



Research Article

The Effect of AI-driven Talent Management on Organizational Performance among Retail SMEs: A Systematic Review

Shang GAO^{1*} and Reynaldo GACHO SEGUMPAN²

¹City Graduate School, City University Malaysia

²Guangdong Technology College, Zhaoqing, Guangdong, China

Correspondence should be addressed to: Shang GAO; gaoxiansen3@163.com

Received date: 5 June 2024; Accepted date: 15 July 2024; Published date: 28 August 2024

Academic Editor: Quratulain Ezam

Copyright © 2024. Shang GAO and Reynaldo GACHO SEGUMPAN. Distributed under Creative Commons Attribution 4.0 International CC-BY 4.0

Abstract

In light of the rapid advancement of AI technology, it is crucial to monitor the impact of AI technology on organizational structure and operations, internal business processes, customer interactions, and the business model. This paper offers a comprehensive examination of the current state of AI in talent management, exploring its impact on recruitment and selection, training and development, and performance appraisal. Despite the prevalence of AI in various industries, there is a paucity of empirical research investigating the impact of AI-driven talent management on the performance of small and medium-sized retail organisations. In order to delve deeper into the cutting-edge developments in this field, this study draws on Scopus, the leading database in the subject areas of business, management, and accounting, and applies bibliographic analysis, an advanced and rigorous research methodology for scientific data. We carefully screened the relevant literature published between 2019 and 2023 and identified the core literature groups for the study through specific keywords (artificial intelligence, recruitment and selection, training and development, performance appraisal, employee engagement). Consequently, this study examines the potential impact of AI-driven talent management on the performance of small and medium-sized retailers. Furthermore, it offers insights and recommendations for organisations and HR professionals considering the introduction of AI technologies in the workplace.

Keywords: AI-driven Talent Management, Employee Engagement, Organizational Performance, Retail SME.

Introduction

With the rapid development of technology, artificial intelligence (AI) has gradually penetrated all areas of society and has had a profound impact on various industries. Especially in the retail industry, the application of AI technology is changing the traditional business model and talent management, which in turn has an important impact on organisational performance. And in this process, the role of employee engagement as a key mediating variable is becoming increasingly prominent.

In recent years, the small and medium-sized retail industry has been facing multiple challenges, such as fierce market competition, diversified customer demands, and rising operating costs. In order to improve operational efficiency, reduce costs, and enhance market competitiveness, more and more small and medium-sized retailers are trying to introduce AI technology. According to the global AI market study for SMEs in 2023, revenues reached £20 billion and are expected to increase to £130 billion by 2030, growing at a CAGR of 19.5%. According to the survey, the global AI market for SMEs is expected to be valued at 37.60% in North America, 6.83% in South America, 29.00% in Europe, 23.3% in Asia Pacific, and 3.27% in the Middle East and Africa in 2022. Artificial intelligence using machine learning technology will account for the largest share of the global SME market in 2023. It is expected to grow significantly during the forecast period of 2024–2030. Artificial intelligence supports SMEs to improve efficiency, identify manufacturing defects, predict equipment failures, minimise losses through predictive algorithms, and increase productivity, making it highly beneficial for SMEs.

AI is becoming more prevalent in everyday life as demand-driven development takes place, a trend that is particularly evident in China. AI technologies are widely adopted by government departments and large enterprises. These technologies include intelligent inventory management, sales forecasting, customer behaviour analysis, personalised recommendations, etc. Their application not only improves the level of intelligence in enterprises but also brings significant efficiency gains.

As mentioned by Sharma et al. (2024), through the AI autonomous decision-making system, retail enterprises can grasp the inventory situation in real time to avoid the occurrence of inventory backlog and out-of-stock phenomena, and they can accurately predict the sales trend, reasonably arrange the stocking plan, and reduce the risk of stagnant sales. Through in-depth analysis of customer behaviour, they can understand customer needs and preferences and provide personalised products and services. Artificial intelligence (AI) is similarly being applied to business marketing analytics (Nasrollahi et al., 2021). As mentioned by Mikalef and Gupta (2021), SMEs in the era of big data do not have to collect user information directly. Instead, they can apply artificial intelligence techniques to analyse and filter user information from big data. In the era of big data, companies not only generate a large amount of data but also analyse a large amount of data on a daily basis in order to provide optimised and customised services to their users, which ensures a personalised customer experience (Huy et al., 2023). Companies can use AI technology to generate customised advertisements that match the consumption habits of their target audience, which can be learned, analyzed, and filtered autonomously, leading to efficient marketing efforts (Murugesan et al., 2023). These applications not only improve the operational efficiency of companies, but also enhance customer satisfaction and loyalty. Of course, AI technology is equally needed in talent management.

Literature Review

AI-driven recruitment and selection in Retail SMEs

Artificial intelligence (AI) in talent management and retail business is profoundly changing traditional business models, providing organizations with unprecedented opportunities and challenges. As AI technology continues to advance, its use in talent management is becoming increasingly widespread.

While the traditional recruitment process often requires a lot of manual screening and evaluation, AI can automatically screen resumes and evaluate candidates through intelligent algorithms and big

data analysis, greatly improving the efficiency and accuracy of recruitment. As Howard et al. (2022) said, some AI recruitment platforms can automatically screen eligible candidates according to the job requirements and can even assess the candidates' personalities and work styles, helping companies find the most suitable talents. AI has also made a lot of improvements in performance evaluation. As described by Aggarwal et al. (2022), AI can automatically identify excellent talents by analysing data on employee performance, job performance, competence, etc., providing companies with a more accurate basis for talent selection and promotion. In addition, AI can also assess the mental health of employees by analysing data on their behaviour, communication styles, etc., helping companies identify and solve employee problems in a timely manner (Chowdhury et al., 2022). Artificial intelligence technology has also been introduced in the area of employee training, and through smart training, AI can provide companies with more personalised training content and programmes by analysing data on employees' learning histories, abilities, and other aspects. As mentioned by Chabane et al. (2022), AI training platforms can automatically recommend relevant courses and learning materials based on employees' needs and interests, helping employees to quickly improve their skills and qualities. Regarding employee compensation, benefits and incentives, AI can provide companies with more accurate talent retention and incentive programmes by analysing data on employee satisfaction, career planning, etc. AI management platforms can automatically adjust policies on employee compensation, benefits, etc. according to employees' needs and expectations, improving employee satisfaction and loyalty (Xie et al., 2022).

AI-driven training and development

In today's competitive market environment, human resources are one of the key factors for enterprises to gain competitive advantages. Recruitment and selection, as the core links of enterprise human resource management, are of great importance to enterprises. Traditional recruitment and selection methods have many drawbacks, such as high subjectivity and low efficiency. With the continuous development of AI technology, more and more enterprises have started to apply AI technology to optimize the

recruitment and selection process. Therefore, it is of great theoretical and practical significance to explore the relationship between AI-driven recruitment and selection and organizational performance.

As Mikalef & Gupta (2021) state, large retail companies are gradually using AI for smart CV screening to quickly identify candidates who meet the requirements of sales positions. By automating the screening function, companies have shortened their recruitment cycle and have managed to attract more talented sales people (Hmoud & Várallyai, 2019). This improved the company's sales performance and further increased customer satisfaction. A number of medical device companies have similarly used AI techniques to sift through large numbers of CVs to quickly find candidates who meet the requirements of R&D positions. As described by Lee & Yoon (2021), by automating the screening and optimizing the algorithmic models, medical device companies have shortened the hiring cycle for R&D positions and successfully attracted more talented R&D personnel. This improved the company's product development efficiency and innovation and highlighted the importance of AI technology.

Employee training and development, as an important component of human resource management, plays a crucial role in improving employee skills, promoting organisational performance and enhancing employee engagement. A number of studies and surveys have indicated that there are many problems with traditional employee training, with training events being rigid in terms of time and place and not being flexible. As stated by Maity (2019), many employees also express the problem of low motivation and poor initiative in training sessions, and in small and medium-sized enterprises such problems often plague department heads. The emergence of Artificial Intelligence (AI) technology has changed this status quo for traditional training, with the use of AI technology allowing employee training to be personalized. By analyzing employees' learning preferences, skill levels and job requirements, AI can generate personalized training programmes and content to improve employee learning and skills (Braganza et al., 2021). As stated in (Ткаченко et al., 2019), AI technology can perform intelligent training content recommendation. AI can help employees

optimize their learning paths by analyzing their learning history and behaviours, and intelligently recommending relevant training content and resources based on their interests, skills, and career development needs (Chowdhury et al. 2023).

As suggested by Chen (2022), AI technology can simulate the role of a human tutor to provide real-time feedback and guidance to employees. Intelligent tutors can help employees strengthen their knowledge and skills by providing targeted advice and guidance based on their learning progress and performance. AI can automate in-training assessments to provide quick and accurate assessment of employee learning outcomes. This helps to save human resources, improve assessment efficiency and accuracy, and also provide employees with timely feedback and advice. Recent studies have found that combining AI and VR is a new research direction, where AI can enhance the fidelity and interactivity of VR, and AI has helped employees in the field of virtual reality and simulation practices (Wang, 2023). As suggested by Ospina-Bohórquez et al. (2021), AI can provide employees with highly realistic simulation training and practical experience through virtual reality and simulation practice technology, which helps employees to understand and master the skills and knowledge of the real workplace and achieve the training objectives through highly reproducible AI simulation technology.

AI-driven performance appraisal

In today's digital age, Artificial Intelligence (AI) has begun to play an important role in various industries, including the field of human resource management. Performance appraisal is an important part of talent management, which helps organizations to understand the performance of their employees and provides a basis for their promotion and rewards. And employee engagement is the level of employee commitment to their work, one of the key factors for organizational success. In recent years, the impact of AI-driven performance appraisals on employee engagement has received increasing attention. Through a survey study of 91 employees, it was indicated that employees preferred AI-enabled performance appraisals to replace traditional performance appraisals (Lu & Shan, 2022). This is because traditional performance appraisal usually

relies on subjective human evaluation, while the application of AI can reduce the influence of human factors on the appraisal results and improve the fairness and equity of the appraisal. At the same time, AI can also help organizations to understand employees' job needs and expectations, and provide personalized feedback and suggestions to employees, thus increasing their job satisfaction and engagement.

The use of artificial intelligence (AI) in conducting performance evaluations can significantly enhance accuracy and efficiency. Through the analysis of an employee's everyday work data, AI generates a report that gives comprehensive and objective performance feedback. Heer (2019) employed IoT sensors and the Artificial Neuro-Fuzzy Inference System (ANFIS) to evaluate worker output in his study, achieving a 94.7% result accuracy rate. Furthermore, predictive analytics offered by AI can greatly aid organizational decision-making by projecting employees' future performance. Pillai & Sivathanu (2020) indicate that recent AI personnel management (APM) model can guide management in creating appropriate AI-based management policies, facilitating employee support and career development opportunities. The utilization of Artificial Intelligence and data analytics in employee performance evaluation entails several challenges and management implications. The emotional factors of employees constitute one of the significant aspects of this process. Al-Khassawneh (2022) proposed a predictive management system utilizing artificial intelligence, sentiment analysis, and emotion detection to enhance the awareness of managers, team leaders and employees towards team emotions and individual sentiments. This predictive management system could assist managers in identifying and resolving issues with their teams in a shorter control cycle, improving workflow efficiency. This helps prevent problems from becoming overwhelming, potentially leading to a decline in business performance.

Key technologies and applications of artificial intelligence-driven talent management

Currently, the mainstream AI recruitment methods mainly include: resume screening automation, candidate intelligent assessment, skill assessment and prediction, interview process automation, talent pool intelligent management,

personalised recruitment advertisement, social media recruitment and so on.

With the continuous development of AI technology, its application in the field of training and development has become increasingly widespread. AI-driven training and development aims to use AI technology to improve the efficiency and quality of training and development, help employees acquire new skills and knowledge faster, and improve individual and organisational performance. Overall, AI-driven training and development approaches can help organisations improve the efficiency and quality of training and development, provide employees with more personalised development programmes, and support organisations in anticipating future trends and challenges.

However, there are a number of challenges and limitations associated with these approaches, such as data privacy and security issues, technology costs, and implementation difficulties. Therefore, organisations need to fully consider their own realities and needs when applying these approaches, and take appropriate measures to address potential issues and challenges.

Materials And Methods

Implementation Strategy for the Literature Review

We followed a systematic process to conduct the literature review. First, major academic databases such as Scopus, Web of Science, ScienceDirect, and Google Scholar were identified and searched to collect comprehensive literature on the impact of AI-driven talent management on organisational performance. Second, a set of keywords, including "AI and recruitment and selection," "training and development," and "performance appraisal," were used to guide literature search and selection. Third, in developing the inclusion criteria, we paid particular attention to studies that delved into the application of AI technologies in talent management and their impact on organisational performance. Fourth, for the initial screening and detailed review, we first assessed the titles and abstracts of the articles to ensure that they were in line with the research themes and subsequently selected high-quality and relevant articles for full-text reading. At the full-text assessment stage, we considered the quality of the articles, their fit with

the research theme, and their contribution to the research field, and ranked and screened them according to impact factor and scholarly value. Finally, we extracted key information from the screened articles, including the main research findings, methodology, and theoretical framework, and systematically analysed these data. In 2019-2023, AI and Recruitment and Selection (5,470 articles), AI and Training (6,421 articles), and AI and Performance Assessment (1,750 articles).

Considerations for article selection

In selecting relevant research literature, books, and reports, we mainly consider their importance, reliability, and contribution to the research topic. We prioritised high-quality peer-reviewed journal articles, academic books, and reports from authoritative organisations to ensure the accuracy and authority of the information collected. At the same time, we critically reviewed the selected literature to ensure that it was closely related to the application of AI in talent management and its impact on organisational performance.

In addition, we paid special attention to recently published literature to obtain the latest research findings and to ensure that our study reflected the latest current advances and trends in AI in talent management.

The Impact Of AI-Driven Talent Management on Organizational Performance

The impact of AI-driven talent management on organizational performance

Across industries, artificial intelligence (AI) technology is increasingly being used for employee performance reviews. Companies are using AI to track employee behaviour, automate performance appraisals and provide feedback for job improvement. The use of AI in performance appraisals can thus improve employee productivity by increasing the accuracy, consistency, and relevance benefits of feedback, among others (Waltersmann et al., 2021). This subsection provides a comprehensive study of the relevant literature, explores the relationship between AI-driven performance appraisal and organizational performance, analyzes its strengths and limitations, and identifies future research directions.

Artificial Intelligence-driven performance appraisal refers to the use of AI technology to provide automated assessment and feedback on employee performance. As described by De Oliveira Goes et al. (2020), through machine learning, natural language processing and other technologies, the system can automatically collect, analyze and interpret employee data at work to provide accurate and timely performance feedback to individuals and organizations. Such systems can provide employees with customized assessment solutions based on different job requirements and performance standards, thus improving the accuracy and fairness of assessments (Cheng et al., 2023).

Organizational performance refers to the effectiveness and efficiency of an enterprise in achieving its set objectives over a certain period of time. Assessing organizational performance helps enterprises identify their strengths and weaknesses, optimize resource allocation, and achieve continuous improvement. However, conventional methods of assessing organizational performance are typically based on financial data, customer satisfaction, and other indicators. These methods may not comprehensively reflect the overall operation of the enterprise (Dhir & Chhabra, 2018). In contrast, AI-powered performance assessment systems can comprehensively consider multiple factors, including employees, processes, and technology, providing a more accurate and comprehensive basis for organizational performance assessment (Larson et al., 2021).

Several studies have demonstrated that AI-powered performance evaluation has a beneficial effect on organizational performance. According to Heer (2019), AI-powered performance evaluation systems can objectively measure employee performance, reduce human interference and subjective bias, and thus enhance appraisal accuracy and fairness. This fosters employee trust and recognition of the evaluation results, and stimulates work motivation and creativity (Viejo et al., 2019). Based on big data and machine learning technologies, AI-driven performance appraisal systems can analyze individual employee characteristics and development needs. According to Sohrabpour et al. (2021), this new AI technology can provide employees with personalized feedback and advice, helping them identify their shortcomings and

develop improvement plans to enhance their individual and overall organizational performance.

Furthermore, AI technology can enhance appraisal and performance management capabilities. Retail companies can utilize AI technology for intelligent appraisal and performance management. Bag et al. (2021) state that by analyzing employee data, including sales data, customer feedback, and service quality, companies can assess employee performance more objectively and provide targeted suggestions for improvement. This can enhance employee motivation and performance, leading to increased sales and customer satisfaction, ultimately improving organizational performance.

Using an AI-driven performance appraisal system, companies can monitor the performance of departments and employees in real time to better deploy resources, optimize processes, and improve organizational efficiency and synergies (Wamba-Taguimdje et al., 2020). This helps to maximize the overall objectives of the business. An AI-driven performance appraisal system encourages employees to continuously learn and innovate in order to adapt to the rapidly changing market environment. Through the real-time feedback and suggestions provided by the system, employees can continuously optimize their work methods and skills to drive the organization forward (Yang et al., 2020).

There are several challenges that must be considered when implementing AI in talent management

While AI can improve the efficiency and accuracy of recruitment, it can also lead to recruitment discrimination. Algorithms may screen candidates based on biases in historical data, which could lead to the unfair treatment of certain groups. At the same time, it is important to comply with relevant privacy regulations when collecting and using candidate information to ensure that candidates' privacy rights are protected. AI can enable personalised training and development programmes, but the HCI experience can be a challenge. Ensuring that employees accept and enjoy interacting with AI systems requires HR managers to consider employee preferences and needs when designing and implementing training programmes. The complexity of performance management also has to be worthy of being looked at. Introducing AI for performance

management can improve the objectivity of appraisals, but it may also face some challenges, for example, ensuring the accuracy and reliability of data, clearly explaining and communicating the results of AI assessments.

Also, employee acceptance of technology adoption is an important consideration. Some employees may be sceptical about the fairness and accuracy of AI assessments, requiring explanation and communication from HR managers. The era of AI puts new demands on HR practitioners. They need to change their working mode and mindset as soon as possible, and make full use of AI to adjust and optimise HR management processes. With the changes in market structure and the creation of new technologies and jobs, HR practitioners also need to work together in co-operation with teams from other professions in order to improve the effectiveness of their work.

Ethical Considerations for the Implementation of Artificial Intelligence in Talent Management

Ethical considerations are a very important aspect when implementing AI in talent management. Data privacy and security are important issues in the application of AI in HR. Sensitive employee information, in cyberspace, must be protected from prying eyes and malicious actors. Neglecting data privacy and security can be disastrous and can lead to identity theft, financial loss and reputational damage. Ensure the impartiality of AI algorithms in hiring, training, and performance management to avoid discrimination due to bias in historical data. Monitoring and auditing the decision-making process of the AI system will facilitate timely detection and correction of possible bias and discrimination. Decision-making transparency: AI systems should be able to provide clear decision-making rationale and logic so that employees and managers can understand their decision-making process. Improving the interpretability of AI systems through improved algorithm design and the use of explanatory techniques can help enhance employees' trust in the system. When errors or problems occur in an artificial intelligence system, the responsibility should be clearly attributed to ensure that someone is responsible for solving the problem and bears the corresponding responsibility. Establishing a recovery mechanism to prevent and remedy any damage that may be caused by the AI system will help protect the rights and interests of

the damaged parties. Employees should have the right to know about the application of AI systems in talent management and the possible impact on their personal rights and interests. Employees should be provided with grievance channels so that they can seek help and redress in case of injustice caused by AI systems.

In conclusion, when implementing AI in talent management, it is important to give due consideration to ethical considerations and ensure that the application of AI systems complies with moral and ethical standards.

Conclusion

In the process of promoting AI-driven talent management practices, ethical considerations are particularly critical. Factors that need to be discussed in depth on this topic include data privacy and protection, potential bias and discrimination issues of algorithms, the importance of transparency and interpretability, attribution of responsibility and accountability mechanisms, protection of employee rights and interests, and how to promote a fair and inclusive environment. At the same time, continuous monitoring and evaluation is also a key part of ensuring that the AI implementation process is responsible and fair. To ensure that these ethical issues are properly addressed, organisations must strictly follow relevant laws and regulations at every stage of data collection, storage and processing. Only essential employee data that are relevant to the business will be collected, thus avoiding the risk of privacy breaches that may result from over-collection. For sensitive data, advanced encryption technology will be used for storage to prevent data leakage from being exploited by wrongdoers. In terms of algorithm training, the diversity and inclusiveness of the dataset are emphasised to guard against algorithmic bias due to data bias. Transparency and interpretability are the basis for building employee trust in AI, working to enable every employee to understand and trust the intelligent algorithmic techniques employed. In addition, a clear accountability mechanism is established to prevent and remediate any damage that may be caused by AI systems, and encourage diversity in team building, including employees of different backgrounds, genders, ages, and abilities, as a way to increase the inclusiveness of AI systems. Consideration of ethical factors will pave the way

to a positive and inclusive work environment. We integrate cutting-edge technology and outstanding human wisdom, work together to promote artificial intelligence systems to a higher level of development, and jointly draw a more brilliant blueprint for the future.

References

- Aggarwal, A., Jain, S., Jha, S., & Singh, V. P. (2022). Resume Screening using NLP. *International Journal for Research in Applied Science and Engineering Technology*, 10(5), 3672–3675.
- Bag, S., Gupta, S., Kumar, A., & Sivarajah, U. (2021). An integrated artificial intelligence framework for knowledge creation and B2B marketing rational decision making for improving firm performance. *Industrial Marketing Management*, 92, 178–189.
- Braganza, A., Chen, W., Canhoto, A. I., & Sap, S. (2021). Productive employment and decent work: The impact of AI adoption on psychological contracts, job engagement and employee trust. *Journal of Business Research*, 131, 485–494.
- Chen, W. Y., He, Y. W., & Xiong, T. T. (2023). Report on the Digital Intelligence Development of Small and Medium Enterprises in the AI Era. *Cyzone Research Centre*, 24–25.
- Cheng, B., Lin, H., & Kong, Y. (2023). Challenge or hindrance? How and when organizational artificial intelligence adoption influences employee job crafting. *Journal of Business Research*, 164, 113987.
- Chowdhury, S., Budhwar, P., Dey, P. K., Joel-Edgar, S., & Abadie, A. (2022). AI-Employee collaboration and business performance: integrating knowledge-based view, socio-technical systems and organisational socialisation framework. *Journal of Business Research*, 144, 31–49.
- Chowdhury, S., Budhwar, P., Dey, P. K., Joel-Edgar, S., & Abadie, A. (2022). AI-Employee collaboration and business performance: integrating knowledge-based view, socio-technical systems and organisational socialisation framework. *Journal of Business Research*, 144, 31–49.
- De Oliveira Goes, A. S., & De Oliveira, R. C. L. (2020). A process for human resource performance evaluation using computational intelligence: an approach using a combination of Rule-Based classifiers and supervised learning algorithms. *IEEE Access*, 8, 39403–39419.
- Dhir, K., & Chhabra, A. (2018). Automated employee evaluation using fuzzy and neural network synergism through IoT assistance. *Personal and Ubiquitous Computing*, 23(1), 43–52.
- Heer, J. (2019). Agency plus automation: Designing artificial intelligence into interactive systems. *Proceedings of the National Academy of Sciences of the United States of America*, 116(6), 1844–1850.
- Hmoud, B., & Várallyai, L. (2019). WILL ARTIFICIAL INTELLIGENCE TAKE OVER HUMANRESOURCES RECRUITMENT AND SELECTION. *Network Intelligence Studies*, 13, 21–30.
- Howard, S., Tondeur, J., De Laat, M., Shum, S. B., Gasevic, D., & Siemens, G. (2022). Rethinking the entwinement between artificial intelligence and human learning: What capabilities do learners need for a world with AI? *Computers & Education: Artificial Intelligence*, 3, 100056.
- Larson, D. B., Harvey, H., Rubin, D. L., Irani, N., Tse, J. R., & Langlotz, C. P. (2021). Regulatory Frameworks for Development and Evaluation of Artificial Intelligence-Based Diagnostic Imaging Algorithms: Summary and recommendations. *Journal of the American College of Radiology*, 18(3), 413–424.
- Lee, D., & Yoon, S. N. (2021). Application of Artificial Intelligence-Based Technologies in the Healthcare Industry: Opportunities and challenges. *International Journal of Environmental Research and Public Health*, 18(1), 271.
- Lu, X., Yu, H., & Shan, B. (2022). Relationship between Employee Mental Health and Job Performance: Mediation Role of Innovative Behavior and Work Engagement. *International Journal of Environmental Research and Public Health*, 19(11), 6599.
- Maity, S. (2019b). Identifying opportunities for artificial intelligence in the evolution of training and development

- practices. *Journal of Management Development*, 38(8), 651–663.
- Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, 58(3), 103434.
 - Nail, Chabane., Achraf, Bouaoune., Reda, Tighilt., Moloud, Abdar., Alix, Boc., Etienne, Lord., Nadia, Jouti, Tahiri., Bogdan, Mazoure., U., Rajendra, Acharya., Vladimir, Makarenkov. (2022). Intelligent personalized shopping recommendation using clustering and supervised machine learning algorithms. *PLOS ONE*.
 - Ospina-Bohórquez, A., González, S. R., & Vergara, D. (2021). On the Synergy between Virtual Reality and Multi-Agent Systems. *Sustainability*, 13(8), 4326.
 - Pillai, R., & Sivathanu, B. (2020). Adoption of artificial intelligence (AI) for talent acquisition in IT/ITeS organizations. *Benchmarking: An International Journal*, 27(9), 2599–2629.
 - Sohrabpour, V., Oghazi, P., Toorajipour, R., & Nazarpour, A. (2021). Export sales forecasting using artificial intelligence. *Technological Forecasting and Social Change*, 163, 120480.
 - Ткаченко, В. Г., Aleks, Kuzior, R., & Kwiliński, A. (2019). Introduction of Artificial Intelligence Tools into the Training Methods of Entrepreneurship Activities. *Journal of Entrepreneurship Education*, 22(6), 1.
 - Viejo, C. G., Torrico, D. D., Dunshea, F. R., & Fuentes, S. (2019). Emerging technologies based on artificial intelligence to assess the quality and consumer preference of beverages. *Beverages*, 5(4), 62.
 - Waltersmann, L., Kiemel, S., Stuhlsatz, J., Sauer, A., & Miehe, R. (2021). Artificial Intelligence Applications for Increasing Resource Efficiency in Manufacturing Companies—A Comprehensive Review. *Sustainability*, 13(12), 6689.
 - Wamba-Taguimdje, S., Wamba, S. F., Kamdjoug, J. R. K., & Wanko, C. E. T. (2020). Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects. *Business Process Management Journal*, 26(7), 1893–1924.
 - Wang, J., Wang, K., Dong, K., & Zhang, S. (2023). Assessing the role of financial development in natural resource utilization efficiency: Does artificial intelligence technology matter? *Resources Policy*, 85, 103877.
 - Yang, G., Ji, G., & Tan, K. H. (2020). Impact of artificial intelligence adoption on online returns policies. *Annals of Operations Research*, 308(1–2), 703–726.