# ARTIFICIAL INTELLIGENCE APPLICATIONS IN ORGANIZATIONS FROM AN EMPLOYEE PERSPECTIVE: A BIBLIOMETRIC ANALYSIS

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61

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**Keywords:**
Employees,
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**Anahtar Kelimeler:**
Çalışanlar,
Organizasyonlar,
Yapay Zekâ.

## ABSTRACT

In organizational settings, the effectiveness of artificial intelligence (AI) and AI-based applications in employees' activities continues to increase steadily over time. While this situation provides some conveniences to employees, it has also brought several concerns. Accordingly, a need has emerged to identify areas of collaboration and conflict between employees and AI. From this perspective, the present study aims to generate insights into employee–AI interactions at the organizational level. Litera-ture on AI applications and their impact on employees is included. Bibliometric analy-sis was conducted using Web of Science (WoS) database. This research covers an application that includes a total of 497 studies published between 1996 and 2024. The keywords most emphasized by the authors in AI applications include artificial intelli-gence, machine learning, management, artificial, knowledge, learning, deep learning, intelligence, big data, data mining, employee, human resources, machine, technology, business, knowledge management, performance, and artificial neural networks. In the analysis, strong relationships between the concepts of artificial intelligence, machine learning, management, data mining, digital transformation, analysis, technology, emp-loyee, human resources, collaboration, productivity, human resource management, big data, performance, and digital technologies were revealed. Results have shown that the use of artificial intelligence in businesses is related to many concepts from the employees' perspective. The research offers important implications for strategic deci-sion-making in areas such as human resources management, collaboration, perfor-mance, and digital transformation, based on the concepts that emerge in the interac-tion of artificial intelligence applications with employees.

## ÖZ

Organizasyonlarda çalışan faaliyetlerinde, yapay zekâ veya uygulamalarının etkinliği günden güne artmıştır. Bu durum çalışanlara birtakım kolaylıklar sağlamasının yanında birçok endişeyi de beraberinde getirmiştir. Araştırmada çalışanlar ve yapay zekâ işbirliği ve çatışmalarını belirlemeye yönelik bir ihtiyaç doğmuştur. Bu açıdan araştırmada işletmeler düzeyinde çalışanlar ve yapay zekâ etkileşimine yönelik çıkarımlarda bulunulması amaçlanmıştır. Yapay zeka uygulamaları ve çalışanlara ilişkin literatür bilgilerine yer verilmiştir. WoS kullanılarak bibliyometrik analiz yöntemi uygulanmıştır. Bu araştırma, 1996-2024 yılları arasında yayımlanmış toplam 497 çalışmayı içeren bir uygulamayı kapsamaktadır. Yapay zekâ uygulamalarında yazarların en fazla vurguladığı anahtar kelimeler, yapay zekâ, makine öğrenme, yönetim, yapay, bilgi, öğrenme, derin öğrenme, zekâ, büyük veri, veri madenciliği, çalışan, insan kaynakları, makine, teknoloji, iş, bilgi yönetimi, performans ve yapay sinir ağı olarak sıralanmıştır. Analizde yapay zekâ, makine öğrenme, yönetim, veri madenciliği, dijital dönüşüm, analiz, teknoloji, çalışan, insan kaynakları, işbirliği, verimlilik, insan kaynakları yönetimi, büyük veri, performans, dijital teknolojiler kavramları birlikte güçlü ilişkiler ortaya koymuştur. Sonuçlar işletmelerde yapay zekâ kullanımının çalışanlar açısından birçok kavram ile ilişkili olduğunu göstermiştir. Araştırma yapay zekâ uygulamalarının çalışanlarla olan etkileşiminde öne çıkan kavramlar üzerinden, insan kaynakları yönetimi, işbirliği, performans ve dijital dönüşüm gibi alanlarda stratejik kararlar alınmasına yönelik önemli çıkarımlar sunmaktadır.

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## INTRODUCTION

Today, many countries are integrating artificial intelligence-based systems into both small and large organizational activities. Due to technological developments and innovations, people are using AI products in many stages of their lives, while the interaction between humans and machines or employees and machines is increasing day by day in organizations. This situation leads to changes in many organizational activities and causes differences in terms of employment and the creation of new job opportunities. AI applications in organizations have significant effects on employees' work activities. However, the number of studies addressing the interaction between AI and employees within an organizational context is quite limited. This highlights the need for more in-depth analyses and strategic approaches to how human-machine collaboration should be structured and managed at the organizational level during this technological transformation.

Technology is one of the most important factors affecting an industry. Since the 19th century, technological products have started to replace workers in production departments. In the 1970s, the internet and personal computers entered the working life, and human labor was replaced by machines. Today, digital technologies such as machine learning and artificial intelligence are leading to daily operations and transformation in organizations and the business world (Yawalkar, 2019). The rapid pace of this transformation is changing employees' workplace behaviors, future expectations, and habits. This situation creates the need to examine the reasons behind the acceptance or rejection of AI algorithms integrated with technology from the perspective of employees. The outputs provided by artificial intelligence and human elements in organizations will lead to the development of new algorithms and behavioral patterns in the future.

Artificial intelligence is an effective factor that can reshape individuals' jobs, lifestyles, organizations, and societies (Kong et al., 2021). In this regard, increasing technological capabilities forecast the development of skills related to analysis, such as statistical knowledge, modeling, time series, data interpretation, algorithm writing, big data, analytics, machine learning, and deep learning. For organizations, it enables the use of cloud automation, smart automation, robotic processes, cybersecurity, and the Internet of Things to develop strategically important digital skills (Jaiswal et al., 2022). Overall, artificial intelligence creates many different areas of use at the individual, organizational, and societal levels. With technological advancement, the integration of artificial intelligence into different areas enables more innovative, faster, and time-saving resource usage.

The implementation of artificial intelligence from an organizational perspective can create unique challenges for employees (Li et al., 2024b). For example, artificial intelligence triggers fears among employees of potentially losing their jobs (Kong et al., 2021). Additionally, the emergence of technostress factors causes some anxiety among employees (Chang et al., 2024). This indicates that artificial intelligence may have negative effects on employees. Employees who have negative emotions toward technological innovations may resist AI applications. Furthermore, the outputs provided by AI in terms of job performance may lead to decreased motivation among employees.

Artificial intelligence-based systems will replace some jobs in the future. However, these systems may also create new employment opportunities (Giering et al., 2021). Human involvement is required for the creation, establishment, and development of these technologies that provide new career opportunities. The transfer of most jobs to artificial intelligence in some sectors will change the role of human labor, increase competition among employees, and alter organizational expectations (Pektaş, 2024). The increasing functionality of AI-based systems in new areas (such as industry, services, healthcare, sports, culture, education, agriculture, etc.) is changing employees' work activities and plans. At the organizational level, both lower and higher-level employees can experience changes in their work activities through AI applications.

While artificial intelligence applications provide conveniences to employees, they also create some concerns. Although research has been conducted in various areas regarding artificial intelligence and employees, there

has been no study that thoroughly examines AI from the perspective of employees at the organizational level. It is believed that this research can fill this gap in the literature. The study discusses the potential effects of AI applications on organizational (or business) employees in conjunction with the literature. In this regard, some conclusions are drawn from the research conducted on the topic in the literature, and certain suggestions for the future are made. Despite the advantages AI applications offer employees, they also appear to raise certain uncertainties and concerns. In this context, the limited in-depth analysis of employees at the organizational level in the existing literature suggests that this research has the potential to fill a significant gap in the literature.

## LITERATURE REVIEW

Employees who enjoy the use of artificial intelligence in organizations tend to explore new technologies. They are also more likely to develop emotional relationships with intelligent machines (Li et al., 2024b). As technological innovations have become increasingly effective in many areas of life, the development of AI needs in workplaces has been supported. Employees have been able to perform many activities in a short time using AI products. Organizations have been able to produce goods, services, or technology with AI-based intelligent systems, applications, databases, and machines. Employees' positive or negative attitudes towards AI can affect the efficiency of workplace activities.

### Artificial Intelligence (AI)

Artificial intelligence is a broad term focused on the use of computational methods to replicate human intelligence (Howard, 2019). AI is a machine with a flexible ideal mind that perceives the environment and maximizes goal-oriented success (Yawalkar, 2019). Advocates of artificial intelligence do not support the mass replacement of humans by machines. They emphasize the need for organizational frameworks that train the workforce with the right skills to enhance technological developments (Jaiswal et al., 2022). In this regard, AI is used to manage employees, taking into account their engagement (Hughes, 2019). The statistical speed of artificial intelligence for complex and large data provides quick solutions to organizational activities. Information that human intelligence would struggle to analyze quickly in practice can be easily processed with AI systems. This contributes to the development of organizational thought structures.

Artificial intelligence was first introduced by academics in 1956. It helps reduce the workload and pressure on organizational employees (Yawalkar, 2019). Artificial intelligence transforms personal and professional lives. It provides smarter working opportunities in workplaces (Wassan et al., 2021). Existing AI applications in organizations enhance employees' emotional and cognitive attitudes by helping them understand human language and context, logical reasoning, and improving capabilities. Employees' thoughts and feelings about AI capabilities provide insights into AI design. Perceived AI capabilities in organizations are highly valuable for companies (Chiu et al., 2021). The use of AI in practical business activities, physically continuous tasks, and the analysis of large datasets makes it easier for organizations.

Artificial intelligence can provide many capabilities, such as autonomous vehicles, bank branches without employees, stores, and robotic surgeries (Zhu et al., 2021). The potential of artificial intelligence to enhance human capabilities leads to improved performance. However, factors such as poor alignment with AI, skill gaps, and low motivation can also result in performance decline (Kazmi et al., 2024). For example, senior technology employees may exhibit more positive behaviors when they receive strong social support while learning and using new AI-related skills (Verma & Singh, 2022). Negative or inappropriate behaviors while reducing employee motivation can also hinder their skill development.

In the literature, Huang & Rust (2018) emphasized that there is a greater need for artificial intelligence in organizations that focus on cost leadership. They examined the stages of job replacement by AI in terms of intelligence (skills) level and time, stating that AI takes on 'mechanical, analytical, intuitive, and empathetic tasks,' and ultimately can achieve full replacement or integration. Łapińska et al. (2021) highlighted that employees' trust in AI and technology within their organizations shows positive relationships. This indicates that artificial intelligence can

be used by employees in many activities. Esen (2023) examined 248 scientific studies in the WoS database within the framework of the concepts of artificial intelligence and employee behavior. This research specifically focuses on key concepts related to organizational behavior, such as performance, trust, acceptance, adaptation, employees, satisfaction, challenge, leadership, culture, attitude, commitment, climate, communication, and perception.

**Organizations and Employees**

Training and psychological support provided to employees in organizations contribute to the development of positive attitudes toward artificial intelligence technology and career flexibility skills (Kong et al., 2024). In human-centered organizations, both machine and human intelligence have a significant impact on employees (Sharma & Saxena, 2024). This indicates that both technological advancements and the human-centric (or employee) organizational approach help in achieving positive outcomes for work activities. Employees can further develop themselves with technological gains. To create societal added value, employees in organizations need to develop themselves.

A supportive organizational climate that prepares employees and systems for technological changes, invests in the workforce, and values them, facilitates human-AI collaboration (Bankins et al., 2024). Employees can be motivated by AI expertise within organizations. Successful examples of artificial intelligence can contribute to employee training, reducing fears of new technologies (Li et al., 2024a). This shows that organizational support plays a critical role in fostering AI-employee collaboration. Organizational policies that focus only on artificial intelligence or only on employees may make it difficult to adapt to change. AI applications should serve employees, customers, organizations, or society. Technology (or artificial intelligence) should exist for humans, not the other way around.

For organizational employees to fully benefit from the potential of artificial intelligence, it is important to raise awareness regarding the artificial intelligence information processing power and capacity, as well as the personalization aspects among employees. From this perspective, employees need to receive training on human-machine collaboration (Nawaz et al., 2024). Technological innovations generally increase the expectations of societies. This has made it a necessity for many different organizations producing goods or services to adapt to technological changes. However, it has been understood that the human (employee) factor is still more dominant in many organizations. In this regard, Prentice et al. (2020b) emphasize that although AI-powered tools in organizations provide convenience to customers, they do not have a competitive advantage in creating positive customer satisfaction, and human employees are more critical for overall service quality. Bhargava et al. (2021) highlight that, in terms of AI and robotic applications, organizational employees must improve themselves by establishing and maintaining interpersonal relationships with customers and employees to remain employable, and that this situation affects employment.

**Artificial Intelligence and Employees in Organizations**

In organizations, employees perform some tasks independently, while others are automatically carried out through AI-based systems (Giering et al., 2021). Training employees in artificial intelligence by organizations can help them gain skills, reduce their anxieties, and facilitate the acceptance of technological change within the organization (Pektaş, 2024). The knowledge-based economy and technological developments are transforming employees' job roles. This situation requires different skills and technical competencies. Organizations need to take strategic workforce development measures. Having the necessary skills involves using artificial intelligence (Rožman et al., 2023). Employees shaping their job roles through AI applications enable them to acquire new skills. Improving workforce efficiency in organizations depends on the functionality of technology and employee optimization. The coordination of AI algorithms with employees' job tasks allows for a healthier work environment and organizational outcomes.

To effectively use artificial intelligence in the workplace, managers must gather accurate information to understand how AI usage impacts job insecurity within their organizations. Managers should highlight the perceived benefits of AI by communicating the productivity and

performance improvements it provides to employees (Dabbous et al., 2022). Rapid technological innovations have made AI effective both in daily life and business activities. Due to technological developments and changes, many organizations today perceive AI applications as a necessity. This creates innovations for both managers and other employees. In general, employees may resist change and perform poorly, or they may adapt to change and contribute to organizational outcomes. Employees' perspectives on the future, alternative job opportunities, and many other factors will guide their interaction with AI. In human-AI interactions, if societal benefits can be achieved, technological transformations become more permanent. The literature emphasizes that, while working with AI, adaptation is not a one-way path, and there is a need for bidirectional theories and models for human-AI interaction (Strich et al., 2021). In this regard, the study expresses the interaction between the organization, humans (employees), and AI as follows. While the literature contains various studies on business-based AI applications, these studies largely neglect the employee perspective (Sağbaş & Kılınç, 2024). Akay notes that research on artificial intelligence in environmental design has historically been shaped primarily by technical and engineering-focused approaches. However, in his work, he draws attention to the sociological and ethical dimensions of artificial intelligence applications, as well as concepts specific to social sciences such as human perception, participation, and well-being (Akay, 2025). This study aims to contribute to filling this gap in the literature by examining AI evaluations at both the organizational and individual (employee) levels.

Recent developments reveal the increasing impact of artificial intelligence in transforming human interactions and the expanding application areas of this technology as it is integrated into various disciplines (Berigel & Şılbır, 2024). The primary objective of this research is to identify the dynamics of collaboration and conflict between employees and AI, as AI applications increase their effectiveness in employee activities within organizations. Furthermore, by comprehensively examining the interactions between AI and employees at the business level, we reveal the fundamental conceptual relationships of these interactions and contribute to the literature through bibliometric analysis.

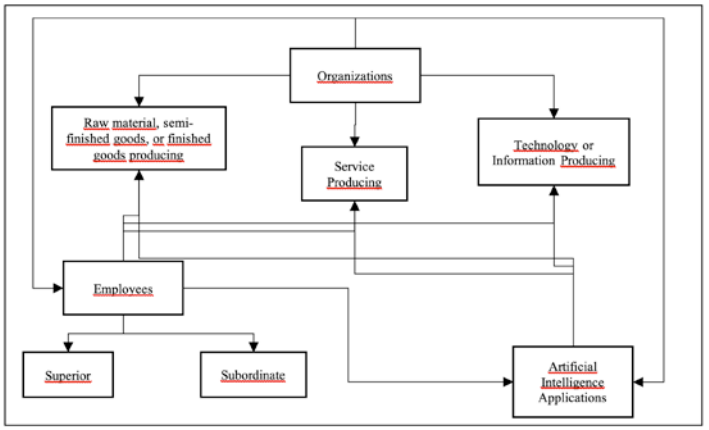



**Figure 1**. Artificial Intelligence Applications and Employees in Organizations

In Figure 1, a framework is created for the interaction between organizations, employees, and artificial intelligence. The outputs provided by organizations are in the form of raw materials, semi-finished goods, finished goods, services, technology, or information. Employees and artificial intelligence applications serve the organization's goals. From this perspective, the policies implemented by organizations generally affect both employees and AI applications. In organizations, the activities of employees and artificial intelligence lead to a transformation in the form of raw materials, semi-finished goods, finished goods, services, technology, or information. The approaches of managers (superiors) within the organization's employees toward artificial intelligence and organizational goals guide the formation of work activities for other employees (subordinates).

The type of activities an organization engages in affects its AI usage rates or level of technology dependence. For example, organizations that produce technological products have a significant need for AI-based machines. In service-providing organizations in the communication sector, the capabilities of AI systems in computing will be impactful. In the literature, Prentice et al. (2020a) state that while AI affects employees' tasks, it cannot replace human jobs. Kong et al. (2021) mention that employees with a high level of awareness of AI fear that AI may replace their

jobs in the future, and they might become unemployed. They note that this situation could have negative effects on job tasks (such as burnout, boredom, exhaustion, and less passion for work). Yu & Li (2022) found that employees' perceived effectiveness of AI positively affects their trust in AI, while discomfort with AI negatively affects their trust in it. Kądzielawski (2023) revealed that the majority of employees are open to collaborating with AI systems implemented or operating within the company. They stated that the development of AI systems in the company does not create fears of employees losing their jobs. Presbitero & Teng-Calleja (2023) expressed that the integration of AI into the workplace could particularly have negative outcomes for customer service employees.

## METHOD

Using the bibliometric analysis method, the popularity and research trends of any topic worldwide can be tracked (Shi et al., 2020). In the bibliometric analysis method, scientific mapping and visualization techniques are used. These methods allow for the discovery of temporal analyses, patterns, trends, seasonality, and outliers, enabling the expression of the conceptual, intellectual, or social development of research areas (Aria and Cuccurullo, 2017). In this context, the bibliometric analysis method can reveal efficiency levels through author networks, thematic changes, word clouds, and evolution maps (Moral-Muñoz et al., 2020). In the research, a general literature review on artificial intelligence and employees in organizations was evaluated within the framework of conceptual, intellectual, and social development using the bibliometric analysis method. In the application of the bibliometric analysis method, artificial intelligence applications for employees were included. For the application data, research on 'Artificial intelligence applications and employees' was examined in the WoS database. The research data consists of 497 studies conducted solely in English on the topic in the WoS database. The research in the WoS database and the analysis outputs were applied on 05.04.2024. No restrictions were applied regarding any field, publication, country, or year in the study.

The evaluation of artificial intelligence applications from the perspective of employees in organizations can bring new perspectives to the literature. Concluding the advantages and disadvantages of AI applications can fill a significant gap in the literature. In this regard, within the framework of the research purpose, answers have been sought for several questions. These questions are as follows.

*The first question of the research is: What are the trends regarding artificial intelligence applications and employee studies in terms of years, number of sources, number of publications, growth rate, number of authors, single-author publications, international co-authorship ratios, keywords used, references, average publication years, and citations per publication?*

*The second question of the research is: What is the annual research and citation rate for artificial intelligence applications from the perspective of employees?*

*The third question of the research is: How have the organizational, author, and keyword matches shaped research on artificial intelligence applications from the perspective of employees?*

*The fourth question of the research is: What is the level of author productivity over the years in research on artificial intelligence applications from the perspective of employees?*

*The fifth question of the research is: What are the most influential sources in research on artificial intelligence applications from the perspective of employees?*

*The sixth question of the research is: How have the responsible authors' country addresses and country productivity over time in research on artificial intelligence applications from the perspective of employees changed?*

*The seventh question of the research is: What are the keywords that authors frequently emphasize (in terms of treemaps) in research on artificial intelligence applications from the perspective of employees?*

*The eighth question of the research is: How has the trend time of the keywords emphasized by authors in research on artificial intelligence applications from the perspective of employees changed?*

*The ninth question of the research is: How has the thematic development and frequency of use of the keywords emphasized in research on artificial intelligence applications from the perspective of employees changed?*

*The tenth question of the research is: How does the relational network of the keywords emphasized by authors in research on artificial intelligence applications from the perspective of employees connect?*

*The eleventh question of the research is: How have the thematic maps of research on artificial intelligence applications from the perspective of employees changed, particularly in terms of motor themes?*

The information stated above has been evaluated in conjunction with the literature. The key terms emphasized by the authors in AI research from the perspective of employees, relational results, conceptual maps, inferences related to the topic, and suggestions for future research have been included.

## RESEARCH FINDINGS

The research findings only included studies published in English. In the literature addressing AI applications from an employee perspective, the University of Maryland (2024), University of Aveiro (2024), Northwestern University (2024), University of Zilina (2023), and King Abdulaziz University (2023) stand out among the most influential institutions. In terms of publication productivity, the USA (2023), China (2024), India (2023), Germany (2024), and Spain (2024) stand out, respectively. Furthermore, the most frequently used keywords by authors, in order of frequency, were artificial intelligence (2024), machine learning (2023), management (2024), learning (2024), intelligence (2024), and data mining (2024). These findings reveal that academic production on AI is concentrated in specific centers, both institutionally and geographically. Keywords usage trends demonstrate the strong connection between AI applications and fields such as management, learning, and data analytics, and the growing research interest in these areas.

In the analysis, research on artificial intelligence applications has been examined from the perspective of employees. The general results related to the publications in the WoS database are as follows.

Table 1 presents the answer to the first question of the research. According to the research results, it is observed that artificial intelligence applications between 1996 and 2024 in terms of employees were examined by the authors. It is understood that there are 497 studies on the subject, published in 388 sources. It is observed that artificial intelligence applications and employee studies have an average growth rate of 7.46%, with 1603 authors researching the topic. The number of single-author publications in these studies is 49, and the international co-author rate is 26.96%. The average author count per publication is 3.47, and the average publication year is 5.78. The authors used 1824 keywords in their studies and benefited from the 20116 sources. The average citation rate per publication is 9.427. The results suggest that, in organizations, studies on employees' perspectives of artificial intelligence may have more research potential in the future.

Kılınç (2023) examined research on artificial intelligence in businesses using the Scopus database and analyzed a total of 2,802 publications published between 1984 and 2023. The average growth rate of the topic over the years was determined to be 17.45%. The dataset examined used a total of 6,718 keywords across 1,126 sources and included works by 6,447 different authors. Furthermore, each publication received an average of 14.31 citations. The international collaboration rate was determined to be 23.59%. This data suggests that examining AI applications within the context of employees has shown more limited but consistent growth compared to general business-based AI research. Furthermore, the lower rate of international collaboration in employee-focused research indicates the need to improve collaboration and knowledge sharing in this field.



**Table 1. Literature on Artificial Intelligence Applications from the Perspective of Employees**

| Years | Number of Sources | Number of Research | Growth Rate | Number of Authors | Single Author |
|---|---|---|---|---|---|
| 1996-2024 | 388 | 497 | %7.46 | 1603 | 49 |
| International Co-Author | Co-Author Rate | Keywords | Reference | Average Year | Citations |
| %26.96 | 3.47 | 1824 | 20116 | 5.78 | 9.427 |

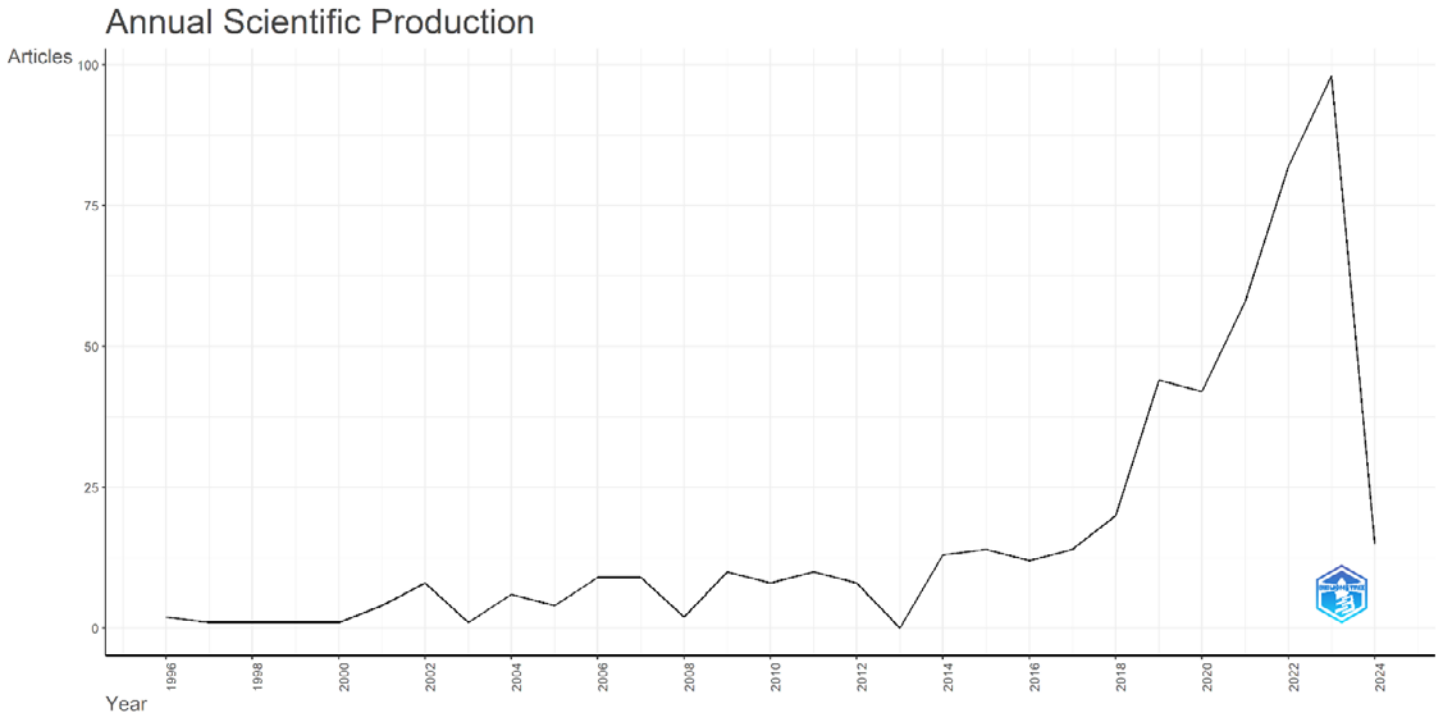



**Figure 2.** Artificial Intelligence Applications from the Perspective of Employees, Annual Research Rates



Figure 2 answers the second question of the research. It has been observed that artificial intelligence applications from the perspective of employees have shown a continuous and significant increase, particularly after 2014. Research on the topic reached its peak in 2023. Since the research data covers up to April 5, 2024, it is anticipated that research rates may further increase by the end of 2024.

Sunman (2025) revealed that research on artificial intelligence in management began to increase, particularly since 2016, and reached its highest level by 2023. Considering the findings of this study, it is anticipated that research on employees, managers, and the internal and external environments of organizations in the context of artificial intelligence will continue to increase in the future. This trend reveals that artificial intelligence technologies have moved beyond being merely technical tools and have become a strategic element in the transformation of organizational structures and the socio-psychological dimensions of human resources management.

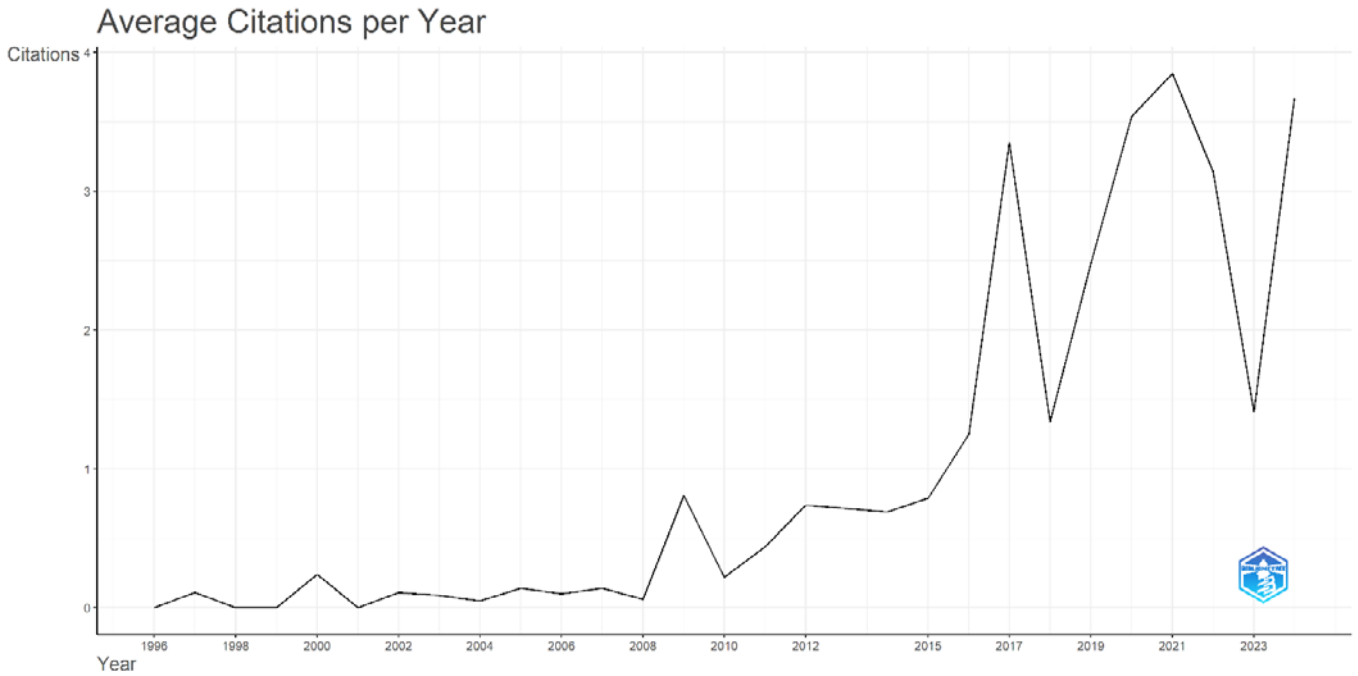



**Figure 3.** Artificial Intelligence Applications from the Perspective of Employees, Annual Citation Rates



In response to the second question of the research, Figure 3 provides information on the citations related to the topic. The citation rates for artificial intelligence research from the perspective of employees have shown a fluctuating pattern over the years. Research on the topic received the highest citation rates in particular years, namely 2021, 2024, and 2017. Between 1996 and 2008, citation rates generally followed a horizontal trend. After 2008, an increase in citation rates for research conducted on the topic has been observed. The results suggest that by the end of 2024, more citations may be received for publications on the topic. It is predicted that in future studies, the annual number of publications (articles) and citation rates may continue to rise.

Jerdea (2025) states that when examining the annual average number of citations for research in the fields of artificial intelligence and product innovation between 2019 and 2024, the highest level was reached in 2020, while the lowest level occurred in 2019. A steady increase in citation numbers was observed in 2021, 2022, 2023, and 2024. Although artificial intelligence and product innovation are distinct and deeply rooted fields, it is emphasized that both are undergoing rapid development. Furthermore, this stability in citation numbers reveals the increasing academic and sectoral interest in these fields. In this context, it can be stated that artificial intelligence research develops through interdisciplinary interaction, and, especially in recent years, an integrated research environment has emerged through the mutual contributions of different scientific fields.

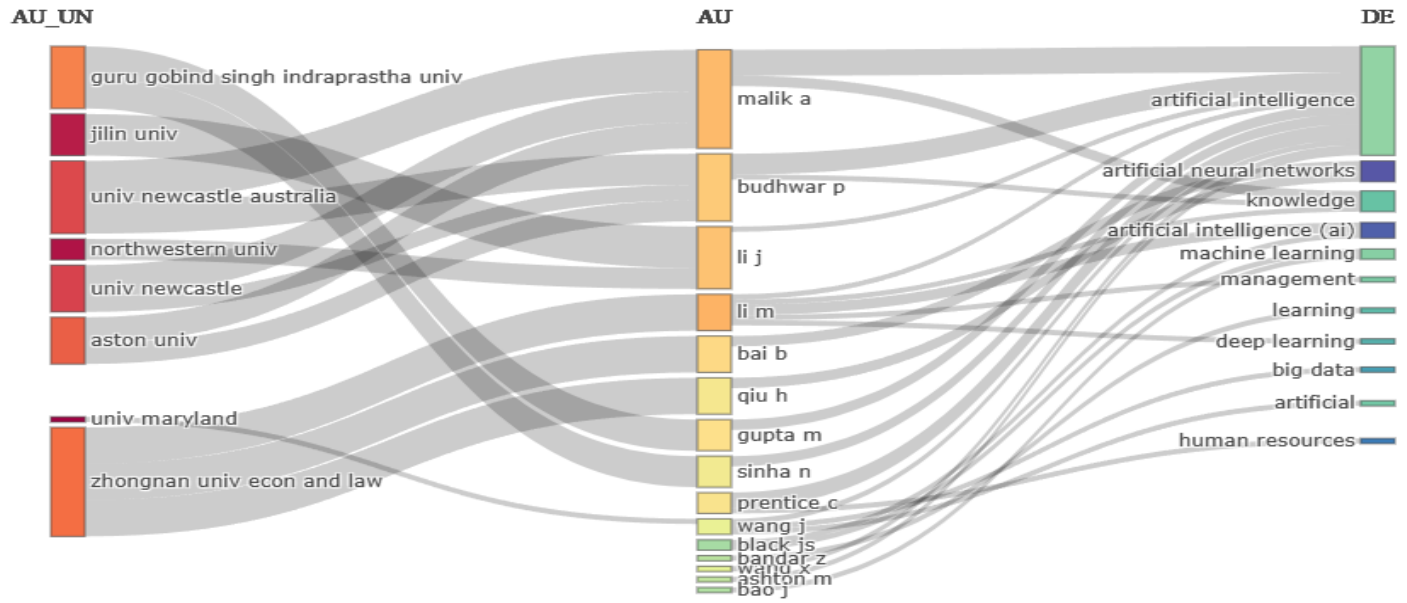



**Figure 4**. Artificial Intelligence Applications from the Perspective of Employees, Affiliations, Author, and Keyword Matching



Figure 4 answers the third question of the research. It presents the organization, author, and keyword matches for the intensive research conducted on artificial intelligence applications from the perspective of employees. The institutions conducting intensive research on the topic are listed as follows: Guru Gobind Singh Indraprastha University, Jilin University, The University of Newcastle, Australia, Northwestern University, Newcastle University, Aston University, The University of Maryland, and Zhongnan University of Economics and Law. The authors researching the topic are listed as Malik A., Budhwar P., Li J., Li M., Bai B., Qiu H., Gupta M., Sinha N., Prentice C., Wang J., Black JS., Bandar Z., Wang X., Ashton M., and Bao J. The most frequently used keywords in the authors' research are artificial intelligence, artificial neural networks, knowledge, artificial intelligence (AI), machine learning, management, learning, deep learning, big data, and artificial and human resources.

Literature on AI applications for employees reveals that institutions such as Guru Gobind Singh Indraprastha University, Jilin University, and Northwestern University are particularly active in research. Studies by researchers such as Malik A., Budhwar P., and Li J. highlight keywords such as artificial intelligence, machine learning, human resources, and big data.

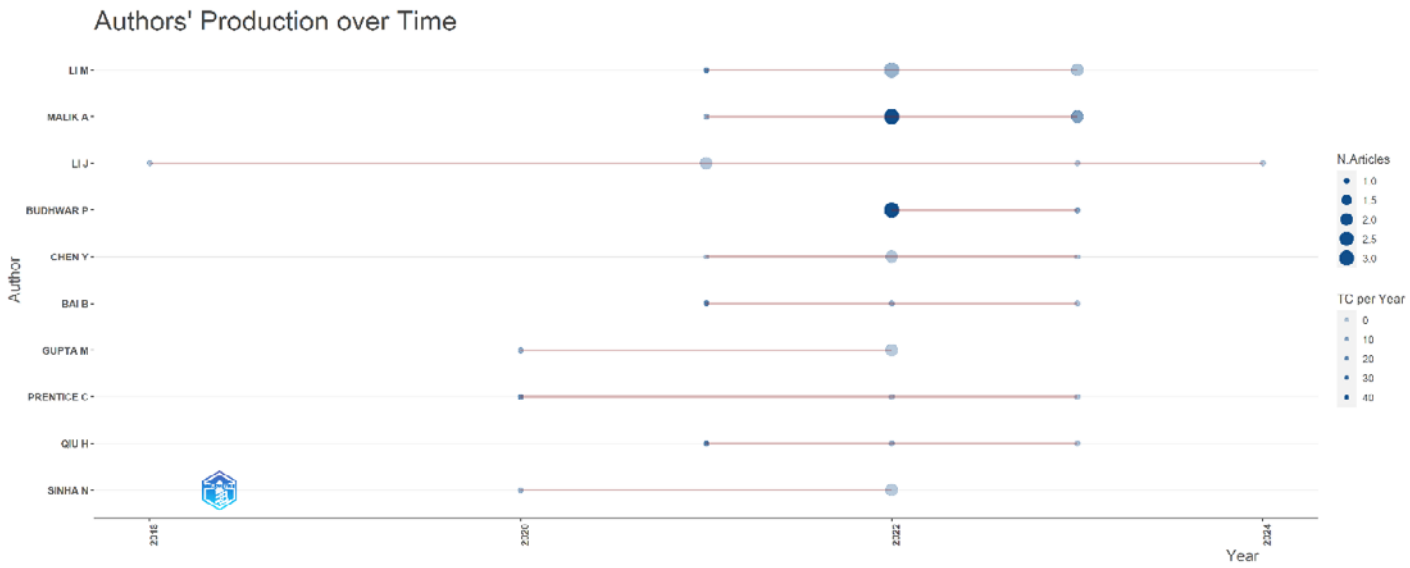



**Figure 5.** Author Productivity of Artificial Intelligence Applications from the Perspective of Employees by Year



Figure 5 presents the answer to the fourth question of the research. It highlights the most influential authors in artificial intelligence research from the perspective of employees and their productivity over the years. It is observed that Li M. and Malik A. were highly productive between 2021 and 2023. The study shows that Li J. conducted intensive research between 2018 and 2024. It was observed that Budhwar P. conducted significant research in 2022-2023, while Chen Y., Bai B., and Qiu H. were actively researching between 2021 and 2023. The analysis also reveals that Gupta M. and Sinha N. carried out intensive research on artificial intelligence applications from the perspective of employees between 2020 and 2022.

Sekaki et al. (2025) revealed that Li, J., and Chen, Y. engaged in intensive academic activities between 2021 and 2025 within the scope of research on artificial intelligence in the field of management. The study emphasized that determining researchers' productivity and their scientific contributions to the field should be considered an important bibliometric indicator. These findings demonstrate a systematic bibliometric analysis of the contributions of prominent researchers in the field of artificial intelligence and management over specific periods. The intense academic productivity of authors such as Li J., Chen Y., and Budhwar P., in particular, over different years reveals the dynamic nature of the field and how research trends have shaped over time.

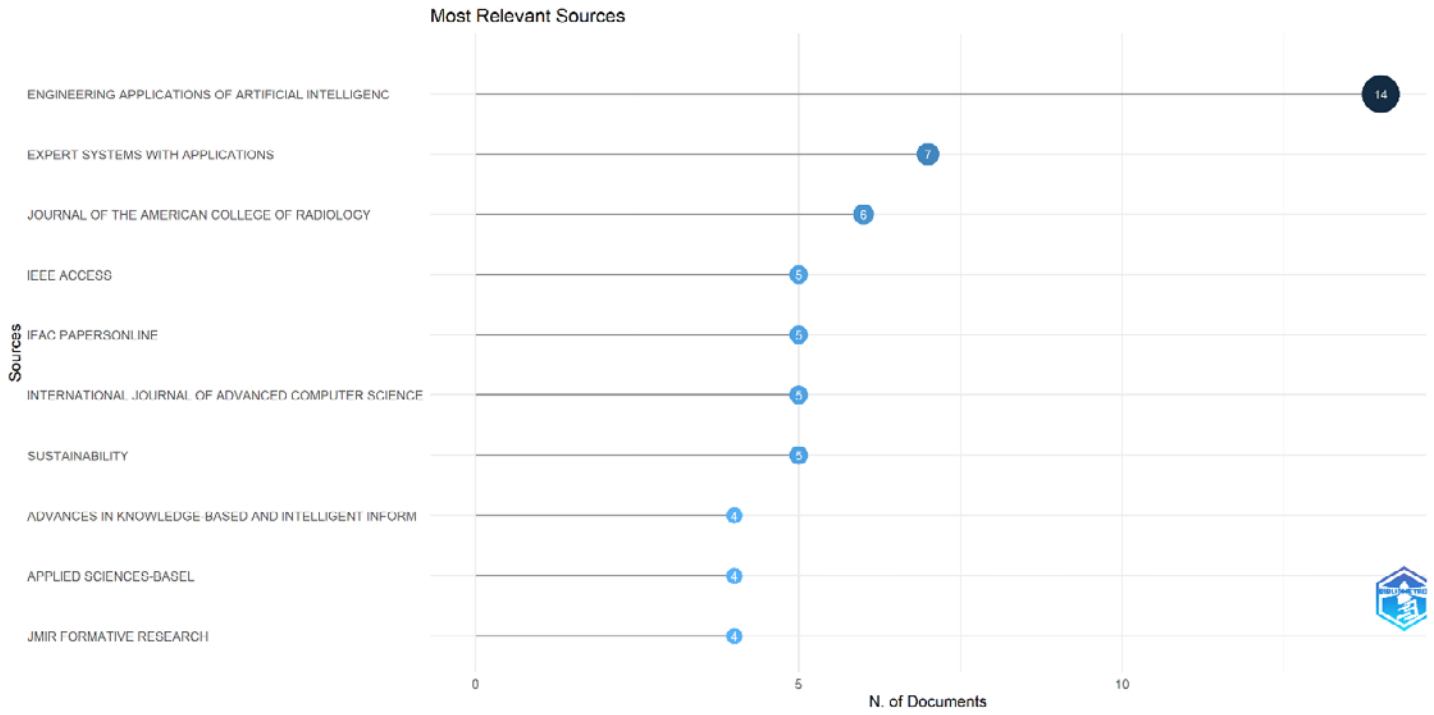



**Figure 6.** The Most Influential Sources in Artificial Intelligence Applications from the Perspective of Employees



Figure 6 answers the fifth question of the research. The most influential sources in artificial intelligence applications from the perspective of employees are listed as follows: Engineering Applications of Artificial Intelligence, Expert Systems with Applications, Journal of the American College of Radiology, IEEE Access, Ifac Papersonline, International Journal of Advances Computer Science, Sustainability, Advances in Knowledge-Based and Intelligent Information, Applied Sciences-Basel, and Jmir Formative Research. The results indicate that publication sources generally focus on areas such as artificial intelligence, engineering, healthcare, information technology, sustainability, and intelligent systems. This suggests that artificial intelligence is being used in many fields, and in the future, it may be widely applied in additional sectors, such as agriculture-livestock, travel-tourism, security, energy, education, gastronomy, and more.

The most influential publications on AI applications appear to be concentrated in disciplines such as engineering, healthcare, informatics, and sustainability, demonstrating that AI is being approached with an interdisciplinary approach. The findings suggest that AI technologies have the potential to expand beyond their current application areas into diverse sectors, including agriculture, tourism, security, energy, and education.

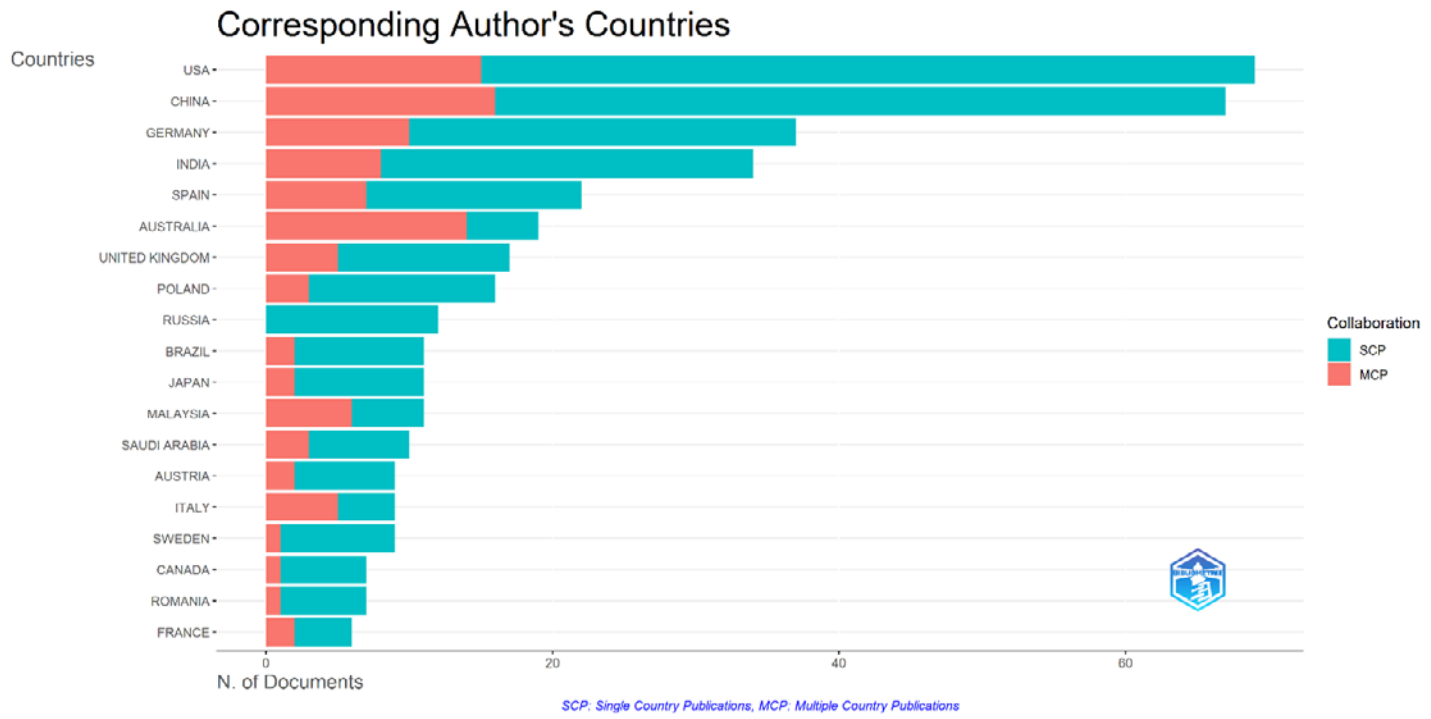



**Figure 7.** The country affiliations of the corresponding authors who conducted extensive research on AI applications from the perspective of employees



In the study, single-country publications with SCP and multi-country publications with MCP were included. In Figure 7, the sixth question of the study is addressed. When considering the country affiliations of the authors who conducted the most intensive research on AI from the perspective of employees, the United States ranked first. Following that, China, Germany, India, Spain, Australia, the United Kingdom, Poland, Russia, Brazil, Japan, Malaysia, Saudi Arabia, Austria, Italy, Sweden, Canada, Romania, and France were ranked in order. The study observed that research affiliated with Russia produced single-country publications, while all other countries produced both single-country and multi-country publications.

Sunman (2025) identified China, the USA, India, Italy, the United Kingdom, Australia, Germany, Canada, France, and Romania as the top ten countries contributing to research on AI in management, in terms of the number of publications conducted by authors in single-country (SCP) and multi-country (MCP) collaborations. Comparing the findings with the existing research reveals a significant overlap in the countries that dominate the AI literature in both studies; however, there is a wide and diverse geographical distribution in AI research conducted in the context of employees.

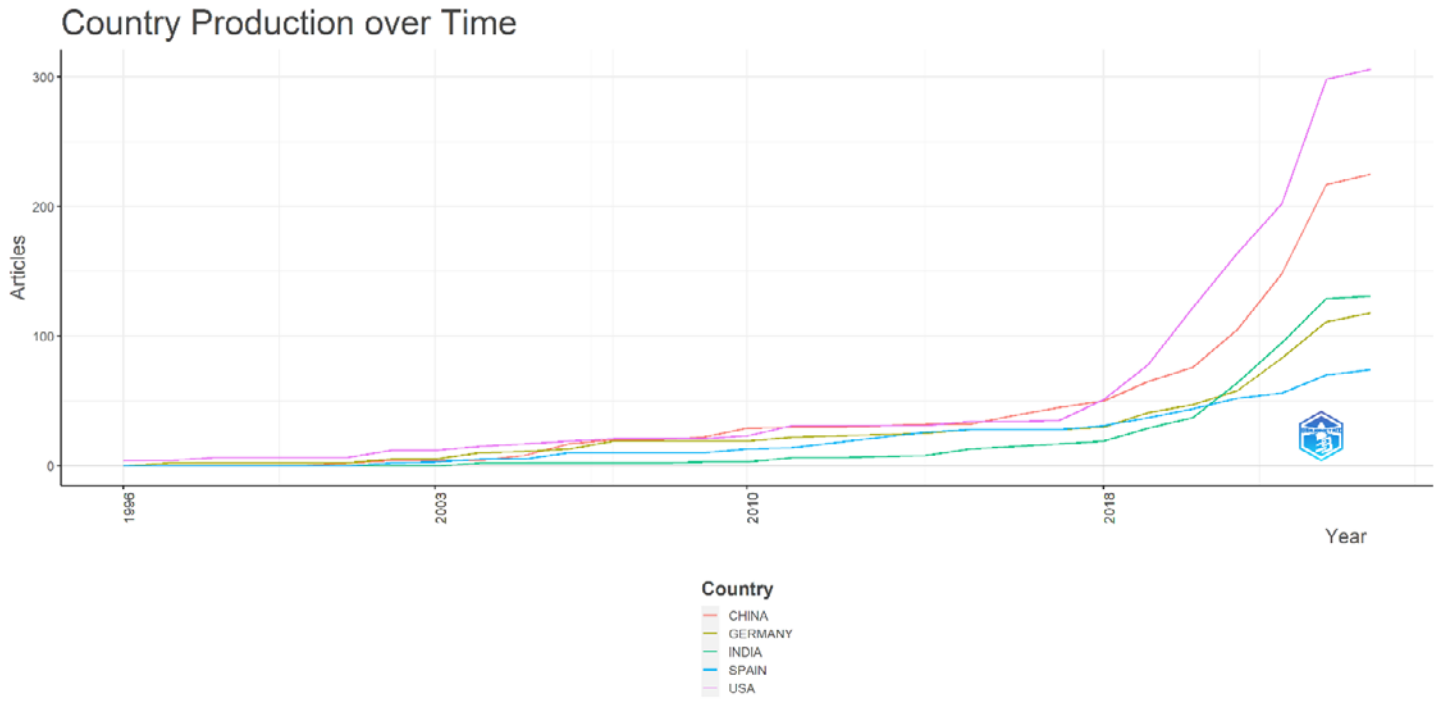



**Figure 8.** Country productivity over time in AI applications from the perspective of employees



In response to the sixth question of the study, when considering the productivity of AI applications over time from the perspective of employees, it is observed that, especially in recent years, publications from the United States, China, India, Germany, and Spain have conducted intensive research. These countries, in particular, have conducted more research on AI applications from the perspective of employees after 2018. In the future, countries that can integrate AI into business activities may have the potential to develop or maintain strong structures in their organizational and national economic development roles.

Akay (2025) examined the use of artificial intelligence technologies in environmental design from a social science perspective. His study revealed that publications in this field largely originate from the USA, China, South Korea, and Australia. While the USA and China are prominent in both studies, it is noteworthy that South Korea and Australia are more prominently represented in Akay's analysis, while countries such as India, Germany, and Spain are less frequently included. This suggests that the ways countries engage with AI research may differ in terms of field and subject matter.

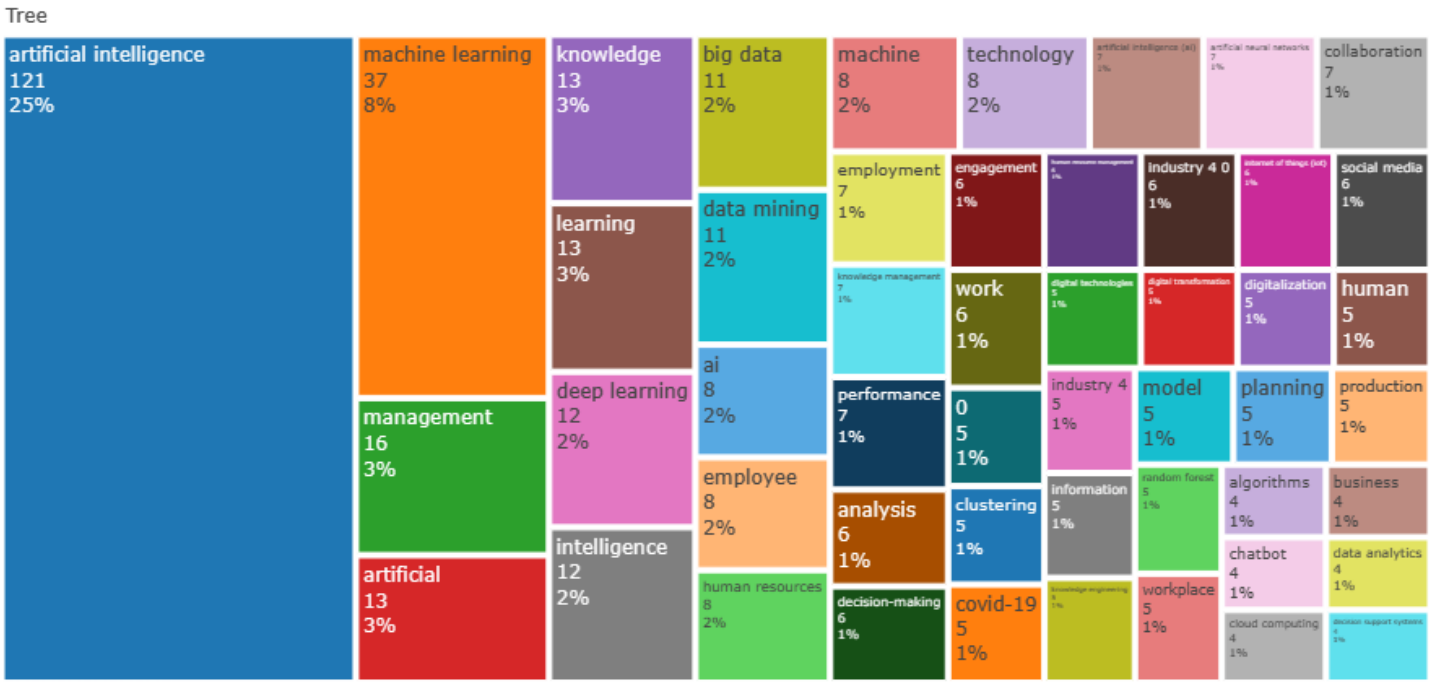



**Figure 9**. A tree map of the most emphasized words in the authors' research on AI applications from the perspective of employees



In Figure 9, the seventh question of the study is addressed. It presents the concepts that authors frequently emphasized in their research on AI applications from the perspective of employees. The analysis revealed that authors most often emphasized the concept of artificial intelligence. Following that, the concepts of machine learning, management, artificial, knowledge, learning, deep learning, intelligence, big data, data mining, AI, employee, human resources, machine, technology, employment, knowledge management, performance, artificial intelligence (AI), artificial neural networks, collaboration, analysis, decision-making, engagement, work, human resource management, Industry 4.0, the Internet of Things, social media, digital technologies, digital transformation, digitization, human, 0, Industry 4, model, planning, production, clustering, information, random rate, algorithms, business, workplace, Covid-19, knowledge management, chatbots, cloud computing, data analysis, and decision support systems were ranked in order. The results suggest that AI studies from the perspective of employees in organizations could be related to many concepts both within and outside the organization. The results particularly highlight that concepts related to employees' business activities are frequently used in connection with AI.

Among the most frequently emphasized keywords in practice are artificial intelligence, machine learning, management, knowledge, deep learning, intelligence, big data, data mining, AI, employee, human resources, machine, technology, and similar terms. Esen (2023) found that the most frequently repeated keywords in research in the field of artificial intelligence and organizational behavior are behavior, artificial intelligence, model, performance, technology, impact, work, management, decision making, and systems. The findings demonstrate that artificial intelligence is not only considered a technical field but also interacts with organizational processes and human behavior. The fact that it is mentioned together with concepts such as decision making, performance, and management, in particular, reveals that artificial intelligence is gaining increasing importance in strategic management and human resources practices.

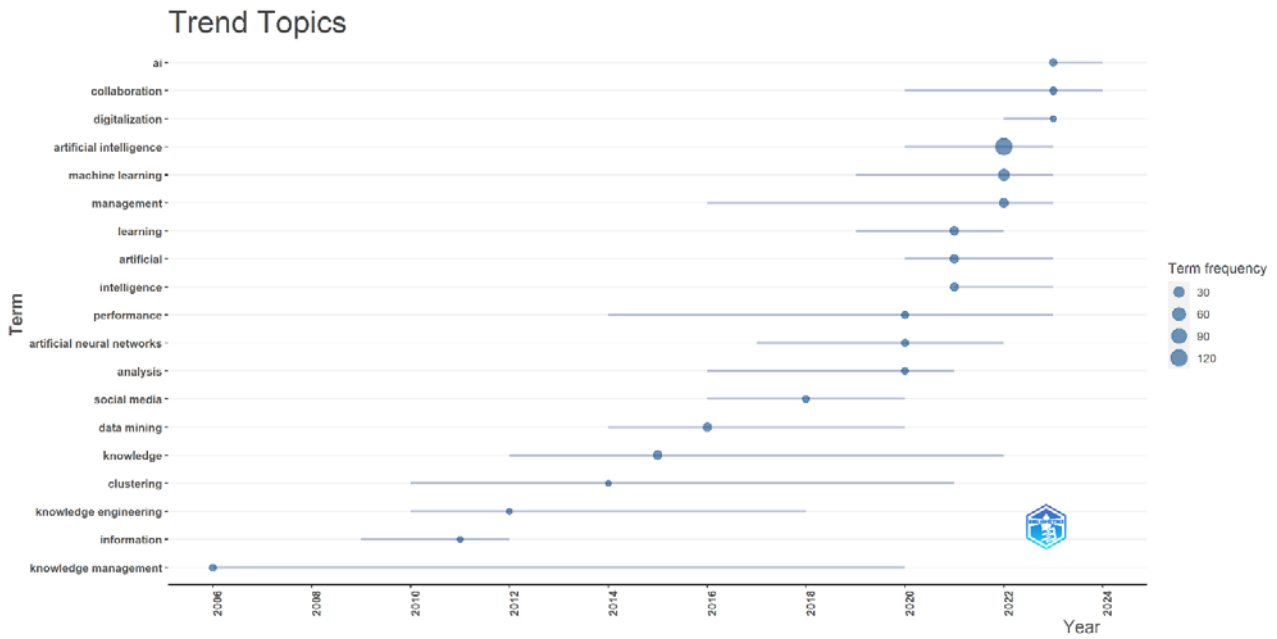



**Figure 10.** Trend times of emphasized keywords in AI applications from the perspective of employees



Figure 10 reveals the trends of the keywords emphasized by the authors and the dates they became trending. The results address the eighth question of the study. It was observed that the abbreviation AI became a trend between 2023 and 2024 in AI applications from the perspective of employees. The study shows that collaboration was a trend from 2020 to 2024, digitalization from 2022 to 2023, artificial intelligence from 2020 to 2023, machine learning from 2019 to 2023, management from 2016 to 2023, learning from 2019 to 2022, artificial from 2020 to 2023, intelligence from 2021 to 2023, performance from 2014 to 2023, artificial neural networks from 2017 to 2022, analysis from 2016 to 2021, social media from 2016 to 2020, data mining from 2014 to 2020, knowledge from 2012 to 2022, clustering from 2010 to 2021, knowledge engineering from 2010 to 2018, information from 2009 to 2012, and knowledge management from 2006 to 2020. In AI applications from the perspective of employees, concepts such as knowledge management, science, knowledge engineering, clustering, performance, and management have had long-term effects. In recent years, while many concepts have been influential, AI and collaboration have been particularly impactful as of the first quarter of 2024.

This study examines the key concepts highlighted in research on artificial intelligence within the context of employees and their trends in popularity over the years. According to the analysis findings, the most frequently cited keywords in the literature include AI, collaboration, digitalization, artificial intelligence, machine learning, management, learning, artificial, intelligence, performance, artificial neural networks, analysis, social media, data mining, knowledge, clustering, knowledge engineering, information, and knowledge management. The data reveal that AI technologies have received extensive attention in the literature, not only for their technical aspects but also for their managerial and social dimensions, including organizational processes, employee activities, knowledge management, and digital collaboration. Similarly, a content analysis study conducted by Sağbaş & Kılınç (2024) in the field of business management identified the popularity of the concepts artificial intelligence, machine learning, big data, deep learning, and sustainability. When the findings of both studies are compared, it is evident that Sağbaş and Kılınç focused more on the technical components of artificial intelligence and the axis of sustainability, whereas this study addresses artificial intelligence within a broader and multidimensional organizational framework, including management, information sharing, and digitalization.

Kılınç (2023) stated that concepts such as ethical technology, anomaly detection, content analysis, machine learning, data analytics, sustainable development, innovation, digital transformation, and sales have become increasingly important in business AI research since the 2020s. Meanwhile, research on AI within the context of employees has identified that concepts such as AI, collaboration, digitalization, machine learning, management, performance, artificial neural networks, analysis, knowledge, and clustering have gained significant popularity during the same period. Kılınç's findings indicate that business AI research has developed more around ethical and sustainability-based concepts, digital transformation, and innovation since the 2020s. In contrast, AI research within the context of employees has focused on more practical concepts, such as collaboration, performance, and knowledge management, which prioritize the human (employee) factor.

Figure 11 addresses the ninth question of the study. No year-specific limitation was applied in the analysis. In terms of thematic development, it was observed that AI research from the perspective of employees was frequently highlighted by authors in both the 1996-2021 and 2022-2024 periods. In the 1996-2021 period, the emphasized keywords included model, analysis, formal concept analysis, artificial intelligence, employee engagement, artificial, Industry 4.0, robotics, information, artificial neural networks, learning, and cloud computing. In the 2022-2024 period, the emphasized keywords included artificial intelligence, performance, random forest, Covid-19, learning, artificial intelligence (AI), employee, artificial, AI, and business.

In their study examining the effects of artificial intelligence applications in the context of computational thinking, Al Husaeni et al. (2025) revealed that the concepts of computational thinking, school students, machine learning, code, teachers, deep learning, and higher education have been used extensively in the literature in the recent period (between 2023 and 2024). In this respect, while AI research focused more on technical concepts and industrial applications in the 1996–2021 period, concepts such as human factors, performance, and workforce emerged in the 2022–2024 period with the post-pandemic effects. Similarly, the findings of Al Husaeni et al. differ from previous literature in that they focus on the effects of AI in the educational context, particularly on learning processes, teacher roles, and student outcomes.



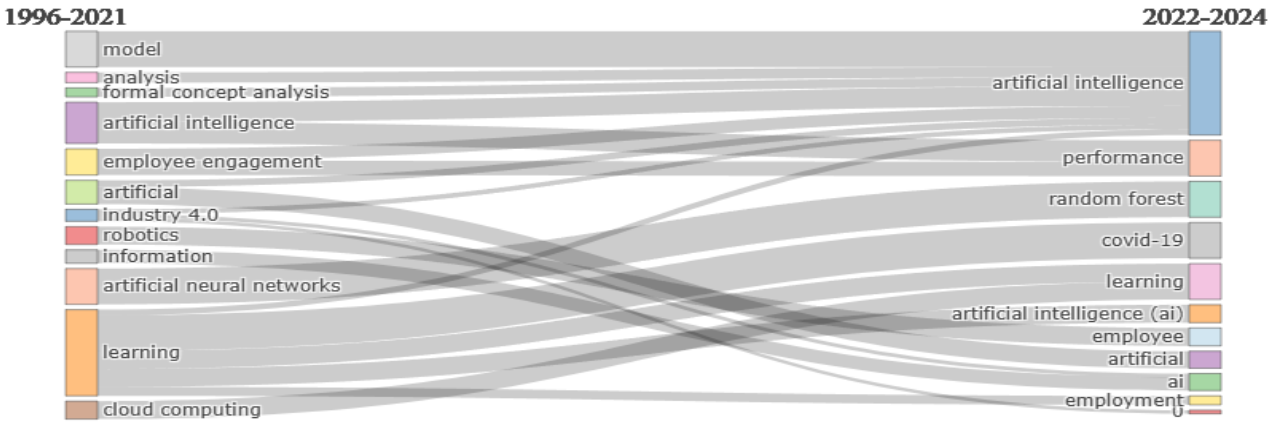



**Figure 11.** The thematic development of AI applications from the perspective of employees

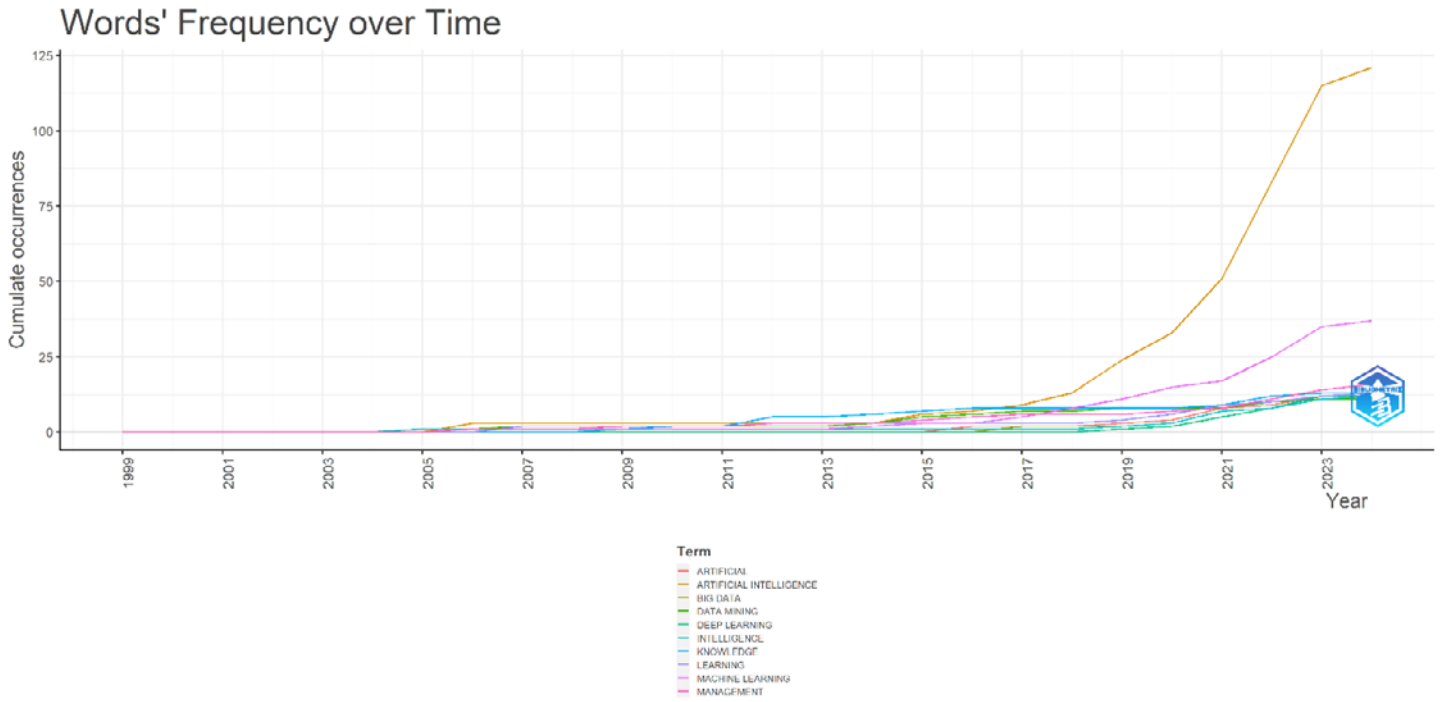



**Figure 12.** The frequency of use of emphasized keywords in AI applications from the perspective of employees



In Figure 12, which addresses the ninth question of the study, the changes in the emphasized keywords over the years were considered, with a particular focus on the rankings for 2024. In this ranking, it was observed that in the most recent year, the concepts of artificial intelligence, machine learning, management, learning, intelligence, data mining, knowledge, artificial, big data, deep learning, and science were most frequently emphasized.

In their study examining the use of artificial intelligence in management, Sekaki et al. (2025) stated that the frequency of use of certain keywords over time is an important bibliometric indicator in determining scientific trends and research focuses. The study examined keywords related to artificial intelligence between 2007 and 2023, and found that the term artificial intelligence, in particular, has shown a significant increase since 2018, and this increase has been sustained. It also emphasized that concepts such as deep learning, machine learning, and neural networks have also experienced high growth rates, reflecting the increase in academic interest in the field. These findings are consistent with the results of the current study; the prominence of terms such as artificial intelligence, machine learning, and data mining in recent years demonstrates the deepening of AI-focused studies in management and the increasing importance of data-driven approaches.

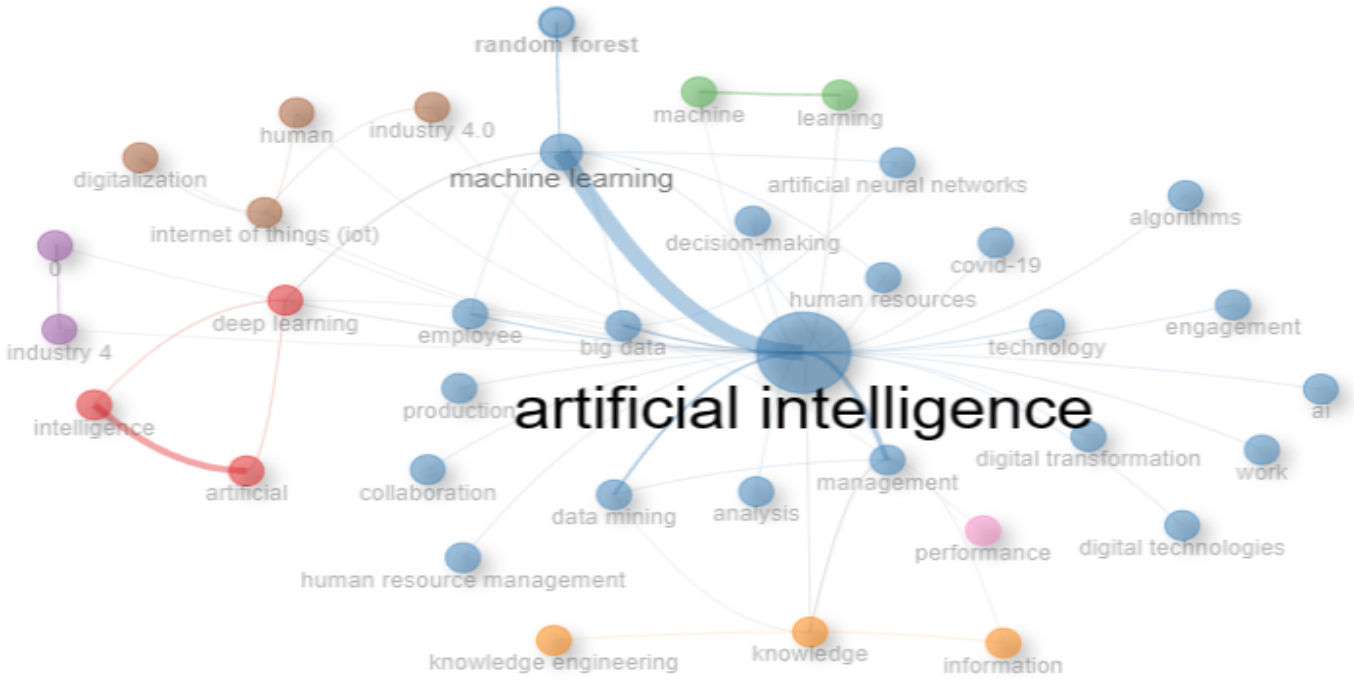





**Figure 13**. Co-occurrence network of emphasized keywords in AI applications from the perspective of employees

In bibliometric analysis, co-occurrence networks and visualizations are considered effective for creating bibliometric maps (Cobo et al., 2011). In Figure 13, the relationship strength of the keywords frequently emphasized in AI research from the perspective of employees is presented. This addresses the tenth question of the study. The analysis revealed that the concepts of artificial intelligence and machine learning have a very strong relationship. Considering the co-occurrence networks, alongside artificial intelligence, machine learning, management, data mining, digital transformation, analysis, technology, employees, human resources, collaboration, productivity, human resource management, big data, performance, digital technologies, decision-making, Covid-19, random forest, artificial neural networks, algorithms, AI (artificial intelligence), engagement, business, 0, and Industry 4.0 showed strong relationships. In the application, the concepts of the Internet of Things, digitization, human, and Industry 4.0 also exhibited co-occurrences. In the study, knowledge, science, and knowledge engineering formed co-occurrence networks. Additionally, the concepts of machine and learning showed strong relationships. Deep learning, artificial, and intelligence also appeared in the co-occurrence network. As a result of the analysis, it was found that artificial intelligence has separate relationships with learning, science, human, Industry 4.0, deep learning, knowledge, the Internet of Things, machine, and digitization.

The research indicates that concepts such as artificial intelligence, machine learning, management, data mining, digital transformation, analysis, technology, employees, human resources, collaboration, productivity, human resource management, big data, performance, digital technologies, decision-making, Covid-19, random forest, artificial neural networks, and algorithms exhibit

strong relationships. Similarly, a co-occurrence network analysis conducted by Esen (2023) in the context of artificial intelligence and employee behavior revealed that concepts such as behavior, performance, model, impact, technology, employees, satisfaction, perceptions, and acceptance are highly correlated. Furthermore, the keywords artificial intelligence, work, resources, dynamics, and organizational commitment were also found to have significant and strong connections. In this respect, the strong relationships established with variables such as satisfaction, performance, and organizational commitment reveal that the integration of artificial intelligence into organizational structure and management processes has become inevitable.

Sunman (2025), in his study examining AI research in the field of management, based on co-occurrence network analysis, revealed that the strongest relationships were shaped around the concepts of framework, technology, design, big data, impact, management, decision-making, innovation, and strategy. Conversely, AI research conducted from the employee perspective frequently emphasized concepts such as artificial intelligence, machine learning, management, data mining, digital transformation, analysis, technology, employees, human resources, collaboration, productivity, human resource management, big data, performance, digital technologies, decision-making, Covid-19, random forest, artificial neural networks, and algorithms. These findings demonstrate that AI research has different conceptual focuses in the employee and management dimensions, and that the impact of technological developments on strategic decision-making processes and human resources practices is prominent in both fields.



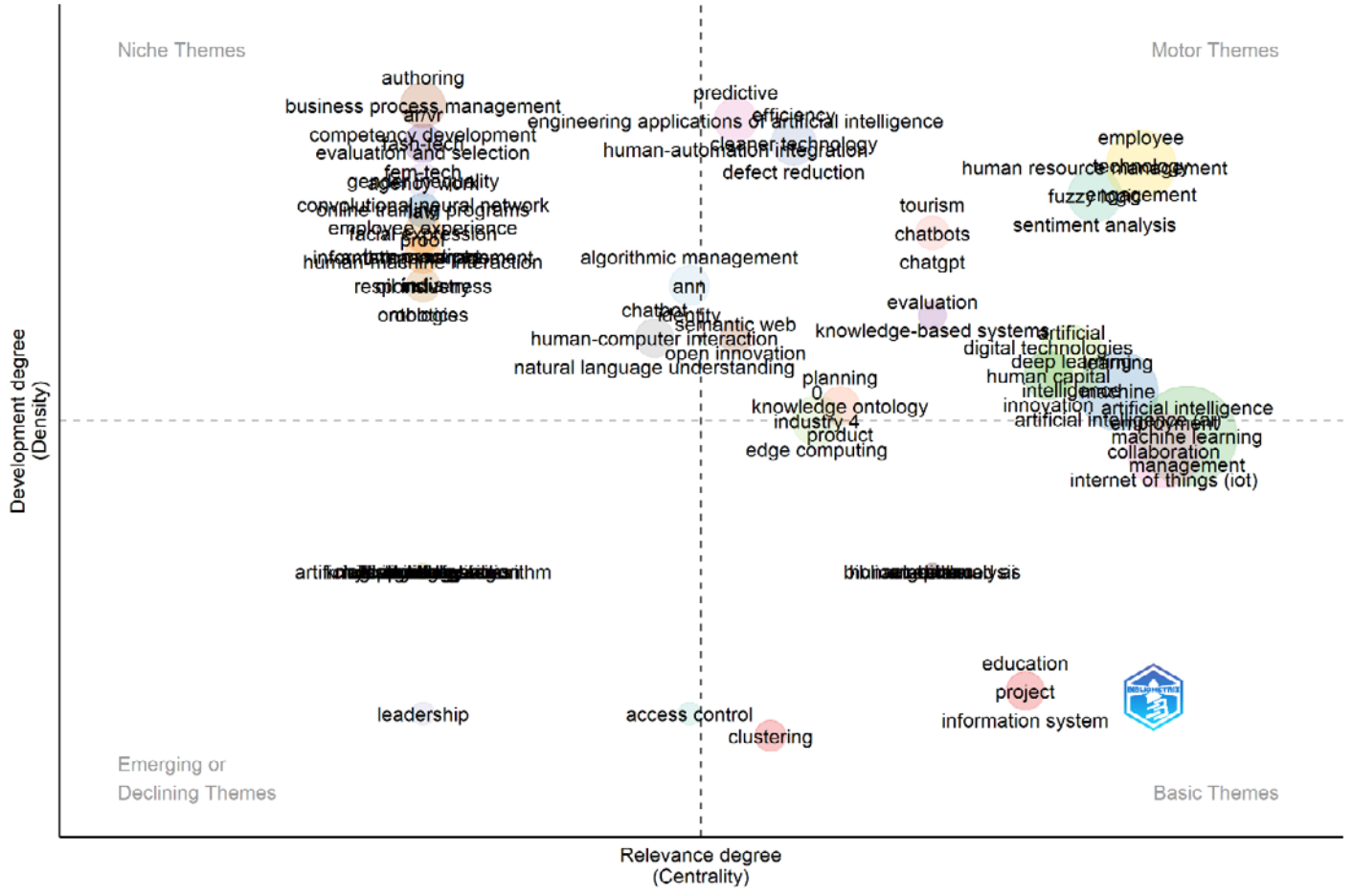



**Figure 14.** The thematic map of AI applications from the perspective of employees

When evaluating the figures presented with thematic maps in the literature, it is noted that the motor themes, located in the upper right corner, contribute to the structuring of well-developed research areas, exhibiting strong centrality and high density. The niche themes, located in the upper left corner, are described as having well-developed internal links but weak external connections. The emerging or disappearing themes in the lower-left section are highlighted as having low density and centrality. The fundamental themes in the lower-right section are considered underdeveloped but are significant for a research area (Cobo et al., 2015). The field of artificial intelligence, where motor themes are prominent, offers a strong and dynamic discussion ground supported by references and highly cited studies focusing on different areas of knowledge (Guedes, 2023). In this context, Figure 14 presents the motor themes (upper-right section) from AI research on employees, represented by concepts that form strong relationships within separate groups. The results address the eleventh question of the study.

As a result of the analysis, it is observed that in AI applications from the perspective of employees, many concepts in the figure fall within the motor themes, showing strong centrality and high density. In the first group of motor themes, the concepts include artificial, deep learning, intelligence, emotion recognition, neural networks, reinforcement learning, collaborative robots, collaborative robots, facial recognition, and human-robot interaction. The second group includes learning, machine, artificial intelligence (AI), artificial neural networks, Industry 4.0, Covid-19, random forests, algorithms, cloud computing, and employee burnout. In the third group, the themes are employee, technology, engagement, workplace, employees, applications, digital, digital health, mental health, and monitoring keywords. The fourth group of motor themes consists of human resource management, fuzzy logic, sentiment analysis, decision trees, companies, cognitive intelligence, and fuzzy concepts. The fifth group includes digital technologies, human capital, innovation, China, and the circular economy. The sixth group themes are competency, cleaner technology, hard disk drives, and development. The seventh group themes include predictive, AI engineering applications, human-automation integration, hybrid intelligence systems, and maintenance repair. The eighth group themes consist of planning, knowledge ontology, and product keywords. In the ninth group, the themes are tourism, chatbots, and ChatGPT. The tenth group themes are evaluation and knowledge-based systems. The eleventh group includes the themes, semantic network, and openness to innovation.

In their bibliometric analysis of 91 articles spanning the years 1984-2022, Khanfar et al. (2024) revealed that the concept of "artificial intelligence" was the keyword with the highest centrality and lowest density among motor themes. The researchers emphasized that the concepts within motor themes thematically reflect advanced research areas. In this context, the study reveals that the concept of "artificial intelligence" represents a highly developed research area within the scope of motor themes, both when considered in its component parts (artificial, intelligence) and in its combined form (artificial intelligence/AI). This demonstrates that the conceptual diversity and application areas of AI are expanding from an employee perspective. The prominence of themes such as human-robot interaction, emotion recognition, and digital health, in particular, points to the multifaceted impact of AI technologies on working life.

In their review of AI research in management, based on data from 2021 to 2025, Sekaki et al. (2025) stated that the concepts within the engine themes were evaluated in terms of relevance (centrality) and development level (density). In this context, they stated that the concepts within the engine themes are both central and highly developed; therefore, they can be characterized as mature and dynamic themes. According to the research findings, the concepts of decision making, knowledge management, and machine learning are among these engine themes. These findings reveal that AI applications create a multidimensional and interdisciplinary network of interactions within the employee context. Furthermore, the diversity and scope of engine themes demonstrate that the impact of AI technologies on workforce dynamics is gradually deepening and has become a strategic research area in the management literature.

## DISCUSSION

In the study, it was observed that artificial intelligence has a significant impact from the perspective of employees. The research revealed that AI has both positive and negative effects within organizations. The positive effects typically include the beneficial contributions of AI to employees' work activities, organizations, and various technological advancements. On the other hand, negative effects were observed, especially in terms of employees' sense of security, job loss, and the formation of certain negative perceptions or anxieties. The studies also compared AI with humans from various perspectives. In many studies, it was emphasized that when the interaction between employees and AI is properly managed, organizational outcomes tend to be more favorable. The results showed that AI is used in many different fields. The general information expressed in the study, along with the highly related concepts, is discussed below. Research findings reveal that AI has dual-faceted impacts on employees, both supporting business processes and raising various concerns. There appears to be general agreement that effective management of employee-AI interactions will increase organizational efficiency and output.

In practice, it has been observed that the concept of machines is linked to emphasized keywords, co-occurrence networks, and motor themes. Mechanization is increasing day by day, driven by technological advancements. This trend is making AI-driven machines more active in organizational activities. Machines can be guided by artificial intelligence systems. The interaction between humans and machines enables the creation of more efficient environments. Huang & Rust (2018) emphasized that mechanical, analytical, intuitive, and empathetic types of intelligence are influential in the progress of AI, creating opportunities for innovative human-machine integration to provide services, and also highlighted that AI represents a threat to human employment. Prentice et al. (2020a) noted that AI is effective in business operations, but emotional capabilities dependent on human intelligence are more dominant than AI when managing employees and customers. They also pointed out that, today, consumers prefer to interact with employees rather than machines or robots. While these findings reveal that the effectiveness of artificial intelligence-supported machines in organizational processes is increasing, they also point out that human-machine interaction should be managed in a balanced manner in terms of both efficiency and user preferences.

In AI applications from the perspective of employees, it has been observed that the concepts of digital technologies, digital transformation, and digitization are closely related in the emphasized keywords and co-occurrence networks, with digitization showing strong relationships in trend times. Additionally, digital, digital health and digital technologies are positioned in the motor themes section. Due to technological advancements, digitization is increasing day by day, and digital technologies and transformations are being used across various fields such as healthcare, education, and workplace activities. This transformation is causing changes in many mechanisms, such as employee habits, workload, working hours, and work environment relations. Hughes et al. (2019) emphasized that AI behaviors are generally carried out by controlled digital systems, indicating a close relationship between digitization and AI. Abdullah & Fakieh (2020) highlighted that, in the context of digital health, there is a need for training to address the advantages, challenges, and solutions for implementing AI in healthcare services. They noted that training would enhance employees' AI knowledge and their potential role in the healthcare sector. Rožman et al. (2023) emphasized that the digital transformation process begins with the creation of digital strategies, which are part of companies' business strategies and form the foundation of digital business transformation. They noted that AI enables employees to devote time to complex tasks and innovation.

It has been observed that concepts such as technology, digital technology, and cleaner technology are influential in AI studies. Technological changes have advanced the development and application areas of artificial intelligence. AI technology has reduced the workload for organizations and created new employment opportunities for employees. The integration of organizational activities with technology has led to increased efficiency and time savings. Lichtenthaler (2020) stated that managers could provide financial and moral incentives to employees to strengthen the use of advanced technologies. He pointed

out that, from a social desirability perspective, relying on new solutions could lead to both positive and negative attitudes among employees. Dabbous et al. (2022) emphasized that the perceived usefulness of AI has a strong impact on employees' intention to use AI, and employees tend to adopt a technology when they find it valuable and useful. They noted that to increase the adoption of AI, organizations should emphasize the benefits, functionality, and advantages of using this technology. Kądzielawski (2023) stated that employees feel that modern technologies, such as AI, assist and facilitate their work. He emphasized that most employees express that AI provides benefits in terms of cost and competition, and increases productivity.

In the study, it has been observed that the concept of commitment appears in emphasized keywords, co-occurrence networks, motor themes, and thematic development as employee commitment. Commitment impacts employees' performance, expectations, and the future of the organization in organizational activities. The acceptance of AI applications by employees and the creation of a collaborative space increase their commitment to their work and organizations. Employee commitment contributes to aligning business activities with organizational goals. AI and employee commitment can create a more efficient and effective working environment. Rao et al. (2020) emphasized that AI resources can provide a strong impression, customized skills, and training experiences to increase employees' commitment to their organizations. In this regard, the personalized learning opportunities offered by artificial intelligence technologies to improve employees' competencies stand out as a strategic element that both supports individual development and strengthens corporate commitment.

In practice, it has been observed that the term 'human' is quite effective in the emphasized keywords, co-occurrence network, and motor themes, particularly in the contexts of human-robot interaction, human capital, and human-automation integration. Human-machine interaction refers to environments where employees are constantly interacting in today’s work activities. Depending on technological changes and workplace applications, employees are engaged with AI systems. This indicates that the harmony between human (employee, customer, etc.) elements and AI technologies is valuable in organizations. The analysis also revealed that the concept of algorithms shows strong relationships in the emphasized keywords, co-occurrence network, and motor themes. AI algorithms used in organizations influence employee activities. Brougham & Haar (2018) stated that older workers do not perceive AI, smart technologies, robotics, and algorithms as a threat to their current jobs or career expectations. Lichtenthaler (2020) highlighted that even when human intelligence and AI are complementary, organizational managers may face decisions on whether to rely on humans or machines for certain fundamental tasks. He also emphasized the growing importance of smart algorithms and advanced data analytics, as well as new human-machine interfaces. Tondg et al. (2021) found that AI provides higher quality feedback compared to human managers, detects more errors, and offers more suggestions to improve employees' skills and correct mistakes. They concluded that AI contributes significantly to employees’ learning and job performance. However, they also pointed out that AI-generated feedback may lead to negative perceptions, a decline in trust regarding the quality of feedback, and concerns about job loss risk.

In the context of AI applications for employees, it has been observed that data mining appears in the emphasized keywords, thematic development, trend periods, and co-occurrence network. Data mining is one of the resources that organizations use to make their activities more functional, depending on technological advancements. Through data mining, organizations can create new and long-term strategies. It has also been observed that the concepts of human resources (HR) and human resource management (HRM) are generally present in the emphasized keywords, co-occurrence network, and motor themes. HRM practices assist organizations in achieving their operations with the most effective and efficient employees. The analysis shows strong relationships between AI and HRM. Dabbous et al. (2022) emphasized that HR managers should pay close attention to the factors influencing employees' use of AI. Pereira et al. (2023) highlighted that HR professionals in organizations benefit from data mining techniques when hiring the right employee, as well as in activities such as compensation, individual performance, and effective payment systems.

In the seventh group of the study's motor themes, it has been observed that human-automation integration is related to concepts such as AI-driven engineering applications, predictive systems, hybrid intelligence systems, and maintenance. Automation applications in organizational activities contribute to completing tasks in a more organized and efficient manner. They help employees perform their tasks in a planned way. Ramachandran et al. (2022) highlighted that robotic process automation technologies driven by AI automate the interactions between various workflows, making tedious tasks within the organization more manageable. Pektaş (2024) emphasized that ethical design in the development of AI systems can alleviate concerns related to privacy, bias, and security.

The concepts of learning, deep learning, machine learning, and reinforcement learning have been frequently highlighted by the authors and observed to be present in thematic development, co-occurrence networks, motor themes, and trending topics in general. In organizations, AI applications contribute to employees learning new information related to their activities. The information encoded in AI systems minimizes the error rate to very low levels. Training and skill development for employees can be carried out using learning-focused AI systems. Ramachandran et al. (2022) noted that machine learning and AI systems never tire or get bored. This characteristic increases productivity, reduces the probability of errors, and ensures seamless and efficient operations within organizations. Pereira et al. (2023) emphasized that AI is a valuable resource for learning in organizations, but research on this topic has often overlooked analysis units such as individuals or teams, despite the focus on human-centered learning in the workplace. They also mentioned that machine learning and deep learning techniques are utilized in employee training and development in AI contexts. Li et al. (2024b) categorized AI-based learning methods as direct observational learning, abstract observational learning, and creative observational learning.

In the analysis, the concept of chatbots has been observed to appear in the keywords highlighted by the authors and in the motor themes. In organizational activities, employees interacting with chatbots can enhance feelings of learning and enjoyment. Furthermore, the concept of robotics has been observed in thematic development, with collaborative robot, collaborative robots, and human-robot interaction having high centrality and density in motor themes. Today, robots have become an integral part of human life, and it is predicted that human-robot interaction will become even more intense in the future. AI-guided robots provide ease to workers in the workplace. Arslan et al. (2022) emphasized the need for organizational support mechanisms that provide both educational opportunities for employees to work with robots and technological competence to ensure the practical use of these technologies. Budhwar et al. (2022) pointed out that service robots can perform cognitive and analytical tasks with low emotional or social complexity, but that emotional authenticity should only be exhibited by humans for tasks with high emotional or social complexity. They stated that this should be supported by robots and AI. Vrontis et al. (2022) explained that robotics involves machines capable of mimicking human movements and behaviors, and it is related to various fields such as AI, machine learning, electronics, and nanotechnology. They highlighted that robotic technologies provide learning or training opportunities for the business world and workers, and categorized these technologies into job replacement, human-robot collaboration, and learning opportunities. Pillai et al. (2024) emphasized that chatbots (such as Amber, Hireview, and Olivia) provide employees with personalized services, including problem-solving, mental and emotional support, coaching, wellness, performance improvement, and answering human resource-related questions. They suggested that employees may develop a positive attitude toward chatbots.

In the research, the concepts of information and information management were observed to appear in the highlighted keywords, with terms like information, information management, and information engineering emerging in trending times. Information was found to have high centrality and density in the thematic development and the co-occurrence network of information, science, and information engineering. Information and information-based systems were identified as having a significant role in the motor themes. Information is a critical production factor, and this aspect also affects the work activities

of employees in the context of artificial intelligence. In organizational activities, information expands the application scope of new technologies, enabling diversity and innovation in production activities. In work environments where the level of information is high, the error rate may be lower. Öztırak (2023) emphasized that employees must make individual efforts to access accurate and reliable information regarding artificial intelligence. Vergara et al. (2025) demonstrated the decisive role played by concepts such as knowledge management, machine learning, and decision-making in their studies on project management and artificial intelligence. They emphasized that these concepts, within the framework of computational methods, contribute to the efficiency, accuracy, and strategic planning of project management approaches.

In the context of artificial intelligence applications for employees, the term 'performance' has shown strong relationships in the highlighted keywords, trend times, thematic development, and co-occurrence networks. Employee performance can increase when AI applications are coordinated with work activities. AI can be utilized in performance evaluation systems. Organizations generally expect employees to exhibit high performance in their work activities. Vrontis et al. (2022) emphasized that intelligent automation systems in HR practices within AI applications affect efficiency and performance. Li et al. (2024a) stated that employees' high-level performance motivation strengthens leadership AI learning. They also pointed out that a compatible work environment for AI could facilitate communication. Sharma and Saxena (2024) found positive and significant relationships between employee performance and AI, noting that emotional intelligence contributes to employee performance, and AI has a strengthening (or positive) and moderating effect on the emotional intelligence-employee performance relationship.

Covid-19 has shown strong relationships in the highlighted keywords, thematic development, co-occurrence networks, and motor themes. During the Covid-19 period, organizations had to shift their operations to remote work, necessitating significant changes in old habits. Due to the pandemic, AI-based technological production lines became necessary in organizations, which increased the demand for AI products in organizational activities. The pandemic limited people's ability to work in the same environment, which in turn expanded the usage areas for AI applications. Cramarenco et al. (2023) emphasized that AI played an effective role in transforming work routines and procedures during Covid-19, and work tasks went through an accelerated automation and digitalization process. AI has impacted both the professional and personal lives of employees. In this context, the Covid-19 process has paved the way for artificial intelligence applications to become not only a crisis management tool but also a permanent element that accelerates the digital transformation of organizations.

The concept of decision-making has been observed to have strong relationships in the highlighted keywords and co-occurrence networks. Employees in decision-making positions within organizations can benefit from AI and its applications to make important decisions regarding their current and future activities. Decision-making holds a central role in organizations, as workplace activities are carried out within the framework of decisions. Bankins et al. (2024) emphasized that when AI provides information for decision-making or assists in human tasks, it can encourage employment, wage increases, skill utilization, and improved work practices.

It has been observed that the concepts of emotion recognition and sentiment analysis are part of the motor themes, with high centrality and density, and strong relationships with many other concepts. In AI applications, employees' emotions can impact work activities. Employees with positive emotions tend to produce more productive outcomes in the workplace. Negative emotions resulting from AI could reduce employee performance. In this regard, AI applications in organizations should not cause emotional distress to employees. Chang et al. (2024) stated that employees' emotional reactions to technostress caused by AI affect their intention to adopt AI. They found that when technostress factors are managed, employees' intention to adopt AI increases positively, whereas inhibiting technostress factors causes anxiety and reduces the intention to adopt AI. Therefore, when implementing artificial intelligence applications, it is crucial for organizations to be sensitive to the emotional needs of employees and develop support mechanisms to reduce technostress in order to ensure that technology is used effectively and adopted.

## CONCLUSION

After the research, it has been observed that many concepts affect the relationship between AI and employees, impacting organizational activities. By placing employees at the center, utilizing AI applications in ways that support both employees and organizations can reduce employee concerns. Organizational policies should support AI and employee collaboration. The scope of AI applications is determined by the activities of organizations. While some organizations use technological capabilities more frequently, others place greater importance on the human (employee) factor. In organizations where employees and AI work together, implementing balanced policies regarding activities proves to be more effective. Additionally, it is emphasized that the employee factor holds a central role within organizations, and other human characteristics (such as fear, anxiety, sadness, shame, joy, tolerance, and kindness) that can be described emotionally, intuitively, and humanely should also be considered.

Today's organizations are heavily influenced by technological innovations in their business activities. This has made it necessary to assess AI applications from the perspective of employees within organizations. In this study, the relationships between AI applications and employees were evaluated in the literature. The analysis revealed that among the most frequently emphasized concepts in AI applications from the perspective of employees were artificial intelligence, machine learning, management, artificial, knowledge, learning, deep learning, intelligence, big data, data mining, employees, human resources, machine, technology, work, knowledge management, performance, and artificial neural networks. The analysis showed strong relationships between the concepts of AI, machine learning, management, data mining, digital transformation, analysis, technology, employees, human resources, collaboration, efficiency, human resource management, big data, performance, and digital technologies. In terms of centrality and density, the strongest relationship group consisted of concepts like artificial, deep learning, intelligence, emotion recognition, neural networks, reinforcement learning, collaborative robots, collaborative robots, face recognition, and human-robot interaction. The results of the study indicate that AI is widely used in areas such as engineering, information technology, medicine (healthcare), economics, and socio-cultural sectors from the perspective of employees.

*The extent to which AI applications are used in organizations can vary depending on their business activities.*

*Organizations can leverage AI applications in their business activities or long-term policies.*

*Technological changes are increasing the impact of AI applications on organizational activities.*

*Effective and efficient use of AI applications by employees can provide time and cost savings for organizations.*

*AI applications used within organizations must build trust with all stakeholders involved.*

*Organizations should ensure that the communication network between employees and AI activities is established on a healthy foundation.*

*Organizational leaders should minimize employees' concerns (such as fear of job loss) to effectively facilitate the interaction between AI and employees.*

*Employees should trust organizational policies and other colleagues to adopt and perform business activities positively.*

*AI applications affect everyone in the organizational hierarchy (both subordinates and superiors).*

The research is limited to articles on AI applications and employees found in the WoS database. Future studies could focus on examining the changes between AI applications and the subordinate-supervisor relationships, particularly in labor-intensive industries. Additionally, the impact of employees' concerns about job loss on their work activities or performance could be further investigated.

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