The Transforming Impact of Artificial Intelligence and Adoption of Technology on HR Practices in the context of Organizational Performance: A Bibliometric Analysis with Cluster study

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Received 14th January 2025; Accepted 15th February 2025; Published online 16th March 2025

Abstract

AI boosts organisational performance (OP), which is an organization's ability to meet its strategic goals. OP includes operational efficiency, innovation, consumer satisfaction, market share, and profitability. This study uses a bibliometric method to examine scholarly studies' current state and progress on Artificial Intelligence and Organizational Performance. The study's primary goal is to look at conceptual framework of research on Artificial Intelligence and Organizational Performance to identify authors, journals, existing and developing topics, and suggested areas for future research. AI can help a company be more productive, accurate, and efficient, but is this always a good thing for business? A lot of people think that computers and robots will eventually replace people as workers, and that this threat to our progress rather than a chance to make things better is what AI is creating. Leaders must first understand how AI will affect their employees and then get their teams ready by teaching some people to do current jobs with AI and hiring others to do new jobs that AI will create. Researchers conducted a bibliometric analysis on 318 publications using VOSviewer.

Keywords

Artificial Intelligence, Bibliometric Analysis, Cluster Analysis, Organizational Performance, Technology, Vos-viewer

1. Introduction

Biometrics, the internet of things, mobile technologies, virtual reality, speech recognition, big data, machine learning, and artificial intelligence (AI) and the Fourth Industrial Revolution (4IR) are examples of emerging technologies that are increasingly being integrated (He et al., 2019; De et al., 2023). The integration of advanced technologies significantly influences workplace processes, employee involvement, and organizational design. Transformations in business operations, both domestically and internationally, are reshaping the operational landscape of enterprises (Elbasi et al., 2023; Barakina et al., 2021; Kalogirou et al., 2020; Owoc et al., 2019; Negrotti, 2012). The potential of AI to displace jobs and undermine

fundamental aspects of humanity has elicited significant concern (Park, 2018; Tagde et al, 2021; Bao, Q et al., 2000). Artificial intelligence and associated intelligence-driven applications enable organizations to attain optimal strategic business outcomes by emphasizing operational efficiency, productivity, service quality, cost-effective service excellence (CESE) (Wang, 2023), return on investment (ROI) (Madden et al, 2004), employee service quality (Guo et al., 2018), and customer engagement and loyalty (Crawford et al., 2000), alongside substantial reductions in operational and capital costs (Yang, 2022). Moreover, such research also delivers positive individual-level outcomes, such as employee and talent experiences, intention to quit and job satisfaction (Yigitcanlar et al., 2020). Artificial Intelligence encompasses a wide range of technologies enabling computers to execute tasks typically necessitating human cognitive abilities, such as adaptive decision-making (Nazir et al., 2023). An ongoing debate in academic research explores various AI digital tools and techniques and their potential benefits for firms utilizing these business solutions (Hamamoto et al., 2020). Scholars in HRM journals and associated disciplines such as IT, general management, and international management have recently been urged to conduct further research on AI in HRM (Utami et al., 2023; Singh et al., 2019). The study on AI-HRM is thus multidisciplinary (Connelly et al., 2020). Researchers do not yet fully comprehend how AI and associated technologies can aid HRM and other duties, nor how AI-enhanced HRM functions integrate with other beneficial jobs that can enhance corporate performance (Johnston et al., 2024). Numerous studies examine the intersection of AI and HRM, with an increasing body of research indicating that contemporary automation technologies enhance HRM practices (Gong Y et al., 2021).

According to various studies conducted by (Papastratis et al., 2021), Wirtz (2019), AI-driven tools and methodologies have improved various aspects of employee life, including satisfaction, engagement, productivity, job performance, HR efficiency, retention, and decision-making in both local and multinational enterprises (Vărzaru, 2022). There has been considerable discussion over AI and its potential to transform certain HRM functions. As per the findings of researcher (Morrow, 2023). In the areas of personnel acquisition, development, analysis, and retention, AI-drive and HRM solutions can be of great assistance to large technology multinational organizations (Fitzgerald et al., 2017). The removal of Industry 4.0 job ads (Gago et al., 2014), the evaluation of staff development programs (Wang et al., 2021), and the location, interviewing, and recruitment of top personnel (Bag et al., 2020) are all possible with its help. Contextual influences, including language, culture, and institutional differences across borders, impact international human rights management (Brem et al., 2021). To mitigate biases in limited databases and within single-nation contexts, AI applications necessitate diverse databases. Some argue that AI-enabled HRM can hurt companies and workers, whereas other research finds good outcomes (Huang et al., 2019). Neglecting negative factors could have unforeseen effects on organizations' bottom lines and reputations, including high employee turnover, dissatisfied customers, decreased job satisfaction, increased expenses, and a general decline in corporate performance **(**Lewis, 2016). Researchers have discovered that while trying to apply AI to HRM, a number of obstacles arise. Concerns regarding accountability in relation to justice and other ethical and legal dilemmas, the limitations of small data sets, the complicated nature of HR phenomena,

and the likelihood that employees may react negatively to management decisions based on data-driven algorithms are all factors to consider (Rajput et al., 2023). According to Castellacci and (Rajput et al., 2022), there remains an absence of concrete understanding regarding the impact of AI-enabled HRM tasks on individuals, their performance, and the overall results for the organization. Additional evidence of how these AI applications with an HR focus enhance positive outcomes while decreasing negative repercussions is required (Rajput et al., 2024). Therefore, we contend that the social-technological context can have a stronger impact on achieving positive outcomes through measures including an adaptable organizational structure, adequate training, managing fear of change, and enhancing people' skill sets. Furthermore, we contend that individual employee characteristics, including EQ and personality, are critical to take into account since they impact company results. The AI-HRM literature is also divided on the topic of how best to adapt AI and intelligence-based technologies for organizational use by determining which employee traits are most important. However, even though new technologies have opened up a lot of doors in HRM, people are still better at doing some things that machines can't. So, some researchers say that adding AI apps to people instead of replacing them is better for businesses because both humans and AI can work together to do great work. We argue that AI-enabled HRM produces positive outcomes by means of collaboration mechanisms between humans and AI. Strong IHRM studies focusing on AI use cases are currently lacking. Studies done in one country or by affiliates of big tech companies provide some practical evidence, nevertheless.

A comprehensive literature analysis may offer potential avenues for researchers, given the aforementioned calls and limitations.

The following research questions are addressed by this thorough evaluation of the research on artificial intelligence and advanced technology applications in human resource management:

1. How is artificial intelligence (AI) and additional intelligence-based technologies that are now being considered in the context of international corporate human resource management (HRM)?
2. How do intelligence technologies enabled by AI affect the results achieved by organizations and their employees in the context of international business?
3. Which areas should be prioritized for future research?

The above topics are addressed by global AI HRM adoption in this review. Second, Automating and AI-based HRM functions has both beneficial and bad effects on employees and organizations, according to the analysis. The International Journal of Human Resource Management (1069) offers recommendations for future studies in this area. Third, Job success is influenced by both personal and social-technical aspects, as shown in this review. Our fourth point is that we show how human-AI partnerships improve company and individual results. Fifth, studies involving AI and HRM ought to improve theory-building. Human resources and business professionals need to use personal and social-technical interventions to address the AI's advantages and disadvantages, as well as the "how" and "why" concerns around AI adoption. Sixth, we build a model that shows how human and social-technical factors could enhance HRM operations, AI and intelligence technologies, and the consequences for both companies and their employees.

2. Literature Background of the Study

2.1 Historical Development and evolution of AI in HR

The introduction of computer-based expert systems in the early 1980s marked the beginning of artificial intelligence (AI) in human resources. The goal of these systems was to simulate human judgment and skill in a variety of areas, including human resources. Nevertheless, their actual applicability in HR was severely hampered by technological limitations and expensive costs. There has been substantial development in AI applications for HR thanks to improvements in processing power, data availability, and algorithmic methodologies. Human resources systems driven by artificial intelligence (AI) first appeared in the 1990s, making it easier to do things like parse resumes and screen applicants. To find the best fit between job openings and applicants, these systems used algorithms for natural language processing (NLP). The broad availability of big data and machine learning techniques has greatly expedited the development of AI in human resources in recent years. Human resources departments can benefit from better talent management and workforce planning decisions made possible by machine learning algorithms that sift through mountains of employee data in search of meaningful patterns and insights. Additionally, with the rise of deep learning and neural networks, complex AI models have been created that can forecast how employees will act, how engaged they will be, and how well they will perform.

2.2 Adoption of AI in Different Industries

Different industries have different levels of AI usage in HR procedures at the moment. Some industries have welcomed AI as a game-changing technology, while others are only beginning to investigate and apply it. The adoption of AI in HR has been led by the IT, banking, and e-commerce industries, which use AI-powered technologies for predictive analytics, employee engagement, and talent acquisition. These sectors are aware of how AI may improve HR process decision-making, decrease bias, and increase efficiency. However, the adoption of AI in HR has been comparatively slower in other industries, like manufacturing, healthcare, and education. The slower adoption rate in certain industries is caused by a number of factors, including the requirement for domain-specific AI models, data privacy issues, and legislative restrictions. However, businesses in these sectors are beginning to realize the advantages AI may offer HR procedures, and they are working to investigate and incorporate AI solutions.

3. Methodology

This study conducts a comprehensive literature review to thoroughly investigate review of the current literature on HRM-related topics including AI and cutting-edge technology. The findings of this research have global implications for HR management. Systematic reviews entail the collection and critical analysis of literature and themes derived from selected studies relevant to the research questions, thereby establishing a solid foundation for the

advancement of knowledge and theoretical development on a specific topic. This method offers a consistent and transparent framework for synthesizing results, hence ensuring overall reliability. In accordance with the protocols delineated by for conducting a systematic literature review in business and management research, we adopted a systematic methodology as the suitable approach for this review to ensure thorough literature coverage and identify emerging themes while maintaining consistency. After that, we retained the following papers: articles, reviews, and 378 documents, excluding notebooks, conference proceedings, and book chapters. We procured a total of 361 reviews and articles. The only source considered was journals, from which only 352 articles were found. Researchers removed some publications because their language was not English. After extensive discussions, researchers eventually considered 318 documents for bibliometric analysis.

4. Results and Discussion

4.1 Year Wise Growth Rate

Table 1 shows the growth rate in which in it clear that highest growth rate occurred in 2024 with published articles rate in freuency is 409. From 2009 to 2018 Artificial Intelligence study shows very fewer study with only one or two articles, 2021 shows the acual growth and interest in Artificial Intelligence study. Figure 1 presents the most cited documents in the study of Artificial Intelligence, highlighting that Gautham (2021) ranks as the top cited document. This research establishes a significant foundation for scholars and leaders, enabling them to effectively navigate the intricate landscape of AI adoption while balancing productivity and well-being benefits for workers. Organizations must adopt effective implementation strategies that focus on the needs of workers and foster a collaborative work environment. It is only through this approach that we can effectively leverage AI's capabilities to optimize work processes and, in turn, elevate the quality of life for workers both presently and in the future.

Year	No. of published articles	%(N=821)	Cumulative %
2009	1	0.121%	0.121%
2010	1	0.121%	0.242%
2011	1	0.121%	0.363%
2012	2	0.243%	0.606%
2013	2	0.243%	0.849%
2014	1	0.121%	0.97%
2015	1	0.121%	1.091%
2016	1	0.121%	1.212%
2017	1	0.121%	1.333%
2018	2	0.243%	1.5765
2019	8	0.974%	2.55%
2020	15	1.827%	4.377%
2021	77	9.378%	13.755%
2022	103	12.54%	26.295%
2023	196	23.87%	50.1655
2024	409	49.81%	99.975%

Table 1- Year wise growth
Source- Scopus Database and Author's Analysis

4.2 Top Cited Documents

Figure 1- Top Cited Documents
Source- Scopus Database and Author's Analysis

4.3 Top 10 Countries

Table 2 illustrates the top cited countries in which United States receives the highest number of Citation which is 1511 with 151 documents after that India is the second highest cited country in the world with 1268 citations with 240 documents and in the top 10 list Vietnam is the 10th highest cited country with 314 citations and 11 documents.

Country	Documents	Citations	Total Link Strength
United States	151	1511	0
India	240	1268	2
United Kingdom	59	707	1
China	109	522	0
Japan	29	499	0
Italy	44	486	0
Pakistan	20	393	0
South Korea	31	364	0
Saudi Arabia	30	330	0
VietNam	11	314	0

Table 2- Top Cited Coutries
Source- Scopus Database and Author's Analysis

4.4 Top Cited Authors

Figure 2 shows the most cited authors in the Artificial Intelligence study, in which it is clear that Pagallo, Ugo is the highest cited author with 144 citations with 3 documents and they concluded that an evolving and reciprocal link exists between technological interventions and organizational HR elements and their functions. These linkages can be clearly elucidated by comprehensive qualitative studies. This experimental study looks at what happens to employees in I4.0 companies when AI is used. A lot of people are worried about the big bad effects of using AI, like the chance of data leaks, big changes in organizations because of digital transformations, and job instability. Concerns about bias in decision-making and problems caused by false information were also brought up. The bad effects bring to light

some problematic parts of the group. This study adds to what is known about technostress and makes it possible for more studies to be done in the future.

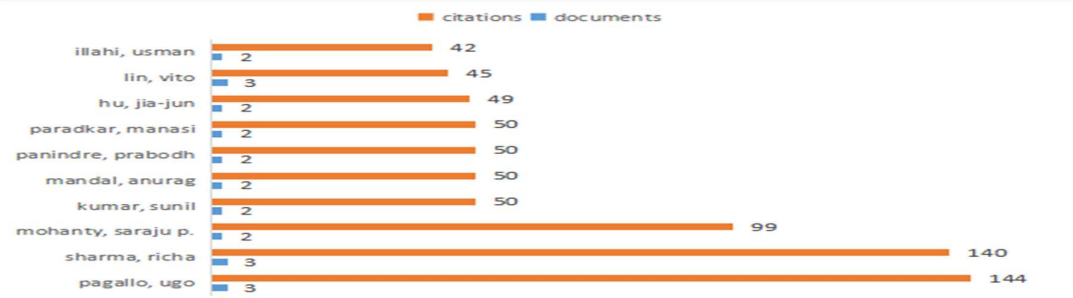

Figure 2- Top Cited Author's
Source- Scopus Database and Author's Analysis

4.5 Top Cited Sources

Table 3 shows the top cited sources of Artificial Intelligence, in which it is clear that Frontiers in Psychiatry is the top cited sources with 139 citations and having 6 documents. After that IEEE Access is the second highest source in the study with 132 citations and 5 documents.

Source	Documents	Citations
Frontiers In Psychiatry	6	139
Ieee Access	5	132
Proceedings - Electronic Components And Technology Conference	14	120
Sensors	9	72
Lecture Notes In Computer Science (Including Subseries Lecture Notes In Artificial Intelligence And Lecture Notes In Bioinformatics)	19	52
Electronics (Switzerland)	8	30
Scientific Reports	5	17
Lecture Notes In Networks And Systems	23	12
Communications In Computer And Information Science	6	11
Studies In Computational Intelligence	5	7

Table 3- Top Cited Sources
Source- Scopus Database and Author's Analysis

5. Cluster Analysis

Clustering is employed as an enrichment technique in bibliometric analysis, depending on the type of study being performed, and its primary goal is to create thematic or sociological groups (Shishodia et al., 2021). Establishing network clusters and tracking their development can help comprehend how a field of study has changed over time (Donthu et al., 2021). Using a bibliometric network analysis, we can find recurring themes in the 318 documents in the Artificial Intelligence study. This study's cluster analysis used a co-occurrence analysis of all document keywords shown in figure 3. According to the papers' text, five clusters were discovered by the Vos-viewer software analysis. After reading all the papers in each cluster, we discussed them and developed a theme based on the topics they covered. Additionally, we

have determined the study questions for subsequent studies. Below is a discussion of each cluster and the theme found in the content review in Table 4.

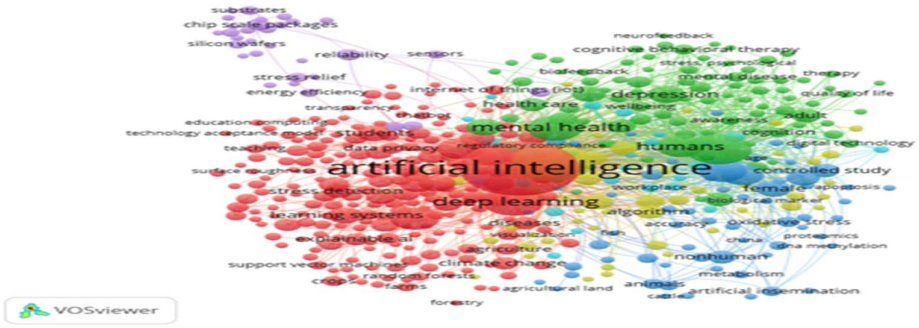

Figure 3 - Cluster structure of Occurrence of all keywords
Source- Scopus Database and Author's Analysis

S.No.	Cluster Theme	Items in cluster	Highest Keyword	Highest Keyword Occurred	Total Link Strength
1	Artificial Intelligence and Deep Learning	213	Artificial Intelligence	424	3693
2	Human Depression and Mental Health	91	Human	135	2022
3	Article and Controlled Study	63	Article	69	986
4	Machine learning and technology	48	Machine learning	187	1928
5	Packages Chip Scale	32	Packages Chip Scale	20	154
	Perception and Job Satisfaction	23	Job Satisfaction	8	109

Table 4- Cluster Details
Source- Scopus Database and Author's Analysis

Table 4 shows the detailed study of each cluster with the clusters themes and the items in each clusters with the highest keyword occurrence and their total link strength.
In this study highest keywords occurred are Artificial Intelligence, Human, Articles, Machine Learning, Packages Chip Scale and Job Satisfaction.

6. Implications of the study

Our work adds a lot to what is known about the connections between AI and HRM. We should point out how we use the framework of previous study on AI and HRM. Using the bibliometric analysis and systematic review of the literature methods, it was possible to find out that the academy is paying too little or too much attention to these two phenomena together. Since there aren't many similar studies that use bibliometric research in this area of study, this one could be the first step in that direction. This will be useful for future researchers as a starting point for building on and adding to this study's content. Also, it can also be helpful for people in HR who want to learn more about the subject and look at how things stand right now to have at least a few examples ready in case they want to get into this

world. The implications for HRM and other organizational management and administration stemming from this work's practical implications are equally significant. To understand the key patterns and behaviors so far when companies use HRM connected to AI, the results obtained offer some very important suggestions that can be of great benefit to HR managers and specialists in the field. A crucial truth, as pointed out by Pan et al. (2022), is that organization managers must promote the creation and use of certain AI resources in a manner that encourages the adoption of AI within the company.

7. Conclusion

The most pertinent conclusions drawn from the results obtained and their analyses are: Initially, there has been a remarkable advancement in technology in recent years, particularly in the field of AI. Despite its development, the significance of its impact in the HRM field has not met expectations. The application of AI in HRM represents a specialized area of study, as the majority of research has concentrated on its use in recruitment and selection processes, in addition to significant functions such as training and development. There is a notable rise in the focus on talent and the recruitment of highly qualified personnel, which is essential for navigating the evolving environment and intense competition. In order to turn talent into a competitive advantage, it is necessary to identify it, but it also requires constant maintenance and growth. For this reason, it is crucial to utilize AI technologies in other functions and derive the maximum added value from each process. Secondly, the results indicate that there remain apprehensions and negative sentiments among HR employees and managers regarding the application of AI. The presence of these feelings may complicate or hinder the implementation of AI in this domain. While technology has significantly transformed the labor market and facilitated the emergence of new businesses as well as the growth of existing ones, it has concurrently led to the elimination of many others, raising substantial concerns. However, humans are necessary for the proper management of AI technologies. Artificial intelligence lacks the necessary soft skills for any work environment, even while it is speedier, works around the clock, optimizes time and tasks, etc. There are advantages and disadvantages to AI, just as there are to any new technology. In order to incorporate AI safely within organizations and eliminate any potential harm, it is vital for HR departments to have an effective AI implementation strategy. Using disruptive technologies will not be optional in the long run; it will be essential for organizations to stay competitive or risk losing their market positions.

References

1) He, J., Baxter, S. L., Xu, J., Xu, J., Zhou, X., & Zhang, K. (2019). The practical implementation of artificial intelligence technologies in medicine. *Nature medicine, 25*(1), 30-36.
2) De Bie, F. R., Kim, S. D., Bose, S. K., Nathanson, P., Partridge, E. A., Flake, A. W., & Feudtner, C. (2023). Ethics considerations regarding artificial womb technology for the fetonate. The *American Journal of Bioethics, 23*(5), 67-78.

3) Elbasi, E., Mostafa, N., AlArnaout, Z., Zreikat, A. I., Cina, E., Varghese, G., & Zaki, C. (2022). Artificial intelligence technology in the agricultural sector: A systematic literature review. *IEEE access, 11*, 171-202.
4) Barakina, E. Y., Popova, A. V., Gorokhova, S. S., & Voskovskaya, A. S. (2021). Digital Technologies and Artificial Intelligence Technologies in Education. European *Journal of Contemporary Education, 10*(2), 285-296.
5) Kalogirou, S. A. (2007). Introduction to artificial intelligence technology. *Artificial intelligence in energy and renewable energy systems, 1-46.*
6) Owoc, M. L., Sawicka, A., & Weichbroth, P. (2019, August). Artificial intelligence technologies in education: benefits, challenges and strategies of implementation. In IFIP international workshop on artificial intelligence for knowledge management (pp. 37-58). Cham: Springer International Publishing.
7) Negrotti, M. (2012). The reality of the artificial: nature, technology and naturoids *(Vol. 4). Springer Science & Business Media.*
8) Buzko, I., Dyachenko, Y., Petrova, M., Nenkov, N., Tuleninova, D., & Koeva, K. (2016). Artificial Intelligence technologies in human resource development. *Computer modelling and new technologies, 20*(2), 26-29.
9) Park, S. H., & Han, K. (2018). Methodologic guide for evaluating clinical performance and effect of artificial intelligence technology for medical diagnosis and prediction. *Radiology, 286*(3), 800-809.
10) Tagde, P., Tagde, S., Bhattacharya, T., Tagde, P., Chopra, H., Akter, R., & Rahman, M. H. (2021). Blockchain and artificial intelligence technology in e-Health. *Environmental Science and Pollution Research, 28*, 52810-52831.
11) Bao, Q. B., & Yuan, H. A. (2000). Artificial disc technology. *Neurosurgical focus, 9*(4), 1-7.
12) Wang, Y. (2023). Artificial intelligence technologies in college English translation teaching. *Journal of psycholinguistic research, 52*(5), 1525-1544.
13) Madden, J. D., Vandesteeg, N. A., Anquetil, P. A., Madden, P. G., Takshi, A., Pytel, R. Z., ... & Hunter, I. W. (2004). Artificial muscle technology: physical principles and naval prospects. *IEEE Journal of oceanic engineering, 29*(3), 706-728.
14) Guo, J., & Li, B. (2018). The application of medical artificial intelligence technology in rural areas of developing countries. Health equity, 2(1), 174-181.
15) Crawford, E. D., Batuello, J. T., Snow, P., Gamito, E. J., McLeod, D. G., Partin, A. W., ... & Brandt, J. (2000). The use of artificial intelligence technology to predict lymph node spread in men with clinically localized prostate carcinoma. Cancer: *Interdisciplinary International Journal of the American Cancer Society, 88*(9), 2105-2109.
16) Yang, C. H. (2022). How artificial intelligence technology affects productivity and employment: firm-level evidence from Taiwan. *Research Policy, 51*(6), 104536.
17) Yigitcanlar, T., Kankanamge, N., Regona, M., Ruiz Maldonado, A., Rowan, B., Ryu, A., ... & Li, R. Y. M. (2020). Artificial intelligence technologies and related urban planning and development concepts: How are they perceived and utilized in Australia?. *Journal of Open Innovation: Technology, Market, and Complexity, 6*(4), 187.

18) Nazir, S., Khadim, S., Asadullah, M. A., & Syed, N. (2023). Exploring the influence of artificial intelligence technology on consumer repurchase intention: The mediation and moderation approach. Technology in *Society, 72, 102190.*

19) Hamamoto, R., Suvarna, K., Yamada, M., Kobayashi, K., Shinkai, N., Miyake, M., & Kaneko, S. (2020). Application of artificial intelligence technology in oncology: Towards the establishment of precision medicine. *Cancers, 12*(12), 3532.

20) Utami, S. P. T., & Winarni, R. (2023). Utilization of Artificial Intelligence Technology in an Academic Writing Class: How do Indonesian Students Perceive?. *Contemporary Educational Technology, 15*(4).

21) Singh, J., Flaherty, K., Sohi, R. S., Deeter-Schmelz, D., Habel, J., Le Meunier-FitzHugh, K., & Onyemah, V. (2019). Sales profession and professionals in the age of digitization and artificial intelligence technologies: concepts, priorities, and questions. *Journal of Personal Selling & Sales Management, 39*(1), 2-22.

22) Brem, A., Giones, F., & Werle, M. (2021). The AI digital revolution in innovation: A conceptual framework of artificial intelligence technologies for the management of innovation. *IEEE Transactions on Engineering Management, 70*(2), 770-776.

23) Johnston, H., Wells, R. F., Shanks, E. M., Boey, T., & Parsons, B. N. (2024). Student perspectives on the use of generative artificial intelligence technologies in higher education. *International Journal for Educational Integrity, 20*(1), 2.

24) Gong, Y. (2021). Application of virtual reality teaching method and artificial intelligence technology in digital media art creation. *Ecological Informatics, 63*, 101304.

25) Vărzaru, A. A. (2022). Assessing artificial intelligence technology acceptance in managerial accounting. Electronics, 11(14), 2256.

26) Papastratis, I., Chatzikonstantinou, C., Konstantinidis, D., Dimitropoulos, K., & Daras, P. (2021). *Artificial intelligence technologies for sign language. Sensors, 21*(17), 5843.

27) Morrow, E., Zidaru, T., Ross, F., Mason, C., Patel, K. D., Ream, M., & Stockley, R. (2023). Artificial intelligence technologies and compassion in healthcare: A systematic scoping review. *Frontiers in Psychology, 13*, 971044.

28) Fitzgerald, J. E., Bui, E. T., Simon, N. M., & Fenniri, H. (2017). Artificial nose technology: status and prospects in diagnostics. Trends in biotechnology, 35(1), 33-42.

29) Gago, J., Martínez-Núñez, L., Landin, M., Flexas, J., & Gallego, P. P. (2014). Modeling the effects of light and sucrose on in vitro propagated plants: a multiscale system analysis using artificial intelligence technology. *PLoS One, 9*(1), e85989.

30) Wang, J., Wang, C., Cai, P., Luo, Y., Cui, Z., Loh, X. J., & Chen, X. (2021). Artificial sense technology: emulating and extending biological senses. *ACS nano, 15*(12), 18671-18678.

31) Bag, S., Srivastava, G., Bashir, M. M. A., Kumari, S., Giannakis, M., & Chowdhury, A. H. (2022). Journey of customers in this digital era: Understanding the role of artificial intelligence technologies in user engagement and conversion. *Benchmarking: An International Journal, 29*(7), 2074-2098.

32) Lewis, N. S. (2016). Developing a scalable artificial photosynthesis technology through nanomaterials by design. *Nature nanotechnology, 11*(12), 1010-1019.

33) Rajput, S., & Kumari, U. (2023, June). Impact of technologies and technostress on turnover intention: a bibliometric analysis. In *2023 8th International Conference on Communication and Electronics Systems (ICCES) (pp. 1527-1532). IEEE.*

34) Rajput, S. U. R. A. I. Y. A., & Ahmad, S. H. A. K. I. L. (2022). Challenges and opportunities in creating digital insurance business in Bangladesh. *International Journal of Early Childhood Special Education, 14*(5*), 1034-1028.*

35) Rajput, S., & Kumari, U. (2024, March). A bibliometric analysis on computation and technostress research trends. In *AIP Conference Proceedings (Vol. 3072, No. 1). AIP Publishing.*