AI uses the blind screening system for CVs to collect additional information such as work skills, culture, and personality data and sends an email with a test that includes questions in the same vein as an In-person interview to determine whether a candidate qualifies for an interview. As part of this technology, names are removed from profiles along with gender, race, age, and other personal information so that only qualifications are compared, which makes it impartial. Artificial intelligence can be used to develop a visual interview assessment tool that analyzes answers to interview questions, word choice, word frequency, eye movements, facial expressions, and other traits. Interview questions can be customized for each job identifying characteristics to increase the chances of the appropriate candidate being chosen for the right job. Some companies also use predictive models for future job performance to know the eligibility of a candidate for a job and the likelihood of him staying or leaving, and these models combine many prediction tools, such as intelligence tests and personality tests (Council 2018).

2.2.3 Impact of AI on Human Resource Employees

Chatbots have recently become popular in the field of human resources to reduce work pressure and time, increase employee independence, and reduce bureaucracy by allowing chatbots to handle both easy and complex activities at the same time, such as answering employee queries and dealing with routine issues. Oracle has introduced a chatbot for the human resources department that can build a virtual preview of an employee's inquiry card, containing his name, address, and contact information, in only a few seconds via SMS discussion. Chatbots are built with advanced natural language processing technology to provide accurate answers in the right direction, and a decision tree is used based on frequently asked questions so that employees can access information with fewer questions, and the return on investment of chatbots for the organization is expected to be quickly realized by reducing reliance on human resources administrators, as other long-term benefits include reduced attrition, and increase employee development, which is reflected in the strengthening of the organization's reputation. Artificial intelligence technology will play a key role in the future ongoing training of the employees and the transfer of talents from one generation to another, so an employee's path with learning and progress does not stop with just getting a job. Honeywell, for example, has developed tools that leverage virtual and augmented reality capabilities, as well as artificial intelligence, to monitor work experience and extract lessons learned for new employees (Marr 2018). Some employees may be wary of AI because they believe it will replace them at work, causing them to lose their jobs; nevertheless, the issue is more of a "reinforcement" than a "replacement." Batter works with technologies that monitor workflow, provide intelligent suggestions, and execute repetitive chores, as an example of how technology may help us do our jobs more efficiently and successfully. AI may absolutely be used to monitor employees at work, and organizations currently use techniques such as sound analysis to identify the amount of tension or anxiety with a primary focus on monitoring and assessing employee wellness. The presence of machines in factories and warehouses has become common, but what is new is their presence in offices, and among these robots

are delivery robots (Segways) that can move through workplace corridors to deliver messages and parcels, as well as security monitoring robots (Gamma) and parking robots (ParkPlus). Each organization has its own set of goals and strategies for investing in AI. Understanding and being aware of these patterns allows individuals in charge of digital transformation efforts to see the possibilities. Then get to work on seizing it (FraiJ and László2021).

2.2.4 Potential Outcomes of AI in the Recruitment and Selection Process

Artificial intelligence saves time by storing records in a way that prevents the same event from being repeated. Spending enough time screening candidate resumes is the standard mode of recruitment. As a result, sifting through resumes is a time-consuming process. AI helps to find the best people for the job, it also focuses on competency-based candidates in order to match them with the suitable position and talent. The process of finding a suitable candidate for the company is completed in a professional manner and the use of recruiting agencies is decreased. AI tools assist in cost reduction and functions in such a way that it uses a large amount of data for recruiting and does unbiased screening and selection. As a result, quality candidates are hired, and Employees receive up-to-date information and prompt responses to their questions, which results in satisfied employees and increased employee engagement. It also aids in lowering staff turnover and rewards those who provide excellent service to the company. The hiring of candidates is done entirely by machines, with no human intervention. Therefore, unbiased screening and applicant selection are possible. AI software aids in the screening and selection of qualified candidates. It aids in the identification of candidates' skills, competencies, and characteristics that are relevant to the position being applied for so that only talented individuals are hired.

2.3 Defining a New Way of Recruiting

Research shows that 75% of hiring organizations do not provide feedback to unsuccessful candidates, while 18% of the rejected candidates stop doing business with the company that rejected them. Active talent searches are still at an early stage. As recruitment costs rise and scarce talent becomes harder to find, screen, and maintain, recruiters must change the rules of the game. Candidates must be treated as customers, and AI-driven People Analytics must make the hiring process - and the information it relies on - more accountable and human-centric.

Through the use of chatbots, the recruitment process can be accelerated, and the hiring cost lowered significantly. Sentiment analysis and computational linguistics have the potential to accelerate, multi-focus, neutralize, and measure the candidate's experience autonomously during the selection process. Candidates' expectations align with those of the teams they might join. Candidate engagement is measured (and predicted) based on the content choices they make on social media. Return on investment of a new recruit can be measured, not only in terms of the organization's ROI in hiring, training, and remuneration, but also in terms of the individual's capability to learn on the job, develop new skills, and his or her social contribution. Achieving digital IQ and EQ in the next phase of People Analytics.

By analyzing the data above, the algorithms develop the ability to understand what is called ‘the unconscious level of information. In the future, autonomy-learning machines will be able to simulate human behavior by assembling and analyzing people’s statements, mood changes, and intentions on social media and other sources of publicly available information. This allows employees’ experiences to be validated on a day-to-day basis. Skills will be scanned at the corporate level every day. Data analysis can also provide important information about which employees are engaged and challenged (and which aren’t) and if there are any indications that social cohesion is at risk. A strategic workforce planning approach like this helps to reduce employee turnover and gives a new dimension to strategic workforce planning. It helps you determine what skills and talents are needed to maintain balance in the workplace and find the right blend between man and machine.

2.4 AI Applications for Human Resources (HR) That Are Available Today

2.4.1 Chatterbot for Candidate Screening

An AI tool assists candidates in engaging themselves before or after applying for positions advertised by the business. Companies operating in the digital economy can connect with candidates using a chatterbot, which is an AI tool. A chat box assists the applicant by replying to questions, and an AI tool asks for comments and required candidate information.

2.4.2 Messaging Systems for Candidate Engagement

Job seekers use a variety of job sites to search for and apply for jobs, but only a small percentage of them return to the application. The AI technology uses automated e-mails or a messaging system to automate the candidate application process. As this automatic data may maintain in communication with the candidate, it is possible that the candidate may respond quickly.

2.4.3 Re-engagement System

Tracking systems for job applications are frequently closed when a job opening closes. However, employing AI technology allows targeting a specific candidate and establishing their level of interest in the position that was applied for, it also makes use of the engagement opportunity to keep track of candidates who apply for a new job opening.

2.4.4 New Hire Onboarding System

After the candidate has completed the application process and all other procedures, he or she will be invited to accept the offer. And once they’ve accepted, there’s a gray area, which usually occurs two weeks before they start working for the organization they want to work for. The new hire onboarding system is said to be an orientation program, It is effective for new hires since it introduces the organization’s policies, procedures, and cultures. All of these formal procedures may be answered by AI tools for candidates, and it can also assist new hires by providing knowledge and resources that lead to current programs.

2.5 Implementing AI Applications in the HR Industry

A Real-Life Examples

Univer deployed HireVue AI-driven assessments with facial and voice recognition software. The company uses HireVue proprietary algorithms that is using words, speech patterns, body language, tone, and facial expressions to determine which candidates are best suited for a particular job. A hiring chatbot created by Mya Systems streamlines recruiting processes at staffing agencies such as L'Oréal, Adecco, Hays, and Deloitte using conversational AI. The Mya hiring process guides candidates from the job search to the onboarding process. Powered by machine learning engineers and NLP engineers, Mya uses state-of-the-art natural language processing and understanding techniques. AI-driven solutions from HireScore can help companies hire and retain employees by integrating seamlessly with their existing HR systems to ensure compliance and security. In addition, HireScore enables large companies to make better hiring decisions by analyzing how they hire candidates and providing unique insights to applicants so that recruiters can focus on those who are the best match for the job. As well, HireScore circulates high-quality leads that were either rejected in previous processes or signed up to receive future job offers from the company. Recruiters and job seekers alike benefit from Wade & Wendy's AI-driven recruitment solutions. Wade & Wendy is powered by a proprietary recruiting conversation system, cutting-edge text parsing techniques, intelligent workflow automation, and a robust knowledge graph that includes conversational utterances, linguistic logic, and information about job seekers, candidates, and job positions. Hiretual provides a comprehensive set of AI-powered solutions for the majority of recruiting needs. With Hiretual, you can integrate more than 30 Applicant Tracking Systems (ATSs) in one seamless workflow, sync candidate activities, and manage duplicates all in one place. The solution is backed by smart business analytics and industry-standard security and compliance measures. Virtual recruiters and advanced analytics tools provide a safer and more transparent selection process, breaking ties with inconsistent and laborious methods and advancing to a modernized, digitalized HR process (Ribeiro 2020).

3 Conclusion and Future of AI in the HR Industry

It is undeniable that artificial intelligence plays a critical role in optimizing recruitment techniques. Artificial intelligence solutions relieve the load of tedious and time-consuming repetitive processes like sourcing and screening applicants. Such leverage will greatly reduce the cost of hiring while also boosting the quality of recruitment. Furthermore, Artificial intelligence will increase transparency in the hiring process, eliminate human biases, and improve job seeker impressions of employers, enhancing the image and brand of employers. Artificial intelligence's role in recruitment and selection will undoubtedly grow as a result of all of these potential benefits. Artificial intelligence (AI) is a technology that can function as intelligently as a human brain in a variety of settings. When compared to traditional recruitment approaches, it garners more attention and relevance in automating recruiting systems. All organizations must work on recruitment as a primary activity. Now, the recruitment sector is gaining traction by using a smart approach to hiring, namely, artificial intelligence-assisted hiring.

Moreover, several industries are paying attention to the changes in the recruitment process. AI technology has a significant impact on recruiting since it allows recruiters to align unstructured candidate data, create uniform profiles, and find and match skill sets required by the sector. Recruiters believe AI technology is competing with them for recruitment activities in today's world. However, it is human-built software that makes the process go more smoothly. To summarize, AI's role is a combination of humans and AI that leads to data upkeep, cost and time savings for enterprises, and access to the entire recruitment process (Gawdat 2022). AI will help us to do more in less time. Therefore, it is not AI versus humans, it is a combination of AI and Humans versus problems.

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