

THE ROLE OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT

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Abstract: Human resources (HR) managers are among the industries in which IOT is ongoing to have a big influence. The HR manager is in charge of identifying and employing the most qualified applicants for a place, and use of AI in HR can significantly influence recruiting and HR management procedures. The automation of repetitive process, such as artificial intelligence on human resources, has the biggest impacts. The efficiency of the candidate screening procedure can be increased and the possibility of human error decreased with software solutions that rely on machine learning algorithms and data analysis. Examining the advantages and disadvantages of artificial intelligence for human response is the aim of the paper.

Keywords: Artificial intelligence, Human resources, positive side, negative side, management

Introduction

Artificial intelligence strives to imitate all cognitive capacities of humans, such as learning, reasoning, language understanding, planning, rational, pattern appreciation, and other human abilities (1). HR managers can benefit from software solutions that analyse language and emotions. Candidates according to certain attributes and competencies needed for position. Regarding use of IOT in HR to confirm a fair then impartial hiring process (3), for instance, Software tools that study language and emotions can assist HR managers in evaluate a applicant understanding and incentive, which can be vital during selecting the best individual for the company. (2).

But there can also be a lot of difficulties and issues when implementing AI in HR, a few errors in software tools could result in candidates receiving unfair treatment due to their gender, ethnicity other characteristics. Employers have to educate himself on the ethical issues around the use of AI in HR in order to ensure a fair and unbiased hiring process.[3].

More about artificial intelligence

Artificial intelligence (brain modeling), computer vision (object acknowledgement, image processing), robotics (intelligent oversight, independent explore), language processing (speech development and), normal language processing (mechanism transformation), and evolutionary computing (genetic algorithms, genetic programming), and others are among the subfields that have previously contributed to the development of artificial intelligence. quantum computing, plausibility modeling, and systems (teaching systems, decision support systems) [4]. The total population flow and increase will eventually require new novel patterns that arose at the beginning of the new century. [5].

Individuals come across the concept of digitalization on a each and every day basis in their everyday lives [6]. Even though artificial intelligence (AI) has already significantly impacted every facet of contemporary life, many individuals are still unaware of what AI genuinely means. In essence, artificial intelligence refers to technology's ability to replicate human abilities such as learning, reasoning, and organizing; as a properly It may therefore react to client requests and predict their future AI concepts and tools are used in a variety of ways such as a voice operations on smart phone devices (Siri, the digital assistant with iPhone , technology),recommendations for each customers next best purchase, the best roue to take (excluding those with significant delays),facial recognition (automation of biometric),parking services (amplified Packing) ,and many more.[7]

The Competent of these modern technological devices in day-to-day life seeks prior shift task execution from people to smart electronic devices, enabling us to do employment much more quickly and easily. This gives client more free time during the dawn and eventually improves the lifestyle. Also, it is impossible to discuss artificial intelligence without mentioning some of the most commonly used terms associated with the subject, such Big Data and the Machine-to machine [8]. IoT is subsets are shown, and further details will be given about

Additionally, when addressing artificial intelligence, it is impossible to avoid bringing up some of the furthestmost famous terms related to the subject, alike Big Data and industry 4.0. [8]. Subsets of artificial intelligence are displayed, and further information will be provided about

Internet of Things (IoT) – Through the use of dector, application, program the Internet of Things (IoT) idea allows smart devices and people to communicate with one another. What is meant by all of this? As an illustration, a smart watch may be the The Internet of things devices (IoT) is a idea that uses sensors, software, or applications to allow smart devices and people to communicate. What is meant by all of this? The most complicated way to understand this problem could be to use a electronic watch as an example. The results of the activity being studied can be promptly provided by this device, which can process the data gathered on the user's movement speed. There is minimal difference between the ways that different apps are used on modern smartphones. [9By wirelessly absorbing data and further processing it, an individual can receive reports that are updated in real time based on exactly processed data. In addition, there are numerous other well-known instances of IoT technology utilization, like the sending of feedback after detecting specific occurrences using the concept of sensors, These include Smart CTV, dector systems, and other devices from this well-known technology sector. 10].

Big Data- As stated to the IOT concept's explanation (Large scale Data Vs; Volume, variety, Velocity, , Value), artificial intelligence it can develop and Analyze data in a wide range of forms and refers to predict and carry outreach user's next action. Big data gathered and tailored for a particular purpose; artificial intelligence is likely the further action in the evolution of digital day to day.

According to the IOT concept's description (Bigdata Vs: Volume, Variety, Velocity, Veracity, Value), artificial intelligence is able to anticipate and execute each user's next action through the data processing and analysis of data, which can capable to take many different forms or quantities. Big data is the most effective approach to gather and reroute a significant amount of data in a world where there is already an excessive amount of it. Perhaps the further in the evolution of digital daily life is IOT, which is based on data collected and customized for a given application.

Furthermore, a significant step forward for digitalization is the existence of technology that can communicate in real-time with data from Internet of Things devices and, using that information,

recommend or automatically perform actions that have, until now, mostly been performed by human beings.[11]. The presence of technology that can communicate in real -time with data form Internet of Things devices and, on the basis of that, recommend or automatically perform actions that have, up till now, mostly been performed by human is also a significant step towards the future of digitalization. [11]. Employed with different information types—like text, sound, or images—offers the possibility of a successful technological combination of Bigdata, IoT, and AI in addition to creating new application opportunities. Business intelligence: In the context of cutting-edge

Business Intelligence -When discussing cutting-edge technology, it is necessary to Business intelligence (BI) is additional popular tendency in the current corporate space is pursuing. The new field of smart is known as business intelligence is primarily carried by larger companies with distinctive management systems [12].

These companies' expanding activities directly increased the amount of data they had access to, and using to put it simply, future work and organizational development requires BI technologies, orts with information that could change the management decision-making process as a whole. Users may use these technologies in their applications if they want to foremost business and decision-making. Yet, in order to completely understand this concept, the user needs to have a particular level of database and Excel understanding [13]. Data from massive databases is gathered, processed, and analysed by Microsoft's power BI tool, which then generate the report needed to enhance the management system of the company. In addition, this tool is the most widely used service in the business intelligence a system and its use and efficacy are increasing each day. By combining information from many sources and emphasizing areas that need more attention and effort, this program helps the user to build a comprehensive image of the company.

Human resource management as a process system

Frist it must define employee procedures in completely comprehend the wide variety of AI applications used in HRM, even when some procedures are task-oriented. Or transactional, others are logical in nature, needing data analysis to make the best business opinon. Though in distinct ways, AI can be applied in both scenarios. Consequently, particular objective and scope will be carefully considered and extent of AI implementation in existing HRM systems (including web applications, big data systems, and information systems) [14]. By creating, carrying out, and monitoring policies that regulate employees [14] By developing, putting into practice, and overseeing rules that govern employee relations the business, human resources management aims to generate the effective use of organisational human resources

According to the authors Comarkovic et al., who investigated the issue of integrating AI into HRM systems, management in AI development should be segmented according to distinct goals, specifically [15]:

- line with social objectives—that is, as deeds that respond to ethical and social obligations, including lawful issues like equitable access to freedom and remuneration, among others.
- Based on quality policy , this approach ensures business efficiency, including training, equal labour distribution, and employee retention.
- in accordance with functional goals, or the rules that are utilized to keep the organization's human resources operating as intended.

- Based on each worker's unique goals and the resources used to further their career, such as maintaining employee engagement and encouraging personal development.

Development of the human resources management system

Gartner (2022) lists SAP ERP, Microsoft Dynamics 365, Oracle ERP, Sage, and others as some of the best information solutions available [17]. On the other together, many human resource management procedures are included in the human resource management module of the ERP system. SAP HCM (Human Capital Management) includes sub-modules including payroll, time management, people management, organizational management, and travel management, among others. SAP is currently improving its core business operations through the use of artificial intelligence, specifically machine learning algorithms.

Human resource analytics have been included into HRM with the rise of analytical information systems called Business Intelligence (BI) systems [18]. A data warehouse (DW), a unique type of database, serves as the basis for [19]. Examining historical data as well as Online Analytical Processing (OLAP) cubes and other multidimensional queries are two tasks that DWs are intended to handle. A new kind of application software has emerged as a result of IoT and Big Data, which can process vast amounts of data in real time across several media (text, audio, video, and image). These days, IoT devices and the internet create enormous databases that require new technology to process.

An application that processes data for HRM and has a database called a "Data Lake" is referred to as a "HR Big Data system" [20]. The entirety and power of big data are assessed by using specific algorithms based on real-time machine data from numerous sources housed in specialist computer clusters to visually represent it to the user. As a result, data science includes all aspects of data collecting, cleaning, and normalization in addition to dimensionality reduction and machine learning techniques. However, the newly developed HR online and smart solutions that are based on machine learning frequently exclusively focus on one HRM process [21]. A brand-new database category known as Data Fabric was created in 2021, enabling any data to be handled, processed, and stored in accordance with user specifications. The most recent developments in machine learning techniques, including so-called deep learning (a group of artificial neural networks), made this possible. (blockchain algorithms).

Advantages and Disadvantages of AI in Human Resources

Machine Learning in HR has the potential of improve hiring efficiency and accuracy while also helping Human Resources managers choose a best applicants for a specified position. Maintaining a fair and unbiased hiring process requires understanding the challenges and ethical artificial intelligence-related problems in human resources [22]. Additionally, AI can help HR managers by optimizing workforce scheduling. AI can use workforce data to predict future labor management and hiring needs, improving resource allocation and reducing costs [23]. Two of the main advantages of implementing AI in HR are speed and efficiency. Software technologies can process large data sets quickly, providing HR managers with the information they need right away. Consequently, HR managers might

make choices based on relevant data, which could lead to improved results [24]. Artificial intelligence can also improve the staff training process. By using data analysis software solutions, HR managers can identify the most effective training methods and tailor them to the particular requirements of their

employees [25]HR managers can also benefit from artificial intelligence in terms of coordinating and tracking employee performance. Computer programs that examine employee performance data can identify problem areas and provide HR managers with the information they need to develop successful improvement plans. Artificial intelligence in HR can lead to a number of issues, such as a lack of human connection throughout the employment process or rigid criteria used to select candidates. Furthermore, the automation of monotonous tasks may cause some workers to fear losing their jobs. [26]. Consequently, it is critical for HR managers to comprehend that the human element in HR cannot be entirely replaced by artificial intelligence. Decisions that impact people and their growth inside the company still require human interaction and decision-making.

While AI can be a useful tool, it shouldn't be the sole method of decision-making [27]. In any increasing, the application of Machine learning in human resources is becoming more and necessary as companies look to reduce expenses and boost productivity. Consequently, it is essential enable HR managers to develop strategies for efficiently utilizing this technology by understanding the advantages and challenges of implementing artificial intelligence in HR. [28]HR managers need to educate themselves on data analysis and software tool usage in order to effectively use artificial intelligence. They should also focus on developing skills that AI cannot replace, such as communication, emotional intelligence, and human factor decision-making [29]. Artificial intelligence in HR has a lot to offer businesses in the long run, but it is imperative that HR managers employ this technology wisely and cautiously. Human resource management continues to be an important role that requires complex decision-making and interpersonal communication [30].

Artificial intelligence is a useful tool for productivity gains, but it must not only be the exclusive approach to managing HR . A significant change in the way human resources are managed has occurred with the introduction of AI in HR. Artificial intelligence can help HR managers improve hiring, performance management, personal administration, employee development. [31]It is imperative in HR managers understand a benefits that challenges of using machine learning in HR and be able to implement it as effectively as feasible. When it comes to making decisions that affect employees and their ability to progress within the organization, artificial intelligence should not replace humans, even though it can be a useful tool for boosting productivity [32].

Is the artificial intelligence a threat for employees?

Indeed, artificial intelligence has had an impact on modern people's lives and position, if we take into account everything that has been written about it, HR management, and human resources in general Artificial intelligence will simultaneously reduce the requirement for human resources within a business, atleast in particular sectors.

33If we acknowledge everything that has been written on human resources generally HR and artificial intelligence , and human resources in general, we may conclude that it has had a substantial impact on modern man's life and work. Although AI offers many advantages, it may additionally be a risk to employees since, at least in certain industries, if more jobs are automated simultaneously, less human resources will be required within the organization [33]. The irrationality of job losses resulting from the use of AI in the workplace is illustrated and commented upon by the Microsoft Company. In particular, the declaration that the ethics and society team of the artificial intelligence business had lost its. he layoff was one of ten thousand that the company had to make in the first few months of 2023. The researchers even developed the role-playing game "Judgment Call" to help them foresee what artificial intelligence would do. The threats posed by artificial intelligence were also identified by them

[34]. In 2020, there were about thirty experts on the team, including designers and engineers. By the time October 2022 arrived,

[34].The team consisted of approximately thirty professionals in 2020, including engineers and designers. When October 2022 rolled around, there were only seven workers in this industry. The director and chief engineer put tremendous pressure on the company to use the newest Open AI models and those that would follow, and to provide them to the Mallet's clients right away. According to team members, Microsoft was committed to providing VI tools ahead of the competitors. Result the ideal balance among the advancement of technology the defense of human rights is so dynamic. The suggestions expand on the work that the Council of Europe has already done in this field, particularly through the Guidelines on Artificial Intelligence and the European Moral Contract on the use of AI in the judiciary.any AI created in the commercial sector that is intended to work with public entities or services must be held to the similar standards as that created in the public sector [35].

Conclusion

A deeper understanding of modern technologies and all the advantages they offer can significantly aid in their application, given that they are the only means of enabling ongoing expansion in the social and commercial spheres. technologies, in a clever and "human" manner. It is reasonable to believe that artificial intelligence will continue to have a outstandingly impact on the advancement a modern civilization, wealth , and society. It has many benefits, but it also has risks and hazards. In order to meet this issue, human resources must develop procedures for managing highly dangerous AI systems while upholding the highest standards of human rights.

References

- Cheney, N., MacCurdy, R., Clune, J., & Lipson, H. (2014). Unshackling evolution: Evolving soft robots with multiple materials and a powerful generative encoding. *ACM SIGEVOlution*, 7(1), 11–23.
- Best. (n.d.). *Primena veštačke inteligencije u svetu dizajna* [Application of artificial intelligence in the world of design]. Retrieved April 27, 2025, from <https://best.rs/vesti/primena-vestacke-inteligencije-u-svetu-dizajna/>
- Coppin, B. (2004). *Artificial intelligence illuminated*. Jones and Bartlett Publishers.
- Ilić, B. (2019). *Sustainable business in modern technologies: Contribution to modern economy*. Faculty of Economics–Prilep, University “St. Kliment Ohridski”–Bitola.
- Samoobrazovanje. (n.d.). *Noam Chomsky – život i stvaralaštvo kroz kreativnost i kritički pogled na svet* [Noam Chomsky – life and creation through creativity and a critical look at the world]. Retrieved April 27, 2025, from <https://samoobrazovanje.rs/noam-comski/>