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The Role of New Technologies in HRM: Productivity Gains, Ethical Dilemmas, and Strategic Implications[1]

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ABSTRACT

Purpose - In the contemporary era, all organizations are affected by technological developments. Organizations that are able to integrate new technologies, including artificial intelligence (AI), into their processes can gain a competitive advantage. In today's fast-moving landscape the strategic use of AI and other emerging technologies in human resource management (HRM) can enhance HR's role in overall organizational performance. The present study examines the impact of new technologies on the efficacy of modern HRM activities.

Design/methodology/approach - This study uses a qualitative research design based on a phenomenological approach to explore HR professionals' experiences with AI and other current technologies they use. Semi-structured interviews were conducted with eight HR professionals and managers from various organizations. The research aims to understand participants' perspectives on how AI and digital tools are reshaping HR functions today.

Findings - The findings indicate that adopting new technologies, including AI, in HRM have the potential to enhance efficiency, optimize decision-making processes, and reduce error rates in recruitment and performance appraisal. The study also discovers that a comparison of Turkish firms' AI governance practices with global trends reveals a shift towards efficiency over ethical considerations.

Discussion - This study highlights the transformative role of new technologies, including artificial intelligence, in HRM, signaling that they improve efficiency, decision-making and workforce productivity. However, it also points out that digital surveillance, algorithmic bias and data privacy can create ethical dilemmas. While attention is also paid to AI ethics in the global literature, this pioneering research stresses that Turkish companies prioritize automation, underscoring the need for localized policies that balance technology with responsible practice.

1. INTRODUCTION

In today's rapidly evolving business environment, digital transformation has significantly reshaped organizational processes, making technology an indispensable component of modern businesses. The widespread adoption of new technologies has enabled organizations operating in both national and international markets to increase their competitiveness. As a result, businesses are increasingly integrating technology into their strategic initiatives to optimize productivity and sustain competitive advantage.

Although the existing literature is still dominated by research on traditional human resource management practices, especially with the industry 4.0 and digital transformation movements and the rapid introduction of artificial intelligence (AI) into business life, the impact of these new developments on human resource management (HRM) has also emerged as a research area. It is possible to say that these new technologies affect many core HRM practices such as recruitment, training and development, and managerial decision-making. However, these striking technological developments have also brought some ethical and legal problems. For this reason, human resource (HR) professionals have current and critical responsibilities to support employees' interaction with new technologies as well as to ensure that they are used ethically and fairly within the organization.

[1] This study was produced from the master's thesis titled "The Role of Technology and AI in HRM" prepared by Muhammed Fatih İbiş, a student at Yozgat Bozok University Graduate Institute, under the supervision of faculty member Mustafa Doruk Mutlu.

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Despite the integration of today's new technologies, including artificial intelligence into HR practices, there are serious gaps in the literature regarding their role and impact on HR practices, especially in the context of emerging economies. This study focuses on the perspectives of employees in technology-oriented HR departments in Turkey on the role and impact of new technologies on HR practices. Therefore, the following research questions are addressed in the study: To what extent do organizations in Turkey utilize new technologies and artificial intelligence? What are HR professionals' perceptions of the role and impact of new technologies and especially AI on HRM processes? Moreover, how are these developments reshaping ethical and organizational dynamics, especially in relation to employee privacy, fairness and job security?

This study aims to address the identified gaps by exploring the role and significance of AI and new technologies into HRM with a particular focus on its benefits, strategic and ethical implications. Moreover, adaptation of new technologies remains starkly uneven across sectors and geographies. Developed economies grapple with well-documented ethical dilemmas, such as algorithmic biases in recruitment and risks to employee autonomy, as highlighted by recent studies (Michael et a, 2023; Deloitte, 2022). Meanwhile, in developing economies like Turkey, these challenges are compounded by unique complexities—including fragmented regulatory frameworks, infrastructural gaps, and cultural nuances—yet these remain critically understudied in global research. By evaluating the adoption and impact of new technologies as AI in HRM within the Turkish context, this research bridges an important gap, contributing to a more comprehensive understanding of technology driven transformations in HR practices.

2. HUMAN RESOURCE MANAGEMENT

The advent of globalization, accelerated access to information, and the widespread integration of new and digital technologies have changed the way many industries operate and required significant transformations for many organizations. In addition, companies are constantly striving to improve, adapt to the demands of the modern era and gain competitive advantage in the shadow of new and relentless developments. This has led to a heightened focus on HRM (Saruhan and Yıldız, 2012). The term 'HRM' can be defined as the set of activities that enable people to work effectively by complying with the relevant legislation in any given environment. In contrast to the previous term of 'Personnel Management', the concept of HRM is now used in many organizations. It mainly focuses on the recruitment, orientation, training and development of employees in line with the strategic plan of HR departments.

The most crucial factor for businesses seeking to bring their products to market is the availability of a suitable workforce. In the absence of a sufficient supply of talent, equipment and manpower, the probability of success is significantly reduced (Çetin et al., 2022). In this regard, the personnel selection process assumes particular significance within organizational contexts. The term 'personal selection' is defined as a set of activities conducted with the objective of identifying the most qualified candidate for a vacant position within an organization (Acar, 2008). Following the completion of preliminary stages, including the initial interview and candidate and reference examinations, the most suitable candidate is selected. This process enables organizations to identify the individual who best fulfils the requirements of the role (Bingöl, 2010).

At the end of the personnel procurement process, the orientation process begins, which is related to the fast adaptation of the personnel to the job. It is deemed essential to provide training to newly hired personnel on a range of topics, including acclimation to the organizational culture, comprehension of the business objectives, understanding of the work environment, familiarity with pertinent legislation, and minimum performance standards (Saruhan and Yıldız, 2012). Organizations sometimes make mistakes when recruiting staff, and new staff may experience some problems. To prevent such problems from occurring, it is recommended that the department supervisor take a close look at it and deal with it closely (Bingöl, 2010). If the personnel are provided with the help of internal resources, there is no need for a detailed orientation process, and it is recommended to start the work only by introducing the requirements of the work (Acar, 2008).

The completion of the processes to orient the recruited personnel to the organization does not mean that the Training and development activities have ended. On the contrary, it is important to train employees within the scope of talent management and to develop their skills throughout their career journey in the organization within the scope of HR plans and strategies. In this respect, the process of training employees according to certain purposes is called training and the process that qualifies the personnel and creates a positive effect is

called development activities (Saruhan and Yıldız, 2012). As a matter of fact, it has been reported that positive developments are experienced in factors such as motivation and performance increase and continuity in employees when training and development efforts are implemented effectively within the scope of HRM (Noe et al., 2017).

Today, it is stated that the need for labor has decreased with technology, but although the number of personnel has decreased numerically, it is observed that people who have developed themselves are needed more in terms of the quality of the employees, that is, in order to use the existing technology (Mutlu, 2020). This situation has various costs to organizations. One of the main objectives in the processes for personnel in HRM includes how to recruit and develop the most suitable candidates for the specified jobs at minimum cost to the organization (Gatewood and Field, 1990). From this point of view, it is important to carry out HRM processes considering the cost/benefit relationship.

3. THE ROLE OF TECHNOLOGY AND AI IN HRM

New technologies are having a significant positive impact on HR practices. Research shows that digitization saves costs and time, especially in recruitment processes. For example, digital training platforms increase the efficiency and cost-effectiveness of training by allowing employees to access consistent and universal training programs without time and space constraints (Mazurchanko and Maršíková, 2019). In addition, big data analytics, one of the cornerstones of Industry 4.0, helps to make more effective decisions in recruitment and talent management processes (Mateen et al., 2024). Technological advancements such as human resource information systems (HRIS) play an important role in facilitating core HR functions such as recruitment, selection, and task allocation (Adebayo et al., 2024). In addition to simplifying operational tasks such as data collection, processing, and storage, HR technologies also support strategic decision-making processes, thus increasing their importance in modern HR management (Bayraktaroğlu & Özdemir, 2006; Küspeci & Çevik-Tekin, 2021).

On the other hand, the technologies used in today's HR context may create some problems in the labor market. With the spread of automation, many job categories are expected to disappear and the risk of unemployment is expected to increase. In particular, the demand for unskilled labor will decrease while the need for skilled employees who can adapt to new technologies will increase (Turkel & Bozağaç, 2018). In addition, the risks of digitization, such as data security vulnerabilities and the protection of personal information, should not be ignored (Göçoğlu and Kurt, 2018). Other potential negative impacts include employees' difficulty in adopting new technologies and resistance to change, increased social tensions, resistance to traditional systems, and lack of standardization and infrastructure that may arise in adapting to Industry 4.0 (Çiftçioglu et al., 2019). Moreover, technology-driven surveillance systems can expose workers to psychological pressure, undermine trust, reduce job satisfaction, and increase stress, outcomes that are clearly at odds with the human-centered goals of HR (Ajunwa et al., 2017).

On the other hand, artificial intelligence, one of the most current and attention-grabbing technologies of our time, has become increasingly used and useful in the HR context (Bankins et al., 2022). First, AI enables HR professionals to focus on more strategic issues by automating many routine and simple tasks. These developments bring efficiency and time savings (Deepa et al., 2024). AI has also been found to increase the effectiveness of HR professionals' decision-making processes by effectively and quickly analyzing large amounts of data (Tambe et al., 2019). In addition, it has been found that artificial intelligence can also provide benefits in employee training and development. At this point, it may be possible to identify the specific training that employees need and create personalized learning experiences within the organization (Ohri et al., 2018; Yawalkar, 2019).

Despite the benefits and opportunities, they create, AI applications in the HR context also bring with them various issues and concerns (Pan & Foresee, 2023). First of all, it is important to emphasize that AI does not naturally eliminate bias. In fact, if not used and managed carefully, these intelligent technologies can perpetuate and even exacerbate existing discrimination in organizations (Köchling et al., 2024). Suen et al. (2019) found that problems such as algorithmic discrimination, biased training data, and lack of transparency can occur in AI-based systems. For example, there is evidence that an AI-based recruitment program fed with historical data from a male-dominated workforce favors male candidates.

In addition, one of the other concerns raised by the rise of AI in HR is the potential displacement of employees due to automation, especially in roles that involve routine and repetitive tasks (Başaran, 2020). In particular, there are conflicting views on the impact of AI technology on the workforce in the future. While some researchers express concern that it will displace workers from their jobs (Frey and Osborne, 2017), others argue that AI will create new roles as well as the jobs it takes over, and moreover, transform the labor market by reshaping skill requirements (Autor, 2019).

Another concern about AI technologies relates to worker autonomy and ethical governance. Kellog et al. (2018) argue that AI intervention in HR decision-making could have negative implications for job security and worker representation. For example, AI-driven performance appraisal tools, which are now widely used in companies, monitor employee productivity in real time and determine promotions or terminations, often with minimal human oversight. The most prominent example is Amazon's warehouse management system, which has been criticized for effectively stripping managers of discretion and employees of contextualized recourse (Vallas et al., 2022).

As a result, skepticism remains warranted: Can AI account for nuanced factors such as workplace inequalities, mental health issues, or caregiving responsibilities that inherently shape performance? Without the ability to assess these variables, AI potentially risks reducing human work to decontextualized metrics and undermining the ethical principles it purports to uphold. In this sense, global organizations increasingly emphasize ethical AI governance and bias mitigation in HRM (Fenwick et al, 2024) At this juncture, a pivotal question for this research emerges: To what extent are HR professionals dealing with AI applications in Türkiye aware of such ethical issues, and more importantly, is this awareness reflected in the HR applications themselves? To this end, by providing a regional perspective on the adoption of AI in HRM, this study aims to contribute to the literature by revealing key differences in how AI is perceived and used in HRM, particularly in an emerging economic landscape.

4. THEORETICAL FRAMEWORK

The integration of new technologies into HR processes can be comprehensively analyzed through established theoretical models that address technology adoption, socio-technical interactions, organizational resources, and human capital development.

First, Davis' (1989) Technology Acceptance Model (TAM) provides a fundamental perspective for understanding the extent to which users of a particular technology adopt it. According to this theory, individuals' acceptance of technology is based on two basic perceptions: perceived usefulness (the belief that the technology will improve performance) and perceived ease of use (the degree to which the technology requires minimal effort to use). These perceptions ultimately shape attitudes and behavioral intentions and determine actual usage. In the context of emerging HR technologies (including AI), TAM helps explain how HR professionals evaluate these tools. For example, AI-driven recruiting platforms may be accepted if they are perceived to increase recruiting efficiency (usefulness) and require limited technical expertise (ease of use). Conversely, tools that are perceived as overly complex or irrelevant to everyday tasks may be resisted (Davis, 1989; Venkatesh et al., 2012).

The socio-technical systems theory developed by Trist and Bamforth, which is a very basic theory, actually complements TAM's focus on individual acceptance. This theory suggests that optimal performance can occur when social subsystems (e.g., workplace culture) and technical subsystems (e.g., workflows) are harmoniously integrated. Applied to the HR context, this perspective argues that the integration of new technologies and people will be both productive and socially sustainable to the extent that it supports the generation of new knowledge and the development of breakthrough innovations by people, rather than replacing or altering human judgment (Cherns, 1987).

Finally, Becker's (1994) theory of human capital emphasizes that investing in the development of employees' knowledge and skills is an organizational gain. The theory distinguishes between general human capital (transferable skills) and specific human capital (tacit knowledge and skills). It provides an explanatory framework for the role of digital learning platforms equipped with new technologies (e.g. personalized skill development modules) or data-driven career development plans for employee talent management in the HR context (Becker, 1994).

Together, these theories provide a holistic framework for analyzing new technology's role in HR. TAM explains the micro-level drivers of technology adoption among HR professionals, Socio-technical systems theory ensures human-centric implementation, resource-based view positions innovative technologies as a strategic resource, and human capital theory links technological integration to human capital growth. By synthesizing these perspectives, this study advances a nuanced understanding of how new technologies transform HR processes, emphasizing the interdependence of technological utility, social dynamics, organizational strategy, and individual development.

5. RESEARCH METHODOLOGY

This study employs a qualitative research design to explore the role and significance of modern technologies, including AI, in HRM, focusing on the perspectives of HR professionals. Given the exploratory nature of the research, the aim is not statistical generalization but an in-depth understanding of how organizations integrate these technologies into HR processes. In the domain of qualitative research, the emphasis is on in-depth exploration rather than extensive coverage. Consequently, the interpretation of findings should be constrained by the contextual boundaries of the study. This approach precludes the assumption of universal generalizability (Creswell and Poth, 2018). Thus, it is believed that this study will create awareness for HR departments of organizations regarding the changing business conditions and processes.

Qualitative research methods were employed to achieve a comprehensive understanding of the phenomenon. These methods facilitate the interpretation and comprehension of phenomena by elucidating the meanings and perspectives of the actors involved (Denzin and Lincoln, 2000). Furthermore, qualitative research allows for greater flexibility in exploring the topic from the perspective of those taking part in the research. This enables new discoveries and insights to be made about the role of new technologies in the context of HR, through mutual interaction and discussion (Bryman, 2004). Accordingly, data were gathered from a range of organizations operating across a number of sectors in Turkey, including the food, traffic signaling/technology development, defense industry, telecommunication, chain market and furniture sectors.

Participation was voluntary, and data collection was conducted through semi-structured face-to-face interviews to enhance data quality. However, it has been agreed that some institutions are of strategic importance and due to the pandemic process, no person who is not an employee of the institution can visit these firms as a guest. Consequently, interviews were conducted with the participants working in these institutions via telephone or the Zoom application and lasted for a period of approximately 30 to 40 minutes.

The interview questions were developed based on a comprehensive review of HRM, technology, and AI-related literature (Kvale, 2012). The final set of questions was refined to ensure alignment with the research objectives and minimize ambiguity. To ensure the clarity and relevance of the interview form, the questions were carefully reviewed and refined by the researchers through an internal validation process (Creswell and Poth, 2018). The structure of the research questions was designed to clearly understand the participants' views on the role of modern technologies, including artificial intelligence, in HR activities in order to increase the consistency of the research (Creswell & Poth, 2018). In this regard, the participants were asked to share their views on how the activities of the HR departments they work in are affected by modern technologies and artificial intelligence. This was followed by a comprehensive set of questions about core HR activities such as recruitment, training, and development.

The qualified data obtained as a result of the interviews were analyzed using the method of thematic analysis developed by Braun and Clarke (2006). For this reason, first the initial codes were created and then the processes of searching and defining the themes were followed. As a result of these stages, the data analysis was completed by writing a final report. In addition, to increase the reliability of the findings, the coding framework was cross-checked between researchers whenever possible and direct quotes from participants were added to support the main findings (Creswell & Poth, 2018).

The current study was conducted in accordance with the ethical research principles established by the Ethics Committee of Yozgat Bozok University, and ethical approval was obtained from the same committee (approval number: 16/06). In order to ensure the transparency and reliability of the research, participation in the research was completely voluntary. In addition, participants were informed of the purpose of the research prior to the interviews and informed consent was obtained before the interviews were recorded (Lincoln &

Guba, 1985). After data collection, all responses were anonymized. They were also encrypted and stored in such a way that only the research team could access them in accordance with the research guidelines. In addition, in accordance with the ethical guidelines established by the Council of Higher Education and the principle of transparency during the writing phase of the research text, ChatGPT-3.5 generative artificial intelligence was used in this study to increase the clarity and readability of the language. After the use of these tools, the content of the text was revised and the authors took full responsibility for the final version of the publication.

Furthermore, the participants' opinions were presented in their original form, with direct quotations, and the participants were selected using the purposive sampling technique. In order to ensure the reliability of the research, great care was taken to ensure consistency in the data. At this point, the characteristics of the individuals participating in the research were described in detail. The data obtained during the research process and the demographic information of the participants were explained in detail (Table 1). Consideration was given to the similarity of the research environment presented to the participants during the interview, the order of the questions asked, the time allowed to answer the questions, and so forth (Creswell, 2013).

Today, a limited number of companies can make extensive use of AI technology. Since this research focuses on the use of AI in the context of Turkey, especially in the HR department, the research population was limited, and 8 companies could be studied. Within the scope of the research, one-to-one in-depth interviews were conducted with 8 participants including HR officers or general managers. Despite the limited sample size, this aligns with qualitative research guidelines, which consider 5 to 25 participants sufficient for phenomenological studies (Polkinghorne, 1989). The appropriateness of the sample size was determined by the thematic saturation of the research findings and it was assumed that further interviews would probably not generate novel insights.

Participants were selected using purposive and snowball sampling methods. Purposive sampling facilitated the selection of HR professionals with expertise in AI and digital HR processes, while snowball sampling ensured that researchers had access to additional participants with relevant knowledge (Creswell & Poth, 2018). In addition, participants were selected from HR-based business lines in different sectors (e.g., manufacturing, telecommunications, retail, and technology development) to reduce sampling bias (Saunders et al., 2018). Furthermore, the selection of companies favored different levels of companies, ranging from early adopters to those with advanced AI-based HR systems. In addition, a balance between HR experts and general managers involved in HR-related decision-making processes was sought to provide insights from both operational and strategic perspectives (Guest et al., 2006).

6. FINDINGS

This section of the research begins with a presentation of the demographic information of the participants (Table 4.1). This is followed by a disclosure of the main theme and sub-themes that have been derived from the analysis of the data collected (Table 4.2). Furthermore, the data obtained is evaluated in accordance with the responses provided by the participants to each question within the scope of the study.

In accordance with Polkinghorne's (1989) recommendations, interviews with researchers should be conducted with a sample size of between 5 and 25 individuals who have experienced the phenomenon in its entirety. A total of 8 participants elected to take part in present study on a voluntary basis. Of the participants with experience in the field of HR, seven are male and one is female. Three participants have obtained a high school diploma, three have obtained a bachelor's degree, and two have obtained a master's degree. The age range of the participating academics is between 29 and 59 years. To guarantee the anonymity of the participants, the necessary precautions were taken in accordance with the ethical guidelines. In order to ensure the confidentiality of the participants' identities, each academic participating in the study was assigned a code number, which was used in place of their name throughout the study. Thus, the confidentiality of the participant's personal information and identities was safeguarded.

Table 1: Demographic characteristics of the participants

Code	Gender	Age	Education Degree
A1	Male	49	High School
A2	Male	42	Bachelor's degree
A3	Male	37	Master's Degree
A4	Male	53	Master's Degree
A5	Male	39	Bachelor's degree
A6	Female	29	Bachelor's degree
A7	Male	36	High School
A8	Male	59	High School
Average age of study participants=43			

The research findings consist of a total of 4 main themes and 7 sub-themes according to the answers received from the participants. The main and sub-themes table is given in Table 2.

Table 2: Interview Form Themes and Sub-Themes

Main Themes	Sub-theme	Example Quote
The role of Technology in HRM	Technology-Driven Productivity and Cost Efficiency in HRM	*A2: "I can say that our costs have decreased by 40% and our productivity has increased by approximately 60% thanks to the robots working in coordination with our staff. Even if we do not have the latest technological products, these ratios alone show us how useful technology is."*
	Beyond Monitoring: Technology's Role in Workforce Management and Decision-Making	*A5: "We purchased a simulation application through external procurement in order to determine how our employees can react to sudden situations, and I think we benefit from technology very well in this way." and stated that they benefited from technology very well in the institution. The same research participant added depth to his answer and stated "With technological developments, it has been essential for our staff to improve themselves. I think this situation is not related to the HR department but covers all directorates in our institution. If I answer your question in terms of HR, I think that we, as our directorate, need a lot of technological resources. As you have previously stated, the objective is to oversee all personnel activities from start to finish, to gather the requisite data and safeguard it in a*

		secure manner, to update the information, when necessary, for instance in the event of a marriage or divorce, and to present it to our general directorate in the form of a report following a comprehensive analysis."
	Technological Adaptation of Employees	*A1: "In our company, we actually use technology to determine job entry-exit times, but you will appreciate that there are also jobs that we are legally obliged to follow. We have to carry out some of our work such as officializing the monthly earnings of our personnel, depositing insurance premiums, etc. in accordance with the laws imposed by our state with the help of technology."*
	Technology use and Recruitment	*A2: We benefited from digital platforms and portals in order to determine the most suitable candidate for the position in a highly effective and efficient way during recruitment activities by asking the research participants to fill out a form by posting on websites such as LinkedIn and kariyer.net. As a result, we interview the candidates who meet our criteria and evaluate them according to diction and external appearance."*
Technology, Employee Privacy, and Ethical Dilemmas in HRM		*A8: "We have many competitors in the sector, and we know that almost all of them are curious about our state-of-the-art machine and robot workers. At one time, one of our workers made a live broadcast on social media during production and disclosed the information we wanted to keep hidden, and people we didn't want to see watched the video. Of course, we learned about this later. Thus, we had to dismiss our personnel."*
Technology driven orientation and Training: The Role of AR and Digital Learning		*A4: "Since we are one of the rare technology and AI developers in our country, we have created an AR software module in order to both use it internally and sell the application. The use of the module is extremely simple and understandable to everyone. Regardless of the module position we use in our company; it is open to all relevant employees. In the module, everyone can get an opinion about the project that is being worked on collectively. In addition, some issues such as corporate culture, mission, and vision are also included in the module. Thanks to this module, our new friends who have joined our company can adapt to our company in a short time without being a stranger."*

AI-Driven HRM: Efficiency, Decision-Making, and Workforce Support	AI Applications in HRM	*A4: "We started to research AI-based HR programs to use in our HR department, and first of all, we purchased a program called 'Kolay HR' because its cost is more affordable. However, when we saw that the program, we purchased was insufficient to meet our expectations, we decided to purchase a German-based program with significant costs for our department in order to carry out all our HR activities comfortably. In order to make this program much better understood by all our staff, we added an extra cost to the program and added a Turkish language option. "*
	The Role Of AI Technology in Reducing Organizational Costs	*A2: "If we make an evaluation without considering the one-time investment costs arising from the technological resources and AI applications we use, I can say that we save serious cost and time due to reasons such as minimizing raw material waste and reducing labor costs. Since we do not have a chance to reduce our fixed expenses, I can also say that technological resources and AI applications do not have any effect on our fixed expenses.*
	The Relationship Between the Use of AI Applications in HRM and Recruitment Processes	*A6: "I can say that we can reach the personnel residing in the places where we will open a branch through some websites more easily thanks to technology. By adding the qualifications, we want to these programs, we prevent job applications that are certain to be rejected. Obviously, since I am not very experienced in HRM, I do not even want to predict the difficulties experienced during the manual file recording and one-to-one interview periods. "*

6.1. The role of Technology in HRM (Main Theme-1)

Present research indicates that although these companies are still in the early stages of developing sophisticated HRM practices on a global scale, they view their current level of technological integration as sufficient and are actively keeping up with the latest advancements in technology. The research highlighted that the primary goal of integrating technology into HR is to measure employee productivity. Additionally, it emphasized that the HR department's core responsibility is to enhance this productivity by leveraging technological tools and innovations.

A1: "When we include our parent company together with our subsidiaries within our company, there are 7 companies. Each of our companies has its own technological infrastructure systems and websites that can be easily accessed from anywhere in the world, and all our companies benefit from technology in a very active and efficient way in terms of HR."

6.1.1 Technology-Driven Productivity and Cost Efficiency in HRM (Sub-Theme-1)

It has been observed that officers of the HR department endeavor to derive the greatest benefit from the technological products available on the market, in accordance with the financial resources of the enterprise in question. Technology helps HR departments measure employee performance and ensure efficiency by maximizing output while minimizing input.

A4: When we examine the statistical figures, we have then compare with the period before we started using technology effectively, we can see that there is a positive and significant increase in the labor productivity of our personnel. As I mentioned, we continue to follow current technological developments in order to spread the positive and significant increase in productivity to the long term.'

A2: "I can say that our costs have decreased by 40% and our productivity has increased by approximately 60% thanks to the robots working in coordination with our staff. Even if we do not have the latest technological products, these ratios alone show us how useful technology is."

6.1.2 Beyond Monitoring: Technology's Role in Workforce Management and Decision-Making (Sub-Theme-2)

In modern HR practice, technology has been found to provide benefits in many areas. In addition to tracking the entry and exit of employees, technology systems provide efficiencies in routine personnel management processes such as payroll management, regulatory compliance and employee data security. Advanced technologies such as simulation applications and AI-based analytics are also being used by some organizations. These are used to assess employee responses to unexpected situations, optimize workforce planning and provide continuous professional development. These technological advancements are also enabling more informed, data-driven HR decision making.

A5: "*We purchased a simulation application through external procurement in order to determine how our employees can react to sudden situations, and I think we benefit from technology very well in this way.*" and stated that they benefited from technology very well in the institution. The same research participant added depth to his answer and *stated "With technological developments, it has been essential for our staff to improve themselves. I think this situation is not related to the HR department but covers all directorates in our institution. If I answer your question in terms of HR, I think that we, as our directorate, need a lot of technological resources. As you have previously stated, the objective is to oversee all personnel activities from start to finish, to gather the requisite data and safeguard it in a secure manner, to update the information, when necessary, for instance in the event of a marriage or divorce, and to present it to our general directorate in the form of a report following a comprehensive analysis."*

6.1.3 Technological Adaptation of Employees (Sub-Theme-3)

In the contemporary business landscape, where there is an increasing integration of digital systems into HRM, the capacity of employees to adapt to these technological advancements has emerged as a pivotal factor in operational efficiency. Employees are expected to navigate digital platforms for legally mandated processes, such as payroll management, insurance premium deposits, and official documents. However, beyond mere compliance with legal obligations, the ability to adapt to technology encompasses a range of competencies. These competencies include efficient access to and management of work-related documents, effective use of HRM software, and interaction with automated systems. This underscores the pivotal role that HRM professionals play in successfully integrating these technologies into their daily operations, thereby potentially impacting both individual and organizational performance.

A1: "In our company, we actually use technology to determine job entry-exit times, but you will appreciate that there are also jobs that we are legally obliged to follow. We have to carry out some of our work such as officializing the monthly earnings of our personnel, depositing insurance premiums, etc. in accordance with the laws imposed by our state with the help of technology."

6.1.4 Technology use and Recruitment in HRM (Sub-Theme-4)

With the increasing adoption of technology in organizations, the HR function, and recruitment processes in particular, have undergone a significant transformation and become digitized. Participants highlighted that digital recruitment platforms make it easier to identify the most suitable candidates according to pre-defined criteria and minimize the time spent on initial screening. It was also stressed that the use of online applications and AI assisted screening tools allows HR professionals to more easily make in-depth assessments and comprehensive comparisons during the recruitment process, rather than manually reviewing CVs.

A2: "We benefited from digital platforms and portals in order to determine the most suitable candidate for the position in a highly effective and efficient way during recruitment activities by asking the research participants to fill out a form by posting on websites such as LinkedIn and kariyer.net. As a result, we interview the candidates who meet our criteria and evaluate them according to diction and external appearance."

A8: "Thanks to technology, we can receive the files of the personnel candidates we will recruit by filling out a form regularly, we can reach the people with the characteristics we want without intermediaries, and we avoid the waste of time and cost in meeting with everyone as we did before."

6.2. Technology, Employee Privacy, and Ethical Dilemmas in HRM (Main Theme-2)

In the era of increasing technological integration within the domain of HRM, ethical concerns pertaining to employee privacy, workplace monitoring, and digital surveillance have emerged as pivotal subjects in the discourse. While numerous organizations contend that monitoring practices are not inherently problematic, provided they adhere to legal frameworks, others underscore the potential implications for employee rights and workplace autonomy. In this regard, certain companies within the study milieu have instituted stringent privacy policies, encompassing restrictions on cell phone usage during working hours and the monitoring of personal social media activity. While these practices aim to protect corporate interests, they raise ethical questions about the balance between corporate security and employee freedoms.

A1: "It is forbidden for the production personnel working in our company to bring their phones into the production house. We had mini cabinets built for each of them to keep their private belongings such as phones, keys, etc. I do not think that there is any ethical problem because we use technology in our department to follow up our work"

A8: "We have many competitors in the sector and we know that almost all of them are curious about our state-of-the-art machine and robot workers. At one time, one of our workers made a live broadcast on social media during production and disclosed the information we wanted to keep hidden, and people we didn't want to see watched the video. Of course, we learned about this later. Thus, we had to dismiss our personnel."

6.3. Technology driven orientation and Training: The Role of AR and Digital Learning (Main Theme-3)

Participants emphasized that technology has become a fundamental component of HRM, particularly in employee orientation and training and development activities. It was noted that increased information sharing and interaction through digital technologies had a positive impact on the orientation experience. In this context, it was highlighted that augmented reality, multimedia-based training programs and computer-based simulations helped to facilitate knowledge transfer and adaptation to corporate culture in organizations, and to improve skills development. Research participants emphasized the transformative role of these technologies in creating a more efficient and effective learning experience for new employees.

A4: "Since we are one of the rare technology and AI developers in our country, we have created an AR software module in order to both use it internally and sell the application. The use of the module is extremely simple and understandable to everyone. Regardless of the module position we use in our company; it is open to all relevant employees. In the module, everyone can get an opinion about the project that is being worked on collectively. In addition, some issues such as corporate culture, mission, and vision are also included in the module. Thanks to this module, our new friends who have joined our company can adapt to our company in a short time without being a stranger."

A6: "We have onboarding programs supported by various audio and video recordings, films, games and animations for 15 days for our newly recruited staff. By providing computer-aided training to our newly recruited staff in this way, we provide some basic information such as how customers should be welcomed and how the aisles should be designed, but in addition, I can say that the adaptation to the corporate culture in response to your question spreads to the process after the start of the work."

6.4. AI-Driven HRM: Efficiency, Decision-Making, and Workforce Support (Main Theme-4)

The findings for this sub-theme, which relates to the integration of AI applications into HRM, emphasize that AI applications significantly increase efficiency in HR, especially in recruitment and decision-making processes. In addition, AI-based decision-making systems are reported to provide managers with data-driven insights, thereby reducing subjective biases and optimizing workforce management. As a result, the adoption of AI-driven technology solutions leads to significant cost and time savings while improving overall HR effectiveness. Key findings regarding the use of AI in HRM are summarized as follows;

- AI applications enhance staff performance by streamlining workflows and reducing repetitive tasks.
- AI-driven production processes significantly reduce error rates, leading to notable cost and time savings through improved efficiency.

- AI tools enhance decision-making by providing data-driven insights and predictive analytics.
- In HR, AI plays a key role in boosting employee satisfaction through optimized orientation programs and targeted training initiatives. Additionally, HR managers emphasize AI's value in supporting strategic decisions with actionable data.

A4: "First of all, I would like to state that I am extremely happy that AI applications can work integrated with people on behalf of our company and that, contrary to what is thought in this sense, AI is not the cause of unemployment. If the work to be done is left only to the initiative of people, we may encounter some difficulties at this point. For example, people can act on their emotions or make wrong decisions, even involuntarily. As I stated, I can easily say that systems based on human-AI integration are our great supporters, especially in decision-making processes."

A8:" ... I can say that the biggest helpers of our personnel on the assembly line in our production facility are robot workers. As you can see, there is a serious need for technology in our company both as machinery-equipment and qualified manpower to use these machinery-equipment. In short, without technology, our production activities will be interrupted, so we will not be able to provide employment to people, and as a result, our chance to contribute to this heavenly homeland will be eliminated."

6.4.1 The Relationship Between the Use of AI Applications in HRM and Recruitment Processes (Main Theme-4, Sub-Theme-1)

The research findings highlighted the considerable time savings that can be achieved by employers through the utilization of AI-powered recruitment processes. Furthermore, it is asserted that the utilization of AI has a discernible impact on productivity, particularly in circumstances pertaining to the identification of optimal employment opportunities and the configuration of compatible work schedules and hours for prospective personnel (Murgai, 2018).

A4: "We started to research AI-based HR programs to use in our HR department, and first of all, we purchased a program called 'Kolay HR' because its cost is more affordable. However, when we saw that the program, we purchased was insufficient to meet our expectations, we decided to purchase a German-based program with significant costs for our department in order to carry out all our HR activities comfortably. In order to make this program much better understood by all our staff, we added an extra cost to the program and added a Turkish language option. "

Additively research participant answered the following question "What functions of HR can you perform thanks to this program you have purchased?"

A4: "The *things they promised us when we bought the program were that the recruitment process was 50% faster, but after we started using the program, we saw that the program saves us about 75-80% time. In addition, as I just said, all our staff can install and use the application on their smartphones with the personal passwords given to them. For example, if one of our staff cannot come to work or has a report, they request leave with a single tap and if the responsible manager approves, our staff is considered on leave for that day. Thus, both the manager and his/her colleagues can instantly follow the dates and times when our staff will not come to work.*

6.4.2. The Role of AI Technology in Reducing Organizational Costs (Main Theme-4, Sub-Theme-2)

Participants emphasized that AI has engendered financial benefits for their enterprises by enhancing the efficacy of quality control measures within corporate operations, reducing errors, and optimizing workforce allocation. Furthermore, it was asserted that the implementation of AI-driven automation has yielded cost and time savings by virtue of the elimination of raw material wastage and the reduction in labor costs.

A4: "I can say that one of the biggest contributions of the AI technologies we use to our business is in quality control processes. Each of the products we produce is worth hundreds of thousands of lives and, as I mentioned, by maintaining the zero-error principle we have acquired in the quality control process, we get rid of a serious financial burden by not repeating even the slightest mistake in our products in mass production. In addition, we try to maximize our employee productivity by not making our personnel work in vain and giving them different tasks.

6.4.3. AI-Powered HRM: From Manual Processes to Smart Decision-Making (Main Theme-4, Sub-Theme-3)

A6: "I can say that we can reach the personnel residing in the places where we will open a branch through some websites more easily thanks to technology. By adding the qualifications, we want to these programs, we prevent job applications

that are certain to be rejected. Obviously, since I am not very experienced in HRM, I do not even want to predict the difficulties experienced during the manual file recording and one-to-one interview periods. ”

A4: ” As I stated, I can easily say that systems based on human-AI integration are our great supporters, especially in decision-making processes."

An evaluation of the findings gathered under this sub-theme reveals that the utilization of AI applications in HR activities is highly beneficial in terms of managerial decision-making, offering significant cost and time savings.

7. DISCUSSION AND CONCLUSION

The current research basically attempts to understand the role and impact of technology, especially artificial intelligence-based systems, in the context of HR in two ways. First, the findings show that technology increases efficiency and speed in HR by facilitating routine functions such as tracking employees' working hours, managing payroll, and tracking health insurance (Bayraktaroğlu and Özdemir, 2006). In addition to administrative convenience, participants emphasized that digital technologies not only provide significant cost and time savings, but also increase transparency in all HR processes. These findings also reinforce the view that the adoption of HR technology is not just an evolution, but a strategic imperative.

On the other hand, the findings show that in addition to the benefits that technology brings to organizations, it has also led to the emergence of controversial practices such as digital surveillance and restrictions on mobile technology. These practices, which can limit employees' rights and freedoms through technology, can put psychological pressure on employees, reduce commitment, and increase stress (Ajunwa et al., 2017). Situations like these raise critical questions about whether technological advances in HR are actually creating beneficial opportunities, or instead fueling distrust and oppression. Ultimately, the findings highlight the delicate balance that organizations must maintain between technological control and employee privacy, and point to the importance of implementing digital tools in HR responsibly.

Based on the examination of the role of AI technology in HR, another focus of the current research, it was found that the implementation of AI applications in HR departments has the potential to significantly increase the significant improvements in operational efficiency reported by both business and human. Furthermore, in line with the studies of Keysan (2019) and Yavalkar (2019), it has been shown that organizations that proactively use AI can reduce expenses with savings between 40% and 70%. Moreover, it has been emphasized that in some companies where AI is used proactively, it has the potential to achieve effective and rapid results in orientation processes. This finding is also confirmed in the article by Ohri et al. (2018). Again, in this research, it was found that augmented reality (AR) software can be used in the orientation processes of newly hired employees to achieve maximum efficiency and productivity in the shortest possible time. In addition, participants stated that artificial intelligence also provides support in the decision-making process. In addition, it was emphasized that the decisions implemented with AI applications are completely objective and independent of environmental conditions, thus offering a different perspective away from emotions and subjective perspectives. Thus, as emphasized by Canbek (2018) and Jatoba et al. (2022), it was understood that AI plays an important role in enabling employees to make effective and more accurate decisions supported by information.

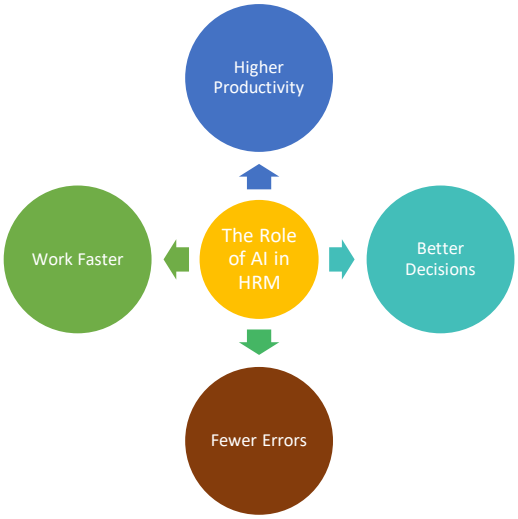

Figure 1: The Role of AI on HRM

While discussions about the role of technology in HR often focus on broad tools and applications, the integration of AI raises unique ethical and operational dilemmas that need to be examined more closely (Kim, 2020). In light of this, participants did not perceive AI as inherently at odds with HRM. However, there is research in the literature that AI-powered recruitment tools can reinforce biases (Bogen and Rieke, 2018; Mujtaba and Mahapatra, 2024) and threaten fair HR practices. Furthermore, the importance of ethical AI design and human oversight has been emphasized, especially for some core HR activities such as recruitment (Kim, 2020). At this point, the interview data did not provide any information on the existence of approaches aligned with corporate ethical policies that govern fair and transparent AI use globally, especially in the US and EU. These findings suggest that in the Turkish context, at least among the surveyed companies, AI-driven HR practices continue to focus on efficiency and automation, with no approach to balancing risks such as AI adoption, data privacy, and algorithmic bias. This regulatory gap highlights the urgent need for proactive policies that enable rapid technology adoption, while balancing innovation with ethical responsibility.

In addition, the findings contribute to the ongoing debate about the impact of AI on employment: will automation displace human workers or create new opportunities? While some scholars argue that AI adoption will lead to job losses (Frey and Osborne, 2017), others argue that AI will foster new employment pathways by redefining skill requirements (Autor, 2019). The results of this study are consistent with the latter perspective. An important finding here is that HR professionals in the Turkish context generally expressed optimism, stating that they do not see AI as a threat, but rather as a tool that will further drive productivity and innovation. Contrary to the concerns expressed by Başaran (2020), AI is seen as a mechanism to reduce human error and increase the efficiency of recruitment processes. Ultimately, this suggests that there is a perception that AI enhances human work rather than replacing it.

When examining the relationships between the findings and the theoretical underpinnings, the results are consistent with TAM, which suggests that employees are more likely to adopt new technologies if they perceive them to be beneficial to productivity (Davis, 1989). Indeed, participants indicated that the adoption of technology and AI plays a significant role in increasing productivity and performance within HR. Participants also highlighted the benefits of technology-based investments in training and skill development, in line with the human capital approach (Becker, 1994). Furthermore, from the same perspective, they emphasized that technological advances within the organization, AI-enabled augmented reality, multimedia-based training programs, and computer-based simulations contribute significantly to skills development. Finally, in contrast to the vision of full automation, participants in this study emphasized a hybrid model in which AI serves as a tool to support human expertise rather than replace it, reinforcing the idea that AI should complement rather than dictate HR decisions. These findings are consistent with socio-technical systems theory (Trist and Bamforth, 1951), which emphasizes the need to balance technological innovation with human

factors. To this end, AI should complement rather than replace human judgment in HR decisions to create a sustainable dynamic in the workplace.

7.1. Study Limitations and Future Research Directions

The current study was conducted despite the challenges during the pandemic, which could be considered as one of the factors limiting the sample size. In addition, the adoption of AI in HR, especially in Turkey, is still in its early stages, and only a few pioneering organizations were found to be using this technology extensively. As AI technologies become more widespread, future research can provide deeper insights by studying a wider range of organizations, especially in emerging economies. Indeed, a larger and more diverse sample could provide a more comprehensive understanding of the impact of AI on HR practices in different organizational contexts.

Consistent with human capital theory (Becker, 1994), the results of this study show that new technologies and AI-based learning and development tools enhance employee competencies. This leads to a critical conclusion: Technology literacy in HR teams may emerge as one of the critical success factors in the organization. To advance this insight, future research should focus specifically on the impact of the ability to effectively use new technologies supported by AI and the optimal use of these technologies on both employee and organizational performance. On the other hand, methodologically, complementing qualitative approaches with quantitative data through mixed-method designs can strengthen the validity and generalizability of findings. In addition, longitudinal studies can provide important insights into how AI adoption in the HR context evolves over time and its long-term effects on workforce dynamics in particular.

7.2. Practical Implications

In light of the review of existing literature and recent research, it has become clear that HR decision makers should actively embrace the opportunities offered by new technologies and AI. It was found that these modern technologies have the potential to play a strategic role in increasing efficiency, decision making and accuracy, especially in HRM processes. However, they should avoid over-reliance on automation in decision-making processes, at least for now. Especially in emerging markets like Turkey, HR leaders should not rely solely on it without human oversight. In other words, to get the most out of technology in the Turkish context, organizations need to create an ethical mindset and attitude that emphasizes transparency, fairness, and impartiality in technology-based processes. In addition, it is important for HR managers to strike a balance between the opportunities offered by new technologies and the management of the workforce responsible. This ability will reduce the negative impact of new technologies and ensure the sustainability of the strategic role of people in critical decision making.

In light of this emerging understanding, how can organizations in Turkey operationalize ethics-based AI-enhanced business processes to ensure that AI-driven HR processes are aligned with both human values and strategic goals? In terms of transparency, companies can inform employees about what data is observed and collected from them and how expert systems make decisions about them and create business processes that regularly receive their feedback (Jatoba et al., 2022). In addition, companies should develop policies for the security of the data they collect about their employees. It is important to provide controlled and only authorized access to this data. On the other hand, decision makers should apply ethical design to AI decision-making processes and include multi-stakeholder human oversight in these processes, especially to eliminate artificial intelligence-based biases (Fenwick et al., 2024). In this context, interdisciplinary ethics committees can be established within human resources departments, and the OECD's Guide to Adapting Artificial Intelligence in Institutions can be used as a guide. Finally, in the context of Turkey, the processes for adapting artificial intelligence are focused on efficiency, and the lack of legal regulations that will balance the ethical risks emphasized in the article should be taken into account when determining these policies. In this way, reliable, sustainable and ethical HR processes can be created for the integration of new technologies and artificial intelligence into business processes in Turkish companies.

In addition, it is imperative for companies to avoid over-reliance on automation, especially in critical activities and decision-making processes, at least for now. An alternative and healthier approach would be to take steps to improve the technological literacy of employees, especially with regard to AI. This is important for employees to have sustainable interaction with new technologies, including HR processes. This balanced

strategy will not only improve HR efficiency but also support innovation and sustainable success within organizations.

To conclude, this study contributes to technology-focused HR literature by providing new empirical insights into the adoption of new technologies from an emerging economy and by centering practitioners' voices on real-world HR practices. At the core of the research is an examination of HR professionals' perspectives on the transformative benefits, operational challenges, and ethical dilemmas associated with AI and new technological tools. A notable finding is the strong optimism of employees in the Turkish context towards new technologies, especially AI, which they see as a catalyst to increase productivity and drive innovation. However, it was observed that a critical gap remains compared to developed economies: There is a lack of awareness about the potential risks of AI. In particular, there are signs that there may be a disconnect between technological adoption and ethical preparedness - such as increased prejudice and erosion of privacy. To fill this gap, future studies should extend this research through cross-cultural comparative analyses in emerging markets. The multifaceted impact of HR technologies should be explored, and strategies that balance innovation with accountability should be emphasized. These efforts can be critical in developing a responsible understanding that balances technological progress with ethical accountability.

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