
The Role of Artificial Intelligence in Logistics Real Estate Investment Management for Sustainable Development and Strategic Decision-Making

Submitted 04/05/25, 1st revision 26/05/25, 2nd revision 14/06/25, accepted 30/06/25

Konrad Henryk Bachanek¹, Dominik Leszczyński²

Abstract:

Purpose: The purpose of this paper is to analyze how artificial intelligence (AI) supports investment management in the logistics real estate sector, emphasizing its impact on sustainable development and strategic decision-making. The study explores the ways in which AI technologies improve energy efficiency, optimize resource utilization, and enhance the resilience and profitability of logistics real estate investments.

Design/Methodology/Approach: The research is based on a comprehensive analysis of secondary data, including academic literature, industry reports, and case studies of companies implementing AI in logistics property management. The study applies comparative and descriptive methods to evaluate the influence of AI on energy management, risk assessment, and sustainable investment strategies, with particular attention to the practices of JLL and Patrizia SE.

Findings: The findings indicate that AI significantly improves decision-making processes in logistics real estate by enabling predictive analytics, market forecasting, and real-time energy optimization. AI applications contribute to reducing operational costs, mitigating investment risks, and achieving ESG (Environmental, Social, and Governance) objectives. However, the implementation of AI technologies also poses challenges, including high initial costs, system integration complexity, and the need for specialized expertise.

Practical implications: The study demonstrates that AI-driven tools can support investors in aligning profitability goals with sustainable development strategies. The presented decision-support model for logistics real estate investment management provides a framework for integrating AI into portfolio optimization, risk management, and environmental performance monitoring.

Originality/value: This paper contributes to the growing body of research on the intersection of artificial intelligence and sustainable investment management. It offers a structured approach to understanding how AI can transform logistics real estate into a more efficient, data-driven, and environmentally responsible investment sector.

Keywords: Artificial Intelligence (AI); Logistics Real Estate; Sustainable Development; Investment Management; ESG; Energy Optimization; Decision Support Systems.

¹Ph.D., Eng. Assistant Professor, Institute of Management, University of Szczecin, Poland,
E-mail: konrad.bachanek@usz.edu.pl;

²Doctoral Researcher, Institute of Management, University of Szczecin, Poland.

JEL classification: O16, Q56, R3.

Paper Type: Research article.

Acknowledgement: This research was co-financed by the Minister of Science under the “Regional Excellence Initiative.”



Ministerstwo Nauki
i Szkolnictwa Wyższego

1. Introduction

The logistics real estate sector plays a key role in the global economy, serving as the foundation for the storage and distribution of goods across various industries. However, in the face of increasing demands for energy efficiency, CO₂ emissions reduction, and social responsibility, investors in this sector are challenged to align their strategies with the principles of sustainable development. According to the analysis by Zhai and Bai (2021), sustainability is becoming an essential component of investment strategies in the logistics sector due to its high resource consumption and significant greenhouse gas emissions.

In response to these challenges, artificial intelligence (AI) is becoming an important tool that supports investors in making investment decisions. AI enables efficient analysis of large data sets, forecasting of market trends, and improvement of operational efficiency in logistics real estate management. As noted by Ghosh and Anand (2020), through advanced predictive analytics, AI allows for the anticipation of future market conditions, identification of new investment opportunities, and minimization of risks.

The application of artificial intelligence also includes real-time monitoring of energy consumption and the adjustment of logistics building operations to optimize energy use and reduce operating costs. According to research by Lee and Kim (2019), AI technology supports the achievement of ESG (Environmental, Social, Governance) goals, which is crucial in logistics property management, where energy efficiency and minimizing the carbon footprint are top priorities.

The aim of this article is to analyze the role of artificial intelligence in managing investments in logistics real estate, with particular emphasis on its impact on sustainable development and support for strategic investment decisions. The study focuses on the ways in which AI can support trend forecasting, energy consumption optimization, risk minimization, and the assessment of the long-term impact of projects, enabling the creation of more resilient and sustainable investments.

2. Literature Review

The application of artificial intelligence in the logistics real estate sector encompasses a wide range of activities, from market data analysis to the optimization of energy consumption management. AI technologies, including machine learning algorithms and big data analytics, enable the forecasting of future market trends, allowing investors to make more informed investment decisions. According to research by Wang and Li (2020), AI, through the use of advanced analytical models, can more accurately predict changes in demand for logistics properties, creating new investment opportunities in a dynamically changing market environment.

Another important application of AI in logistics real estate is the optimization of energy consumption. Logistics buildings are typically large energy consumers, and energy efficiency is one of the key elements of sustainable development. AI-based technologies allow for real-time monitoring of energy usage and the adjustment of building operations to optimize consumption, resulting in reduced operational costs and a lower carbon footprint (Drożdż *et al.*, 2024). As noted by Smith and O'Connor (2021), advanced AI-powered energy management systems can significantly reduce energy usage, contributing to more sustainable development in the logistics real estate sector.

In the face of global challenges related to climate change, investors are increasingly incorporating social and environmental responsibility (ESG) aspects into their investment strategies. Companies such as JLL and Patrizia SE are implementing artificial intelligence technologies that support their ESG strategies, while also enabling improvements in energy efficiency and the achievement of sustainable development goals.

AI also has a significant impact on investment portfolio management. Investors can use AI algorithms to better assess investment risk and optimize capital allocation in logistics projects. Artificial intelligence systems analyze macroeconomic and demographic data as well as information on local market trends, enabling more precise assessments of risk and potential returns on a given investment.

According to research by Zhang and Sun (2022), AI systems can provide more detailed and accurate market analyses, supporting investors in making more informed decisions that take into account both economic and environmental factors. The trend of utilizing artificial intelligence in logistics services is growing across Europe, Asia, and North America (Villanueva-Eslava *et al.*, 2023).

In the context of dynamic changes in the global logistics real estate market, AI plays a crucial role in creating more resilient and sustainable investments (Redžeb, 2024). Through the use of advanced analytical algorithms and real-time monitoring, these technologies contribute to enhanced operational efficiency and the long-term success

of investments.

3. Research Methodology

This study is based on the analysis of available secondary sources, such as industry reports, academic articles, and case studies of companies implementing AI technologies in the logistics real estate sector. The aim is to understand how artificial intelligence influences investment management processes and how it can support sustainable development in this area.

The collected data on AI applications in various aspects of logistics real estate management, including energy consumption optimization and market analysis, enabled the identification of opportunities and risks associated with the implementation of these technologies.

The analyzed sources were primarily drawn from reports by companies involved in logistics real estate management and firms developing AI solutions. Additionally, the study examined literature on the application of AI in logistics and sustainable development, providing a broad perspective on how these technologies are used in managing investments in logistics real estate.

4. Research Results and Discussion

Artificial intelligence significantly contributes to the reduction of operational costs, particularly through the optimization of energy management. AI technology enables real-time monitoring and control of energy consumption, which leads to lower operating expenses in logistics properties (Hanafi *et al.*, 2024). With the help of AI, investors can better manage energy usage, reducing not only expenditures but also the carbon footprint of logistics buildings.

In the context of investment decisions, AI assists investors in more accurately assessing risks and identifying the most profitable projects (Onyenahazi *et al.*, 2024). Advanced analytical algorithms allow for more precise forecasting of market changes and the evaluation of an investment's long-term potential. With these technologies, investors can better adapt their investment strategies to changing market conditions, enabling them to optimize their investment portfolios.

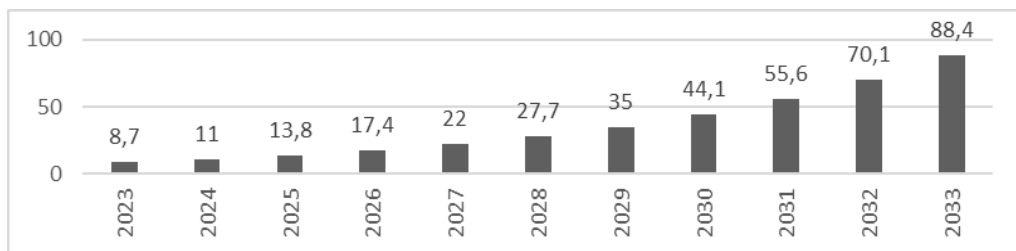
Additionally, the use of AI supports sustainable development goals by enabling more efficient management of logistics properties in the context of resource management (Shahvaroughi *et al.*, 2024). Investors can assess not only the profitability of investments but also their long-term impact on the environment and local communities. AI thus becomes an invaluable tool in the process of creating more sustainable and socially responsible investments.

As investors increasingly integrate sustainable development goals (ESG) into their

strategies, artificial intelligence is becoming a key tool for making decisions that not only maximize profits but also contribute to achieving social and environmental objectives (Adeoye *et al.*, 2024). Through advanced data analytics, AI can monitor energy efficiency (Sipola *et al.*, 2023), optimize resource consumption, and minimize CO₂ emissions, enabling tangible improvements in the environmental and social impact of investments. As a result, AI-supported logistics investments not only become more profitable but also help shape a more sustainable real estate market.

The increased use of artificial intelligence in the logistics sector is driving the development of the global market, whose value is growing rapidly. As shown in Figure 1, further growth in the value of AI-related warehousing is expected, confirming the increasing role of this technology in shaping the future of the logistics real estate sector.

Figure 1. Global AI in Warehousing Market (USD Billion)



Source: Global AI in Warehousing Market Size, <https://market.us/report/ai-in-warehousing-market/>.

Figure 1 presents the projected global artificial intelligence (AI) market in warehousing, expressed in billions of US dollars (USD), for the years 2023–2033. The chart shows that the AI market in warehousing is expected to grow dynamically, starting from a value of 8.7 billion USD in 2023 and reaching an estimated 88.4 billion USD by 2033.

The growth in the value of the AI market in warehousing indicates increasing investor interest in technologies that support more efficient and responsible management of logistics real estate.

The automation of logistics processes and the use of advanced artificial intelligence algorithms enable precise demand forecasting, improved warehouse space management, and operational optimization, all of which contribute to cost reduction and increased efficiency.

These solutions are essential not only from an economic perspective but also from an environmental one, in the context of achieving sustainable development goals

(Angammana and Jayawardena, 2022).

Moreover, AI enables investors to better assess investment risks and identify new opportunities, allowing for more informed strategic decision-making. The dynamic growth in the value of the AI market in warehousing, as illustrated in the chart, reflects not only technological advancement but also the market's growing awareness and demand for innovation in logistics real estate management (Kalogiannidis *et al.*, 2024).

Artificial intelligence is therefore becoming a key tool in building more resilient, efficient, and sustainable investments in logistics real estate, significantly contributing to the development of the entire real estate sector.

It is worth noting that the increasing value of the AI market is driven not only by technological advancement but also by the growing demand for intelligent solutions in the global supply chain, which directly translates into improved efficiency in logistics real estate management (Toorajipour *et al.*, 2021).

Companies such as JLL and Patrizia SE are effectively leveraging artificial intelligence to optimize real-time energy consumption, resulting in improved operational efficiency and the achievement of sustainable development goals (<https://www.jll.com/en-us/insights/streamline-sustainable-asset-enhancement-with-ai>; <https://www.patrizia.ag/en/our-company>).

Additionally, AI supports market trend forecasting, investment risk assessment, and maintenance process optimization, all of which contribute to reduced operating costs. Both companies are also implementing AI within their environmental, social, and governance (ESG) strategies, aiming to minimize CO₂ emissions and support sustainable development.

JLL operates globally, covering markets in North America, Europe, and Asia (<https://www.isbtech.pl/2025/03/jll-polska-atrakcyjnym-rynkiem-dla-inwestorow-zagranicznych>), while Patrizia SE focuses primarily on the European market, with a growing presence in logistics real estate worldwide (<https://www.patrizia.ag/en/our-company>).

Table 1 fully illustrates how AI supports effective investment management in logistics real estate, showcasing specific examples of companies implementing advanced technologies to optimize their operational activities and energy management.

The use of AI by these firms helps them make more informed investment decisions that consider both profitability and sustainability goals, contributing to the development of more resilient and efficient logistics real estate investments.

Table 1. *JLL and Patrizia SE Comparative Analysis*

	JLL	Patrizia SE
AI in Energy Management	AI systems optimize energy usage in real-time, improving operational efficiency and reducing costs	AI used to monitor and optimize energy consumption in properties, contributing to sustainability goals
AI in Market Trend Prediction	AI helps in forecasting market trends and predicting future demand for logistics properties	AI applied for predicting market shifts and identifying investment opportunities in logistics real estate
AI in Portfolio Management	AI assists in evaluating investment risks and optimizing real estate portfolio allocation	AI helps in analyzing macroeconomic data to assess risk and manage portfolio effectively
AI in Maintenance and Operations	AI automates the monitoring of property conditions, reducing costs and improving operational efficiency	Patrizia SE uses AI to monitor infrastructure and automate maintenance processes
Focus on ESG	Integrates AI to support ESG strategies, focusing on reducing carbon footprint and improving sustainability	Incorporates AI to assess and improve sustainability performance, focusing on environmental and social goals
Geographical Reach	Global, with a strong presence in North America, Europe, and Asia	Primarily focused on European markets, with a growing presence in logistics real estate investment globally
Use of AI for Risk Management	AI provides detailed risk assessments, using predictive analytics for real estate investments	AI helps in risk analysis, including economic and regulatory risks, across real estate investments

Source: Own elaboration based on: <https://www.patrizia.ag/en/our-company/>; <https://www.jll.pl/pl/o-nas>.

Table 1 presents examples of companies that have successfully implemented Internet of Things (IoT) technologies in transport processes, focusing on the use of artificial intelligence (AI) in logistics real estate management. The table highlights key AI applications in areas such as energy management, market trend forecasting, investment portfolio management, and maintenance operations.

Both companies integrate AI into their environmental, social, and governance (ESG) strategies, placing strong emphasis on reducing carbon footprints and improving sustainability performance. JLL operates globally, while Patrizia SE focuses primarily on the European market, although it is increasingly expanding its presence in logistics real estate investments worldwide.

The use of artificial intelligence in these companies enables better resource allocation within investment portfolios and more accurate risk assessment, leading to more effective investment management (Sutiene et al., 2024). Through these innovations, the companies not only enhance profitability but also contribute to the development of more sustainable investments that address environmental and social responsibility challenges.

However, the implementation of AI also involves certain challenges that may affect the effectiveness and long-term success of these technologies in logistics real estate management. Table 2 presents the key opportunities and risks associated with the use of artificial intelligence in investment management, helping to understand how these innovations may shape the future of the logistics real estate sector.

Table 2. *Opportunities and Risks of Using AI in Investment Management in the Logistics Real Estate Market*

OPPORTUNITIES	RISKS
Energy consumption optimization	High initial cost
Better forecasting of market trends	Complexity and cost of AI system maintenance
Reduction of investment risk	Complexity of system integration
Support for sustainable development	Lack of sufficient expertise
Automation of operational processes	Dependence on technology
Increased efficiency in portfolio management	Risk of job displacement
Improved strategic decision-making	Data privacy concerns

Source: *Own study.*

Table 2 presents the opportunities and risks associated with the use of artificial intelligence (AI) in investment management in the logistics real estate market. Among the opportunities offered by AI is the optimization of energy consumption, which leads to reduced operational costs and supports sustainable development goals. The use of advanced AI algorithms also enables better forecasting of market trends, allowing investors to more accurately predict changes in the logistics real estate market and adjust their investment strategies to dynamic conditions.

Moreover, artificial intelligence helps reduce investment risk by providing more precise assessments of potential threats, enabling more informed decision-making. AI also contributes to promoting sustainable development by enabling better resource management, minimizing CO₂ emissions, and optimizing energy consumption (Ukoba *et al.*, 2024).

On the other hand, the implementation of artificial intelligence involves certain risks that may affect its effectiveness. One of the main challenges is the high initial cost of investing in AI technologies, which can be a barrier for smaller investors. The complexity of integrating AI systems with existing operational processes can also pose a challenge, requiring significant investment in staff training and infrastructure adaptation.

In addition, AI may lead to job losses due to the automation of operational processes, which presents a social issue. Dependence on technology and concerns related to data privacy are further risks that may arise from the widespread adoption of AI-based systems (Wolniak and Stecuła, 2024).

Moreover, the maintenance of AI systems, due to their complexity and cost, can become an additional burden for companies.

In light of these risks, a structured and strategic approach to AI adoption becomes essential. The “AI-Based Investment Decision Support Model for Logistics Real Estate,” presented in Figure 2, provides a clear framework that addresses these issues by breaking down AI adoption into manageable, interconnected components.

Rather than adopting AI as a monolithic solution, the model encourages its incremental integration into defined investment processes—starting with data analytics and moving through demand forecasting, portfolio optimization, and sustainability. This step-by-step methodology helps mitigate the complexity and costs of implementation while enabling organizations to align technological advances with long-term investment and ESG goals. The model therefore serves as both a conceptual guide and a practical tool for navigating the opportunities and challenges of AI in logistics real estate.

Figure 2. Model for AI-based investment decision support in logistics real estate



Source: Own study.

Figure 2 presents a comprehensive model for investment decision support in the logistics real estate sector based on artificial intelligence (AI). This model consists of four main pillars: data analysis, demand and supply forecasting, investment portfolio optimization, and sustainable development. All these elements are closely interconnected and contribute to a central goal effective support for investment decision-making.

The first stage of the model is data analysis, which forms the foundation of the decision-making process. In this area, AI processes and analyzes market and economic data, as well as operational data from logistics facilities. A key aspect of this phase is also location and investment risk analysis, which enables more informed planning and evaluation of potential projects. By leveraging large datasets,

artificial intelligence can detect hidden patterns and relationships that are not easily visible through traditional analytical methods.

The second pillar of the model is demand and supply forecasting. In this context, AI supports market trend modeling, the assessment of warehouse space demand dynamics, and competitor analysis. Thanks to advanced predictive algorithms, it is possible to forecast future market changes, allowing investors to better align their strategies with the evolving market environment. The ability to accurately forecast trends is particularly important in logistics real estate, where the pace of e-commerce development, supply chain shifts, and demand seasonality have a direct impact on investment performance.

Another crucial component of the model is investment portfolio optimization. In this area, AI supports decisions related to asset allocation and diversification, as well as evaluating the profitability of specific projects. AI can analyze multiple variables simultaneously, enabling better risk management and the identification of the most profitable investment strategies. Automating these processes allows for faster and more accurate decision-making under market uncertainty.

The fourth and equally important pillar of the model is sustainable development. In this context, AI plays a vital role in assessing the environmental impact of investments, optimizing resource usage, and supporting sustainable construction strategies (Bachanek *et al.*, 2025).

AI-driven technologies allow for real-time monitoring of CO₂ emissions, energy consumption, and other environmental indicators, thereby promoting the achievement of ESG (Environmental, Social, Governance) goals.

This approach not only enhances the value of investments from a social responsibility perspective but also contributes to long-term project stability and community acceptance.

All of these model components converge at the central element: investment decision support. Here, AI facilitates the assessment of environmental impacts, resource efficiency, and overall investment management.

This model represents an integrated approach that not only improves profitability and operational efficiency but also helps companies and investors meet the challenges of responsible investing.

In summary, the diagram illustrates a modern, multi-dimensional decision-making model in which artificial intelligence becomes a key tool in managing investments in logistics real estate. The integration of data, market forecasting, risk analysis, and sustainability into one coherent system supports the development of more accurate, informed, and responsible investment decisions.

5. Conclusions

The integration of artificial intelligence (AI) into investment management in logistics real estate has proven to be a breakthrough in terms of efficiency, sustainability, and strategic decision-making. This technology enables investors to make more informed decisions, optimize energy consumption, reduce operational costs, and minimize environmental impact. However, its widespread implementation also presents certain challenges that require careful consideration.

One of the biggest challenges is the high initial cost associated with implementing AI technologies. For smaller investors, the financial burden of purchasing and deploying AI systems may be too great. These technologies often require specialized infrastructure and significant upfront investment, which presents a barrier—especially for smaller companies or those operating in financially constrained environments.

Moreover, the process of integrating AI with existing systems can be complex. Adapting legacy processes to new solutions demands substantial time, effort, and expertise, which can slow down implementation and limit the immediate effectiveness of these technologies.

Additionally, the need for specialized knowledge and skills presents a significant challenge. AI systems in logistics real estate investments require a deep understanding of data analysis, machine learning, and AI technology itself.

Companies lacking the necessary expertise may struggle with effective implementation, which can result in suboptimal outcomes or the inability to fully leverage the potential of these technologies. Training staff and hiring specialists involve additional costs and challenges associated with implementation.

Despite these challenges, the benefits of implementing artificial intelligence in logistics real estate investment management are substantial and cannot be overlooked. AI enables more accurate forecasting of market trends, assessment of investment risk, and real-time energy management, all of which directly contribute to greater profitability and sustainability.

The technology's potential to optimize energy use in logistics buildings not only reduces costs but also supports the achievement of ESG (Environmental, Social, and Governance) goals by minimizing CO₂ emissions and other negative environmental impacts. Furthermore, AI allows for a more flexible and resilient approach to investment portfolio management, enabling better risk assessment and more strategic decision-making.

In the future, the potential of artificial intelligence to transform investment management in logistics real estate will continue to grow, especially as it becomes

integrated with other technologies such as the Internet of Things (IoT) and blockchain. This integration can enhance the capabilities of AI by providing more detailed real-time data, improving decision-making processes, and enabling even greater operational optimization. The synergy between these technologies can deliver additional benefits, creating new opportunities for both investors and communities.

It is also worth noting that the increasing use of AI in logistics real estate may have broader implications for the entire sector. As more companies adopt AI, there will be greater pressure to implement more sustainable, energy-efficient, and socially responsible investment strategies. The evolution of the market will not only impact profitability but also influence global practices in supply chain management and environmental governance.

In conclusion, while artificial intelligence presents undeniable opportunities to enhance investment management in logistics real estate, companies must carefully navigate initial costs, integration challenges, and the need for specialized expertise. However, with the right approach, AI can play a pivotal role in building more resilient, efficient, and sustainable investment strategies, shaping the future of the industry. As AI technology continues to evolve and mature, its potential to revolutionize logistics real estate investment management will only grow, making it an indispensable tool for modern investors.

References:

- Adeoye, O.B., Okoye, C.C., Ofodile, O.C., Odeyemi, O., Addy, W.A., Ajayi-Nifise, A.O. 2024. Artificial intelligence in ESG investing: Enhancing portfolio management and performance. *International Journal of Science and Research Archive*, 11(1), 2194-2205.
- Angammana, J.S.K., Jayawardena, A.M.A. 2022. Influence of artificial intelligence on warehouse performance: The case study of the Colombo area, Sri Lanka. *Journal of Sustainable Development of Transport and Logistics*, 7(2), 80-110.
- Bachanek, K.H., Drożdż, W., Kolon, M. 2025. Development of renewable energy sources in Poland and stability of power grids—challenges, technologies, and adaptation strategies. *Energies*, 18(8), 2036. <https://doi.org/10.3390/en18082036>.
- Drożdż, W., Redžeb, K. 2024. Possibilities of using AI in DSO sector. In: *European Conference on Artificial Intelligence*, 52-68. Cham: Springer Nature Switzerland.
- Ghosh, S., Anand, A. 2020. Artificial intelligence in real estate investment: Trends and opportunities. *International Journal of Real Estate Studies*, 32(2), 45-59.
- Hanafi, A.M., Moawed, M.A., Abdellatif, O.E. 2024. Advancing sustainable energy management: A comprehensive review of artificial intelligence techniques in building. *Engineering Research Journal (Shoubra)*, 53(2), 26-46.
- Kalogiannidis, S., Kalfas, D., Papaevangelou, O., Giannarakis, G., Chatzitheodoridis, F. 2024. The role of artificial intelligence technology in predictive risk assessment for business continuity: A case study of Greece. *Risks*, 12(2), 19.
- Lee, J., Kim, D. 2019. Smart energy management with AI in logistics real estate. *Energy and Environmental Management Journal*, 21(3), 98-110.

- Onyenahazi, O.B., Antwi, B.O. 2024. The role of artificial intelligence in investment decision-making: Opportunities and risks for financial institutions. *International Journal of Research and Publications Review*, 2582(7421). Retrieved from: www.ijrpr.com.
- Redžeb, K. 2024. The transformative role of AI in modern supply chains: A study on collaboration and efficiency. *European Research Studies Journal*, 27(1), 491-507.
- Shahvaroughi Farahani, M., Ghasemi, G. 2024. How artificial intelligence plays a role in achieving sustainable development goals? *Sustainable Economies*, 2(3), 66.
- Sipola, J., Saunila, M., Ukko, J. 2023. Adopting artificial intelligence in sustainable business. *Journal of Cleaner Production*, 426, 139197.
- Smith, A., O'Connor, M. 2021. Energy efficiency in logistics real estate: AI-driven solutions. *Sustainable Energy Management Journal*, 34(2), 128-141.
- Sutiene, K., Schwendner, P., Sipos, C., Lorenzo, L., Mirchev, M., Lameski, P.,..., Cerneviene, J. 2024. Enhancing portfolio management using artificial intelligence: Literature review. *Frontiers in Artificial Intelligence*, 7, 1371502.
- Toorajipour, R., Sohrabpour, V., Nazarpour, A., Oghazi, P., Fischl, M. 2021. Artificial intelligence in supply chain management: A systematic literature review. *Journal of Business Research*, 122, 502-517.
- Ukoba, K., Olatunji, K.O., Adeoye, E., Jen, T.C., Madyira, D.M. 2024. Optimizing renewable energy systems through artificial intelligence: Review and future prospects. *Energy & Environment*, 35(7), 3833-3879.
- Villanueva-Eslava, A., Riega-Virú, Y., Nilupu-Moreno, K., Salas-Riega, J.L. 2023. Artificial intelligence and logistics services: A systematic literature review. In: 2023 IEEE 3rd International Conference on Advanced Learning Technologies on Education & Research (ICALTER), 1-4. IEEE.
- Wang, Y., Li, X. 2020. Artificial intelligence in predicting market trends in logistics real estate. *International Journal of Real Estate Development*, 48(3), 56-72.
- Wolniak, R., Stecula, K. 2024. Artificial intelligence in smart cities - Applications, barriers, and future directions: A review. *Smart Cities*, 7(3), 1346-1389.
- Zhai, X., Bai, Z. 2021. Internet of things and artificial intelligence in predictive maintenance for logistics. *Journal of Logistics and Sustainable Development*, 19(4), 112-123.
- Zhang, L., Sun, Z. 2022. AI-based portfolio management in real estate investment. *Journal of AI and Investment Analysis*, 10(4), 198-212.

Web sites:

- ISBtech. 2025. JLL Polska atrakcyjnym rynkiem dla inwestorów zagranicznych. <https://www.isbtech.pl/2025/03/jll-polska-atrakcyjnym-rynkem-dla-inwestorow-zagranicznych/>.
- JLL. (n.d.). Streamline sustainable asset enhancement with AI. <https://www.jll.com/en-us/insights/streamline-sustainable-asset-enhancement-with-ai>.
- Patrizia AG. (n.d.). Our company. <https://www.patrizia.ag/en/our-company/>.