Global Journal of Economic and Finance Research

e-ISSN: 3050-5348
p-ISSN: 3050-533X

Vol. 03(04): 217-222, April 2026

Home Page: https://gjefr.com/

The Application of Artificial Intelligence in Decision-Making in Project Management

Sara Drakul
Faculty of Technical Sciences in Novi Sad, University of Novi Sad, Serbia

KEYWORDS: project management, challenges, projects, artificial intelligence, machines.

Corresponding Author:
Sara Drakul

Publication Date: 25 April-2026
DOI: 10.55677/GJEFR/06-2026-Vol03E4

ABSTRACT

The success of any organization largely depends on its ability to effectively and efficiently deliver projects. Project management is a complex process that requires careful control, planning, and execution. Traditional methods often struggle with large volumes of data, repetitive tasks, and unforeseen challenges. All of these factors can overwhelm project managers, leading to delays, project failure, and budget overruns. Artificial intelligence (AI) offers a transformative approach by enhancing various aspects of project management, while also enabling machines to simulate human intelligence, analyze data, and learn from experience.

Cite the Article: *Drakul, S. (2026). The Application of Artificial Intelligence in Decision-Making in Project Management. Global Journal of Economic and Finance Research, 3(4), 217–222. https://doi.org/10.55677/GJEFR/06-2026-Vol03E4*

1. INTRODUCTION

Artificial intelligence (AI) offers a revolutionary approach to project management. By utilizing AI, project managers can gain valuable insights, automate complex tasks, and make data-driven decisions, ultimately improving project outcomes. The increasing complexity of projects requires more sophisticated management techniques. Traditional methods, although valuable, often struggle with large volumes of data, repetitive tasks, and unforeseen challenges. All of this can lead to delays, budget overruns, and ultimately project failure (Rezvanjou et al., 2023).

AI provides a transformative solution by revolutionizing project management through task automation, delivering data-driven insights, and enabling proactive decision-making. Moreover, AI encompasses a range of techniques that allow machines to demonstrate intelligence similar to human capabilities. By leveraging AI, project managers can unlock numerous benefits across various aspects of project execution (Shoushtari et al., 2024).

Several studies have highlighted the transformative potential of AI in project management. For example, AI-based resource allocation tools have been shown to reduce project completion time by up to 20%. Other studies indicate that AI-driven risk prediction models help identify and mitigate potential risks, leading to a reduction in project costs by up to 15% (Shoushtari et al., 2023).

2. MATERIALS AND METHODS

The aim of this study is to analyze the role of AI in the context of project management; therefore, a bibliometric analysis approach is adopted, as it is considered suitable for examining broader topics. On the one hand, in order to identify relevant studies, detailed selection criteria are established, with a focus on the specific use of AI in project management. On the other hand, the Bibliometrix tool is used to analyze the associated data obtained from the Web of Science and Scopus databases. These databases were selected due to their high relevance, rigorous indexing criteria, and widespread use in bibliometric studies (Vergara et al., 2025).

Both databases provide comprehensive coverage of high-impact scientific literature, ensuring that the dataset used for analysis is representative, robust, and reliable for the research field. The generated data are processed using the Bibliometrix tool. In addition, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines are used to report the

data collection process. Given the general scope of the research, a generic query was used: ("AI" or "artificial intelligence") and ("project management"). The specific query consists of keywords highly relevant to this topic, such as project management, AI, and artificial intelligence. All of this enabled a replicable and transparent data extraction method (Page et al., 2021).

The results were last updated using the query applied in early 2025. The applied limitations included documents published in English and within the period 2015–2024. Although the study initially considered publications within this time frame, after applying the selection criteria, it was observed that fewer relevant studies on the application of AI in project management were published between 2015 and 2018. As a result, the majority of analyzed publications originate from 2019 onwards. As noted, 184 documents were identified from Web of Science and 410 from Scopus (Figure 1). Out of a total of 594 documents, 148 were duplicates and were therefore removed. A total of 446 documents were assessed for eligibility. The inclusion criterion required that the study focus on the use of AI in the context of project management. To verify whether documents met these criteria, titles and abstracts were manually reviewed. Ultimately, 115 documents were included for analysis (Vergara et al., 2025).

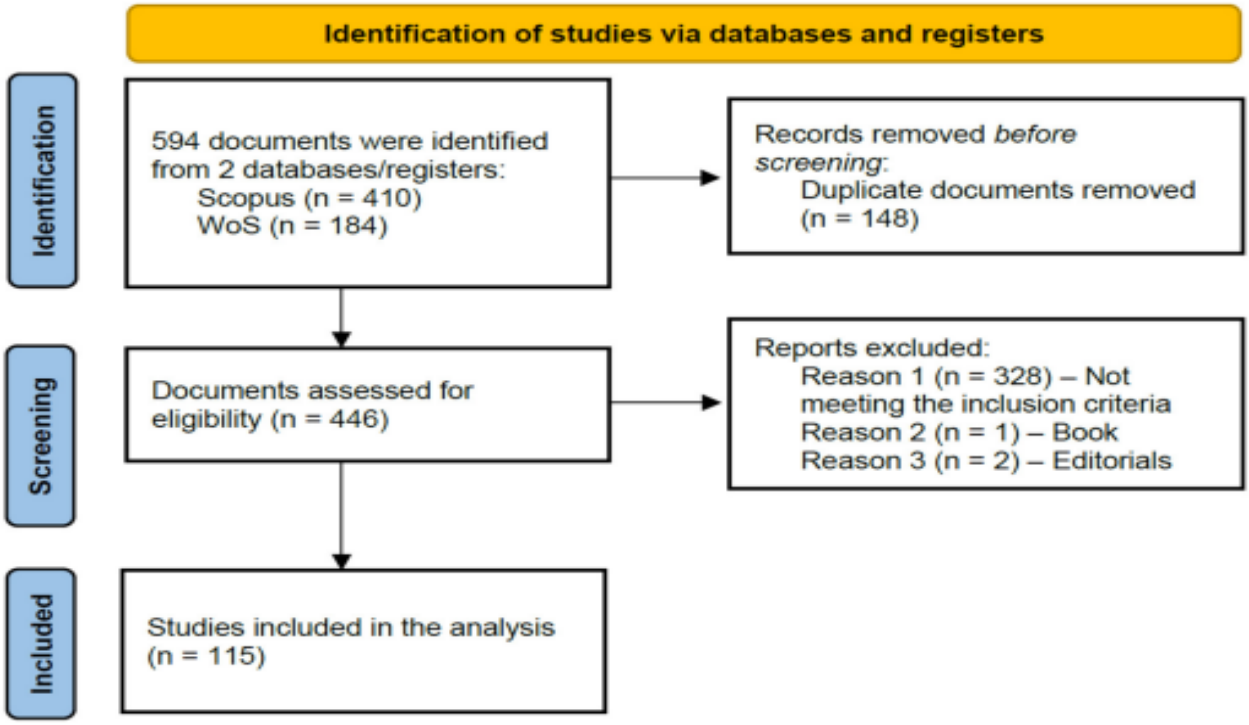

Figure 1. Identification of studies through the PRISMA protocol

Source: Vergara, D., Bosque, A., Lampropoulos, G., & Fernández-Arias, P. (2025). Trends and Applications of Artificial Intelligence in Project Management. Electronics, 14, 1 – 18

Regarding the data analysis technique, the Bibliometrix tool is applied to conduct a comprehensive bibliometric analysis, including citation and co-citation analysis, keyword occurrence analysis, and cluster analysis. In addition to this, a descriptive analysis of its main characteristics is also performed.

The emphasis is placed on analyzing the annual number of citations and publications, examining the countries of the authors, and identifying the main sources. All of this enables a deeper understanding of patterns, trends, and relationships within the research field (Vergara et al., 2025).

3. RESULTS

As shown in Figure 2, although the search covered documents published between 2015 and 2024, relevant studies were only identified from 2019 onwards. Therefore, although the study spans the entire period, the bibliometric analysis focuses on the period between 2019 and 2024 due to the limited number of relevant publications in earlier years. The document collection includes 115 publications within this time frame. These documents were published across 98 sources, from 44 different countries, and authored by 302 researchers. Among them, 21 documents (18.3%) were single-authored. The average age of the documents was 2.3 years, with an observed annual growth rate of 70.3%. Most documents were published as conference papers or journal articles. On average, documents had 6.7 citations and 2.9 co-authors, while international co-authorship accounted for 11.3%.

DESCRIPTION	RESULTS
MAIN INFORMATION ABOUT DATA	
Timespan	2019:2024
Sources (Journals, Books, etc.)	98
Documents	115
Annual Growth Rate %	70.32
Document Average Age	2.3
Average citations per doc	6.704
DOCUMENT TYPES	
Article	50
Book chapter	9
Conference/Proceedings paper	50
Review	6
DOCUMENT CONTENTS	
Keywords Plus (ID)	459
Author Keywords (DE)	285
AUTHORS	
Authors	302
Authors of single-authored docs	19
AUTHORS' COLLABORATION	
Single-authored docs	21
Co-authors per doc	2.92
International co-authorships %	11.3

Figure 2. Document collection

Source: Vergara, D., Bosque, A., Lampropoulos, G., & Fernández-Arias, P. (2025). Trends and Applications of Artificial Intelligence in Project Management. Electronics, 14, 1 – 18

Most documents were published in 2024 (37.4%), followed by 2023 (29.6%) (Figure 3). Given that the publication period spans only six years, the time frame was too short to define distinct maturity phases of the topic.

Therefore, based solely on the number of publications, three periods were identified for further analysis:

- 2019. – 2020.;
- 2021. – 2022.;
- 2023. – 2024.

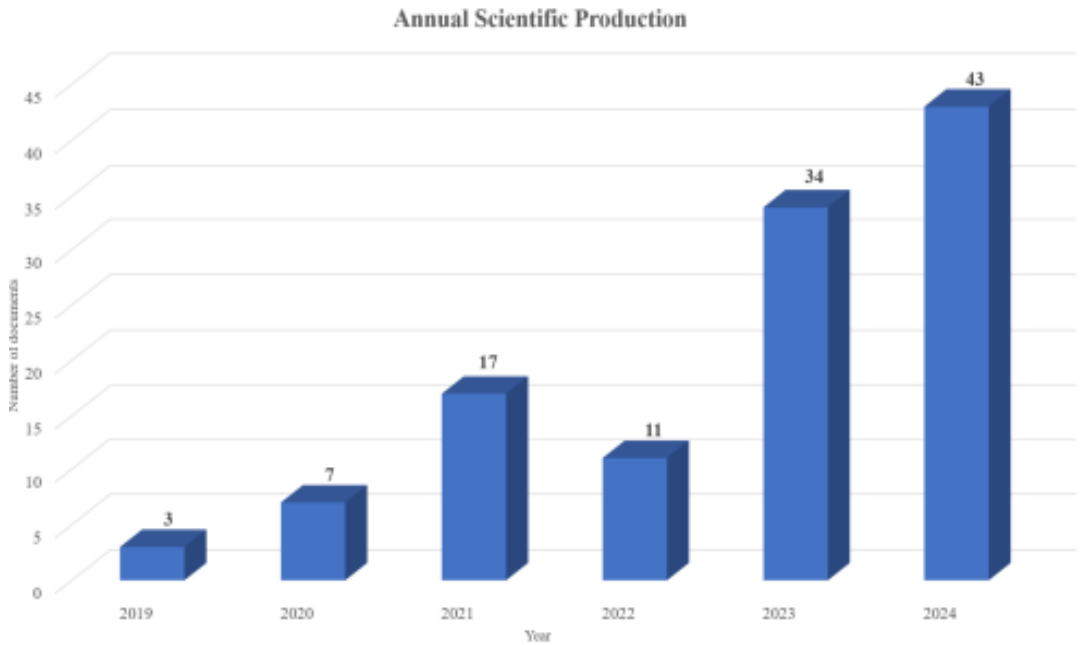

Figure 3. Annual publication distribution

Source: Vergara, D., Bosque, A., Lampropoulos, G., & Fernández-Arias, P. (2025). Trends and Applications of Artificial Intelligence in Project Management. Electronics, 14, 1 – 18

According to Lotka's law, only four authors contributed to three documents (1.3%), two authors contributed to 26 documents (8.6%), while 272 authors contributed to a single document (90.1%). Since most studies have been published in the last two years, it is expected that more authors will engage in this field and contribute further research. Additionally, authors originated from 44 countries, considering either the first author's or corresponding author's affiliation. Table 1 presents countries with at least four publications. The United States, China, and India had the highest number of publications. Among all countries, China (SCP = 10) and India (SCP = 11) had the highest rates of single-country publications, while Australia (MCP = 2) and the United Kingdom (MCP = 2) showed the highest levels of international collaboration.

Table 1. Scientific production by country

Country	Articles	SCP	MCP	Freq	MCP_ratio
Ukraine	4	4	0	0.035	0
Germany	4	4	0	0.035	0
Spain	5	4	1	0.043	0.2
Italy	5	5	0	0.043	0
Country	**Articles**	**SCP**	**MCP**	**Freq**	**MCP_ratio**
Australia	5	3	2	0.043	0.4
United Kingdom	8	6	2	0.07	0.25
SAD	9	9	0	0.078	0
India	11	11	0	0.096	0
China	11	10	1	0.096	0.091

Source: Vergara, D., Bosque, A., Lampropoulos, G., & Fernández-Arias, P. (2025). Trends and Applications of Artificial Intelligence in Project Management. Electronics, 14, 1 – 18

4. DISCUSSION

This bibliometric study uses both graphical and quantitative information to provide a comprehensive overview of trends and applications of AI in project management. The results offer insights into both emerging and well-established topics, enabling a deeper understanding of the evolving research landscape.

4.1 Keyword Analysis

Keywords Plus, automatically generated by databases, along with author-selected keywords, provide valuable insights into the focus of the research field. In this study, "project management" and "AI" are the most dominant themes, appearing with high frequencies of 43 and 46 in Keywords Plus, and 46 and 97 in author keywords, respectively (Figure 4).

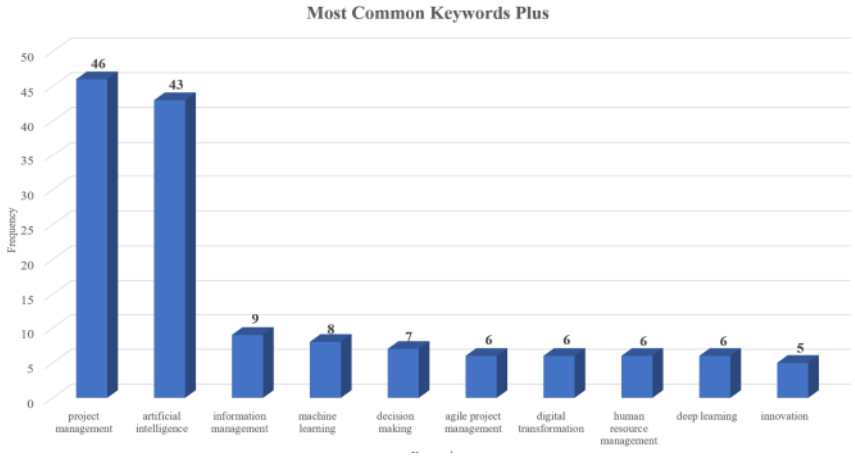

Figure 4. Most frequent Keywords Plus

Source: Vergara, D., Bosque, A., Lampropoulos, G., & Fernández-Arias, P. (2025). Trends and Applications of Artificial Intelligence in Project Management. Electronics, 14, 1 – 18

This dominance largely results from their inclusion in the bibliometric query, reflecting their fundamental role in research on integrating AI into project management practices. At the same time, this convergence indicates a growing trend in which AI-based solutions are used to address challenges in project management and improve decision-making, outcomes, and processes.

The findings demonstrate how AI, as a transformative technology, is becoming a key component in the evolution of project management, reshaping conventional methods and introducing new levels of accuracy, efficiency, and agility.

4.2 Trend Analysis

Trend analysis reveals the temporal evolution of key topics and provides insights into how focus areas within the field have changed over time. Several trends can be identified. On the one hand, the terms "artificial intelligence" and "digital transformation" gained significant prominence during the period 2022–2023, highlighting their role in reshaping traditional project management practices through automation and efficiency.

Subsequently, "decision-making" and "information management" emerged as important topics during 2023–2024, emphasizing the need for robust data-driven frameworks. The increasing volume of data generated by companies requires effective data management to improve project outcomes, support informed decision-making, and optimize resource allocation.

This shift reflects an evolution toward evidence-based methods, where strategic decisions in modern project management are driven by advanced analytics and artificial intelligence (Felicetti et al., 2024).

4.3 Thematic Map and Clusters

Figure 5 illustrates document clustering based on their interconnections, presenting three distinct groups highlighted by different colors.

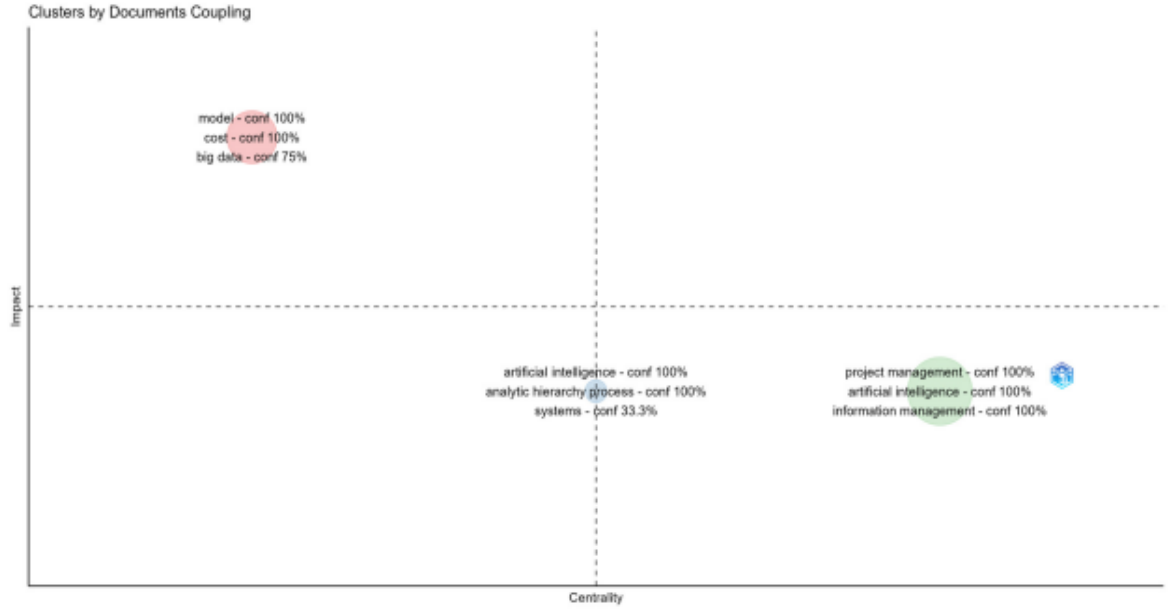

Figure 5. Document clusters

Source: Vergara, D., Bosque, A., Lampropoulos, G., & Fernández-Arias, P. (2025). Trends and Applications of Artificial Intelligence in Project Management. Electronics, 14, 1 – 18

The pink cluster focuses on terms such as "big data," "model," and "costs," suggesting a group of studies emphasizing cost analysis models and data management in project management contexts.

High confidence levels (75% for "big data" and 100% for "costs" and "model") indicate strong internal coherence within this cluster. The blue cluster includes "analytic hierarchy process" and "artificial intelligence," both with 100% confidence, while "systems" has 33.3% confidence. Finally, the green cluster connects "information management," "project management," and "artificial intelligence," all with 100% confidence.

The thematic map categorizes research topics into four quadrants based on their development and centrality. Niche themes such as "information management systems," "information management," and "information systems" are highly developed but less central to the broader field. These topics are specialized and particularly relevant in specific contexts, such as industries focused on digital transformation, but they do not currently define the overall trajectory of the discipline (Plekhanov et al., 2023).

5. CONCLUSION

The bibliometric analysis of AI in project management for the period 2019–2024 reveals significant trends and insights in this rapidly evolving field. With an annual growth rate of 70.32% in publications, the research area has experienced remarkable expansion. Given its increasing importance in addressing the complexity of modern projects, this trend highlights the growing interest in integrating AI technologies to improve project management practices. The research is dominated by three key themes: machine learning, information management, and decision-making. These areas emphasize the application of advanced computational methods and demonstrate how they can enhance efficiency, accuracy, and strategic planning in project management.

REFERENCES

1. Felicetti, M., Cimino, A., Mazzoleni, A., & Ammirato, S. (2024). Artificial Intelligence and Project Management: An Empirical Investigation on the Appropriation of Generative Chatbots by Project Managers. *J. Innov. Knowl.*, 9, 100545
2. Page, J., McKenzie, E., Bossuyt, M., Boutron, I., Hoffmann, C., Mulrow, D., Shamseer, L., Tetzlaff, M., Akl, A., & Brennan, E. (2021). The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews. *Int. J. Surg*., 88, 105906.
3. Plekhanov, D., Franke, H., & Netland, H. (2023). Digital Transformation: A Review and Research Agenda. *Eur. Manag. J.*, 41, 821–844.
4. Rezvanjou, S., Amini, M., & Bigham, M. (2023). Renewable Energy Location in Disruption Situation by MCDM Method and Machine Learning. *International journal of industrial engineering and operational research*, 5(4), 75-89.
5. Shoushtari, F., Bashir, E., Hassankhani, S., & Rezvanjou, S. (2023). Optimization in Marketing Enhancing Efficiency and Effectiveness. *International journal of industrial engineering and operational research*, 5(2), 12-23.
6. Shoushtari, F., Talebi, M., & Rezvanjou, S. (2024). Electric Vehicle Charging Station Location by Applying Optimization Approach. *International journal of industrial engineering and operational research*, 6(1), 1-15.
7. Vergara, D., Bosque, A., Lampropoulos, G., & Fernández-Arias, P. (2025). Trends and Applications of Artificial Intelligence in Project Management. *Electronics*, 14, 1 – 18.