

Ethical and Secure Artificial Intelligence for Project Management Decision Support with Emphasis on Bias Privacy, and Human Oversight

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DOI: <https://doi.org/10.63084/cognexus.v1i04.241>

Abstract

This systematic review explores the ethical and safe use of artificial intelligence (AI) within project management decision support systems, highlighting concerns of algorithmic bias, fairness, transparency, accountability, privacy, cybersecurity, and human oversight.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework was adopted for the study. A literature search was carried out using Scopus, Web of Science, ScienceDirect, IEEE Xplore and Google Scholar databases, including studies from 2021 to 2026. Thirty-two studies were chosen following screening and quality assessment, following the CASP framework for thematic synthesis. The analysis was conducted through three themes: ethical challenges in the use of AI for decision-making; security and privacy issues in AI-powered project environments; and human oversight in AI-supported governance.

The findings validate that AI-driven project management systems are vulnerable to algorithmic bias, transparency and accountability concerns, cybersecurity threats, and data privacy issues. Moreover, the review reveals that organisations are more concerned about the benefits of efficiency and automation than ethical governance and security preparedness. Furthermore, excessive automation may result in loss of control over human judgment and decision-making.

This review contributes to literature through the integration of fragmented ethical and cybersecurity governance frameworks into an integrated project management perspective. The review also points to the need for integrated ethical governance systems, robust cybersecurity protocols, and human oversight mechanisms to enable AI to be effective in project management. It suggests fairness auditing, privacy by design, explainable AI systems and human-in-the-loop governance mechanisms for responsible and trustworthy project management with AI.

Keywords: Artificial Intelligence, Project Management, Ethical Governance, Human Oversight

1. Introduction

1.1 Background

Artificial intelligence (AI) is transforming project management processes at a rapid pace, with organisations increasingly leveraging AI capabilities to automate tasks, boost prediction accuracy, aid in risk management, and enhance strategic decision-making. Incorporation of AI-Based decision support systems in project environments is an indication of the need for efficiency, speed and data-driven approaches to project management in complex organisational settings (Shamim, 2024; Ogunbukola & Consulting, 2024). AI tools are increasingly utilised in various stages of a project, such as scheduling, resource optimisation, performance management, predictive analytics, and cost estimation (Tenhunen, 2025; Tanim & Ahmad, 2025). These advancements offer tremendous potential to enhance project results, but also bring a host of ethical, security, and governance questions that need to be explored.

As AI becomes a more popular tool in project management, it is important to consider the fairness and reliability of algorithmic decision-making. AI systems rely heavily on data, and the decisions made using AI systems could also reflect biases in the data, organisational structures, or design assumptions. If ethical safeguards are not appropriately implemented, AI-driven recommendations can inadvertently perpetuate unfair treatment, discrimination or inequitable project decisions (Patil, 2024; Li, 2024). Biased AI systems can have significant consequences in project management, affecting budgets, timelines, stakeholder relationships, and workforce allocation. Additionally, the risks are enhanced by the lack of transparency and accountability for the use of AI systems, where project managers are not always aware of or understand how AI systems make their recommendations (Nabil et al., 2025). This puts pressure on good judgment and compromises the integrity of organisations' management processes.

Additionally, the rise in reliance on AI technologies raises significant privacy and cybersecurity concerns. AI-driven project management solutions often include sensitive organisational and personal information, real-time data analysis, and cloud-based infrastructure. With the integration of AI-powered platforms, there are numerous issues of data misuse, unauthorised data access, cybersecurity risks, and legal and ethical compliance norms that are more critical than ever as organisations increasingly depend on these to achieve such capabilities (Somanathan, 2024). Insufficient governance or data protection measures can lead to operational challenges, reputational issues, and regulatory concerns (Nabil et al., 2025). Furthermore, AI in digital and interconnected environments increases the complexity of ensuring secure and transparent project management systems. Although AI systems can process a lot of information more efficiently, there are still aspects of decision-making in project management that require human input, ethics, stakeholder negotiations, and strategic interpretation and analysis. Excessive reliance on AI may reduce human accountability and result in situations where

critical decisions are made without sufficient human oversight (Biondi et al., 2023). Hence, human oversight remains crucial in responsible decision-making, building trust, and effective governance in AI-assisted environments. Human-centred approaches to AI emphasise collaboration with AI systems, rather than relying solely on them for management (Oye, 2025). This is particularly relevant in project environments where decisions can have consequences for the organisation, finances and society.

The integration of AI into project management is still in its early stages, but it comes with its own set of challenges, including the need for coordination among ethical standards, privacy protection measures, security protocols, and human oversight in AI-driven decision-making. This systematic review aims to critically assess the ethical and safe usage of AI in the project management decision support process, with a particular focus on algorithmic bias, privacy and security concerns, and the persistent requirement for human oversight to make sure AI is used responsibly during the decision making process.

1.2 Research questions

1. What are the ethical challenges associated with the use of Artificial Intelligence in project management decision-support systems?
2. What are the security and privacy concerns in AI-driven project management environments?
3. What is the role of human oversight in AI-assisted project management decision-making?

2.0 LITERATURE REVIEW

2.1 Ethical Challenges Associated with the Use of Artificial Intelligence In Project Management Decision-Support Systems

Algorithmic bias and fairness are one of the most discussed ethical concerns for AI-integrated project management decision-support systems. Though AI solutions can seem unbiased and dependable, the outcomes they generate can be highly affected by the quality, representativeness and governance (data quality) of the data employed in their development (Patil, 2024; Li, 2024). In project management, AI tools are increasingly being used for scheduling, resource allocation, risk prediction, and performance analysis, and biased datasets can lead to unequal or inaccurate recommendations, impacting individual stakeholders or project teams. Patil (2024) notes that industrial AI systems can also reinforce existing organisational inequalities if training data reflects existing human biases and inequities. This raises questions regarding fairness and the ethical validity of managerial decisions supported by AI.

Transparency and explainability are also important ethical factors discussed by Nabil et al. (2025) regarding AI-powered project management systems, which are referred to as “black-box” systems because managers are unable to understand the root cause of the project management suggestions. Such

uninterpretability is a problem for accountability, as the project managers might not have a proper understanding of the assumptions and constraints in the algorithms being used in the automated tools. Similarly, Biondi et al. (2023) call for explainable and auditable AI systems to support transparent and open to questioning decision-making processes, which would lead to the ethical design of AI. In the absence of transparency, institutions could have difficulty in detecting discriminatory outcomes, procedural mistakes or unethical recommendations generated by AI systems. When AI systems impact decision-making outcomes in strategic projects, assigning accountability can still be challenging, and while AI can help boost managerial efficiency, the final responsibility remains difficult to pinpoint. The risks of cloud-based AI systems in transformation projects often overlap responsibility between humans and machines, as noted by Somanathan (2024). This poses governance challenges, especially when AI-informed decisions impact project delivery or stakeholder interests negatively. Miller (2021) also states that ethical AI implementation is not purely about technical issues, but also involves organisational governance frameworks that can monitor and assess AI decisions. However, while both Shamim (2024) and Ogunbukola and Consulting (2024) highlight the operational advantages of AI for faster decision-making and project efficiency, neither study offers much discussion about fairness auditing or bias mitigation mechanisms.

2.2 Security and Privacy Concerns In AI-Driven Project Management Environments

AI's role in project management can sometimes also involve the handling of sensitive organisational, financial, and employee data, potentially exposing risks for unauthorised access, data misuse, and cybersecurity issues (Li, 2024). Beyond the efficiency of decision-making, companies often overlook ethical and operational considerations of inadequate data governance. In project environments where real-time information exchange is essential, AI systems can significantly extend the organisational attack surface, making projects susceptible to cyber threats. Data privacy is another critical aspect, as Nabil et al. (2025) highlight, project management applications powered by AI frequently fail to be transparent about how data is collected, processed, stored, and shared. This raises ethical and legal issues surrounding consent, confidentiality and compliance with data protection laws. Similarly, Somanathan (2024) calls attention to the escalating risks of exposing sensitive data and vulnerabilities to third parties in cloud transformation projects that leverage AI technologies. Questions arise regarding the international transfer of data, insecure host conditions and limited governance procedures, which might affect organisational data privacy measures.

However, AI systems can also be susceptible to cybersecurity risks, including data manipulation, adversarial AI, and unauthorised algorithmic interference (Patil, 2024). These weaknesses can be problematic in project management environments, with implications such as inaccurate risk assessment, budgeting, and forecasting. The study by Tanim and Ahmad (2025) also highlights the need for ongoing supervision and safeguarding of AI-driven strategic decision-making tools to

maintain their reliability and security. However, not all organisations pay attention to cybersecurity measures and ethical risk management, and only a few organisations emphasise on efficiency and automation benefits. Moreover, Biondi et al. (2023) argue that all AI systems should be designed with the elements of accountability, traceability, and legal compliance, rather than as an afterthought in the context of security issues. However, current governance is still not well integrated, particularly in project management contexts, where the adoption of AI is growing at a quick pace. Additionally, Oye (2025) highlights the need for human-centric AI governance to ensure the safety and ethical accountability of AI decision-support systems. Although studies such as Shamim (2024) and Ogunbukola and Consulting (2024) acknowledge the contribution of AI to improving the efficiency of projects and risk management, their focus is largely on the efficiency and risk management dimensions without considering privacy governance and cyber security resilience in a critical way.

2.3 Role of Human Oversight In AI-Assisted Project Management Decision-Making

While AI tools offer powerful analytical capabilities and can assist in making informed decisions, human oversight remains crucial for ethical project management decisions, as AI cannot independently make ethical choices without taking into account contextual judgment, ethical principles, or organisational responsibilities. The decisions made in project management are often complex and full of uncertainty, negotiation between stakeholders and strategy trade-offs, among others, that cannot be calculated by algorithms and must be interpreted by humans, according to Miller (2021). AI technologies have the potential to improve efficiency, predictability, and risk assessment capability, but there are concerns about dependence on AI systems and the lack of human oversight in decision-making processes.

Automation and management are significant issues, but Tenhunen (2025) argues that AI can support decision-making processes by providing predictive insights and data-driven recommendations, but overreliance on these systems may result in a failure to critically analyse and evaluate the situation by managers. This can result in automation bias, where the human decision-maker excessively trusts the AI-generated recommendations, which may be wrong or misapplied. Similarly, Tanim and Ahmad (2025) report that while AI-driven strategic decision-making systems can boost IT project management productivity, they require human oversight and management to align with organisational objectives and ethical considerations. Furthermore, Biondi et al. (2023) stated that moral artificial intelligence systems should be able to assist human autonomy, but not replace their role in decision-making processes. Biondi et al. claim that "explainability and transparency are required for effective human oversight, particularly in decisions that carry serious implications. Nabil et al. (2025) further contend that poor project outcomes, due to the negative impact of decisions taken by AI tools, can cause problems of ambiguity about responsibility if the decisions are taken in the absence of strong governance. In such cases, the project manager's sole responsibility may not be enough, and

responsibility may be shared by project managers, system developers and automated systems, which may make governance and organisation matters more complex.

Moreover, Oye (2025) suggests that human-centric approaches to AI are crucial in DevOps decision support systems, as AI systems must be guided by human oversight to ensure ethical judgments, fairness, and responsible management of automated processes. This outlook is a shift from the technology-centric viewpoints of project management, focusing on the synergy between human skills and artificial intelligence (AI) in project management. A few studies have attempted to show the efficiency of AI for project management, but with limited critical review of governance issues related to the potential downsides of less human involvement (Shamim, 2024; Ogunbukola & Consulting, 2024). Bharati and Sandbrink (2024) also state that AI is increasingly being used in project management, but suggest that organisations might be using it more rapidly than they are establishing governance frameworks.

3.0 METHODOLOGY

This section outlines the systematic review procedure used in this study, according to the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) (Page et al., 2021). The review systematically synthesises literature relating to the ethical and secure use of artificial intelligence (AI) in project management decision-support systems.

3.1 Search Strategy

An extensive literature review was carried out using several academic databases to ensure that a wide range of relevant literature was retrieved. The databases that were used for the review were Scopus (search date: 09/05/2026), Web of Science (search date: 09/05/2026), ScienceDirect (search date: 10/05/2026) and Google Scholar (search date: 10/05/2026). They are chosen due to their wide range of interdisciplinary research on artificial intelligence, information systems, project management, ethics and cybersecurity.

Boolean operators and keyword combinations were used in the search process based on the research objectives. The following search terms were used:

("Artificial Intelligence" OR "AI-driven systems" OR "Machine Learning" OR "Decision Support Systems") AND ("Project Management" OR "IT Project Management" OR "Strategic Decision-Making") AND ("Ethics" OR "Algorithmic Bias" OR "Fairness" OR "Transparency" OR "Accountability") AND ("Privacy" OR "Cybersecurity" OR "Data Protection" OR "Governance") AND ("Human Oversight" OR "Human-AI Collaboration" OR "Responsible AI" OR "Trust").

The emphasis was on studies published within 2019 and 2026, which marked the period when AI tools were being increasingly adopted in project management and organisational decision support systems.

3.2 Inclusion Criteria

The review adhered to the inclusion and exclusion criteria as outlined in the PRISMA eligibility framework, ensuring methodological rigour and relevance. The inclusion criteria were:

Peer-reviewed journal articles, conference papers, and scholarly publications. Studies published between 2019 and 2026, Research focused on the application of AI in project management, or AI-supported decision support systems, and Articles written in English with accessible full texts.

The studies that only discussed technical aspects of AI model development were excluded from the analysis.

3.3 Screening and Quality Assessment

The screening procedure was conducted following the PRISMA 2020 guidelines. After 412 studies were initially retrieved, duplicate studies and unrelated titles were screened out. Abstract and keyword screening excluded studies that were not related to the research questions, leaving 168 articles for full-text assessment. The remaining studies were assessed using the CASP (Critical Appraisal Skills Programme, 2018) framework for methodological quality, credibility, relevance and analysis. This was done by a cross-examination of the components of each of the studies, including the research objectives, methodology, data collection procedure, precision and study findings, with the CASP checklist. Following this, each of the studies was scored, and only highly rated studies were included. After the quality assessment, 33 studies were chosen for final synthesis, due to their direct relevance, methodological quality and contribution to the understanding of ethical and secure AI decision-support systems.

For each stage of the screening and quality assessment, 3 reviewers were employed, their results were reviewed collectively, and all inconsistencies were deliberated upon, and where disagreements happened, the opinion of 2 out of the 3 reviewers was sustained after a vote.



Figure 1: PRISMA Flowchart Diagram

3.4 Data Extraction and Synthesis

Data extraction followed a structured template designed to ensure consistency across the selected studies. The extracted data included author(s), publication year, study objectives, AI application context, methodological approach, ethical or security focus, governance mechanisms, and key findings. The extracted data were then organised into three thematic categories following the research objectives:

1. Ethical challenges in AI-assisted project management decision-making
2. Security and privacy concerns in AI-driven project management systems
3. Human oversight and governance in AI-assisted decision support

4.0 RESULTS

Table 1: Study Characteristics for ethical challenges in AI-assisted project management decision-making

Author/Year	Research Aim	Methodology	Ethical Issues Identified	Study Limitation
Wang (2023)	To develop an intelligent decision-support system for building project management using AI technologies.	Conceptual and system-based study using AI-supported project management architecture.	AI improves decision accuracy and project coordination; however, concerns regarding transparency and reliability of automated decisions were acknowledged.	Focused primarily on technical system performance with limited critical evaluation of ethical risks and human accountability.
Paul, Rahman, & Nuruzzaman (2024)	To examine AI-enabled decision-support systems in public infrastructure project management.	Analytical study of AI applications in public works projects.	AI-enhanced planning, monitoring, and operational efficiency. Ethical concerns included biased decision outputs, accountability gaps, and limited explainability in public-sector decision-making.	Concentrated largely on operational benefits while offering limited empirical assessment of ethical mitigation strategies.
Stefan & Carutasu (2019)	To explore ethical approaches in intelligent decision-support systems.	Conceptual and theoretical discussion on ethics in intelligent systems.	Identified fairness, transparency, responsibility, and trust as core ethical requirements for AI-supported decisions. Emphasised the need for governance and	Broad conceptual focus without project management-specific empirical evidence.

			ethical design principles.	
Bharati & Sandbrink (2024)	To investigate AI implementation within project management practices.	Conference-based analytical discussion of AI adoption trends.	AI supports project efficiency and forecasting but raises concerns regarding transparency, managerial dependence on algorithms, and ethical governance challenges.	Limited depth regarding bias mitigation and accountability mechanisms in practice.
Azie & Meng (2025)	To evaluate large language models (LLMs) for decision support in construction project management.	Experimental evaluation of LLM-based decision-support capabilities.	Identified ethical concerns relating to hallucinated outputs, biased recommendations, explainability limitations, and risks of overreliance on AI-generated decisions.	Preprint study with limited real-world implementation evidence and evolving methodological validation.
Guan, Dong, & Zhao (2022)	To analyse ethical risk factors and mechanisms in AI decision-making.	Analytical and theoretical study of ethical risk mechanisms in AI systems.	Identified algorithmic bias, opacity, discrimination, and accountability challenges as major ethical risks. Highlighted the role of governance and ethical oversight in reducing AI-related harms.	General AI focus without detailed application to project management environments.
Vengathattil & Shaffi (2025)	To examine the ethical implications of AI-powered decision-support systems in organisations.	Conference-based conceptual and analytical study.	Found that AI systems may create ethical risks involving bias, unfair treatment, transparency deficits, and weakened human accountability.	Limited empirical evidence and restricted focus on organisational rather than project-specific contexts.
Savio & Ali (2023)	To examine the role and future of AI in project management.	Synthesis and discussion-based study.	AI improves project planning and efficiency; however, ethical concerns include reduced human judgment, overdependence on automation, and a lack of transparent decision processes.	Primarily exploratory with limited critical analysis of governance structures or ethical controls.
Leslie (2019)	To provide a foundational understanding of	Policy-oriented conceptual	Highlighted fairness, accountability, transparency,	Broad ethical framework not specifically

	AI ethics and safety principles.	analysis of AI ethics and safety.	explainability, and human-centred governance as essential ethical AI principles. Warned against biased and opaque algorithmic systems.	tailored to project management applications.
Hossain et al. (2024)	To assess the impact of AI on project management efficiency.	Analysis of AI-driven project management improvements.	Reported enhanced efficiency and predictive capability through AI adoption. Ethical concerns included reliability, data bias, and reduced managerial oversight in automated systems.	Focused predominantly on efficiency outcomes with limited exploration of ethical governance mechanisms.
Brendel et al. (2021)	To investigate ethical management approaches for artificial intelligence systems.	Conceptual framework development and literature-based analysis.	Proposed ethical management principles emphasising accountability, transparency, fairness, and stakeholder-centred AI governance. Identified organisational responsibility as critical for ethical AI deployment.	Theoretical orientation with limited sector-specific implementation evidence.
Vergara et al. (2025)	To analyse trends and applications of AI in project management.	Examined AI applications and adoption trends.	Found increasing reliance on AI for project optimisation and decision support. Ethical issues identified included algorithmic opacity, governance uncertainty, and risks of biased automated recommendations.	Focused mainly on technological trends with less emphasis on practical ethical mitigation strategies.

Table 2: Study Characteristics for security and privacy concerns in AI-driven project management systems

Author/Year	Research Aim	Methodological Approach	Security and Privacy Concerns	Study Limitation
Mahmud et al. (2025)	To examine the role of AI-driven	Analalytical and review-based study on AI	AI improved threat detection, predictive monitoring, and risk	Limited empirical validation within real-world project

	cybersecurity in IT project management for threat detection and risk mitigation.	cybersecurity applications in project management.	mitigation capabilities. Concerns included vulnerability to adversarial attacks, data breaches, and overdependence on automated security responses.	environments and insufficient discussion of governance implementation.
Egbedion (2024)	To investigate the security of AI-driven project scheduling and resource allocation systems in information systems projects.	Case study approach focusing on AI applications in project scheduling and resource allocation.	Identified cybersecurity vulnerabilities associated with AI-based scheduling systems, including unauthorised access, manipulation of project data, and reliability concerns in automated resource allocation.	Narrow focus on information systems projects with limited generalizability across industries.
Mood (2024)	To explore trends, benefits, and challenges of AI-driven project management in software development.	Review and discussion-based analysis.	Highlighted AI's role in improving software project coordination and automation. Key concerns involved data privacy risks, system security vulnerabilities, and ethical challenges associated with large-scale data collection.	Primarily descriptive with limited critical evaluation of privacy governance frameworks.
Gowtham, Gopal, & Anand (2025)	To examine ethical and privacy considerations in AI-powered security systems.	Conceptually based analytical discussion.	Identified privacy violations, data misuse, surveillance risks, and ethical concerns surrounding AI-powered security monitoring systems. Emphasised the need for transparent and accountable AI security practices.	Broad security focus without a detailed project management application.
Keshta (2022)	To analyse security and privacy issues in AI-driven IoT healthcare systems.	Review-based study of AI and IoT integration in healthcare.	Found that AI-enabled systems are highly exposed to data leakage, unauthorised access, weak encryption practices, and privacy breaches involving sensitive user information.	Focused on healthcare IoT systems rather than project management-specific contexts.

Okon et al. (2024)	To investigate the incorporation of privacy-by-design principles in AI systems across multiple environments.	Conceptual and framework-oriented study.	Highlighted the importance of integrating privacy-by-design principles into AI systems to reduce breaches across public cloud, private cloud, and on-premise environments. Identified governance weaknesses and inadequate privacy safeguards as major concerns.	Limited empirical testing of proposed frameworks in operational project management systems.
Lasaite (2023)	To explore ethical considerations and challenges associated with AI adoption in project management.	Conference-based conceptual analysis.	Identified concerns regarding data confidentiality, cybersecurity threats, algorithmic transparency, and ethical governance in AI-supported project management systems. Emphasised the growing challenge of securing sensitive project information.	General discussion of AI adoption challenges with limited technical depth on cybersecurity mitigation.
Kohli (2026)	To propose AI-powered risk assessment and project management frameworks for Health IT systems.	Framework development and analytical study.	AI-supported frameworks enhanced risk assessment capabilities but raised concerns regarding secure data handling, privacy compliance, and vulnerabilities within interconnected health information systems.	Focused specifically on health IT systems, limiting broader project management applicability.
Polemi et al. (2024)	To review challenges and efforts related to managing AI trustworthiness risks.	State-of-knowledge review study.	Identified major trustworthiness risks, including data privacy violations, cybersecurity threats, lack of explainability, and governance uncertainty in AI systems. Emphasised the importance of trustworthy AI frameworks.	Broad AI trustworthiness perspective without exclusive focus on project management decision-support systems.

Ayeni (2025)	To examine advanced multi-phase project management frameworks using AI-driven decision-making.	Analytical and framework-based study.	AI-enhanced project efficiency and risk control; however, concerns were raised regarding cybersecurity resilience, unauthorised system access, and the protection of sensitive organisational data.	Focused more strongly on operational efficiency than on detailed privacy governance analysis.
Carmody, Shringarpure, & Van de Venter (2021)	To investigate AI and privacy concerns through a smart meter case study.	Case study methodology examining AI-enabled smart meter systems.	Found that AI-driven data analytics can create significant privacy risks through continuous monitoring, extensive data collection, and potential misuse of personal information. Highlighted concerns regarding consent and surveillance.	The case study focused on smart meter technology rather than project management applications directly.

Table 3: Study Characteristics for human oversight and governance in AI-assisted decision support

Author/Year	Research Aim	Methodological Approach	Human Oversight and Governance Issues	Study Limitation
Pal et al. (2023)	To examine how AI-assisted project management enhances decision-making and forecasting.	Analytical discussion of AI applications in project management.	AI improved forecasting accuracy and decision efficiency; however, concerns emerged regarding overreliance on automated recommendations and reduced human judgment in complex project decisions.	Focused mainly on operational benefits with limited exploration of governance and ethical oversight frameworks.
Sadovski, Aviv, & Hadar (2025)	To explore the human-oversight dilemma in AI-based systems.	Conference-based conceptual and analytical study.	Identified tensions between automation efficiency and meaningful human control. Highlighted risks of insufficient oversight, automation bias, and accountability	A broad AI systems perspective without exclusive focus on project management contexts.

			ambiguity in AI-assisted systems.	
Ottun & Flores (2025)	To review trustworthy AI practices focusing on human oversight and human-in-the-loop approaches.	Comprehensive review study.	Found that human-in-the-loop mechanisms improve accountability, transparency, and trustworthiness in AI systems. Emphasised continuous human supervision as essential for responsible AI deployment.	Preprint publication with limited empirical validation across industries.
Al-Qahtani (2025)	To investigate human-AI collaboration in decision-making and ethical responsibility.	Conceptual and discussion-based study.	Argued that balanced collaboration between AI systems and human decision-makers strengthens ethical responsibility and reduces risks associated with fully automated decision-making.	Limited practical case evidence and sector-specific application analysis.
Etuk & Omankwu (2025)	To examine the role of human-AI collaboration in enhancing decision-making across critical sectors.	Analytical review and conceptual discussion.	Human-AI collaboration improved decision quality and efficiency, but effective oversight and trust management were identified as essential for preventing unethical or unreliable outcomes.	Generalised discussion across sectors with limited focus on project management environments.
Dili & Ansong (2025)	To analyse human-AI collaboration as a paradigm shift in decision-making.	Conceptual and theoretical analysis.	Identified human-AI collaboration as central to modern decision-making processes. Highlighted concerns regarding autonomy, governance, trust, and maintaining human authority in AI-assisted environments.	Primarily theoretical with limited empirical assessment of oversight mechanisms.
Holzinger, Zatloukal, & Müller (2025)	To assess whether meaningful human oversight of	Conceptual analysis.	Argued that increasing AI complexity threatens meaningful human oversight. Highlighted	Focused largely on advanced AI systems broadly rather than project management-

	AI systems remains possible.		explainability limitations, loss of human control, and difficulties in monitoring highly autonomous systems.	specific applications.
Pokorny (2025)	To examine human-AI collaboration in high-stakes decision-making environments.	Analytical and conceptual study.	Emphasised that trust, accountability, and human intervention are necessary in high-risk AI-assisted decisions. Identified dangers associated with excessive automation and weak governance structures.	Limited empirical validation and narrow focus on high-stakes settings.
Liu & Xu (2025)	To explore meaningful human control in human-controllable AI systems.	Theoretical and governance-oriented analysis.	Proposed meaningful human control frameworks to ensure accountability, transparency, and responsible AI governance. Emphasised preserving human authority over critical decisions.	Conceptual focus with limited practical implementation examples in organisational project management.
Dawarka, Doargajudhur, & Dutot (2026)	To investigate how trust calibration affects AI-supported project team collaboration and performance.	Empirical and analytical study on AI in project teams.	Found that trust calibration significantly influences team collaboration and AI acceptance. Excessive or insufficient trust in AI systems negatively affected decision quality and team performance.	Emerging study with limited longitudinal evidence regarding long-term governance and oversight impacts.

Table 4: Thematic Analysis

S/N	Themes	Sub-Themes / Codes
1	Ethical Challenges in AI-Assisted Project Management Decision Support	- Algorithmic bias and discriminatory AI outputs in project decision-making (Patil, 2024; Guan et al., 2022; Li, 2024) - Fairness and equity concerns in automated resource allocation and forecasting (Paul et al., 2024; Wang, 2023; Vergara et al., 2025)

		- Transparency and explainability limitations in AI-driven systems (Nabil et al., 2025; Stefan & Carutasu, 2019; Leslie, 2019) - Accountability gaps and unclear responsibility in AI-assisted decisions (Somanathan, 2024; Brendel et al., 2021; Vengathattil & Shaffi, 2025) - Ethical governance and responsible AI implementation in project management (Onniyil & Jeyanthi; Bharati & Sandbrink, 2024; Biondi et al., 2023) - Risks of automation bias and overreliance on AI recommendations (Azie & Meng, 2025; Savio & Ali, 2023; Hossain et al., 2024)
2	Security and Privacy Concerns in AI-Driven Project Management Systems	- Cybersecurity risks and AI-enabled threat vulnerabilities (Mahmud et al., 2025; Egbedion, 2024; Ayeni, 2025) - Data privacy, confidentiality, and unauthorised access concerns (Keshta, 2022; Carmody et al., 2021; Gowtham et al.) - Privacy-by-design and secure AI governance frameworks (Okon et al., 2024; Polemi et al., 2024; Nabil et al., 2025) - Risks associated with cloud-based AI infrastructures and interconnected systems (Somanathan, 2024; Mood, 2024; Kohli, 2026) - Compliance challenges relating to ethical and regulatory standards (Lasaite, 2023; Li, 2024; Polemi et al., 2024) - Trustworthiness and resilience of AI-supported project management systems (Mahmud et al., 2025; Ayeni, 2025; Egbedion, 2024)
3	Human Oversight and Governance in AI-Assisted Decision-Making	- Human-AI collaboration in project and organisational decision-making (Al-Qahtani, 2025; Etuk & Omankwu, 2025; Dili & Ansong, 2025) - Human-in-the-loop approaches and meaningful human control (Ottun & Flores, 2025; Liu & Xu, 2025; Holzinger et al., 2025) - Trust calibration and responsible AI adoption in project teams (Dawarka et al., 2026; Pokorny, 2025; Sadovski et al., 2025) - Governance mechanisms and accountability in AI-supported systems (Biondi et al., 2023; Miller, 2021; Oye, 2025) - Risks of excessive automation and reduced managerial judgment (Pal et al., 2023; Tenhunen, 2025; Tanim & Ahmad, 2025) - Ethical responsibility, transparency, and decision control in AI environments (Nabil et al., 2025; Holzinger et al., 2025; Al-Qahtani, 2025).

5.0 DISCUSSION

This review contributes to literature through the integration of fragmented ethical and cybersecurity governance frameworks into an integrated project management perspective. By synthesising 33 peer-

reviewed studies, this review identifies recurring governance challenges, notably, the systemic trade-off of fairness for operational efficiency and the gradual erosion of human decision-making authority.

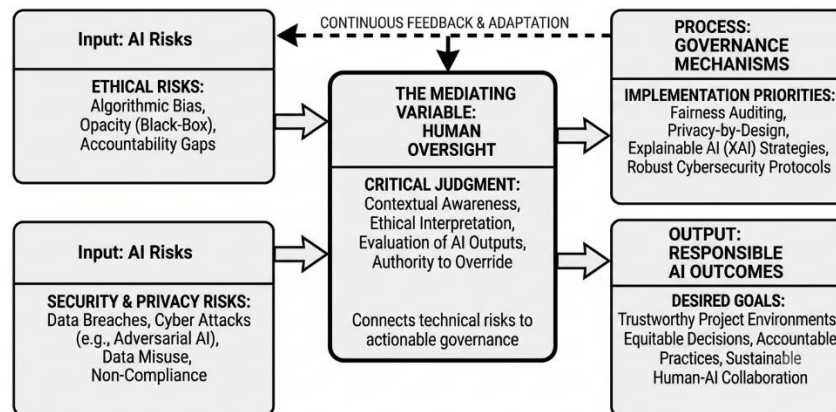


Figure 1: A Conceptual framework for ethical and secure AI in project Management Governance

5.1 Ethical challenges in AI-assisted project management decision-making

Algorithmic bias is one of the most common ethical concerns related to AI tools for project management decision-making, as the algorithms may be built and refined from historical and organisation-specific data that can reinforce current biases. Guan et al. (2022) suggest that the bias in AI decision-making is not only a technical issue, but also a system-level problem, as it can be a part of the process of selecting data, developing the model, and deployment environments. Such a bias has been noticed in project management systems, where AI algorithms may be based on past data, which can inadvertently include certain stakeholders and exclude others due to earlier biases in resource allocation, risk prioritisation, and contractor evaluations. Similarly, Paul et al. (2024) noted that, though AI-based decision-making systems in infrastructure can improve efficiency, they may take biased decisions due to the lack of data in the database or poor representation of context in infrastructure projects. Fairness is connected to bias, but also includes moral issues of fairness and justice in decision outcomes. Wang (2023) demonstrates that using AI to support decision-making can improve the accuracy of the schedules in building projects, but fairness is not necessarily considered an explicit requirement. This is a significant distinction between technical optimisation and ethical sufficiency. Similarly, Vergara et al. (2025) highlight the rapid integration of AI into project management and identify a lack of well-formed evaluation processes regarding fairness, particularly in multi-stakeholder settings where multiple competing views need to be balanced. This does not imply that 'fairness' is necessarily a key design principle; rather, it is frequently traded off against other considerations such as efficiency and cost.

Another key ethical issue that arises is transparency and explainability, especially when dealing with complex machine learning models or large language models (LLMs). According to Azie and Meng (2025), LLM decision-support tools in construction project management can generate plausible but unchecked results, leading to uncertainty regarding the tools' opacity and interpretability. This “black box” problem is also reinforced by Leslie (2019), who states that explainability is an important trust and accountability factor for AI systems, particularly when decisions are of operational or financial impact. Stefan and Carutasu (2019) also highlight the importance of transparency in intelligent decision-support systems as a basis for the ethical governance of the system, but many systems put functionality above interpretability, meaning that users might not have the ability to scrutinise or challenge the advice given by the AI. In AI-driven project management, the question of accountability is especially challenging, as it's spread among the AI developer, the data contributors, the system designer, and the project manager. If governance is not explicit, gaps in accountability arise when there is no clear owner of the decision-making that is driven by AI (Brendel et al 2021). This is particularly important when AI systems lead to project failures or failures in project allocations, as mentioned by Savio and Ali (2023), who are concerned about human responsibility losing ground in decision-making processes if the use of AI in project management intensifies. Similarly, Vengathattil and Shaffi (2025) highlight the need for strong systems of accountability in organisational AI systems, which are frequently absent and lead to uncertainty about decision ownership.

The results of this study also reveal that the ethical issues are not isolated problems, but rather complex. Opacity can also worsen the bias by failing to let stakeholders explore and/or change unfair decision patterns, and by lacking robust accountability mechanisms to rectify biased outcomes (Guan et al., 2022; Leslie, 2019). Hossain et al. (2024) went on to highlight that while AI tools can streamline processes and increase the accuracy of forecasting, the gains in efficiency are often overshadowed by ethical considerations that often lead to a lack of investment in measures of fairness and governance. Furthermore, Paul et al. (2024) and Vergara et al. (2025) suggest that it is more likely to be an operational benefit rather than an ethical readiness that drives organisations to use AI, thus increasing the likelihood of bias amplification and accountability diffusion risks. The challenge of algorithmic bias, fairness, transparency and accountability is not only a matter of implementation, but also an outcome of the gaps in the existing project management paradigm supported by AI from the governance and design perspectives.

5.2 Security and privacy issues in AI-driven project management systems

Another major concern in the studies is the need for AI-driven project management systems to be continually fed with data from multiple sources, often containing sensitive operational, financial, and personnel information, which renders them susceptible to unauthorised access and data leakage (Mood, 2024; Lasaite, 2023). While AI has the potential to enhance automation and predictive project

management in software development, the integration of AI into the software development environment can sometimes fail to adequately cover governance aspects related to privacy management, leading to governance gaps in software development, as previously mentioned by Mood (2024). Project environments are particularly susceptible to cyber security threats due to increasingly complex internal environments and threats from third parties. While AI-powered cybersecurity tools in IT project management offer significant benefits in terms of threat detection and risk mitigation, they are also vulnerable to attacks like adversarial manipulation, model poisoning, and exploitation of system blind spots, as highlighted by Mahmud et al. (2025). The paradox of AI as a security measure and one that can be a vulnerability is part of the double quality of such systems. Likewise, AI-driven scheduling and resource allocation solutions can be misguided by unauthorised interference, resulting in inaccurate decisions and inefficiency in Project Management (Egbedion, 2024). The findings show that cybersecurity in the context of AI-driven project management is not a single, universal solution, but rather a dynamic and continually evolving defence against threats. With the amount of data and its level of accuracy that AI systems require, there are additional concerns about privacy. With the amount and detail of information required for AI systems, privacy is an even greater concern. While specific to AI-IoT-based healthcare systems, Keshta (2022) has transferable insights on project environments by showing that with huge amounts of data collected, there is an increased risk of surveillance, unauthorised inferences being made, and privacy breaches. In a project management setting, they could represent the disclosure of employee performance information, contractor assessments, and project strategy information. This concern is reinforced by Carmody et al. (2021), who argue that operational optimising use of continuous monitoring systems can lead to "intrusive data ecosystems" which can violate user consent and informational autonomy.

In addition, Okon et al. (2024) state that the principles of privacy by design are crucial to reducing the likelihood of breaches in both cloud and on-premise settings, but they are not necessarily applied uniformly and often are an afterthought to system functionality. The difference between principle and practice suggests that privacy is often added to a system when it is built. Polemi et al. (2024) extend this argument by asserting that the trustworthiness of an AI system depends on systems of risk governance, yet few organisations deploy AI systems with a clear system of accountability, traceability and compliance. When regulatory compliance and ethical governance are weighed into these factors, the secure implementation of AI in project management becomes even more complicated. As noted by Lasaita (2023), however, organisations tend to find themselves in the uncomfortable position of having to meet evolving ethical and regulatory demands in the time span of time it takes to adopt AI—particularly when deploying it across borders or multi-cloud environments. Likewise, Kohli (2026) notes that AI project structures in critical areas, such as health IT systems, must be compliant with data protection laws and regulations to the highest degree; however, this level of compliance is hard to achieve in a situation of non-smooth governance and regulatory enforcement. This is reflective of a

broader issue highlighted by Ayeni (2025) that AI-driven project structures excel at optimising decision-making and risk management, yet they fall short in regulatory power and stability of data governance.

Furthermore, both Mahmud et al. (2025) and Polemi et al. (2024) have highlighted how organisations now heavily depend on AI for operational resilience, yet this creates system risks without robust oversight to catch up with technological advances. Gowtham et al. (2024) further note that ethical concerns in security systems that involve AI are generally not integrated into the core design but are instead tackled in response to problems that have already been detected. The findings of this study indicate that the security and privacy concerns of AI in project management are not merely technical issues, but they are deeply rooted in organisational priorities, system design and governance practices. Efficient use of AI can often be witnessed prior to the establishment of effective safeguards, as proposed by both Egbedion (2024) and Mood (2024), while Okon et al. (2024) and Polemi et al. (2024) emphasise that robust safeguards are necessary to ensure the trustworthiness of AI systems, after embedding privacy-by-design and trustworthiness principles. With the speed of AI adoption and the slow pace of regulatory and security measures, there is an ongoing risk landscape in project management powered by AI.

To move beyond ad-hoc security measures, project governance must essentially be grounded in internationally recognised regulatory frameworks. Specifically, organisations can manage operational vulnerabilities by following the NIST AI Risk Management Framework and the ethical guidelines of the OECD AI Principles (Swaminathan and Danks, 2024). Compliance with the risk-based classification of the EU AI Act also prevents legal liabilities in high-stakes project environments (Happonen, 2026), while adopting certifiable standards like ISO/IEC 42001 (AI Management System) provides a structured, globally accepted method for auditing data privacy and algorithmic safety (Dudley, 2024).

5.3 Human oversight and governance in AI-assisted decision support

AI technologies can be used to enhance predictive accuracy, automate scheduling, and provide analytical support for decision making, but according to the findings from this review, this is not possible in isolation within a project environment (Pal et al., 2023). The growing adoption of AI in project management has only further fueled concerns over the need to maintain human oversight and the ability to retain control of decision-making. According to Sadowski et al (2025), this is a “human-oversight dilemma”, in which organisations are looking to reap the benefits of AI automation and to ensure they have meaningful human involvement. Though human-AI collaboration is said to be the best way to AI-assisted decision making, the findings of this study also revealed substantial variations in the meaning of what constitutes effective collaboration. Al-Qahtani (2025) holds that AI is not a replacement for managerial decisions but rather a supplementary decision-making tool, and it is the

human actors who are responsible for making ethical decisions. Similarly, Etuk and Omankwu (2025) state that the combined action of human intelligence and AI can result in improved decision making, with the AI providing the computational efficiency, while the human provides the context and reasoning. But these perspectives usually imply that humans can readily critique the content and suggestions that AI generates. But Holzinger et al. 2025 argue that the more complex and opaque AI systems become, the more difficult it will be to meaningfully supervise them, particularly when users are unable to fully comprehend or question the results of the AI. This means that working together doesn't necessarily mean making responsible decisions.

Moreover, Pal et al. (2023) point out that AI-powered project management systems help decision-makers heavily trust the predictions made by the AI, without critically evaluating the underlying assumptions. Additionally, Dawarka et al. (2026) show that trust calibration has a strong influence on team collaboration and performance in AI-enriched project settings. They conclude that too much trust and too little trust can have negative effects on the quality of decision-making. Trust can result in the acceptance of substandard recommendations, and a lack of trust can have a negative impact on the actual utility of AI systems. Ottun and Flores (2025) highlight the importance of human-in-the-loop strategies for building trustworthy AI systems, which involve humans in the process and mandate constant oversight and intervention while holding AI systems accountable throughout the decision-making process. Similarly, Liu and Xu (2025) believe that meaningful human control should be done more than symbolically; it needs to be integrated into the architectures of AI systems. They believe in “human-controllable AI,” which suggests that humans will be able to monitor, interrupt and challenge AI-generated decisions, especially in high-stakes project situations. But many organisations still continue to focus on being efficient and automated, rather than robust in their governance, according to the literature. This concern is echoed by those of Miller (2021) and Biondi et al. (2023), who say that in order to successfully implement AI, it is essential that there is ethical oversight and a system of accountability within institutions.

One key question that needs to be addressed is the loss of managerial autonomy and professional skills. While AI-powered collaboration represents a transformative shift in how decisions are made, as Dili and Ansong (2025) suggest, the days of human managers making the final call may be coming to a close, as reliance on intelligent systems continues to grow. In high-stakes settings, Pokorny (2025) further suggests that human operators might become less confident or less competent in effectively challenging algorithmic decisions in the absence of high confidence in their own ability. This results in a paradoxical situation of having a presence of humans in the system, but their presence is not strong enough in the minds of everyone because they rely on AI. The results also reveal that explainability is key to effective oversight. Holzinger et al. (2025) state that it is hard to make oversight meaningful when decision-makers cannot comprehend how recommendations are made by the AI systems. Without

interpretability, accountability mechanisms are not easily implementable, as project managers might not be able to explain or challenge AI-made decisions. Sadovski et al. (2025) also stress the need for oversight structures that are not merely based on humans' approval but include mechanisms for informed and critical intervention. Taken together, the studies illustrate the need for a meaningful human authority, for the systems to be transparent and for governance structures to be able to block the progressive replacement of human judgment in project decision-making processes.

5.4 Recommendations for implementation

To ensure the proper ethical governance of AI-based project management decision-support systems, organisations need to create comprehensive ethical governance frameworks that incorporate fairness, transparency, accountability, security, and human oversight at every level of AI adoption. Ethical guidelines should not be seen as a compliance requirement, but as part of the design, deployment and monitoring of AI systems. Organisations should, therefore, put in place mechanisms for fairness auditing to detect and address algorithmic bias in project scheduling, resource allocation, forecasting and performance assessment processes. To prevent the perpetuation of discriminatory or inequitable outcomes from AI decisions, regular bias assessments and independent ethical reviews are required.

There should also be greater emphasis on transparency and explainability to bolster accountability and trust in AI-driven decision-making processes. Organisations should embrace technical safeguards such as explainable AI strategies that enable project managers and stakeholders to grasp the logic behind AI-driven recommendations. When adopting AI systems, organisations are required to address security and privacy threats and apply the concepts of “privacy-by-design” and “security-by-design.” Project management systems powered by AI should integrate powerful cybersecurity solutions, data encryption and security protocols, access control, and threat monitoring systems. Compliance with data protection regulations and ethical practices should also be audited on a regular basis to guarantee that the organisation's and stakeholders' private information is managed responsibly. Organisations with AI infrastructure in the cloud must regularly evaluate their risk and establish guidelines for emerging threats in cyber space. AI-powered project management must always have human oversight. AI systems should supplement human expertise, particularly in challenging or critical project contexts. Project frameworks must also align AI workflows with international regulations, integrating the risk-mitigation steps of the NIST AI Risk Management Framework, the compliance obligations of the EU AI Act, and the OECD AI Principles.

6.0 CONCLUSION

AI's integration into project management decision-making support systems has created significant opportunities for enhanced efficiency, prediction, risk management and strategy. This review reveals,

however, that the rising use of AI technologies poses serious ethical, security and governance questions which are not being sufficiently answered with current practices.

This review contributes to literature through the integration of fragmented ethical and cybersecurity governance frameworks into an integrated project management perspective. The study reveals that trust, fairness, accountability, and ethical reliability in AI-assisted project settings are still significantly limited, with concerns regarding algorithmic bias, transparency, and fairness and accountability. At the same time, cybersecurity challenges, privacy concerns, and inconsistent regulatory compliance procedures pose risks to organisations' operations and reputation. The review also highlights the importance of having human oversight to ensure responsible use of AI technology. While AI systems can assist with analytical aspects, they cannot replace the need for human judgment, contextual reasoning, and ethical responsibility in complex project decision-making scenarios. Therefore, transparent governance frameworks, effective human control, and accountability mechanisms for both the automation and responsible oversight are essential to the success of human-AI collaboration.

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