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Leveraging Artificial Intelligence in Supporting Remote Information Technology Project Management: A Systematic Literature Review

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Abstract: The transition to remote IT project management presents unique challenges in collaboration, resource allocation, and adaptability. While Artificial Intelligence (AI) is increasingly demanded as a strategic enabler to manage these complexities, its specific application within remote IT environments, particularly through the principles-based PMBOK7 framework, remains underexplored. To address this literature gap, this study presents a Systematic Literature Review (SLR) analyzing peer-reviewed literature published between 2021 and 2026. The review identifies 11 empirically validated studies and extracted 8 unique AI implementations, namely machine learning, natural language processing, neural network, multi-agent systems, large language model, fuzzy logic, genetic algorithm, and probability graph models. These technological implementations are systematically mapped across the eight PMBOK7 performance domains and five primary areas of change in remote IT work. The findings indicate that while empirical AI implementation in this domain is still in its infancy, it fundamentally enhances aspects like stakeholder communication, team flexibility, data-driven project planning, and holistic view of the project for project managers. Ultimately, this study serves as a foundational stepping stone for global IT organizations transitioning toward AI-assisted distributed project management.

Keyword: Artificial Intelligence, Remote IT Project Management, Systematic Literature Review, Kitchenham, PRISMA 2020.

INTRODUCTION

Currently, in the era of rapid digitalization driven by Artificial Intelligence (AI), project management is undergoing a significant transformation (Nenni et al., 2025). As companies increasingly harness AI solutions, adaptable project management skills are essential for future success. Furthermore, research has projected that 80% of project management tasks will be AI-driven by 2030 (Nieto-Rodriguez & Vargas, 2023). The Project Management Institute (PMI) has forecasted emerging trends in this space, emphasizing a growing reliance on AI-powered virtual assistants, data-driven analytics, and AI-enhanced collaborative tools (Nilsson et al., 2025).

The widespread adoption of digital collaboration is deeply connected to the growth of remote work, hybrid models, digital nomadism, and "Work-from-anywhere" (WFA) arrangements, which were fueled by the evolving global work cultures (Nenni et al., 2025; Danielak & Wysocki, 2022; Wahono et al., 2025; Choudhury et al., 2021). These adoptions are in fact embraced among IT firms (de Souza Santos & Ralph, 2022). For these distributed teams, AI-enhanced tools offer exciting prospects, such as real-time language translation, adaptive strategies, and sentiment analysis, to foster innovation and inclusive participation (Nilsson et al., 2025).

The integration of AI aligns seamlessly with the 7th edition of the Project Management Body of Knowledge (PMBOK7) (Project Management Institute, 2021). Unlike its rigidly process-based predecessors, PMBOK7 is a principles-based, flexible framework centered on human value and adaptability, making it highly suitable for dynamic remote workstyles (Danielak & Wysocki, 2022; Project Management Institute, 2021). It is structured around eight performance domains: stakeholder, team, development approaches and lifecycles, planning, project work, delivery, measurement, and uncertainty (Project Management Institute, 2021). Within this framework, AI can significantly enhance efficiency, strategic decision-making, and stakeholder engagement (Jariwala, 2024).

There is a notable absence of exploration into the application of AI in the context of remote IT project management, particularly within the PMBOK7 performance domains, despite increasing demand for AI utilization. To the best of our knowledge, comprehensive systematic literature reviews addressing the influence of AI in these specific performance domains for remote IT work remain scarce. Moreover, previous studies have suggested that this area of project management has remained underexplored (Danielak & Wysocki, 2022; Jariwala, 2024; Ugochukwu et al., 2025; Craveiro & Domingues, 2025). Preliminary study of research articles reveals that existing studies have been confined to either the application of AI in older prescriptive PMBOK frameworks, excluding IT and remote projects, or remote IT challenges without AI solutions, as shown in Fig. 1. Therefore, this study addresses the existing literature gap by systematically reviewing the implementation of AI in remote IT project management through the relevant and updated lens of the PMBOK7 framework.

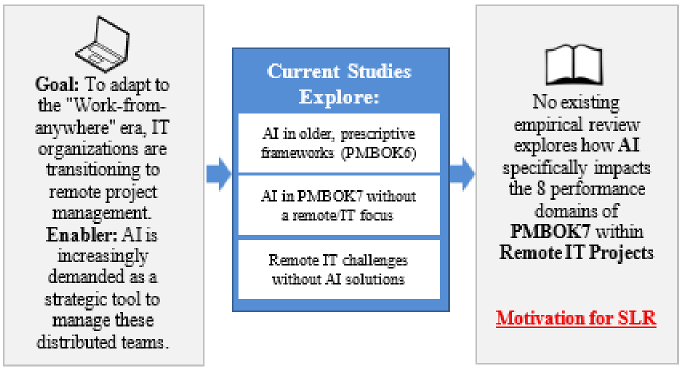

Figure 1. Research Gaps: AI Implementation In Remote IT Project Management Performance Domains

The aim of this study is to do a comprehensive review of previous studies following Kitchenham and Charter's (Kitchenham & Charters, 2007) procedures, while the reporting of the review follows the PRISMA 2020 guidelines (Page et al., 2021). Eleven empirically validated studies were reviewed, leading to the mapping of AI implementations to the PMBOK7 performance domains and distinct area of changes in remote IT project management. The findings show that AI implementations in remote IT project management still have a long way to be fully explored. But in the meantime, this study serves as a stepping stone for the exploration of AI implementations in remote IT projects.

The study is divided into seven sections, including Section II which outlines the background on remote IT project management, PMBOK7, and AI; Section III, which presents related previous research; Section IV, which details the research methodology; Section V, which reports the results and key findings; Section VI, discusses the results and key findings; and Section VII, which provides a summary of the study.

METHOD

This study applies the Systematic Literature Review (SLR) approach. The SLR approach serves to assess and analyze all available research related to specific research questions, subject areas, or phenomena of interest (Kitchenham et al., 2009). The primary objective of a Systematic Literature Review is to produce rigorous and credible evaluations of research topics through dependable, thorough, and transparent methodological procedures. Following Kitchenham and Charter's framework, the process is structured into three distinct phases: Planning, Conducting, and then Reporting (Kitchenham & Charters, 2007). Those phases are expanded upon with its key components in Table 1.

Table 1. Table Type Styles

No.	Phase	Key Components
1.	Planning	Research questions
		Search strategy
		Inclusion and Exclusion Criteria
2.	Conducting	Study selection
		Quality Assessment
		Data extraction and synthesis
3.	Reporting	Writing the report

The systematic review will be presented using the PRISMA 2020 flow diagram. Furthermore, the reporting of the findings will be written in Section Result and Discussion.

a. Planning

We first need to set up Research Questions (RQs) for this study. These RQs need to relate to how AI have been implemented in assisting remote IT project management. Therefore, the RQs are defined as follows:

RQ1: What are the AI implementations that have been applied to remote IT project management?

RQ2: How do the AI implementations relate to the PMBOK7 performance domains and changes to remote IT project management?

RQ3: What are the unexplored gaps of AI implementation in remote IT project management?

These RQs will be relevant in the reporting section, Section V and VI, as they serve as the framework for what gets reported.

The search strategy will comprise literatures published between 2021 and 2026, sourced from the online databases of ACM Digital Library, IEEE Xplore, ProQuest, Sage Journals, ScienceDirect, Scopus, and Wiley Online Library where automated literature searches were conducted by querying predefined search terms. The search terms underwent many iterative modifications to refine the keyword and Boolean operator combinations in order to get results that are not too broad or result in nothing. To validate the search string effectiveness, we used seed papers acquired from preliminary searches, namely the works of William et al., (2021) and Alam et al., (2025). The final search string looked like this: ("Artificial Intelligence" OR "AI") AND ("remote" OR "distributed" OR "virtual" OR "global" OR "hybrid") AND "project management" AND ("IT project" OR "software" OR "development").

The search string was further optimized for each database, which have their own unique search engines and operators. Further adjustments are required for databases that allow for searching in any part of a document, as terms like “global”, “distributed”, and “remote” seem to be frequently caught in license declarations and “remote-lib”, which is the name of the institutional access used for the search. Adaptations were made for the search in different databases, including Scopus and ScienceDirect, which allowed direct searching within title-abstract-keyword scope from the search field; IEEE Xplore and ProQuest, which used “All Metadata” and “NOFT”—meaning “anywhere except full text”—fields respectively; and the rest, which used the basic Boolean search string with the “remote”-synonymous keywords limited to within the documents’ abstracts or keywords instead. The search took place on 1 March 2026. We were able to found a total of 1958 papers through the automated literature search. Taylor & Francis yielded the highest number of results, being 564, while ScienceDirect yielded the lowest number of results, being 34.

We established inclusion and exclusion criteria to guarantee that the selected literatures are relevant and focused (Carrera-Rivera et al., 2022). These ensure the selected records align with the research objective of understanding AI implementations in remote IT project management. The criteria are listed in Table 2 and are implemented sequentially.

Table 2. Inclusion and Exclusion Criteria

Inclusion Criteria (IC)	
IC.1	Not a duplicate.
IC.2	Published between 2021 and 2026.
IC.3	Peer-reviewed articles.
IC.4	Written in English.
IC.5	Full text accessible through open or institutional access.
IC.6	Focus on AI implementation in remote IT project management.
IC.7	Practical or real-world applications and evaluation of AI implementation in remote IT project management.
Exclusion Criteria (EC)	
EC.1	Duplicate papers.
EC.2	Published outside of 2021 and 2026.
EC.3	Not peer-reviewed publications, (e.g.; grey literatures, theses, dissertations, books, book chapters, technical reports, editorials, and other non-research papers).
EC.4	Not written in English.
EC.5	Does not mention AI implementation in remote IT project management, or only mentions it in passing.
EC.6	Full text inaccessible through institution or open access.
EC.7	Conceptual, theoretical, or solution proposal papers that lack real-world application or validation documentation.

b. Conducting

The initial search across 8 databases yielded 1958 papers. The selection of studies applies the inclusion and exclusion criteria previously listed in Table 2. Firstly, we removed duplicate papers, which left the total number of records to be 1837. Then, we limited the search to paper that are published between 2021 and 2026, papers that are peer-reviewed, and papers that are written in English and had a focus on AI implementation in remote IT project management. This left us with the number of reports to be only 24 for content evaluation. Out of those 24, only 13 were accessible through institution or open access and only 11 of which had practical evaluations on AI implementations in remote IT project management. Two of the papers from the last batch had to be excluded due to their validation only via computer simulation-based evaluation; specifically, they used generative AI to emulate human interactions in remote IT projects. This exclusion is important to ensure the focus on contributions that are practical. Fig. 2 shows the selection process of the SLR in a form of PRISMA 2020 flow diagram which allows readers to understand the review and examination procedures as well as the sequential removal of irrelevant records in every step (Haddaway et al., 2022). The reporting of this systematic review was guided by the standards of the PRISMA Statement (Sarkis-Onofre et al., 2021).

Studies were also evaluated for credibility through the use of scoring questions (Carrera-Rivera et al., 2022). The questions being:

1. Are the objectives and methodologies in the research described clearly?
2. Are the findings in the research clearly presented and empirically validated?
3. Is the study relevant to AI implementation in remote IT project management?

Each question has a decimal score range of 0.0 to 1.0 with the acceptance total score of 2.0. The 11 selected papers achieved an average Quality Assessment score of 2.4, indicating a moderate level of quality among the studies.

RESULTS AND DISCUSSION

This section presents the result of the SLR as well as the findings from the review.

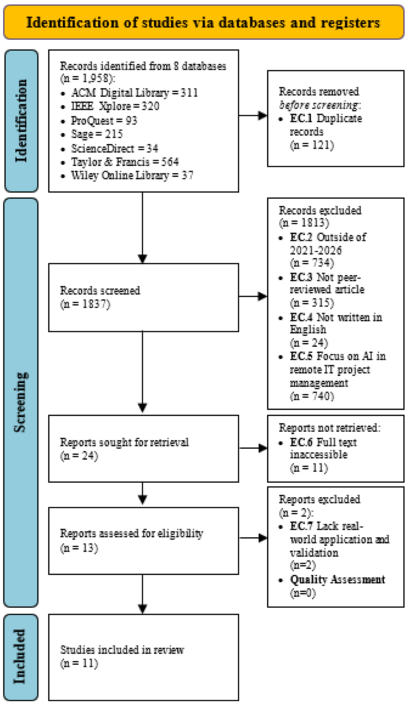

Figure 2. PRISMA 2020 Flow Diagram

The SLR yielded 11 empirically validated studies spanning year 2021 to 2025, with the majority being published in 2025, 2 in 2024, and another 2 in 2021; indicating that focus on research of AI implementation in remote IT project management is fairly recent.

Furthermore, two of those studies are journal articles–particularly from Q1 and Q3 journals–while the rest are from conferences. Eight of the studies were published by IEEE in their IEEE Access journal and in conferences, one of the other studies was published by The Science and Information Organization (SAI) in the IJACSA journal, another one was published by ACM in a conference, and one last one was published by the Grenze Scientific Society in a conference also. The statistics of these articles can be seen in Table 3.

Table 3. Paper Statistics

Article Code	Author	Year	Publisher	Journal/Conference
A01	(William et al., 2021)	2021	IEEE	Conference: CENTCON
A02	(Hefny et al., 2021)	2021	IEEE	Conference: NILES
A03	(Li et al., 2024)	2024	ACM	Conference: ICSE
A04	(Kadu & Kimmatkar, 2024)	2024	Grenze	Conference: ACT
A05	(Mood, 2025)	2025	IEEE	Conference: INDISCON
A06	(Gayathri et al., 2025)	2025	IEEE	Conference: ICVADV
A07	(Aljohani et al., 2025)	2025	SAI	Journal: IJACSA (Q3)
A08	(Alam et al., 2025)	2025	IEEE	Journal: IEEE Access (Q1)
A09	(Harini et al., 2025)	2025	IEEE	Conference: ICECONF
A10	(Zhou & Zhao, 2025)	2025	IEEE	Conference: ISBDAS
A11	(Packiam et al., 2025)	2025	IEEE	Conference: ResGenXAI

Key information from the papers was extracted by noting down the paper type, research methodology, AI tools and techniques employed, AI implementation, context of remote IT project management, and validation methods used.

Analysis of the 11 studies identified 8 unique implementations of AI in remote IT project environments that have been validated empirically through case studies, experiments, and expert judgement. They can be seen in Table 4 as well as the context in which they are used.

Table 4. Summary of Studies

Article Code	Author	Year	AI Implementations	Context
A01	(William et al., 2021)	2021	• Machine Learning (ML)	• ML is used task allocation based on employee characteristics such as KPI score, previous year rating, and education to assign tasks.
A02	(Hefny et al., 2021)	2021	• Natural Language Processing (NLP)	• NLP is used to process and also generate chat text, utilized as a chatbot that is integrated into team communication platforms.
A03	(Li et al., 2024)	2024	• Natural Language Processing (NLP) • Neural Network (NN)	• NLP is used to process the titles and descriptions of software tasks, capturing important contextual information. • NN is used for estimating efforts of tasks; utilizing nodes that weighs words, phrases, or sentences based on pre-trained models and historical data from expert interviews.
A04	(Kadu & Kimmatkar, 2024)	2024	• Neural Network (NN)	• NN is used to predict software effort estimations by finding complex patterns and historical context from classified data.
A05	(Mood, 2025)	2025	• Natural Language Processing (NLP)	• NLP is used to summarize remote daily team updates for highlighting blockers and dependencies, assist in backlog grooming for problematic user stories, and extract intent from stakeholder feedbacks. Used in small wrappers using open APIs

				and delivered using automatic messages or browser extensions.
A06	(Gayathri et al., 2025)	2025	• Natural Language Processing (NLP) • Multi-Agent System (MAS) • Machine Learning (ML)	• NLP is used to process unstructured data such as task descriptions, communication logs, and performance evaluations. • MAS technology in which remote team members represented by AI agents holding up-to-date dynamic variables (skill sets, workload, availability) are controlled for math-based work distribution. • ML is used to handle dynamic changes by learning from real-time environmental feedback, task completion time and quality, as well as employee satisfaction to update task distribution methods.
A07	(Aljohani et al., 2025)	2025	• Large Language Models (LLM) • Fuzzy Logic (FL)	• LLM act as virtual experts to enhance decision-making with detailed explanations in Agile Requirements Change Management (ARCM). • FL is used to process qualitative judgement made by the LLM for decision prioritization by turning ambiguity in explanations (e.g. “fairly important”, “absolutely important”) into relative importance mathematically.
A08	(Alam et al., 2025)	2025	• Large Language Models (LLM) • Natural Language Processing (NLP) • Machine Learning (ML)	• LLM act as a virtual project manager in a form of a chatbot that offer continuous support for e-commerce data and risk management for global teams. • NLP is used to preprocess data and retrieve information from documents as well as interpreting user queries in the chatbot for recognizing intent, business metrics, and reports. • ML is used create dataset captured from chatbot communication logs for improving the chatbot’s responses and functionalities.
A09	(Harini et al., 2025)	2025	• Muti-Agent System (MAS) • Large Language Models (LLM)	• MAS is used to train autonomous agents in strategies for scheduling, resource distribution, and safety assurance. • LLM is used as the real-time reasoning engine for task dependencies, resource constraints, and team dependencies, as well as communicator for explainable decision-making.
A10	(Zhou & Zhao, 2025)	2025	• Genetic Algorithm (GA)	• GA is used as an optimization tool to find optimal scheduling solution out of all possible solutions in projects with complex dependencies and also accounting for uncertainties.
A11	(Packiam et al., 2025)	2025	• Probabilistic Graphical Models (PGM) • Neural Network (NN)	• PGM is used to map out current dependency in risks, including their probability, and updates their probabilities based on new evidence. • NN is used to learn developing risk patterns from historical data to predict future risk severity.

We found 8 unique implementations of AI found, which are Machine Learning (ML), Natural Language Processing (NLP), Neural Network (NN), Multi-Agent Systems (MAS), Large Language Models (LLM), Fuzzy Logic (FL), Genetic Algorithm (GA), and Probabilistic Graphical Model (GPM). Here are their definitions in this study:

1. ML is a broad term in which AI extracts from historical data to make inferences to adapt and improve their performance over time without explicit instructions (Craveiro & Domingues, 2025; Alam et al., 2025; Mood, 2025). In the context of this study, ML refers to its use on smaller and more structured datasets. This particular application of AI is best

for supporting relatively simpler computational tasks and ones that can be further supported through manual engineering.
2. NLP focuses on the ability for computers to understand, interpret, and generate human language and extract information from it (Craveiro & Domingues, 2025; Alam et al., 2025; Mood, 2025). The studies suggest that this application is highly suited for extracting key information from human languages, whether text documents or chatlogs.
3. NN is a subset of ML that is specifically trained from large and unstructured data to learn complex connections and patterns (Craveiro & Domingues, 2025; Li et al., 2024; Kadu & Kimmatkar, 2024). In the context of this study, its application is more suited for handling larger and more complex data for estimations and predictions. Consequently, NN is more computationally expensive and time-consuming to train.
4. MAS are computational environments in which multiple intelligent, autonomous agents interact and collaborate to solve complex tasks; emulating human problem-solving processes (Cinkusz et al., 2024; Gayathri et al., 2025; Harini et al., 2025). This particular application of AI is highly suited for simulations, especially with real-time availability and adaptation.
5. LLM is a subset of ML that is specifically trained on large and diverse datasets like web pages, books, or scientific articles to process and generate human-like text (Cinkusz et al., 2024; Alam et al., 2025; Aljohani et al., 2025). These are famously the engines behind chatbots. Their application is generally more versatile, such as being a stand-in for experts or managers in project management when they are unavailable.
6. FL enables computers to mimic human reasoning by processing approximates rather than precisions, such as degrees of truth between 0 and 1, rather than just either of them (Craveiro & Domingues, 2025; Aljohani et al., 2025). Their application generally requires explicit instructions, particularly from experts, for setting the rules of their calculation, which consequently make them more interpretable.
7. GA is a computational model for searching the optimal solution by simulating the process natural selection, where the best solutions are selected or further iterated upon, while the worse ones are discarded (Zhou & Zhao, 2025; Zhi & Liu, 2019). This AI application particularly excels at optimization where the main goal is to find the best solution.
8. PGM is a framework for capturing complex dependencies among variables using graph and statistical probability theories to allow the system to reason under uncertainty (Packiam et al., 2025; Lou et al., 2025). This application of AI excels at providing insights for causal dependence under high uncertainty and data sparsity. They can also be encoded with experts' knowledge, leading to high interpretability.

This answers the previously defined RQ1 regarding AI implementations that has been reported in empirical studies.

Discussion

Based on the context in which they are used, AI implementations can be mapped into PMBOK7's eight performance domains (stakeholder, team, development approach and life cycle, planning, project work, delivery, measurement, and uncertainty) and five main area of changes in remote IT work (communication and collaboration, technological proficiency and infrastructure, team performance and cultural awareness, adaptation and flexibility, and leadership and management) that were previously outlined in Section II of this study. The general process of mapping begins with selecting one of the AI implementations from Table 4, matching it to the relevant PMBOK7 performance domains, and then matching them to the changes in remote IT work that it addresses. The mapping result is shown in Table 5.

Table 5. Paper Statistics

Performance Domains \ Areas of Changes	Communication and Collaboration	Technological Proficiency and Infrastructure	Team Performance and Cultural Awareness	Adaptation and Flexibility	Leadership and Management
Stakeholder	• ML (A08) • NLP (A05, A08) • LLM (A08)	• ML (A08) • NLP (A05) • LLM (A07, A08)		• LLM (A07)	• NLP (A05) • LLM (A07)
Team	• ML (A08) • NLP (A02, A05, A08) • LLM (A08, A09)	• ML (A01, A06, A08) • NLP (A02, A05, A06, A08) • MAS (A06, A09) • LLM (A07, A08, A09)	• ML (A01, A06) • NLP (A05, A06) • MAS (A06)	• ML (A01, A06) • MAS (A06, A09) • LLM (A07, A09)	• ML (A01, A06) • NLP (A02, A05, A06)
Development Approach and Life Cycle					
Planning	• NLP (A02, A05)	• ML (A01) • NLP (A02, A03, A05, A01) • NN (A03, A04) • MAS (A06, A09) • LLM (A07, A09) • GA (A10)	• ML (A01, A06) • NLP (A06) • MAS (A06)	• ML (A01) • NLP (A06) • MAS (A06, A09) • LLM (A07, A09) • GA (A10)	• NLP (A06) • LLM (A07) • NN (A03, A04)
Project Work	• NLP (A02, A05, A06, A08) • LLM (A08)	• ML (A06) • NLP (A02, A05, A06, A08) • MAS (A06, A09) • LLM (A08, A09)	• ML (A06) • NLP (A05, A06) • MAS (A06)	• ML (A06) • NLP (A05, A06, A09) • MAS (A06) • LLM (A09)	• ML (A06) • NLP (A05, A06)
Delivery	• NLP (A02, A05, A06, A08) • LLM (A08)	• ML (A06) • NLP (A02, A05, A06, A08) • NN (A03, A04) • MAS (A06, A09) • LLM (A07, A08, A09) • GA (A10)	• ML (A06)	• ML (A06) • NLP (A05) • MAS (A06, A09) • LLM (A07, A09) • GA (A10)	• ML (A06) • NN (A03, A04)
Measurement	• NLP (A02, A05, A06, A08) • LLM (A08)	• NLP (A02, A05, A06, A08) • LLM (A07, A08)		• NLP (A05, A06)	• NLP (A02, A05, A06)
Uncertainty	• NLP (A06) • LLM (A08)	• ML (A06) • NLP (A06) • NN (A11)	• NLP (A06)	• ML (A06) • NLP (A06)	• ML (A06) • NLP (A06) • NN (A11)

Performance Domains \ Areas of Changes	Communication and Collaboration	Technological Proficiency and Infrastructure	Team Performance and Cultural Awareness	Adaptation and Flexibility	Leadership and Management
		• FL (A07) • LLM (A07, A08) • GA (A10) • PGM (A11)		• GA (A10)	• LLM (A07) • FL (A07) • PGM (A11)

The Stakeholder and Team performance domains are enhanced by implementations of AI by giving them better means of communication, particularly regarding the conditions of team members and the project as a whole. In this context, NLP (A05, A08) serve as the bridge to help communicate stakeholders to the project team and managers whereas LLM (A08), via chatbots, help communicate project progress to the stakeholders as well as teams. ML (A08) allows for interactions to be improved or better understood. NLP (A06, A08) also assists teams in gathering information on team availability, wellness, and skills through performance evaluation documents and communication logs. Team information can be used for managerial intervention or utilized by ML (A01) and MAS (A06, A09) for task allocation. In the instance of MAS application, project and team variables are represented as intelligent agents that work together to configure and align task allocations of team members. Task allocation may also be configured manually from teams' and managers' input such to better align priorities or increase work satisfaction. Priorities in the IT industry may be ever changing due to the evolving of requirements which LLM (A07, A09) have the capability to organize.

From the 11 papers of note, there were no AI implementations that relate to establishing the development approaches or life cycles of the project. This is due to the fact that the projects had already used the Scrum or Agile approach that is highly prevalent in IT project management (Raharjo et al., 2023). There has been research using the implementation of MAS to help scale up the Agile framework into the Scaled Agile Framework (SAFe) which is more suitable for big and distributed teams (Cinkusz et al., 2024). However, as of this study, it hasn't been empirically tested yet, only through AI simulations.

The Planning, Project Work, and Delivery performance domains are highly intertwined with each other. NN (A03, A04) can be utilized to calculate project efforts for planning that aligns with intended delivery quality and scope. Using NLP (A02, A05) can better communicate project plans as well as identify blockers and dependencies from daily team updates and stakeholder feedbacks. Additionally, NLP (A02, A05, A06, A08) and LLM (A08) can assist in communicating the scope, requirements, and quality needed for the project as well as aligning the work to best fit those criteria. In the event of team members leaving or requirements changing mid-project, ML (A01, A06), MAS (A06, A09), and LLM (A08, A09) can realign the work by reprioritizing and reallocating tasks to ensure the project remains on track and is delivered to a high standard by functioning as a virtual project manager. All of the project allocation and scheduling can be optimized using GA (A10). ML (A06), NLP (A05, A06), and LLM (A07), through project dashboards, can also allow managers to get hands-on should they need to intervene.

AI can enhance the Measurement and Uncertainty performance domain by employing NLP (A02, A05, A06, A08) and LLM (A08) to summarized progress and risks obtained from team updates or documents, which are frequently overlooked due to information overload and the remote work environment in general. From team updates and communications, NLP (A06) also help take into account team members' availability for decision-making of managers. Particularly for task allocation systems, managers may give feedback regarding previous allocations to train the ML (A06) algorithm to improve the system's decisions. GA

(A10) may also help in task allocation by generating the most optimal schedule that takes into account many uncertainties in project development. LLM (A07) provides managers with guidance in navigating change management. FL (A07) may be utilized to enhance prioritization accuracy and decision support in the inherent uncertainties of remote IT work. Lastly, PGM (A11) and NN (A11) can be utilized to map out risk dependencies and their probabilities for the current and future states of the project.

In addressing changes in remote IT work, NLP and LLM chatbots dominate the communications and collaboration area with ML being utilized for improvements of user experience. Technology proficiency and infrastructure is inherently relevant to the use of AI for organization-wide data gathering, allocations, and prioritizations. AI addresses team performance and cultural awareness by taking into account availability and satisfaction of remote team members into their systems. Furthermore, AI allows for automatic reprioritization and reallocation of work without direct instructions of project managers. Lastly, AI addresses leadership and management in remote IT work by enabling managers to gain a comprehensive view of the project, understand dependencies, develop emotional intelligence of their teams, engage with stakeholders, and intervene proactively if needed.

From the existing AI implementations, it can be summarized that the Stakeholder performance domain heavily utilizes AI to address communication and collaboration in remote IT work settings. The Team performance domain leverages AI to facilitate communication and collaboration, comprehend team performance and cultural awareness, and improve their adaptation and flexibility, which is fitting given the significant changes that teams working on remote projects undergo. The Planning, Project Work, and Delivery performance domains are heavily affected by the communication, satisfaction, and adaptability in remote teams to produce the best result, which AI alleviates. The Measurement and Uncertainty performance domains are closely linked to leadership and management, as they involve organizational decision-making that requires a comprehensive view of a project's progress and risks. This gives insight on what remote or global IT organizations might need to invest in for the success of their projects in the AI-driven era.

This answers the previously defined RQ2 regarding the relation of AI implementations to the PMBOK7 performance domains and changes to remote IT project management.

This study reveals several gaps in current research on AI implementations in remote IT project management. Based on the very little of number of studies found it is clear that there has been very little research on the utilization of AI in remote IT project management as of this study. However, there has been studies that show promise in expanding the use of AI in remote IT project management, including research by Cinkusz et al. (2024) on using MAS to scale up the Agile framework and research by (Nankap et al., 2025) on using NLP to evaluate team communication and offer actionable feedback to managers. Nevertheless, as of this study, their research has yet to be tested in real-world applications. The studies, including those yet-to-be empirically validated ones and predominantly conducted in 2025, indicate that this specific study of AI implementation in remote IT project management is a relatively new area of research. This is appropriate as the surge in AI adoption in project management was also forecasted in 2025 (Nilsson et al., 2025). Nevertheless, this study gives an insight of organizations transitioning to AI-assisted development, especially for global IT industries. This answers the previously defined RQ3 regarding the unexplored gaps of AI implementation in remote IT project management.

CONCLUSION

This systematic literature review conducted in this study investigates the implementation of AI in remote IT project management, specifically examining how these technologies align with the PMBOK7 performance domains and address the challenges of remote IT work. The review identified 11 empirically validated studies published between 2021 and 2025, From these studies, eight primary AI implementations were identified, namely machine learning, natural language processing, neural network, multi-agent systems, large language models, fuzzy logic, genetic algorithm, and probabilistic graphical model.

The analysis reveals that, when mapped to the PMBOK7 framework and the changes in remote IT work, the Stakeholder and Team performance domains heavily utilize AI to address communication and collaboration, with cultural awareness and team adaptability also specifically addressed for teams. The Planning, Project Work, and Delivery domains are heavily affected by the satisfaction and adaptability of remote teams, burdens which AI help alleviate. Finally, AI enhances the Measurement and Uncertainty domains by assisting leadership and management with organizational decision-making as well as providing a holistic view of project and its risks. The focus on AI implementation in remote IT project management as well as explicit requirement for real-world application and empirical validation differentiates this study from many prior studies. However, limitations described in the following section should be taken into consideration when interpreting this study.

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