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A REVIEW OF INDUSTRY AND AI IMPACT ON HUMAN RESOURCE MANAGEMENT

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ABSTRACT

It is crucial to build an institution on strong foundations if you want it to be durable and institutional. It is obvious how vital competition is when looking at the market conditions of today. To boost their ability to compete and remain in the market, organizations must allocate the proper resources to the appropriate investments. The human resource management (HRM) division has also started the digitalization process in this regard. Artificial intelligence (AI) has helped the human resources (HR) department's digitization phase advance significantly, especially in the recruitment process. The process of calling candidates and placing the qualified candidates results in a loss of value for the organization because it requires choosing the best candidate from among hundreds or even thousands of applications. Because evaluations using AI technology may be done without losing money or time, they can be used to available jobs inside the organization. As a result, the AI technique ensures that interviews are handled swiftly and affordably during the hiring process. Additionally, AI makes it possible for the HRM unit to carry out a number of tasks efficiently, including training, orientation, and career planning. The current study uses a literature review to attempt to explain how Industry 4.0 and AI are affecting HRM procedures

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1. INTRODUCTION

The author [1] claims that human beings are always evolving. With each new day in this process of constant evolution, new needs appear. Technology, information management, and information development evolve in response to these needs. Many institutions may now thrive, expand more quickly, and run their operations effectively by adapting to changing technological requirements. In this study, it was intended to raise awareness among Turkish decision-makers and shed light on their situation by outlining the current state of the country's pistachio output. One of the most important organizational structures in an institution is its human resource management system, which allows employees to mound their skills, competencies, behaviors, and attitudes towards accomplishing organizational goals. As a result, when corporate managers create practices in human resource management, they seek to study and build the employees' capacity for information management within the organization. Human resource management techniques are therefore crucial in knowledge-based economies [2]. The use of artificial intelligence and Industry 4.0 in the human resources division of businesses and enterprises has enabled them to regulate their managerial and operational processes, increase efficiency, and decrease costs. This is due to the fact that institutions now have a greater need for smart automation technologies. The current study will make an effort to define the terms "Industry 4.0" and "artificial intelligence" and show how these concepts affect human resource management. Review of the literature on Industry 4.0's effects and human resource management on artificial intelligence addressed the recent findings. These studies are summarized in Table 1 [3]. Numerous research showing that Industry 4.0 and artificial intelligence will play a significant role in the field of human resources in the future and can perform the tasks required by

the majority of HR applications have been found in this literature study [4].

2. RECENT WORK

	PAPER TITLE	SUMMARY
[5]	Applicat ion of Artificial Intellige nce in Human Resourc e Manage ment Practices	This study looked into the interactions between AI and various HR duties and how they relate to them other. The findings of the investigation revealed a beneficial relationship between several elements, such as innovation and usability, proving that AI influences both elements.
[6]	Artificial intellige nce reshapin g human resource manage ment: a review	The goal of this study was to show how AI is changing the field of human resource management by reviewing the papers of several well-known specialists.
[7]	Artificial Intellige nce based Strategic Human Resourc e Manage ment (AISHR M) for Industry 4.0	The current study looked into HR 4.0 in terms of technological adherence. According to reports, incorporating AI in organisations' hiring, screening, interviewing, and training procedures would have considerable advantages. The researcher then outlined how integrating AI in human resource management procedures would maintain an

[8]	What is Machine Learning ?	organization's competitive edge and transparency. In this study, the author defined machine learning and its sub-concepts, including supervised learning, unsupervised learning, semi-supervised learning, reinforcement learning, and intensive learning, on the basis of the assumption that the use of ML management would increase as the industry underwent change.
[9]	The Effect of Technology and Artificial Intelligence in Human Resources Management	The current study reviewed the literature and discussed how AI and technology are affecting HRM. It was discovered that implementing artificial intelligence into organisations helped identify the best candidates, particularly during hiring procedures, and create a system free from bias.

2. Pervious Approaches

The business environment in which people and machines are connected to one another by real-time data and which is fed through a digitized value chain is referred to as Industry 4.0, also known as the Fourth Industrial Revolution. By fostering a business climate where computers that can think like humans will replace workers on the labor market, Industry 4.0 aspires to create systems that generate data with a high level of automation [10]. Figure 1 illustrates how many technologies are interconnected with human and machine operations under Industry In 1956, McCarthy et al. made the first mention

of artificial intelligence. In general, AI mimics how the human brain functions by translating it to the computer environment. Due to artificial intelligence's capacity to learn, generalize, find, and deduce new information, complex relations can be analyzed very quickly and efficiently. Through the use of AI technologies, humans are able to think more creatively and intelligently than ever before. A growing number of sectors, including finance [11–15], speech processing [16], natural language processing and production [17], and human resource management [18], are successfully utilizing artificial intelligence applications. As seen in Figure 2, there are really just two parts to AI. Therefore, understanding the principles of deep learning (DL) and machine learning (ML) to make sure that the idea of AI is properly understood. Pattern recognition and numerical learning are two components of machine learning (ML), one of the subfields of artificial intelligence. In order to ensure the structural development and examination of algorithms with the capacity to make predictions using data, machine learning (ML) represents a system that can learn. Instead of blindly following and executing ordinary programmer commands, the algorithms work by constructing a model to produce data-based predictions and decision mechanisms in line with the information from the model data inputs [19]. To quickly explain machine learning ideas; supervised education: It involves gathering information from systems that communicate with one another and placing that information in a specific order. Unsupervised learning involves looking at data from systems whose interactions with one another are being studied in groups. R has not yet been identified and classified. Unsupervised and supervised learning are combined in semi-supervised learning. In other words, it is a way of learning that makes

use of both huge data and unlabeled tiny data. Reinforced learning involves the instructor classifying the data gleaned from the system's operation as true or untrue [20]. Deep learning (DL), a model built in 2006 on the AI approach, is currently widely applied to the fields of sound and picture processing. In terms of architecture, it features a multi-layer structure that allows it to host a lot of secret information. Deep learning allows the model to automatically learn and summaries pertinent data as the network carries data. The term "deep" refers to how many layers are present in the network; as a result, the depth of the network rises as the number of layers rises [21]. When ML and DL technologies are contrasted, it becomes clear that although deep learning operates in multiple layers simultaneously, machine learning operates in a single layer. A single process outcome is attempted employing various machine learning algorithms simultaneously while taking into account the size and complexity of the system. For instance, we must divide the images of Mars and Earth, two planets. In machine learning, we should give the computer access to the knowledge that humans have amassed up to this point. with [22] parameters. With a hypothesis statement, the characteristics of these planets are attempted to be presented to the system. We must add numerous parameters into our system, such as the fact that there is water to indicate that it is likely Earth; the colour orange to indicate that it is likely Mars. DL can, however, independently figure out how these parameters differ from one another. So, DL is capable of learning on its own. The deep learning system develops its own rules, reveals the differences between these images, and recognizes distinguishing aspects, such as colour and shape, if we just introduce images of the Earth and Mars to it. As a result, the system can carry out its tasks by developing its own unique capabilities without the requirement for fundamental human abilities [23]. The researcher [24] contributed to the advancement of the field of learning evaluation, which played a central role. It is important to highlight that two organizations, namely the International Educational Data Mining Society and the

Society for Learning Analytics Research, initially spearheaded the efforts in establishing reliable assessments in instructional design. During a similar timeframe, the drivers and challenges behind learning evaluation studies were also identified and addressed.

4. DISCUSSION

Industry the rise of the Y generation in the workforce, and the integration of generation Z into the workforce have hastened the adoption of digital business solutions in human resources. The human resources industry has undergone such a shift that digitalization is now essential, leading organizations to move their human resources operations to digital platforms. For instance, the Great Place to Work Institute recognized Vodafone Turkey as deserving of special prizes in the categories of "Diversity" and "Digital Transformation in Human Resources" for its breakthroughs in education and digitalization of development programmers. Since 2015, it has been noted that Vodafone Red Academy Learning Centre, working with 3300 Vodafone, 7500 dealers, and other partners, has successfully reached a target audience of about 29,000 people. 18,000 workers at sub-dealers. Through numerous applications, including the orientation programmer Discovered, Leadership and Talent Development Programmed, Specialization and Functional Development Programmed, and Strategic Development programmers, it consistently supports the professional growth of its workers using digital technology. Another example is the "Over Sea (DenizAşır)" programme, which was used to introduce online internships in Turkey for the first time. The fact that Deniz Bank won the "Most Innovative Human Resources Technologies" award in 2017 with the aforementioned programmer it established demonstrates the

significance of digitization [25]. This highlights the critical role that digitalization plays in human resources on a worldwide level. Artificial intelligence, which has begun to appear in practically every industry, plays a major role in human resource management. applications of artificial intelligence in The institution's administrative personnel has less work to do thanks to human resources, which may also choose the best individuals for each position and task [26]. Industry 4. Effects on Human Resource Management Institutions should adapt their organizational structures in Industry to promote innovation and learning, including performance evaluation, compensation, personnel, and training procedures. In this regard, it should be assured that new manufacturing capacities are generated, allowing businesses to expand and renew their resource bases [27] in order to respond effectively to rapid technological advancements. Development of Performance The performance evaluation system must support learning and innovation in Industry. Therefore, the institution should focus on employee career development, behavior-based methodology, and result-based strategy. For personnel's They must be routinely updated on their performance in order to maintain motivation. Additionally, the availability of quantitative performance evaluation matrices is crucial for conducting an objective evaluation of performance. The institution's performance standards should be standardized, and the institution's expectations of its employees should be decided upon and communicated to them. It is defined as measuring actual performance, contrasting actual performance with the standard performance criteria, assessing and discussing this issue with personnel, and launching corrective actions as necessary [28]. Compensation: One area where digitization in human resource management is shown in compensation is the payroll system. Payrolls are computed using legal guidelines, as may be seen by looking at the payroll calculation system. Suppose that calculation Payrolls that have been

authorized and stored digitally can also be archived. The importance of the corporate portal grows as human resource management becomes more digitalized. One of the better examples we can provide is the TofaşGo project created by the Tofaş Company, a pioneer in many industries in Turkey. The Tofaş Company developed a corporate mobile and web platform for this project that brought all of its employees under one roof [29]. Personnel: Institutions must improve their hiring practices since hiring the wrong person for the job and the mistakes that person will make there will cost the institution a lot of money. Therefore, using psychometric tests, institutions should concentrate on assessing candidates' innovative behaviors and their openness to innovation. throughout the selection of candidates. As a result, the institution builds a strong foundation for its staffing system. Other factors that organizations should take into account and measure during applicant interviews include creativity, flexible thinking, active imagination, intellectual curiosity, and openness to new experiences. By taking these factors into consideration when hiring workers, the institution's employees will be able to adapt to Industry advances more readily [30]. One of the most significant advancements in the staffing process is the application of artificial intelligence with Industry Artificial intelligence technologies used in these procedures ensure that they are completed more quickly and inexpensively. The Mya Artificial Intelligence Recruitment Assistant is among the most remarkable examples now in use. Applications submitted by institutions utilizing institution. Finding the ideal employment applicant from this database would require a lot of time and effort on the part of the organization. Artificial intelligence filtering features are particularly useful

in this situation. Because of this aspect of artificial intelligence, the institution rejects the majority of applicants, saving time and money that could have been used for other steps. Another impact of artificial intelligence on this process can be seen in the examinations and interviews conducted prior to contacting the HR unit and adding any workload to this unit [31]. Mya chatbots are a good illustration of this. This chatbot was developed by the enterprise and innovation company Mya Systems. It interviews job applicants online, and once the interview is over, it sends the applicant a notification. the candidate is given a score in the Mya application system, and this report is uploaded to the system. If the candidate has managed to impress Mya as a consequence of this report being submitted, Mya makes sure that they meet with the human resources recruitment unit to start the remaining steps of the process. Additionally, it makes sure that the essential details are communicated to the employee candidate throughout the recruitment process. Mya, one of the most popular pieces of software used by human resources departments of medium- and large-scale organizations, helps the institution save time during the hiring process by 70% [32]. During the Recruitment Period in the Educational Process: For a new hire to settle into the job and acquire the business culture, orientation training is crucial. policy, too. With virtual assistants, artificial intelligence's effects in this area can be seen. Virtual assistants can offer advice to new hires throughout the orientation process and use a variety of analysis tools to evaluate test results assessing the efficacy of the training employees received during the orientation programmer. These evaluations allow for the identification of the employee's performance strengths and deficiencies, which are then reported to the human resources department. The activity analysis of the training that the newly hired employee got throughout the orientation programmer is carried out by virtual assistants [33]. Virtual assistants carry out these assessments by requesting information from the user regarding the training they

received, the instructor who delivered it, the classroom setting, and the materials they utilized. employee. Thus, the human resources department automatically conducts a satisfaction survey regarding the training it provided after each training organization. As a result, a more methodical data analysis is carried out, unneeded expenses are cut, and training process delays are also decreased. In this situation, the personnel working in the human resources unit can devote more time to employees' problems, such as pay, family issues, social activities, communication, talent management, etc., and as a result, the employee will feel a stronger sense of loyalty and belonging to the organization [34-36]. Commitment of Employees: Many IT firms review all e-mail correspondence and internal communication site correspondence of their employees before a particular date, evaluate the sentences made by their employees, look at the words and emoji used, and issue warnings. the human resources department regarding employee commitment, provide recommendations tailored to the concerned individual to strengthen his or her commitment, and can provide a report [37]. Fifth Conclusion: Every product or service in the human environment changes as a result of technological advancement. Businesses that can adapt to the change will survive, while others will gradually lose market share. Organizations that wish to thrive must priorities their staff along with their clients, goods, and services. This is a fact that cannot be ignored. The best employee who can benefit the organization can be chosen and trained by a human resources department that is properly positioned and organized. On the other hand, the opposite circumstance could spell disaster for the company [38].

4. CONCLUSION

Given the growing human population, industry 4.0 and artificial intelligence technologies have established themselves as some of the most crucial tools for integrating AI into human resources activities within an organization and identifying qualified job candidates. However, employing a technology devoid of human preconceptions is advantageous for both the company and its staff. Although there are currently only a few effects associated with artificial intelligence, it is obvious that this technology will develop and advance throughout time. This technology, whose limitations we have yet to overcome, could one day set the groundwork for the idea of autonomous human resources.

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