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Managers' Attitudes on The Use of Artificial Intelligence Technology in Human Resources Management: A Qualitative Research in The Central District of Edirne Province

Yapay Zekâ Teknolojisinin İnsan Kaynakları Yönetiminde Kullanılmasına Dair Yönetici Tutumları: Edirne Merkez İlçe'de Bir Nitel Araştırma

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ABSTRACT

With the spread of Industry 4.0, many technologies that have emerged have been included in the business models and business processes of businesses. Companies in Edirne Central District, Turkey's gateway to Europe, have also integrated industry 4.0 technologies into their business. The research aims to reveal the attitudes of company managers operating in Edirne, Turkey's border province to Europe, regarding the use of artificial intelligence in HRM functions and to guide future research on this subject. It has been observed that the most used industry 4.0 technology in the Central District of Edirne Province is artificial intelligence. In this research, with a phenomenological pattern in which a qualitative approach was adopted, a semi-structured interview method was used to benefit more from the opinions of the participants. In the research, it was determined that company managers in the Central District of Edirne Province (despite some concerns) adopted a supportive attitude towards the use of artificial intelligence in HRM. Executives say that in the current situation, it is not possible to completely transfer HRM to AI; however, they stated that it could benefit from conceptual issues. Managers underlined the combination of AI and human factors for effective HRM. For this reason, in the conclusion of the research, a model in which artificial intelligence and human factors are considered together is proposed. The research offers unique value in terms of considering human resources management together with the artificial intelligence phenomenon.

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ÖZ

Endüstri 4.0'ın dünya genelinde yaygınlaşmasıyla birlikte ortaya çıkan birçok teknoloji, işletmelerin iş modellerine ve iş süreçlerine dahil edilmiştir. Türkiye'nin Avrupa'ya açılan kapısı Edirne Merkez İlçe'deki firmalar da endüstri 4.0 teknolojilerini iş süreçlerine ve iş modellerine entegre etmişlerdir. Araştırma, Türkiye'nin Avrupa'ya açılan sınır ili Edirne'de faaliyet gösteren şirket yöneticilerinin yapay zekanın İKY fonksiyonlarında kullanımına ilişkin tutumlarını ortaya çıkarmayı ve bu konuda gelecekte yapılacak araştırmalara yol gösterici olmayı amaçlamaktadır. Edirne İli Merkez İlçe'de en çok kullanılan endüstri 4.0 teknolojisinin yapay zekâ olduğu gözlemlenmiştir. Nitel yaklaşımın benimsendiği fenomenolojik desenli bu araştırmada katılımcıların görüşlerinden daha fazla faydalanmak amacıyla yarı yapılandırılmış görüşme yöntemi kullanılmıştır. Araştırmada Edirne İli Merkez İlçesindeki şirket yöneticilerinin (bazı endişelere rağmen) yapay zekanın İKY'de kullanımına yönelik destekleyici bir tutum benimsedikleri tespit edilmiştir. Yöneticiler, mevcut durumda İKY'nin tamamen YZ'ye devredilmesinin mümkün olmadığını; ancak, kavramsal konularda fayda sağlayabileceğini aktarmışlardır. Yöneticiler, etkin bir İKY için YZ ve insan faktörü birlikte kullanılmasının altını çizmişlerdir. Bu sebeple araştırmanın sonuç kısmında yapay zekâ ve insan faktörünün birlikte ele alındığı bir model önerilmiştir. Araştırma, Türkiye'nin Avrupa'ya açılan şehri Edirne'nin Merkez İlçe'de yapılması ve insan kaynakları yönetimini yapay zekâ fenomeni ile birlikte ele alınması açısından benzersiz bir değer sunmaktadır.

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Introduction

Technological developments that started in the 20th century have accelerated in the 21st century. These technological developments, along with Industry 4.0, which emerged in Germany in 2014 and spread around the world, have made digital transformation mandatory in all sector. Cloud systems, the internet of Things, cyber-physical systems, and artificial intelligence technologies, whose importance has increased with Industry 4.0, are widely used in business life. The most common and most curious among these technologies is artificial intelligence technology. Artificial intelligence (AI) technology is used in many areas such as marketing, communication, computer games, finance, and accounting. In recent years, it has been discussed that artificial intelligence technology can also be used in human resources management (HRM). HR managers are expected to gain significant benefits by using artificial intelligence technology in all HRM functions.

The literature contains expectations and practices regarding the use of AI in HRM (Carneiro, Pimenta, Neves & Novais, 2017; Tambe, Cappelli & Yakubovich 2019; Alfawareh & Jusoh, 2019; Van Esch, Black & Feroliec, 2019; Lin, Wang & Xu, 2020; Jain, Wang & Xu, 2020; Yan, Deng & Sun, 2020; Perez-Campdesuner, 2020; Wang & Zhi, 2021; Choi & Choi, 2021; Choi, Ko, Kim, Jeon & Han, 2021; Guo, Gallagher, Sun, Tavoosi & Min, 2021; Patalas-Maliszewska, Halikowski & Damasevicius, 2021; Song & Wu, 2021). However, no studies were found in the research that included the opinions of managers on the use of AI in HRM. Without a doubt, managers are one of the factors that have the biggest impact on the use of AI in HRM and the resulting implementation and outcomes. Therefore, there appears to be a gap in the literature regarding managerial views on the use of AI in HRM. The aim of this research is to contribute to literature by revealing the knowledge, opinions, and suggestions of managers in different sectors regarding the use of artificial intelligence technology in HRM in the Central District of Edirne Province, a border city, through qualitative research.

Conceptual Framework

One of the most important concepts of the 21st century business world is AI. There are many definitions of the concept of AI, which was brought to discussion with the *"Turing Test"* put forward by Alan Turing (1950) and was first officially discussed at the Dartmouth Conference held in 1956 (Muthukrishnan, Maleki, Ovens, Reinhold, Forghani & Forghani, 2020), in the literature. The concept of artificial intelligence is most defined as "*the technology that allows machines to produce human-like solutions by imitating human thinking when faced with complex problems"* (Coleman, 2021). Although there are definitions made from different perspectives, it seems that research on AI has reached a consensus on this definition (Niu, Tang, Xu, Zhou & Song, 2016; Tambe *et al.,* 2019; Haenlein & Kaplan, 2019; Hassani, Silva, Unger, TajMazinani & Mac Feely, 2020; Shneiderman, 2020; Leslie, Burr, Aitken, Cowls, Katell & Briggs, 2021; Russell & Norvig, 2022). The aim is to make machines perform behaviors defined as human-specific intelligent behaviors through software and thus benefit people (Niu *et al.*, 2016; Jain, 2017; Tiftik, 2021).

There are some factors that have a direct or indirect impact on the activities of businesses in the 21st century. The most important of these are globalization, government policies and technological developments. The most dynamic of these elements is technological developments. Therefore, businesses should follow technological advancements with all their functions. Emerging technologies should be quickly added to business processes and business models and used to provide benefits for the business. In this context, it is seen as extremely important to use AI technology, one of the most important technologies of the 21st century, in the field of HR, one of the most important functions of organizations (Tambe *et al.,* 2019). The new HRM approach, expressed as e-HRM, has undertaken important tasks such as helping

employees in the organization reach the desired level and improving the relations between managers and employees. In this way, it is aimed to create a more effective HRM from a strategic perspective. The use of artificial intelligence in HRM is aimed at gaining a competitive advantage through advances in HRM-related applications such as data processing, planning and control (Ghazzawi & Accoumeh, 2014; Eubanks, 2022).

There are issues where AI technology and HRM interact. Among these topics, automation of low-profile and repetitive tasks come into prominence. AI technology saves time, which is one of the most important factors for managers. Thanks to AI technology, managers allocate more time to their important tasks and productivity increases (Song & Wu, 2021). HRM refers to the data produced in the business; HRM personnel or managers can access data about employees. Authorized managers or employees can access other employees' performance data, team information and work history data. Thanks to AI technology, employees can easily access individual information such as the authorized person to call in case of emergency, days available for vacation, and the approval status of vacation requests (Jain *et al.,* 2020). With AI technology, unit managers can see what employees need training on and organize these trainings. After the training, they can monitor the developments of the employees and evaluate the efficiency of the training. In short, it is stated that the use of AI technology in HRM provides benefits in HR functions such as self-service applications, recruitment, talent tracking and development, reporting and salary calculation (Vrontis, Christofi, Pereira, Tarba, Makrides & Trichina, 2021). For this reason, HR managers who prioritize AI technology are trying to adapt this technology to HRM functions. It can be stated that the main reason behind this situation is the increase in organizational productivity (Tiftik, 2021; Laumer & Morana, 2022).

With the use of neural networks in the 2010s, applications such as deep learning, natural language processing and model design have become widespread in businesses leveraging big data (Li & Zhou, 2022; Fanni, Febi, Aghakhanyan & Neri, 2023). In this way, AI technology studies based on the decision-making abilities of computers just like a human have accelerated. However, it is stated that the number of AI applications for employee management is not sufficient yet (Tambe *et al.,* 2019; Vrontis *et al.,* 2021). It is stated that the HRM function is heading towards a digital revolution in the 2020s. Today, HRM aims to increase efficiency by utilizing cloud computing, data analysis and artificial intelligence technologies. Many companies benefit from technologies such as chatbot (digital assistant), robot process automation and machine learning in HRM support programs such as customer relations, chat, scanning and job compliance (Kişi, 2022). Academic studies on the use of AI technology in HRM functions have revealed the positive and negative effects of this situation. The positive effects of using AI technology in HRM functions are these (Huet, 2016; Bukrek, 2018; Yawalkar, 2019; Kang, Kim, Loh & Bichelmeyer, 2021; Kumar, Sharma, Bhargavi & Ramesh, 2022; Yuan, Qi, Dai & Liang, 2022; Zhou, 2022; Pomperada, 2022; Li & Zhou, 2022; Cui & Gu, 2023, Abdul-Rahman, 2023):

- It saves time for managers in recruitment and increases efficiency by accelerating processes. Companies such as Facebook, General Electric and Aptitude Test use AI in the recruitment phase.
- AI-based applications such as Microsoft 365, Obie and Niles, and Engazify benefit businesses in terms of productivity, information sharing, and feedback.
- Artificial intelligence technology offers advantages in determining training and monitoring the results of these trainings. Dualingo, in the field of language learning, Wade and Wendy provide businesses with career development opportunities.

- Artificial intelligence offers great opportunities in reviewing and automating written and oral exams. Software like Amy and Clara are used to schedule interviews and meetings.
- The performance of HRM systems can be increased by reducing information overload with machine learning algorithms.
- Data will be easy to store, protect and track. In this way, companies will increase their effectiveness in performance management and talent management.
- AI can contribute to the development of transformational leadership and smart solutions in the HR field.
- AI benefits the development of strategic HRM.
- In SMEs, BD mining and analysis technology can improve the solution of HR quality management problems, reduce performance evaluation management, and reduce the loss of internal talent.
- The use of AI in the HRM field supports the transition to green HRM practices.

The use of AI in HRM leads to positive impacts in recruitment, performance management, training and development, planning, knowledge management, compensation, and reward management. Despite these positive effects, the use of AI in HRM may also produce some negative effects. These are (Shilpa & Gopal, 2011; Ochmann & Laumer, 2020; Tiftik, 2021; Yeşilkaya, 2022; Liu, Wan & Yu, 2023; Kanojia & Joshi, 2023; Sarıalai & Yanpar, 2024):

- The use of artificial intelligence in the recruitment process may cause negative effects such as high costs, lack of technical expertise and ethical problems.
- The flexible working feature that artificial intelligence brings to processes can cause stress for employees. This leads to mental and physical strain, and as a result, employee productivity decreases.
- The use of AI in the HR field can cause problems with data security. Measures to be taken regarding data security increase operating costs.
- AI can lead to the weakening of high-level skills, decreased social interaction, and increased technological dependency.
- Some negatives may arise due to the lack of human element (empathy, intuition, etc.) in decision-making processes.
- As a result of digital transformation, some jobs may disappear.
- The limitations of small businesses and the prejudiced and negative attitudes of employees towards AI-based management also reduce the effectiveness of AI use in HR.
- As a result of the use of AI in HRM, ethical issues regarding justice and legal obligations may arise among employees.

When developing strategies for the use of AI technology in HRM functions, managers should take the above-mentioned disadvantages into consideration and adopt a proactive approach to these disadvantages. Undoubtedly, the most important of the listed negatives are the ethical problems. There are suggestions by various organizations regarding the ethical dimension of AI. The most prominent of these are the OECD's *"Artificial Intelligence Principles"* and UNESCO's *"Recommendation on the Ethics of Artificial Intelligence"*. The OECD's core principles on AI and ethics are *"human-centeredness (protection of human rights), trustworthiness, transparency, accountability, inclusiveness and social well-being"* (OECD, 2024). UNESCO state that artificial intelligence should be used in accordance with critical issues such as *"human rights, social equality and sustainability"* (UNESCO, 2021). It is

extremely important that managers who plan to use AI in HR functions take these ethical principles into consideration to prevent possible ethical problems.

Methodology

This study employed a qualitative research method. A qualitative research method was chosen to thoroughly capture participants' opinions, suggestions, and perspectives. It was thought that the interview method, one of the qualitative research methods, would be more appropriate for the participants to answer questions such as *"why, how and in what way"* and to examine the subject in depth. In this research with a phenomenological design, the interviews were conducted in the form of semi-structured interviews to provide more benefit to the participants. The selection of participants was determined by the purposive sampling method.

Persuasiveness

While preparing the research questions within the research, expert opinion was taken, and cross-coding was done before the qualitative analysis. In addition, the research questions were tested by conducting a focus group study of five people before the field research. The interviews were conducted in Turkish as it is the native language of the participants. The research questions were prepared in Turkish and then translated into English. To understand whether the Turkish and English versions of the questions have the same meaning, they were translated from English back to Turkish and back-translation.

Research Questions

Within the scope of the research, participants were asked 11 demographic questions about the company and themselves, and 12 research questions about the research. Demographic questions such as *"sector and business age"* were asked to obtain information about the company. Other demographic questions such as *"age, marital status, gender, position, education level (himself/herself), mother's education level, father's education level, working time in the company and working time in the current position*" were asked to obtain information about the managers. There are important points to know to reveal managers' views on the use of artificial intelligence in HRM. This information includes the general view of the business, recruitment methods, training and development processes, wage management policies, views on digital transformation and industry 4.0 technologies used in business. In addition to this information, the views of the interviewed managers on the recruitment processes and digital transformation activities in the company are also important. With the perspective created by this information, it is aimed to reveal the views of managers on the use of artificial intelligence in HRM, the positive and negative effects of the use of artificial intelligence in HRM, and their opinions and suggestions on this subject. In this context, 12 research questions were created to be asked to the participants. The research questions created are listed as follows:

1. Give brief information about your company.
2. Give information about your process of getting into this job.
3. "Change" is an inevitable element of today's world. It is known that especially the concept of "digital transformation" provides strategic competitive advantage to businesses. In your opinion, how are these concepts perceived in your company? Explain by giving an example.
4. Does your company have activities such as allocating a budget for digital transformation and providing training to employees and managers on this subject? Explain by giving an example.
5. With Industry 4.0, it is seen that technologies such as cyber-physical systems, internet of things and artificial intelligence have become important, and these technologies are

included in business processes and business models. Which of these technologies is currently used in your company? Explain by giving an example.

6. How does your company's recruitment process work? Explain by giving an example.
7. What are the training and development activities in your company? Explain by giving an example.
8. Provide information about the wage and reward policies in your company.
9. It is seen that important companies around the world (Amazon, Facebook, General Electric) use artificial intelligence technology in HRM. What are your opinions on this subject? Explain with reasons.
10. In your opinion, what are the positive effects of using artificial intelligence technology in HRM? Explain with reasons.
11. In your opinion, what are the negative effects of using artificial intelligence technology in HRM? Explain with reasons.
12. Apart from the questions I asked about the use of artificial intelligence technology in HRM, can you share any issues you think will contribute to it?

Data Collection and Analysis

Research data were collected through face-to-face semi-structured interviews with participants between January 25, 2024, and March 10, 2024. Participants were determined by the purposive sampling method. Within the scope of the research, it was aimed at interviewing the managers of companies operating in the central district of Edirne and having an HR and other departments. For this purpose, an offer was made to all medium and large-scale business managers in the central district of Edirne. Among them, 33 managers agreed to participate in the interviews. The interviews were concluded once data saturation was reached, as responses to the research questions began to repeat. The concept of *"data saturation"* is a scientific term widely used in qualitative research. The collected data was subjected to content analysis and descriptive analysis with the help of the MAXQDA 2020 program.

Ethics

Prior to the study, ethical approval was obtained from the Trakya University Social Sciences and Humanities Research Ethics Committee for the interview questions and overall research (Approval Date: January 24, 2024; Session No: 2024/01; Decision No: 2024.01.15). The participants who were interviewed within the scope of the research were read an informative text stating that their private information such as name and title would not be used in the research and that the data obtained from the interview would not be used outside the research in question, and their approval was obtained.

Findings

The research findings were examined in three groups: findings regarding companies, findings regarding participants, and findings regarding interview analysis.

Findings on The Demographic Characteristics of Companies

11 demographic questions about the company and the participant in the research, and in addition to these, the first research question (information about the company) was assigned as document variables, and 12 document variables were determined. The other 11 research questions were determined as document codes. However, since the need to open two codes emerged in the sixth research question, a total of 12 document codes were defined. The answers given by the participants to the research questions formed the sub-codes in the documents. A

total of 76 subcodes were assigned for analysis and document coding was done with these subcodes.

First, Table 1, which was created with the help of the MAXQDA 2020 program document variable editor and citation matrix, should be examined, which includes brief introductions of the interviewed companies about the sector, business age and company. Information about the company was compiled from the statements of the interviewed officials about the company. Notations in the form (Interview-x, Position y) show the expression at position y of interview-x.

Table 1: Data on Interviewed Companies

Interview	Sector	Business Age	Information About Firm
Interview-01	Finance-Banking	68	*Our company's vision is to be the first choice of customers and employees by becoming the undisputed leader of the financial sector with its steady growth and value creation actions (Interview-01, Position 8).*
Interview-02	Production-Textile Factory	49	*We are a textile company founded in Edirne in 1975. We produce men's suits. We export the products we produce abroad. We produce for the world's leading brands (Interview-02, Position 8).*
Interview-03	Production-Textile Factory	49	*Our company was founded in 1975. We produce garments and men's suits. Approximately 1100 people work in our company. We export 95% of our production (Interview-03, Position 8).*
Interview-04	Retail-Automotive Dealer	6	*We are a joint stock company established in the automotive sector with a capital of 40 billion TL. 35 personnel are employed in this office in Edirne. 100% of our company's shares are open to the public (Interview-04, Position 8).*
Interview-05	Service/Tourism-Hotel	10	*We started operating as a 5-star hotel in Edirne in 2013. We have been serving for more than 10 years with 160 rooms, 6 meeting rooms, 1 swimming pool and 60 employees (Interview-05, Position 8).*
Interview-06	Finance-Banking	78	*We are a company that has been operating in the banking sector for 78 years (Interview-06, Position 8).*
Interview-07	Finance-Banking	27	*We started operating in the banking sector in 1997. We have 659 branches and over 18 million customers nationwide (Interview-07, Position 8).*
Interview-08	Service-Fast Food	10	*We are one of the first companies that come to mind in the fast-food industry worldwide. This branch of ours in Edirne was opened 10 years ago. As of now, we have 40 employees (Interview-08, Position 8).*
Interview-09	Service-Restaurant and Animal Products Sales	27	*It is a domestic food producer and restaurant chain that imports and exports Ready Meals, Live Animal Meat Products and Integrated Food (Interview-09, Position 8).*

Interview-10	Retail-Supermarket Chain	28	*We are a company operating in the retail sector. We were established in 1995. We are one of the most widespread retail markets in Turkey. We have the highest market share in the retail sector in Turkey. We have approximately 80,000 employees nationwide (Interview-10, Position 8).*
Interview-11	Service-Logistics-Cargo	21	*We are one of Turkey's leading cargo companies. We were founded in 2003. As of 2024, we have more than 850 branches, 27 transfer centers and more than 12,000 employees (Interview-11, Position 8).*
Interview-12	Service-Telecommunication	18	*We are one of the leading telecommunication companies in Türkiye and worldwide. Our company is headquarters in England. We have over 100,000 employees worldwide (Interview-12, Position 8).*
Interview-13	Service-Cafe	20	*In the service sector, we provide self-service non-alcoholic coffee and ready-made food services. We are a company famous for our coffees around the world. (Interview-13, Position 8)*
Interview-14	Healtcare-Private Hospital	28	*We have been serving as a private hospital in the healthcare sector since 1996. We have a capacity of 41 beds and two operating rooms. We also have adult and newborn intensive care units (Interview-14, Position 8).*
Interview-15	Production-Food-Catering	35	*We are a catering company affiliated with a leading holding company in Turkey. Our holding has a textile factory in Edirne. We also produce bulk meals for this factory and other companies that request it (Interview-15, Position 8).*
Interview-16	Production-Food-Catering	35	*We are a mass food production company that prioritizes hygiene and quality. We are a subsidiary of one of Turkey's largest companies. We produce food for up to 20,000 people daily. We have been working since 1989 (Interview-16, Position 8).*
Interview-17	Production-Food-Catering	35	*We are a mass catering company belonging to a large holding company known throughout the country. We produce food for both the employees of our own holding factory and other companies that request it. We have been operating for 35 years (Interview-16, Position 08).*
Interview-18	Production-Textile-Confection	86	*Our company was founded in 1938 as a business selling fabric to produce men's suits. Production of men's shirts and trousers started in 1965. Our first sales store was opened in Beyoğlu, Istanbul. We are a company that cares about its employees and can be trusted by customers. Our company is at the highest level in the sector (Interview-18, Position 8).*

Interview-19	Production-Food Industry	9	*We are a food company that produces oil, powdered food, and liquid pastry. We operate in both domestic and foreign markets. We have integrated production facilities in Tekirdağ Hayrabolu, Istanbul Esenyurt and Edirne Center. In this integrated oil facility in Edirne, which was established in 2015, oil seeds (sunflower, corn and canola) are crushed, and oil is produced. The produced oil is packaged after filling and offered for sale. We produce oil with a well-known oil brand in the domestic and foreign markets. We are among the top 10 companies in Turkey in both refined and crude oil production. We attach importance to quality in production. We have BRC, ISO 9001, ISO 22000, ISO 27001, and Halal Production certificates (Interview-19, Position 8).*
Interview-20	Education-Private School/College	4	*We are a private college providing education at kindergarten, primary school, secondary school and high school levels. Our company's brand is one of the most pioneering brands in the field of education in our country. We started operating in Edirne as of the 2019-2020 academic year. As of now, we have around 700 employees. We have sports, culture and art areas classified according to the age groups of the students (Interview-20, Position 8).*
Interview-21	Retail-Clothing	48	*We are a company that has been retailing women's, men's, and children's clothing products since 1976. We sell through a multi-storey store system. Our first store was opened in Adana in 1976. We have 24 stores operating as multi-storey stores across the country. In addition to this store in Edirne, thousands of products from many brands are sold in a total area of 88,000 square meters in the provinces of Adana, Istanbul, Konya, Mersin, Gaziantep, Kayseri, Kocaeli, Eskişehir, Sakarya, Tekirdağ and Denizli. We have over 1,500 employees across the country. We are a company focused on growth and development, committed to our vision and mission (Interview-21, Position 8).*
Interview-22	Retail-Supermarket Chain	70	*We are a chain market where everything from A to Z can be found, with branches in every city and district across the country. We were founded in 1954. We are celebrating our 70th anniversary this year (Interview-22, Position 8).*
Interview-23	Retail-Supermarket Chain	70	*We are a hypermarket chain that has been operating for 70 years, where you can find everything from white goods to dry food, textiles to fresh fruit. We are the first chain market in Turkey. We currently operate in almost every city and district of the country (Interview-23, Position 8).*
Interview-24	Production-Vegetable Oil Industry	52	*We operate in an integrated facility that produces vegetable oil (sunflower, corn, olive, and canola). Our company is one of the most established companies in Edirne. We have been operating for 52 years. We have 180 employees. We sell both domestically and abroad. We have many quality management system documents (Interview-24, Position 8).*

Interview-25	Production-Vegetable Oil Industry	52	*Founded in 1972, we are an integrated facility that produces vegetable oil and sells both domestically and internationally. We have 150 employees. Quality and safety are our priorities (Interview-25, Position 8).*
Interview-26	Production-Textile Factory	71	*We were founded in 1953. We operate in the textile industry. We have an integrated facility operating in a 100,000 m^2 closed area. We have yarn, weaving and dye finishing departments. We have a total of 550 employees working in these departments. We will hire 50 more people these days (Interview-26, Position 8).*
Interview-27	Production-Agricultural Production	30	*We are a family company that has been engaged in agricultural production for 30 years. In addition to agricultural production, we also operate in areas such as food, mining, construction, international transportation, construction, and forest products. Most of our commercial activities are in the Thrace Region. A total of 500 people work in our company. This number reaches 1,000 people including seasonal workers (Interview-27, Position 8).*
Interview-28	Retail-Automotive Dealer	30	*We are a dealer that carries out the sales, technical service, and spare parts operations of a world-famous automotive brand. We have been operating for 30 years. We have an important place in the sector (Interview-28, Position 8).*
Interview-29	Education-Private School/College	6	*We are a private school founded by two teachers. We operate only in Edirne. We do not have a branch in any other province. We have kindergarten, primary school, middle school and high school classes. We currently have approximately 100 employees. 65 of them are teachers, the others are assistant cooks, cleaners, etc. (Interview-29, Position 8).*
Interview-30	Production-Textile-Confection	2	*We are a company that manufactures textiles. Our company was established with 100% foreign capital. This business was opened in Edirne due to reasons such as proximity to Europe and labor costs. All of our products are exported. We currently have approximately 50 employees (Interview-30, Position 8).*
Interview-31	Education-Private School/College	30	*We are an innovative private training institution working under a central corporate training company. We are a company founded in 1994. We have our own education model. Our branch in Edirne was opened in 2012-2013. We have Kindergarten, primary school, secondary school, Anatolian High School, and Science High School (Interview-31, Position 8).*
Interview-32	Retail-Liquid fuel	1	*We are a company operating in Edirne Center, belonging to a world-renowned fuel brand (Interview-32, Position 8).*
Interview-33	Finance-Banking	160	*As a public bank operating in the banking sector, our bank, in addition to being a bank for farmers and retirees with agricultural activities, also supports entrepreneurs involved in these activities to contribute to manufacturing and export-oriented growth. (Interview-33, Position 8).*

As seen in the table, businesses from different sectors were interviewed within the scope of the research. It is seen that some of the interviewed companies' activities are regional, while some of their activities are national and even worldwide. While some of the companies operate only domestically, some also operate abroad. When looked at in terms of business age, meetings are held with businesses at all levels, from businesses that are only one year old to businesses that are 160 years old. In this context, it is understood that interviews were held with the managers of the branches of Turkey and the world's leading companies operating in Edirne Central District.

Findings on The Demographic Characteristics of Participants

Nine variables were determined regarding the demographic characteristics of the interviewing managers. The first of these variables is the age variable. Managers were asked about their age in an open-ended manner. In this section, it is shown categorically to make it neater and more understandable. Demographic characteristics of the interviewed managers, such as gender, age, marital status and educational levels, are shown in Table 2.

Table 2: Demographic Characteristics of the Interviewed Managers

Gender	**Gender**	**Frequence (Number)**	**Frequence (%)**
	Man	24	72.7
	Woman	9	27.3
	Total	*33*	*100*
Age Groups	**Age Group**	**Frequence (Number)**	**Frequence (%)**
	20-30	5	15.2
	31-40	11	33.3
	41-50	14	42.4
	51-60	3	9.1
	Total	*33*	*100*
Marital Status	**Marital Status**	**Frequence (Number)**	**Frequence (%)**
	Married	24	72.7
	Single	9	27.3
	Total	*33*	*100*
Participant Education	**Education Level**	**Frequence (Number)**	**Frequence (%)**
	High School	6	18.2
	Junior Collage	3	9.1
	University	14	42.4
	Master	10	30.3
	Total	*33*	*100*
His/Her Mother Education	**Education Level**	**Frequence (Number)**	**Frequence (%)**
	Primary School	13	39.3
	Secondary School	2	6.1
	High School	9	27.3

	Junior Collage	3	9.1
	University	5	15.2
	Master	1	3
	Total	*33*	*100*
His/Her Father Education	**Education Level**	**Frequence (Number)**	**Frequence (%)**
	Primary School	12	36.4
	Secondary School	4	12.1
	High School	7	21.2
	Junior Collage	2	6.1
	University	7	21.2
	Master	1	3
	Total	*33*	*100*

It is seen that 24 (72.7%) of the 33 participants are male and nine (27.3%) are female. This indicates the low number of female managers. It was seen that 14 (42.4%) of the interviewed managers are in their 40s and 11 (33.3%) are in their 30s. It is seen that there are five (15.2%) managers in the young age group in their 20s, and three (9.1%) in the older age group in their 50s. In summary, 25 (75.8%) of the 33 managers interviewed were in their 30s or 40s. It was observed that 24 (72.7%) of the 33 managers interviewed were married and nine (27.3%) were single. When we look at the education levels of the participants, it is seen that the groups with the highest frequency are university graduates (14 people and 42.4%). Considering the education levels of mothers, it is seen that the group with the highest frequency is primary school graduates with 13 people (39.3%). Considering the educational status of the participants' fathers, it is seen that the group with the highest frequency is primary school graduates with 12 participants (36.4%).

The last three document variables are position, tenure at the current company and tenure in the current position. The distribution of participants according to position of participating manager is shown in Table 3.

Table 3: Distribution of Participants by Position

Position	Frequence (Number)	Frequence (%)
Branch Manager	9	27.3
HR Manager	7	21.2
Project Manager	3	9.2
School Manager	3	9.2
Regional Director	2	6.1
Operation Manager	1	3
Administrative Affairs Manager	1	3
Accounting Manager	1	3
Assistant Store Manager	1	3
Sales Responsible	1	3
Quality System Chief	1	3

Quality Manager	1	3
Technical Service Manager	1	3
General Manager	1	3
Total	33	100

When the positions of the 33 managers interviewed within the scope of the research are examined, it is seen that the positions with the highest frequency are Branch Manager (9 people and 27.3%) and HR Manager (7 people and 21.2%).

The last two variable are tenure at the current company and tenure in the current position. This variables are given together in Table 4. These questions were asked by the participants in an open-ended manner. They are given categorically on the table so that they can be viewed regularly.

Table 4: Distribution of Participants by Tenure

Tenure	**At The Current Company**		**In the Current Position**	
	Frequence (Number)	**Frequence (%)**	**Frequence (Number)**	**Frequence (%)**
0-5 Year	13	39.4	17	51.5
6-10 Year	7	21.2	10	30.4
11-15 Year	5	15.2	1	3
16-20 Year	3	9.1	3	9.1
21-25 Year	4	12.1	1	3
25+ Year	1	3	1	3
Total	*33*	*100*	*33*	*100*

Based on the table, it is seen that as the range of years worked increases, the number of managers working in that year's range decreases. The same situation is observed in the working period in the current position. It is seen that as the work in the current position increases, the number of managers working in that range decreases.

Findings from Analysis of The Interviews

Coding was done by making use of the codes and subcodes created during the data analysis phase of the research. The codes used in the research and their subcodes are shown in Table 5 prepared with the help of MAXQDA program Code Matrix Browser.

Tablo 5: The Codes and Sub Codes Used In The Research.

Code	**Sub Codes**
Participant's Recruitment Process	Taking Offers
	Exam-Interview-Training
	With The Help of Friends
	By Seeing The Job Posting and Applying
Perception of Digital Transformation (P.O.D.T.)	Positive P.O.D.T.

	Negative P.O.D.T.
Budget and Training for Digital Transformation (B.A.T.F.D.T.)	There Is B.A.T.F.D.T.
	There Isn't B.A.T.F.D.T.
Used Technologies	Mobile Application
	Automation Software
	3d Printer
	Smart Board
	Robotic Coding Sets
	Virtual Store Application
	I Have No Technical Knowledge
	Digital Menu
	Digital Label
	None
	QR Code
	Virtual Reality
	Cyber Security
	Block Chain
	Online Payment Systems
	Cloud Systems
	Artificial Intelligence
	Cyber Physical Systems
	Internet Of Things (IOT)
Recruitment Process	Training Process
	Tracking of Students
	Face-to-Face Application
	Online Application
	Interview
	Exam
Training and Development Activities	Adaptation Trainings
	Customer Relations Training
	Planning Trainings
	Brand Trainings
	Career Trainings
	Social Trainings
	Manager Development Trainings
	Technical Trainings
	Quality Trainings
	Digital Transformation Trainings
	Vocational Trainings
	Occupational Safety Trainings
	Environmental Trainings
Education Format	Online Training
	Face-to-Face Training
Wage and Reward Policy	No Answer As Per Company Policy

	Improvement Based on Seniority
	Gift Packages for Special Occasions
	Premium at Varying Rates Based on Performance
	Equal Premium
	Wage
Opinion on the Use of AI in HRM	Abstaining
	Supportive
Positive Effects of Using AI in HRM	Competitive Advantage
	Effective Management of Training And Development Activities
	Performance Tracking
	Saving Managers Time
	Increased Productivity
	Elimination of Errors
	Acceleration of Processes
Negative Effects of Using AI in HRM	Eliminating People
	Reliability Concern
	Inability to Go Beyond Certain Patterns
	Disadvantages That May Occur Due to Lack of İnfrastructure
	Concerns About The Privacy of Personal Data
	Concern About Creating Unemployment
	Lack of Empathy
	Lack of Emotions and Intuition
Opinion and Suggestions	Should Become Widespread
	Data Security Must Be Ensured
	Investment Should Be Made in Infrastructure
	AI+Human Factor
	Fear

As shown in the table, the 12 codes listed are Participant's Recruitment Process, Perception of Digital Transformation in data analysis (P.O.D.T.), Budget and Training for Digital Transformation (B.A.T.F.D.T.), Used Technologies, Recruitment Process, Training and Development Activities, Education Format, Wage and Reward Policy, Opinion on the Use of AI in HRM, Positive Effects of Using AI in HRM, Negative Effects of Using AI in HRM and Suggestions were used. A total of 76 subcodes were used under 12 codes. The Single Case Model created with the MAXQDA program, which includes the 20 most frequently coded subcodes in the analysis of the data obtained within the scope of the research, is shown in Figure 1.

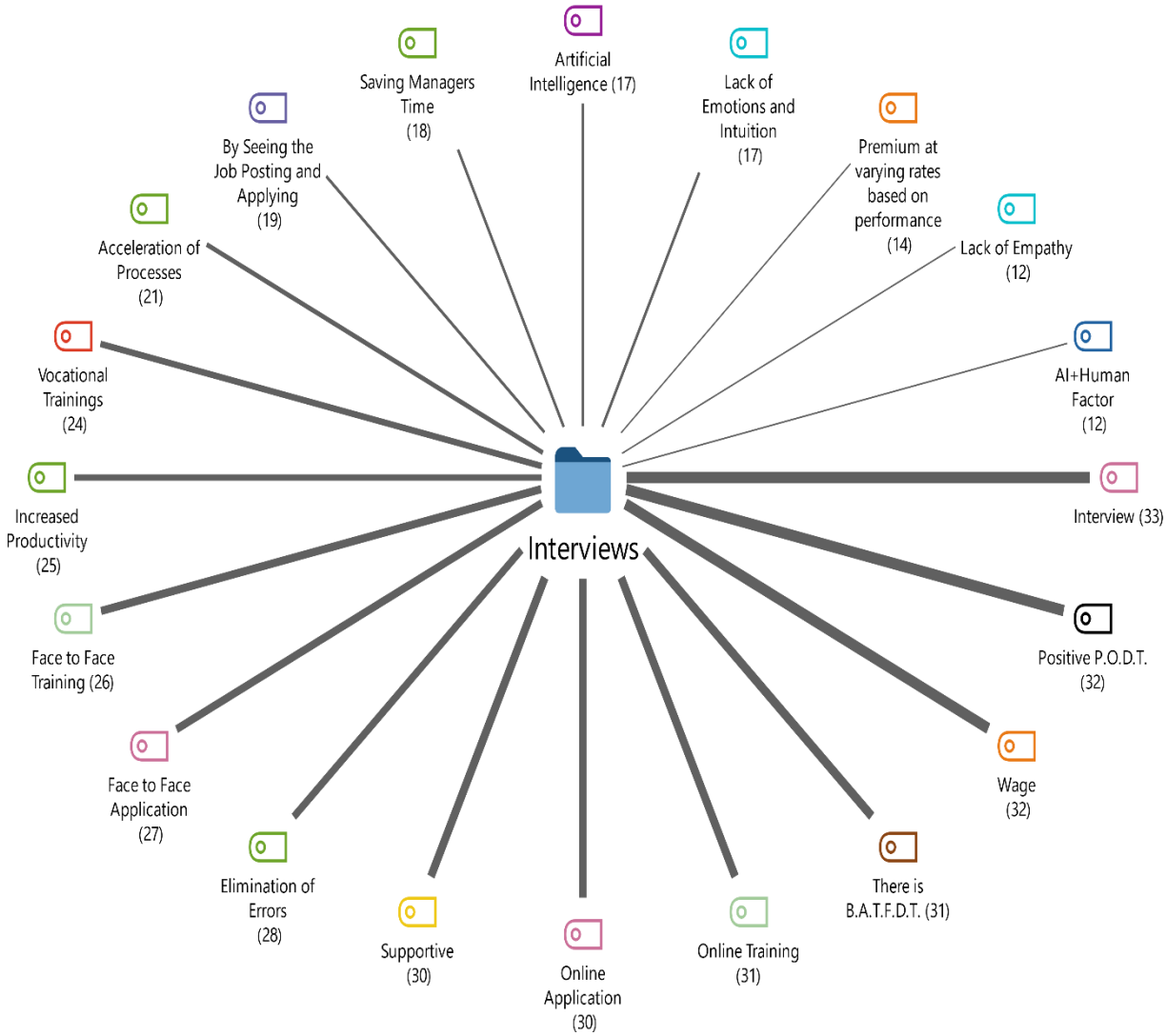

Figure 1: Distribution of the 20 Most Frequently Coded Codes (Single Case Model)

As seen in Figure 1, the most frequently coded subcodes are *"Interview (33), Positive P.O.D.T. (32), Wage (32), There is B.A.T.F.D.T. (31), Online Training (31), Online Application (30), Supportive (30), Elimination of Errors (28), Face-to-Face Application (27), Face-to-Face Training (26) and Increased Productivity (25)"* codes. These are *"Vocational Trainings (24), Acceleration of Processes (21), By Seeing the Job Posting and Applying (19), Saving Managers Time (18), Artificial Intelligence (17), Lack of Emotions and Intuition (17), "Premium at varying rates based on performance (14), Lack of Empathy (12) and AI+Human Factor"* codes followed.

Seven of the interviewed participants are HR managers, and the other 26 participants are other unit managers. Two Cases Model in Figure 2 should be examined to see how this situation creates differences in the answers given and therefore in the coding made.

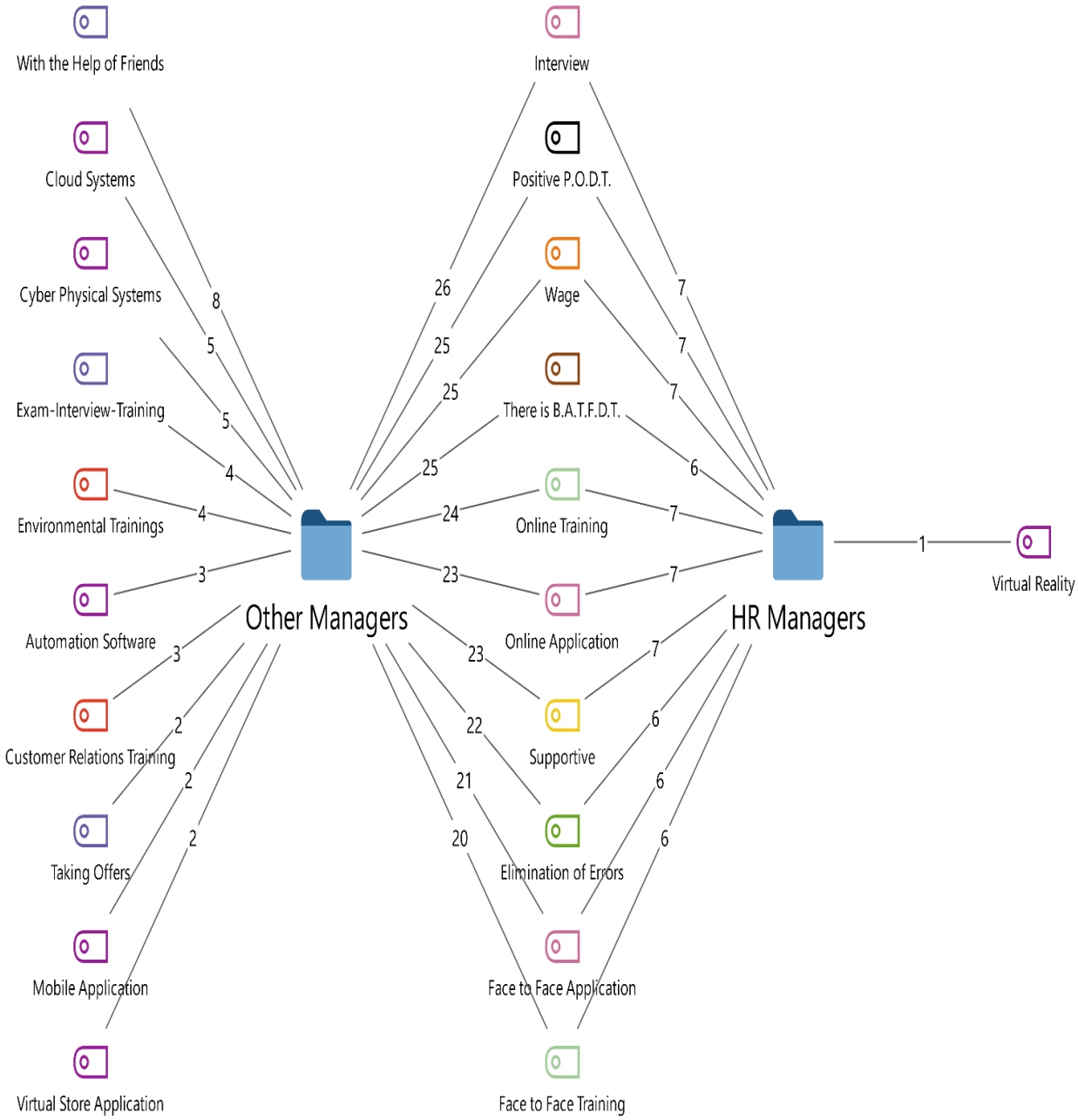

Figure 2: Comparison of Answers of HR and Other Unit Managers (Two Cases Model)

Based on the model, eight managers from other unit managers found their jobs through referrals from friends, unlike HR managers, and four people got the job through the exam-interview-training process, and HR managers gave more diverse answers about the technologies used in the company and the training received. In addition, it is understood that they gave similar answers on topics such as Recruitment, Perception of Digital Transformation (P.O.D.T.), Budget and Training for Digital Transformation (B.A.T.F.D.T.), Wage and Reward Policy, Training and Development Activities, Opinion on the Use of AI in HRM and Negative Effects of Using AI in HRM.

In this section, the subcodes created under the codes determined by the research questions, their frequencies and quotes from the interviews will be included. The company introduction data in the first research question was given in Table 1. With the second research question, data on the employment processes of the interviewed managers were accessed. The

subcodes created under the *"Participant's Recruitment Process"* code and their frequencies are shown in Table 6.

Table 6: Participant's Recruitment Process

Subcodes	Frequence
By Seeing the Job Posting and Applying	19
With the Help of Friends	8
Exam-Interview-Training	4
Taking Offers	2

The most frequently mentioned code in the recruitment processes of the interviewed managers is *By Seeing the Job Posting and Applying (19).* During the interviews, a manager expressed this situation as follows:

> *I applied to the advertisement opened through the website "Kariyer.net". A face-to-face preliminary meeting was held. The second meeting was held by senior managers at the head office. I was accepted for the job. Later, I received training as a trainee manager. At the end of the training process, I started working (Interview-08, Position 10).*

The with the help of friends (8), *exam-interview-training (4)*, *taking offers (2)* subcodes was followed *by Seeing the Job Posting and Applying* code. The third research question aimed to measure the participants' perceptions of digital transformation in the company. The codes used in this regard and their frequencies are shown in Table 7.

Table 7: Perception of Digital Transformation

Subcodes	Frequence
Positive Perception of Digital Transformation	32
Negative Perception of Digital Transformation	1

In the interviews, 32 of the 33 participants stated that they had a positive perception of digital transformation. This situation was expressed as follows in the interviews:

> *Digital transformation is important in our company. The most important digitalization applications in the hotel industry are virtual hotel tours and digital reservation systems. Customers can browse hotels and make reservations from their mobile phones or other mobile devices. One of these applications, digital reservation application, is used in our hotel (Interview-05, Position 12).*

In one of the interviews, the participant emphasized the *negative perception of digital transformation.* This situation was conveyed as follows in the interview:

> *I think it is a cultural decision to extend our bank's digital transformation to its own employees and throughout the institution. I think the internal dynamics are far from this perception yet, they cannot follow it and the expectations are different (Interview-33, Position 12).*

In the fourth research question, participants were asked whether the company had activities such as allocating a budget and organizing training regarding digital transformation. The subcodes determined in this regard and their frequencies are shown in Table 8.

Table 8: Budget and Training for Digital Transformation

Subcodes	Frequence
There is Budget and Training for Digital Transformation	31
There isn't Budget and Training for Digital Transformation	2

In 31 of the interviews, participants stated that their companies allocated a budget for digital transformation and trainings were planned. This situation was conveyed as follows in the interviews:

> *Yes, we are trying to receive training whenever possible. We receive this training sometimes internally and sometimes externally. We allocate a budget for this matter. For example, we received training to use drone technology in agricultural spraying. We are currently doing agricultural spraying with drones (Interview-27, Position 14).*

In two of the interviews, participants stated that no budget was allocated for digital transformation in their companies and no training was planned. This situation was expressed as follows in the interviews:

> *Change and transformation is an expensive business. For this reason, as of now, our company does not have a budget allocated or planned training activities on this subject (Interview-26, Position 14).*

In the fifth research question, participants were asked about the technologies used in the company. The subcodes created with the answers received, their frequencies (Fr.) and quotes from the interviews are shown in Table 9.

Table 9: Technologies Used in The Company

Used Technology	Fr.	Quote from Interviews
Artificial Intelligence	17	*We use artificial intelligence in issues such as performance evaluation, employee tracking and rewarding. For example, daily, weekly and monthly performances of employees are constantly monitored and stored in the system. Managers analyze this data and reward employees who are ahead of others. In addition, it is also monitored in which areas employees are more effective. This issue offers us an opportunity in terms of career management (Interview-21, Position 16).*
Internet of Things (IOT)	9	*Digitalization developments are included in our business processes. In our company, the technology of objects has started to be used by incorporating it into our business processes (Interview-24, Position 16).*
Cloud Systems	5	*The information systems we use simultaneously with our company's partners provide services with cloud system technology. The data obtained by our company and other companies is stored in the cloud database and can be used by managers and employees who have access rights when necessary (Interview-04, Position 16).*
Cyber Physical Systems	5	*Previously, manpower was used in our warehouses. It is currently managed automatically by a device called TARO. The infrastructure of this application uses cyber physical systems technology (Interview-22, Position 16).*
QR Code	4	*For example, we have a digital billboard in the restaurant. From here, you can access our company's official website with the QR code (Interview-08, Position 12).*
Online Payment Systems	4	*We use electronic payment systems in our restaurant and mobile applications (Interview-08, Position 16).*

I Have No Technical Knowledge	4	*Developing technological innovations are used in our company. However, since I have no technical knowledge on this subject, I cannot give detailed information (Interview-19, Position 16).*
Automation Software	3	*We use various automation systems. Vehicle tracking systems can be stated as an example of this. These systems are very useful for our staff and customers (Interview-32, Position 16).*
Mobile Application	2	*We also have a mobile application under our name for all our school activities. Our parents, students and teachers use this system (Interview-29, Position 16).*
Virtual Store Application	2	*Our company has an online ordering application (Interview-22, Position 16).*
None	2	*These technologies are not yet widely used in the primary healthcare services we provide (Interview-14, Position 16).*
3D Printer	1	*We have 3D printers in our IT classes (Interview-29, Position 16).*
Smart Board	1	*We use smart boards in all our classes (Interview-29, Position 16).*
Robotic Coding Sets	1	*Our coding classes include robotic coding sets suitable for all ages (Interview-29, Position 16).*
Digital Menu	1	*We use digital menu boards in our café (Interview-13, Position 21).*
Digital Label	1	*We use a digital label system for food and cash register products (Interview-13, Position 20).*
Virtual Reality	1	*Customers can browse hotels and make reservations from their mobile phones or other mobile devices. One of these applications, digital reservation application, is used in our hotel (Interview-05, Position 12).*
Cyber Security	1	*We use cyber security systems for personility and corporate security (Interview-01, Position 16).*
Blockchain	1	*Blockchain technology is among the technologies we use (Interview-01, Position 16).*

As seen in the table, the technologies used by the participants in their companies are grouped under 17 headings. The most frequently used of these technologies is stated as *artificial intelligence (17)*. Additionally, two participants stated that industry 4.0 technologies were *not used* in their companies and four participants stated that *they did not have technical knowledge.*

In the sixth research question, the participants were asked about the recruitment process applied in their companies. The subcodes, their frequencies, and qootes determined by the answers received are shown in Table 10.

Table 10: Recruitment Process Applications in The Company

Subcodes	**Frequence**	**Quotes from Interviews**
Interview	33	*Our company's recruitment process is as follows: Preliminary Interview; The HR department evaluates the candidate's suitability for the job according to experience, education, and age criteria. Interview; Managers evaluate the suitability of the candidate and the company's expectations. Evaluation and Decision; Candidates who are deemed suitable for the job are started to work (Interview-23, Position 18-20).*

Online Application	30	*We receive job applications online. They can send their CVs to us from the HR section on our website. We evaluate the CVs we receive (Interview-29, Position 18).*
Face-to-Face Application	27	*We hold two face-to-face meetings with blue-collar workers. Our HR officer conducts the first of these interviews, and I conduct the second interview (Interview-30, Position 18).*
Exam	5	*Competency and ability tests are conducted for job applicants (Interview-03, Position 21).*
Training Process	5	*If the conditions are mutually acceptable, the person is accepted for the job. The employees who are accepted for the job are included in the orientation training. After the orientation training, the employees start working in the relevant field (Interview-14, Position 21-23).*
Tracking of Students	1	*Through the programs carried out, personnel are selected from high school and university students (Interview-01, Position 18).*

The most frequently expressed subcode is *interview (33)*. All participants stated that property ownership is a practice in the recruitment process in their companies. It is understood that applications and interviews are made *face-to-face (27)* or *online (30)*. The code Co-Creation Model created with the help of the MAXQDA program is shown in Figure 3 to determine the co-implementation of the recruitment practices in the table in companies.

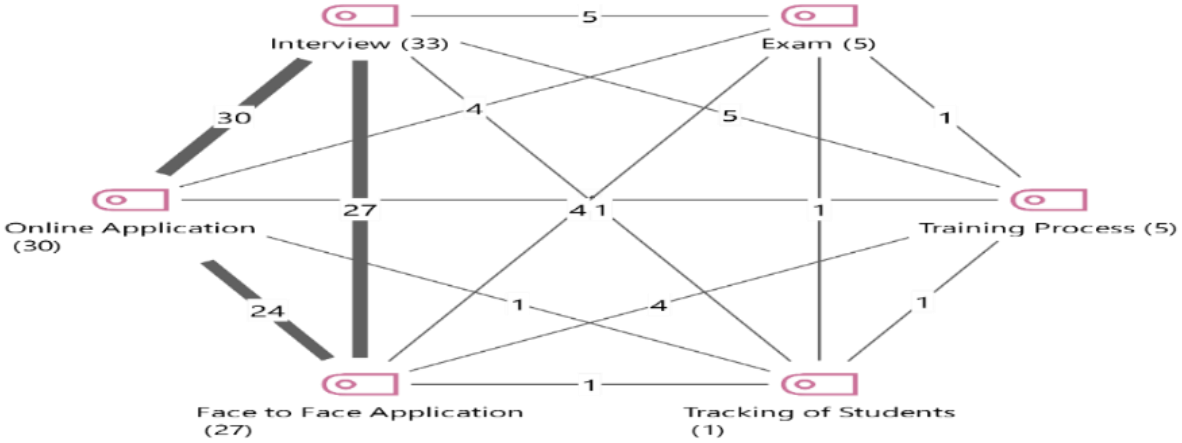

Figure 3: Intersection of Hiring Practices (Code Co-occurrence Model)

As seen in the figure, six recruitment practices were determined as subcodes, and coding was done. A total of 41 codings were made with these six sub-sections. *Interview* subcodes are coded in all documents. It is seen that the subcodes most frequently created together with this subcode are *Online Application (30)* and *Face-to-Face Application (27)*. This shows that face-to-face and online interview methods are coded in similar numbers. The interview format and interview method are two separate elements. For this reason, the total coding made in this regard may exceed the sample number. Coding the format and method together in the same sections causes this situation. Face-to-face and online interview methods were coded together 24 times. Furthermore, it is understood that the Exam, Training Process and Tracking of Students subcodes are all related to the interview method. This situation shows the importance of the interview method.

In the seventh research question, participants were asked about the training and development activities in their companies. The subcodes created with the answers received, their frequencies and quotes from the interviews are shown in Table 11.

Table 11: Training and Development Activities in The Company

Training and Development Activities	Fr.	Quote from Interviews
Vocational Trainings	24	*We have continuous training. These trainings are planned annually. Additionally, in some cases, unplanned training may occur. For example, an education letter came from AFAD these days. We will plan this and provide this training for our staff. The training our staff receives includes vocational training, occupational safety training, first aid training and environmental training (Interview-26, Position 20).*
Technical Trainings	10	*Our company allocates a significant budget for training activities. All our staff must receive 60 hours of annual training on digitalization, business processes and technical issues (Interview-06, Position 20).*
Quality Trainings	8	*There is a training system called "Star" in our company. We divided the work areas in our restaurant into stations. We provide training for our employees according to the stations they work in. We carry out observations and control of them. Employees who are successful in the training at the stations then begin to provide training to new employees (Interview-08, Position 20).*
Digital Transformation Trainings	8	*Our institution is very willing in this regard. For example, sustainability and digitalization training is provided to managers (Interview-06, Position 14).*
Manager Development Trainings	6	*We have a department headship that monitors the training and personal development issues of our bank. Legislative or personal development trainings are assigned to employees with different job positions, covering issues that are either common or related to their unit. These trainings are carried out by accessing our Bank's Banking School platform. Manager development trainings are among these trainings (Interview-33, Position 20).*
Brand Trainings	5	*In our company, brand trainings are carried out in which all personnel are included. Our branch ranks first in the region with 100% participation in these trainings (Interview-04, Position 20).*
Occupational Safety Trainings	4	*Occupational safety training is among the trainings our staff receive at regular intervals (Interview-28, Position 20).*
Environmental Trainings	4	*We organize environmental trainings attended by employees at all levels (Interview-02, Position 20).*
Customer Relations Training	3	*Customer relations training is also among the training we provide to our staff (Interview-22, Position 20).*
Social Trainings	3	*Weekly training topics are selected, and the same training is given simultaneously in all branches. Social compliance training can be given as an example (Interview-09, Position 20).*
Career Trainings	2	*The training we receive also includes Career and Development Training (Interview-03, Position 28).*
Adaptation Trainings	1	*We provide training for new employees (Interview-28, Position 20).*
Planning Trainings	1	*We have planned trainings attended by our teachers and administrators (Interview-20, Position 20).*

The most common trainings in the companies interviewed are *vocational trainings (24).* It has been stated that these trainings are given face-to-face and online. The format of the training received its frequency and excerpts from the interviews are shown in Table 12.

Table 12: Distribution of Education Formats

Training Format	Frequence	Quote From Interviews
Online Traning	31	*Training plans are created every year in our company. These trainings are given to all personnel as in-service training. It is mandatory for all personnel to attend these trainings. After the training, our staff is given a certificate regarding the training received (Interview-14, Position 25).*
Face-to-Face Training	26	*Face-to-face quality training is provided to all employees every month (Interview-15, Position 23).*

As seen in the table, online education is coded more than face-to-face education. Companies stated that they use these two formats together. The Code Co-Occurrence Model in Figure 4 should be examined to see the frequency of use of the two training formats together.

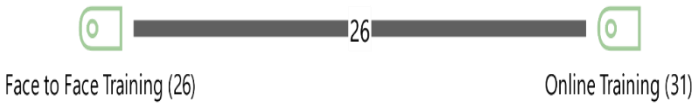

Figure 4: Intersection of Training Formats (Code Co-Occurrence Model)

As can clearly be seen in the figure, all companies that provide face-to-face training also provide online training. This shows that online training has become widespread in business life. In the interviews, this situation was expressed as follows:

> *Our trainings are conducted face-to-face and online, as required by today's business world. Our company covers the expenses of employees who go out of town for face-to-face training. In online training, training links are shared with all personnel and efforts are made to ensure the participation of all personnel (Interview-04, Position 20).*

In the eighth research question, participants were asked about wage and reward policies in the company. The subcodes created with the answers received, their frequencies and quotes from the interviews are shown in Table 13.

Tablo 13: Wage and Reward Policies of Companies

Subcodes	Frequence	Quotes from Interviews
Wage	32	*The regional wage average is considered, and the wage is determined according to the person's competencies (Interview-14, Position 27).*
Premium at varying rates based on performance	14	*Bonus payments are made for managers every 6 months. Our moto couriers are paid a bonus per package they deliver in addition to their salaries. No bonus payments are made to our employees in the kitchen and order area. In addition, the best performing restaurant is rewarded according to our company's monthly restaurant performances across the country and region (Interview-08, Position 22).*
Equal Premium	8	*If quality targets are met, all our staff receive bonuses every three months (Interview-04, Position 22).*

Gift Packages for Special Occasions	6	*In addition, gift packages are given to employees on special occasions and rewards such as quarter gold are given once every five years (Interview-17, Position 24).*
Improvement Based on Seniority	3	*Salary improvements are being made to increase the motivation of senior and qualified employees in our company. Depending on the seniority of our colleagues, a wage difference is given to employees with five and ten years of experience (Interview-02, Position 22).*
No answer as per company policy	1	*Due to our company policies, I cannot answer this issue (Interview-18, Position 22).*

It is understood that 32 of the 33 companies interviewed provided information about their wage and bonus policies, and one company did not provide information as per company policy.

The ninth research question is the most important question of the research. In this question, participants were asked about their opinions on the use of artificial intelligence technology in HRM functions. The two subcodes created with the answers received and their frequencies are shown in Table 14.

Table 14: Opinion on the Use of AI in HRM Functions

Subcodes	**Frequence**
Supportive	30
Abstaining	7

30 of the 33 managers interviewed within the scope of the research stated that they positively evaluated and *supported* the use of AI technology in HRM functions. This situation was expressed as follows in the interviews:

> *I think artificial intelligence technology can save time for managers in the human resources department, especially in finding and selecting the right candidate during the recruitment process. Because the recruitment processes consist of several steps. Artificial intelligence can enable managers to spend their time on more important tasks by performing the first of these steps, which include the most candidates. In this way, more suitable candidates can be found. It may also be possible to get higher efficiency from managers (Interview-02, Position 24).*

7 of 33 managers interviewed stated that they were *abstained* from using AI technology in HRM functions. This situation was expressed as follows in the interviews:

> *The countries where large companies around the world are located are very advanced in terms of technological infrastructure. Unfortunately, when we think about our country specifically, the situation is different. European countries and the USA have already perceived and digested Industry 4.0 and the technological innovations it brings. In our country, even Industry 3.0 has not been fully digested yet. This is my personal observation. This being the case, unfortunately, I do not think that neither Industry 4.0 nor the technologies it brings can be used efficiently in our country. In other countries, artificial intelligence and other technologies can also be used in HRM; It would be very useful. However, if we consider the situation in our country, I think that these new technologies may lead to faulty applications and undesirable results due to reasons such as inadequate infrastructure conditions and lack of qualified managers. Globalization and developing technological opportunities make it easier for every company in every country to follow many developments. However, when deciding to implement these technologies in our companies, we must also consider the social, cultural, economic and political conditions we are in; Otherwise, an application that is very successful in a foreign company may have the opposite effect and lead to failure in our country (Interview-19, Position 24).*

In some interviews, participants expressed both supportive and hesitant attitudes towards the use of AI in HRM. Therefore, these two subcodes were coded together in some interviews. The co-occurrence frequencies of these subcodes are shown in the Code Co-occurrence Model in Figure 5.

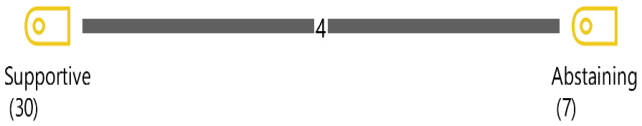

Figure 5: Intersection of Views on Using AI in HRM (Code Co-occurrence Model)

As seen in the figure, four participants were both supportive and averse to the use of AI in HRM. They expressed this situation as follows in the interviews:

> *Globalization and developing technological opportunities make it easier for every company in every country to follow many developments. However, when deciding to implement these technologies in our companies, we must also consider the social, cultural, economic and political conditions we are in; Otherwise, an application that is very successful in a foreign company may have the opposite effect and lead to failure in our country (Interview-19, Position 24).*

In the tenth research question, participants were asked what the positive effects of using AI technology in HRM functions. The subcodes created with the answers received, frequencies (Fr.) and quotes from the interviews are shown in Table 15.

Tablo 15: Findings of Positive Effects of Using AI in HRM

Subcodes	Fr.	Quotes from Interviews
Elimination of Errors	28	*I think it will produce more realistic and more analytical results beyond personal opinions. Because in some situations, people can make mistakes or make wrong decisions. I think artificial intelligence can eliminate these errors (Interview-06, Position 26).*
Increased Productivity	25	*I think it can be useful both in employee selection and performance monitoring. It will help reach the right employees and save time for managers. I think it will also affect productivity positively. Our company also uses artificial intelligence in HRM by opening manager recruitment announcements on the platform called "kariyer.net", filtering the applications there to their own priority, and digitalizing employee performance and productivity monitoring systems. I see that this situation benefits our company (Interview-30, Position 26).*
Acceleration of Processes	21	*It will provide benefits in matters such as personnel recruitment, training and performance evaluation. Processes will be faster and easier. More accurate decisions will be made (Interview-32, Position 28).*
Saving Managers Time	18	*Evaluating, screening, and evaluating job applications takes a lot of time for managers. Managers can use this time for more important work (Interview-07, Position 27).*
Performance Tracking	10	*Using artificial intelligence technology, personnel performance can be revealed with past personnel data and trend analysis. It may also be useful in determining the HR issues on which training will be provided (Interview-05, Position 26).*
Effective Management of Training and Development Activities	6	*It also provides benefits to employees in terms of self-improvement (Interview-18, Position 26).*

Competitive Advantage	1	*The use of AI in HRM provides companies with a competitive advantage (Interciew-31, Position 28).*

The participants stated that the use of AI in HRM has benefits such as *Elimination of Errors (28), Increased Productivity (25), Acceleration of Processes (21), Saving Managers Time (18), Performance Tracking (10), Effective Management of Training and Development Activities (6)* and *Competitive Advantage (1).*

In the eleventh research question, participants were asked what are the negative effects of using AI in HRM? The subcodes created from the answers received, their frequencies and quotes from the interviews are shown in Table 16.

Table 16: Findings of Negative Effects of Using AI in HRM

Subcodes	Fr.	Quotes from Interviews
Lack of Emotions and Intuition	17	*Since artificial intelligence does not have sufficient human skills in terms of senses and emotions, there will always need to be a human factor involved. Since artificial intelligence will be designed or directed by humans under all circumstances, perhaps after a while, artificial intelligence will seek easy ways to avoid issues such as emotional thinking and believing (Interview-33, Position 28).*
Lack of Empathy	12	*Completely excluding the human element may create a deficiency in understanding and interpreting emotions. In some cases, elements such as understanding emotions, intuition and empathy are important (Interview-06, Position 28)*
Concern about Creating Unemployment	7	*With the development of artificial intelligence, the need and demand for humans may decrease. This situation may lead to unemployment in the future. For this reason, I think people should not be completely excluded (Interview-32, Position 30).*
Concerns About the Privacy of Personal Data	5	*If artificial intelligence technology is used in the analysis of personal data, this may pose a negative impact on the protection of personal data. Employees may be disturbed by this situation (Interview-05, Position 28).*
Inability to Go Beyond Certain Patterns	3	*I think that in the current situation, artificial intelligence cannot go beyond the determined patterns, and this creates a disadvantage compared to humans in terms of creativity and problem solving (Interview-12, Position 28).*
Reliability Concern	2	*We must also consider the fact that the information provided to us by artificial intelligence may be inaccurate in some cases (Interview-31, Position 30).*
Disadvantages That May Occur Due to Lack of Infrastructure	2	*It may lead to undesirable results in practice due to deficiencies such as technological infrastructure and trained managers. Managers who do not have the necessary knowledge on the subject may create algorithms that will produce incorrect results, or technical deficiencies may lead to such a result (Interview-19, Position 28).*
Eliminating People	1	*The use of artificial intelligence technology in HRM blinds and eliminates people. Man, already has an intelligence and a mind. In fact, this is our most important feature. If we put our intelligence and our minds there, we will atrophy anyway. We will face unpleasant situations for humanity, just like the environment. With the development of technology and industry, we started to pollute the world a lot. The use of artificial intelligence in every field is the work initiated to completely disable humans (Interview-26, Position 28).*

Based on the table, the most frequently stated negative effects of using AI in HRM are the *Lack of Emotions (17) and The Lack of Empathy (12)*. They are following *Concern about Creating Unemployment (7), Concerns About the Privacy of Personal Data (5), Inability to Go*

Beyond Certain Patterns (3), Reliability Concern (2), Disadvantages That May Occur Due to Lack of Infrastructure (2), Eliminating People (1) respectively.

In the last research question, participants were asked to share any points they would like to point out regarding the use of AI in HRM, in addition to the questions asked. The subcodes and their frequencies created based on the opinions and suggestions stated by the participants are shown in Table 17.

Table 17: Opinion and Suggestions of Participants

Subcodes	Frequence
AI+Human Factor	17
Fear	3
Should Become Widespread	2
Investment Should Be Made in Infrastructure	2
Data Security Must Be Ensured	1

Among the opinions and suggestions, it seems that the most frequently expressed one is *AI + Human Factor (17).* Participants expressed this situation as follows in the interviews:

> *In addition, regardless of the level of technology used, human emotions and intuition should be included in HRM processes. So artificial intelligence will provide positive effects; However, we cannot do this by completely excluding the human element. I think that maximum benefit will be achieved if technological opportunities and human emotions are used together in HR processes (Interview-19, Position 30).*

Three of the participants emphasized that they were fear of AI in the comments and suggestions section. Two participants stated that applications which are about using AI in HRM should become widespread. Two participants said that investments should be made in AI Infrastructure. One of the participants stated that data security must be ensured.

Conclusion and Discussion

Data obtained from semi-structured interviews with 33 managers in the Central District of Edirne Province, where companies from Turkey and around the world operate, provide the perspective of business managers in this region on the use of AI in HRM functions. Managers mostly get jobs by applying to job postings and through friends; It was understood that very few of them got a job through the exam-interview-training process or by receiving an offer. It was observed that most of participants had a positive opinion about the digital transformation activities and company allocated a budget and organized training on this subject in their companies. This issue is considered important for the internalization of digital transformation activities by company managers and employees. It has been observed that many Industry 4.0 technologies are used in companies, the most common of which is AI. Although the recruitment processes in companies begin online, it is understood that the interview is considered indispensable for all companies. This issue reveals the importance of humans and human feelings. It was understood that various trainings were received in companies and digital opportunities were used in these trainings. It has been observed that companies, in addition to paying salaries to their employees, pay bonuses at equal or varied rates based on performance, and give various gifts on special days. This shows that efforts are being made to increase productivity by keeping employee happiness high.

Considering their attitudes towards the use of AI in HRM, which is the main purpose of the research, it is seen that regional managers generally support the use of AI in HRM, although

there are some concerns. It was observed that the interviewed managers thought that the use of AI in HRM would have positive effects such as eliminating errors, increasing efficiency, speeding up processes and allowing managers to allocate their time to important tasks. These expressed opinions support the articles of Huet (2016), Yawalkar (2019), Kang *et al.* (2021), Kumar *et al.* (2022), Yuan *et al.* (2022), Zhou (2022), Pomperada (2022), Li & Zhou (2022), Cui & Gu (2023) and Abdul-Rahman (2023). As stated by these authors, managers stated that with the use of artificial intelligence in the recruitment process, human errors and prejudices will disappear, and managers will spend the time they spend on preliminary interviews on more important tasks. They think that preliminary interviews with AI support can be conducted more effectively for both companies and job applicants. In addition, it has been stated that it is thought to benefit companies and employees in matters such as data storage, information management, performance management, talent management, payroll regulation, accounting affairs, training and development activities, and it has been seen that it supports the studies in the literature on this subject (Dorel & Aleksandra, 2011; Huet, 2016; Yawalkar, 2019; Li & Zhou, 2022; Kumar *et al.,* 2022; Cui & Gu, 2023). In support of Khalil & Accoumeh (2014)'s article, managers stated that they thought this situation created a competitive advantage for companies.

In the interviews, managers stated that the use of AI in HRM may have some negative effects. Attention has been drawn to negative effects such as lack of emotions and intuition, lack of empathy, concern about creating unemployment, concerns about the privacy of personal data, inability to go beyond certain patterns, reliability concern, disadvantages that may occur due to lack of infrastructure and eliminating people. Managers stated that the use of artificial intelligence in HRM functions should become widespread, but the human element is an indispensable element in the processes. These data obtained support article of Ochmann & Laumer (2020). It has been stated that this is a factor that creates difficulties in economic, social, technological, cultural and moral terms. This situation supports the work in this topic. (CIPD, 2018; Tambe *et al.,* 2019; Yeşilkaya, 2022; Liu *et al.,* 2023; Kanojia & Joshi, 2023).

It has been observed that the views of the managers in Edirne Central District regarding the use of AI in HRM are like the studies in the literature. The interviews support other research that, during the recruitment phase, processes accelerate, managers can allocate their time to more important tasks and productivity increases, but negativities may occur due to the lack of human emotions. Findings regarding positive effects on performance management and training and development functions also support the literature. In addition, the literature supports the fact that information security risks brought by its use in performance management and information management functions may cause negatives. As a result of the interpretation of the findings, we present the model shown in Figure 6 regarding the views of managers on the use of AI in HRM.

Figure 6: Model Proposal for Using AI in HRM

The three groups that managers talk about in managerial terms are expressed as IQ, EQ and Effective HRM in the business model. The part of the model called IQ shows jobs that require conceptual skills in managers. According to managers, it is possible for artificial intelligence technology to think like a human and provide benefits together with or instead of

the human factor in the works in this section. However, it is not possible to use artificial intelligence together with or instead of the human element in the works in the second section, EQ, or emotional intelligence. It is thought that leaving HRM processes entirely to artificial intelligence may lead to undesirable results in HRM by causing blockages such as empathy, understanding and human emotions, especially in the field of EQ. Therefore, for effective HRM management, it is recommended to use artificial intelligence together with manpower, not alone.

It has been observed that the opinions of the managers in the Central District of Edirne Province regarding the use of AI in HRM support the literature. However, it should be taken into consideration that the results obtained cannot be generalized due to the nature of qualitative research. In this context, it is seen that there is a need for national and international research on managerial attitudes in the use of AI in HRM. It is thought that studies that will determine managerial attitudes towards the practices and policies of AI in the field of HRM, which has been a focus in recent years, will benefit the field of management and HRM.

References

Abdul-Rahman, F. (2023). the effect of applying neural network information systems in achieving parallel processing of decisions and streamlining smart solutions for human resources: An applied study of a sample of educational leaders at al-mustansiriyah university. *International Journal of Research in Social Sciences and Humanities*, 13 (3), 340-350.

Alfawareh, H., Jusoh, S. (2019). Intelligent decision support system for CV evaluation based on natural language processing. *International Journal of Advanced and Applied Sciences,* 6 (4), 1-8.

Bukrek (2018). İnsan kaynakları departmanında yapay zekâ uygulama alanları. URL: https://www.bukrek.com/insan-kaynaklarinda-yapay-zeka. (Accessed: 01.03.2024).

Carneiro, D., Pimenta, A., Neves, J., Novais, P. (2017). A multi-modal architecture for non-ıntrusive analysis of performance in the workplace. *Neurocomputing,* 231, 41-46.

Choi, J.-G., Ko, I., Kim, J., Jeon, Y., Han, S. (2021). machine learning framework for multi-level classification of company revenue. *IEEE Access,* 9, 96739-96750.

Choi, Y., Choi, J. W. (2021). A study of job involvement prediction using machine learning technique. *International Journal of Organizational Analysis*, 29 (3), 788-800.

Coleman, J. P. (2021). AI and our understanding of intelligence. *Intelligent Systems and Applications: Proceedings of the 2020 Intelligent Systems Conference*, 1, 183- 190.

Cui, J., Gu, Y. (2023). Application of machine learning in digital human resource management. *SHS Web of Conferences,* 170, 01002. EDP Sciences.

Curran, R., Purcell, B. (2017). Techradar: Artificial intelligence technologies, Q1 2017. *A Market Research Report*. URL: https://www.forrester.com/report/TechRadar+Artificial+Intelligence+Technologies+Q1+2017/-/E-RES129161#, (Accessed: 23.01.2024).

De Canio, S. J. (2016). Robots and humans-complements or substitutes?. *Journal of Macroeconomics*, *49*, 280-291. DOI: https://doi.org/10.1016/j.jmacro.2016.08.003.

Dorel, D., Bradic-Martinovic, A. (2011). The role of information systems in human resource management. URL: https://mpra.ub.uni-muenchen.de/35286/, (Accessed: 02.03.2024).

Eubanks, B. (2022). *Artificial intelligence for HR: Use AI to support and develop a successful workforce,* (2nd Edition). London, N.Y: Kogan Page.

Fanni, S. C., Febi, M., Aghakhanyan, G., Neri, E. (2023). *Natural Language Processing,* Klontzas, M. E., Fanni, S. C. & Neri E. (Eds.). *Introduction to Artificial Intelligence* (1st Edition, pp. 87-99). Cham: Springer International Publishing.

Ghazzawi K., Accoumeh, A. (2014). Critical success factors of the e-recruitment system. *Journal of Human Resources Management and Labor Studies,* 2 (2), 159-170.

Guo, F., Gallagher, C. M., Sun, T., Tavoosi, S., Min, H. (2021). Smarter people analytics with organizational text data: Demonstrations using classic and advanced NLP models. *Human Resource Management Journal*, 34 (1), 39-54. DOI: 10.1111/1748-8583.12426.

Haenlein, M., Kaplan, A. A. (2019). Brief history of artificial intelligence: on the past, present, and future of artificial intelligence. *California Management Review,* 61 (4), 5-14.

Hassani, H., Silva, E. S., Unger, S., TajMazinani, M., Mac Feely, S. (2020). Artificial intelligence (AI) or intelligence augmentation (IA): What is the future? *AI,* 1, 143-155.

Huet, E. (2016). The humans hiding behind the chatbots. URL: https://www.bloomberg.com/news/articles/2016-04-18/the-humans-hiding-behind-the-chatbots, (Accessed: 01.03.2024).

Jain, P. K., Jain, M., Pamula, R. (2020). Explaining and predicting employees' attrition: A machine learning approach. *SN Applied Sciences,* 2, 757. DOI: 10.1007/s42452.020.2519-4.

Jain, S. (2017). Is artificial intelligence-the next big thing in HR (human resources)?. *International Conference On Innovative Research In Science Technology And Management Modi Institute Of Management And Technology*, Dadabari, Kota, Rajasthan.

Kang, I. G. Kim, N., Loh, W. Y., Bichelmeyer, B. A. (2021). A machine-learning classification tree model of perceived organizational performance in U.S. Federal Government Health Agencies. *Sustainability,* 13, 10329, 1-13.

Kanojia, D., Joshi, A. (2023). *Applications and Challenges af SA in Real-Life Scenarios*. Computational Intelligence Applications for Text and Sentiment Data Analysis, 49-80.

Kişi, N. (2022). İnsan kaynakları yönetiminde yapay zekâ: Bibliyometrik bir analiz. *Journal of Research in Business*, 7 (2), 490-514.

Kumar, M. R., Sharma, A., Bhargavi, Y. K., Ramesh, G. (2022, August). Human resource management using machine learning-based solutions. *3rd International Conference on Electronics and Sustainable Communication Systems*, 801-806.

Laumer, S., Morana, S. (2022). *HR natural language processing-conceptual overview and state of the art on conversational agents ın human resources management,* Strohmeier, S. (Ed.). *Handbook of research on artificial intelligence in human resource management* (pp. 226-242). UK & USA: Edward Elgar Publishing.

Leslie, D., Burr, C., Aitken, M., Cowls, J., Katell, M., Briggs, M. (2021). Artificial intelligence, human rights, democracy, and the rule of law: A primer. *Arxiv Preprint Arxiv:2104.04147*.

Li, J., Zhou, Z. (2022). Design of human resource management system based on deep learning. *Computational Intelligence and Neuroscience,* (1), 9122881, 1-9.

Lin, Y., Wang, X., Xu, R. (2020). Semi-supervised human resource scheduling based on deep presentation in the cloud. *EURASIP Journal on Wireless Communications and Networking,* 2020 (73), 1-9.

Liu, Q., Wan, H., Yu, H. (2023). The application of deep learning in human resource management: a new perspective on employee recruitment and performance evaluation. *Academic Journal of Management and Social Sciences,* 3 (1), 101-104.

Muthukrishnan, N., Maleki, F., Ovens, K., Reinhold, C., Forghani, B., Forghani, R. (2020). Brief history of artificial. *Machine Learning and Other Artificial Intelligence Applications, An Issue of Neuroimaging Clinics of North America, E-Book: Machine Learning and Other Artificial Intelligence Applications, An Issue of Neuroimaging Clinics of North America, E-Book,* 30 (4).

Mukherji, S. K., Forghani, R. (Eds.). *Machine learning and other artificial ıntelligence applications* (pp. 393-399).

Niu, J., Tang, W., Xu, F., Zhou, X., Song, Y. (2016). Global research on artificial intelligence from 1990–2014: Spatially-explicit bibliometric analysis. *ISPRS International Journal of GeoInformation,* 5 (5), 66-92. DOI: https://doi.org/10.3390/ijgi5050066.

Ochmann, J., Laumer, S. (2020). AI recruitment: Explaining job seekers' acceptance of automation in human resource management. Proceeding of 15th International Conference on Wirtschaftsinformatik (Zentrale Tracks), Postdam, Germany, 1633-1648.

OECD (2024). *AI principles*. URL: https://www.oecd.org/en/topics/ai-principles.html, (Accessed: 02.04.2025).

Patalas-Maliszewska, J., Halikowski, D., Damasevicius, R. (2021). An automated recognition of work activity in industrial manufacturing using convolutional neural networks. *Electronics,* 10 (23), 2946, 1-18.

Perez-Campdesuner, R., De Miguel-Guzan, M., Garcia-Vidal, G., Sanchez-Rodriguez, A., Martinez-Vivar, R. (2020). Incidences of variables in labor absenteeism: An analysis of neural networks. *Management and Production Engineering Review*, 11 (1), 3-12.

Pomperada, J. R. (2022). Human resource information system with machine learning integration. *Qubahan Academic Journal,* 2 (2), 5-8.

Russell, S. J., Norvig P. (2022). *Artificial Intelligence: A Modern Approach*, (4th Edition). Harlow: Pearson.

Samoili, S., Lopez Cobo, M., Gomez Gutierrez, E., De Prato, G., Martinez-Plumed, F., Delipetrev, B. (2020). AI watch. *Defining Artificial Intelligence. Luxembourg: Publications Office of the European Union*. DOI: https://doi.org/10.2760/382730.

Sarıalai, A. D. & Yanpar, T. (2024). *Öğretmen adaylarının yapay zekâ kullanım durumlarının incelenmesi.* Ramazanoğlu, M. (Ed.). *Dijital çağda eğitim: Yapay zekâ, yaratıcılık ve liderlik* (1st Edition, pp. 29-53). Ankara: BİDGE Yayınları.

Shilpa, V., Gopal, R. (2011). The implications of implementing electronic-human resource management (E-HRM) systems in, companies. *Journal of Information Systems and Communication,* 2 (1), 10-29.

Shneiderman, B. (2020). Design lessons from AI's two grand goals: Human emulation and useful applications. *IEEE Transactions on Technology and Society,* 1 (2), 73–82. DOI: http://doi.org/10.1109/TTS.2020.2992669.

Song, Y., Wu, R. (2021). Analysing human-computer interaction behaviour in human resource management system based on artificial intelligence technology. *Knowledge Management Research & Practice,* 1-10. DOI: 10.1080/14778.238.2021.1955630.

Tambe, P., Cappelli, P., Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review,* 61 (4), 15-42. DOI: https://doi.org/10.1177/0008125619867910.

Tiftik, C. (2021). İnsan kaynakları yönetiminde yapay zekâ teknolojileri ve uygulamaları. *IBAD Sosyal Bilimler Dergisi*, 9, 374-390. DOI: https://doi.org/10.21733/ibad.833256.

Turing, A. M. (1950). I-Computing machinery and intelligence. *Mind*, *LIX* (236), 433-460. DOI: https://doi.org/10.1093/mind/LIX.236.433.

UNESCO (2021). Intergovernmental meeting of experts (Category II) related to a draft recommendation on the ethics of artificial intelligence. URL: https://unesdoc.unesco.org/ark:/48223/pf0000377898, (Accessed: 02.04.2025).

Van Esch, P., Black, S., Feroliec, J. (2019). Marketing AI recruitment: The next phase in job application and selection. *Computers in Human Behavior,* 90, 215-222.

Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., Trichina, E. (2021). Artificial intelligence, robotics, advanced technologies and human resource management: A systematic review. *Artificial intelligence and international HRM*, 172-201.

Wang, X., Zhi, J. (2021). A machine learning-based analytical framework for employee turnover prediction. *Journal of Management Analytics*, 8 (3), 351-370.

Yan, X., Deng, X., Sun, S. (2020). Analysis and simulation of the early warning model for human resource management risk based on the BP neural network. *Complexity,* 1, 1-11. DOI: https://doi.org/10.1155/2020/8838468.

Yawalkar, V. Y. (2019). A study of artificial intelligence and its role in human resource management. *International Journal of Research And Analytical Review (IJRAR),* 6 (1), 20-24. E-ISSN 2348-1269.

Yeşilkaya, N. (2022). Yapay zekâya dair etik sorunlar. *Şarkiyat İlmi Araştırmalar Dergisi,* 14 (3), 949-963.

Yuan, S., Qi, Q., Dai, E., Liang, Y. (2022). Human resource planning and configuration based on machine learning. *Computational Intelligence and Neuroscience,* (1), 3605722, 1-6.

Zhou, D. (2022). Application of data mining technology in enterprise digital human resource management. *Security and Communication Networks*, (1), 7611623, 1-9.