Convergence of Artificial Intelligence, Ethics and Project Management: A Systematic Review of Ethical Principles, Challenges, and Research Gaps

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ABSTRACT

Agile based project management often struggle to support the need for rapid delivery of AI Projects with ethical safeguards. These safeguardsinclude fairness, transparency, privacy, and explainability. This tension is emancipated by limitedresearch on how ethical factorsimpact projects.

Aim: *This systematic review of recent literature studies key ethical principles in AI-enabled projects. Once the principles are known, it maps themto Agile or PMBOK knowledge areas thereby highlighting gaps in research.*

Methodology: *A PRISMA-guided systematic literature review was carried out across 82 carefully selected peer-reviewed papers. These were sourced from Scopus, Web of Science, IEEE Xplore, ACM Digital Library, and Google Scholar. After a two-stage screening process, 30 studies met the inclusion criteria and were further analyzed in depth.*

Results/Findings: *Five ethical principles came out consistently across the literature: 1) Transparency and Explainability, 2) Fairness and Bias Mitigation,3) Accountability and Liability, 4) Trust and Human–AI Collaboration, and 5) Privacy and Data Governance. These principles mapped toKey project management areas - Risk and Quality Management, Resource and Procurement Management, and Stakeholder and Communications Management. They are also un-operationalized.*

Conclusion: *While the ethical risks associated with AI project management are known, there is lack of practical governance mechanisms and empirically validated models. Future research should focus on identifying key variables and developing frameworks to enable ethical AI adoption intoAgile Practices.*

Keywords: AI Ethics, Artificial Intelligence, Ethical Risk, PMBOK, Project Management.

1. INTRODUCTION

Managing AI based projects is significantly different from managing traditional projects. While Project Management (PM) based processes have been existence for a while especially championed by Non profitable organizations like PMI, they are still coping up with the advent of AI based development. On the projects it also provides potential to improve forecasting accuracy, streamline routine activities, and support complex managerial decision-making across industries [1–4]. Some of them include predictive analytics, dynamic scheduling, automated risk assessment and stakeholder sentiment analysis.

However, there are ethical, social, and governance challenges that extend well beyond the project success metrics. Concerns related to algorithmic bias, the opacity of “black-box” AI recommendations, unclear accountability for AI-informed decisions, lack of human oversight and trust present risks to project outcomes [5, 6]. If left unaddressed, such issues can lead to unfair decision-making, diminishing stakeholder confidence, and ultimately leading to project failure.

Despite increasing awareness of these challenges, scholarly research on AI ethics within the project management domain remains limited. Existing literature reviews predominantly emphasize technical implementations, post factor analysis and performance benefits. They treat ethical risks as a bye product than as central design and governance issues [7, 8]. In contrast, more mature and well-articulated ethical frameworks have emerged in domains that need regulations – healthcare for example. Yet these frameworks have not been systematically adapted or validated for project management contexts [9, 10]. This identifies a significant knowledge gap.

There is a clear need for focused and systematic assesment of the literature to uncover existing insights, identify recurring ethical patterns and figure out limitations. The North star goal being to provide a structured foundation for future empirical and theoretical work. Systematic literature review (SLR) is aligned in that direction. The core tenets of the Review being:

1. Identify ethical principles involving AI based Project Management.

2. Figure out where they manifest within the PM lifecycle, and

3. What areas does the current literature fail to address?

By answering these questions, this SLR aims to provide a foundational map for researchers and an enhanced Agile framework for practitioners in AI projects.

2. BACKGROUND AND RELATED STUDIES

There is extensive background research done on the convergence of AI and ethics. They have identified A set of widely recognized foundational principles - fairness, accountability, transparency, and privacy (FATP), with subsequent extensions covering trust, explainability, and meaningful human oversight [12, 13]. Current research in this area insightful but conceptual in nature. They provide limited guidance to practitioners on how to incorporate these in project management frameworks of PM-BOK or Agile.

3. RESEARCH METHODOLOGY

Use (PRISMA) 2020 guidelines to ensure methodological rigor, transparency, and reproducibility [21].

3.1. RESEARCH QUESTIONS

This SLR is guided by three research questions:

RQ1: What ethical principles are discussed in the literature concerning AI adoption in project management?

RQ2: How do these ethical challenges map onto specific Project Management Knowledge Areas (PMBOK)/Agile?

RQ3: What gaps exist in the current research at the intersection of AI, Ethics and Project Management?

3.2. ELIGIBILITY CRITERIA

Studies were selected based on the following PICO criteria. They must include a discussion or analysis of ethical, social, legal, trust-related, or responsible innovation considerations (e.g., bias, fairness, transparency, accountability, privacy, trust, human–AI collaboration). Non-peer-reviewed whitepapers were excluded.

3.3. INFORMATION SOURCES AND SEARCH STRATEGY

The intent for this review originated from an existing comprehensive collection of papers assembled as part of the PHD thesis through mainly exploratory searches. The source of these articles were mainly from scholarly databases (Scopus, Web of Science, IEEE Xplore, ACM Digital Library) and Google Scholar, using search strings combining key terms: ("artificial intelligence" OR "machine learning" OR "AI") AND ("project management" OR "PM") AND ("ethic_" OR "trust" OR "transparent_" OR "bias" OR "accountable*" OR "responsible AI"). This compiled collection of 82 records served as the initial dataset for a structured, PRISMA-guided screening process.

3.4. STUDY SELECTION PROCESS

The selection process involved two sequential screening phases. Title/Abstract Screening: All 82 papers were assessed against the eligibility criteria based on title and abstract. Full-Text Assessment: The full text of articles that passed the first screen were retrieved and evaluated in detail for final inclusion. The process and results are documented in the PRISMA flow diagram (Figure 1). A second reviewer was consulted on ambiguous cases to ensure consistency.

3.5. DATA EXTRACTION AND SYNTHESIS

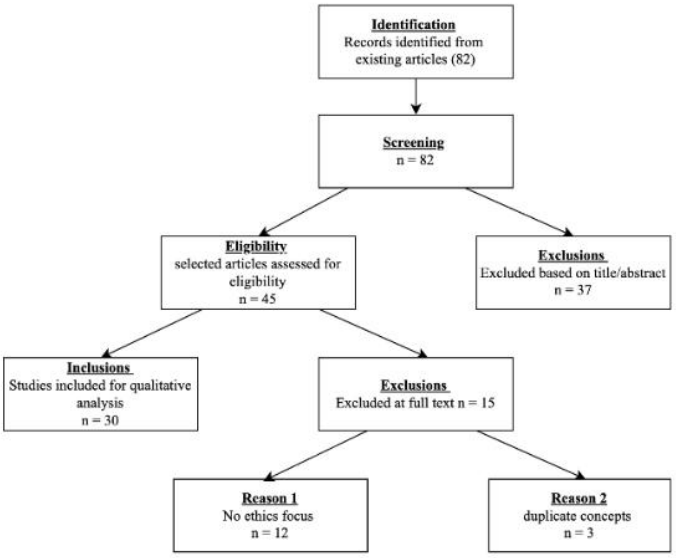
Data from the final included studies were systematically extracted into a standardized matrix (see Supplementary File S1). Extracted fields included: bibliographic data, research objectives, methodology, context/domain, key findings related to AI–PM and ethics and stated limitations/future research. A thematic synthesis approach was employed [22]. First, text relevant to the research questions was coded line-by-line. Second, these codes were grouped into descriptive themes (e.g., 'concerns about algorithmic bias'). Finally, analytical themes were developed by interpreting and interrelating the descriptive themes in the context of the PMBOK framework and established AI ethics principles to address RQ1 and RQ2. Gaps (RQ3) were identified by analyzing trends in methodology, domain focus, and explicitly stated future research needs across the corpus.

4. RESULTS

4.1. STUDY SELECTION

A total of 82 records were initially identified from the compiled dataset. After title and abstract screening, 37 studies were excluded. The remaining 45 full text articles underwent detailed eligibility assessment, resulting in 30 studies included in the final synthesis.

Figure 1: PRISMA 2020 Flow Diagram



Source: Authors' compilation

4.2. STUDY CHARACTERISTICS

The 30 papers included studies were published between 2019 and 2025 across the world. This confirms the area being niche and emergent. There were limited number of quantitative studies (n=5, primarily surveys), qualitative studies (n=6, including case studies and interviews), and mixed- methods studies (n=2). This distribution shows that the field of study is in its infancy heavily focused on identifying issues and proposing frameworks rather than empirically testing them.

4.3. THEMATIC SYNTHESIS FINDINGS

4.3.1. RQ1: ETHICAL PRINCIPLES IN AI–PM LITERATURE

The analysis establishes five recurrent ethical principles from the literature, shown below in Table 1.

Table 1: Mapping of Ethical Principles to PMBOK Knowledge Areas and Key Challenges

Ethical Principle	Relevant PMBOK Knowledge Area(s)	Manifestation in AI- PM Context	Key Challenges Identified	Representative Citations
Transparency & Explainability (XAI)	Risk Management, Quality Management, Integration Management	Unclear AI models for risk prediction, quality control, or decision making adversely impact understanding and auditability of projects	Black- box decisions reduce trust and manager oversight; difficult to justify AI recommendations to stakeholders	[1], [4], [16], [23]
Fairness & Bias Mitigation	Resource Management, Procurement Management, Stakeholder Management	AI for team allocation, candidate screening, vendor selection, or stakeholder analysis can perpetuate historical biases	Algorithmic bias leading to discrimination; lack of diverse, representative training data for PM contexts	[5], [24], [25], [26]
Accountability & Liability	Integration Management, All Areas	Ambiguity in responsibility when AI- driven decisions (e.g., schedule or scope) contribute to project failure	Legal and professional accountability gaps; 'responsibility blur' between human PM and AI system	[6], [18], [27], [28]
Trust & Human–AI Collaboration	Stakeholder Management, Communications Management, Resource Management	Over- reliance (automation bias) or under- reliance on AI disrupts team dynamics and stakeholder confidence	Building calibrated trust; balancing AI support with human judgment; change resistance and deskilling fears	[1], [19], [20], [29]
Privacy & Data Governance	All Areas (esp. with sensitive data)	AI systems require extensive project data (performance, communications), raising confidentiality and ownership issues	Secure data handling; compliance with regulations (e.g., GDPR); ownership of project data used to train AI models	[17], [30], [31]

Source: Authors' compilation

TRANSPARENCY & EXPLAINABILITY

Several studies highlight that for project managers there is a lack of truston, AI-based systems, and hence they need a clear understanding of how AI-driven recommendations and conclusions are derived [1, 16]. This is critical in regulated and mission critical domains. Project Management tenets related to Risk, explainability of AI algorithm undermine managerial accountability, and confidence.

FAIRNESS & BIAS MITIGATION

AI based projects have heightened the need for ethical sensitivity. During the research, several studies state that AI tools applied to areas like performance evaluation or procurement are vulnerable to bias. This bias is caused due to historically trained data or algorithmic drift. Thisresults in unfair advantage or disadvantage for select individuals or vendors whichviolates the fundamental principles of equity and fairness [5, 24].

ACCOUNTABILITY & LIABILITY

Another prominent area emerged from the research is that "accountability gap" or "responsibility vacuum". Several studies question where the final liability lies, i.e. whether with the project manager, the AI system or developer. [6, 27].

TRUST & HUMAN–AI COLLABORATION

Human in the Loop factor is critical for project success. As earlier research showcased, there a dual risk: automation bias, where over-reliance on AI leads to managerial complacency, and algorithm aversion [19, 29]. Effective integration therefore depends on positioning AI as a decision-support "co-pilot" that aids decision, rather than one that replaces, human judgment in project management context.

PRIVACY & DATA GOVERNANCE

The data-intensive nature of AI raises concerns of confidentiality in the areas of project information, client data, and internal communications used to train or operate AI systems [17, 30]. This clearly indicated the need of governance protocols.

As stated, the ethical challenges are different in different stages of Project Management (refer Table 1 for details).

- **Risk Management & Quality Management** focuses on **transparency/explainability** challenges. Using an opaque AI model for Risk, Assumptions, Issue or Defect lowers manager's due diligence and hence communicateto stakeholders.
- **Resource Management & Procurement Management** focuses on **bias and fairness** concerns.
- **Stakeholder Management & Communications Management** are keyfor **trust-building**. Stakeholder expectations must be managed by using constant and consistent communication planning. Communication should be transparent about the capabilities, limitations, and role of AI.

Integration Management is central to **accountability** building. The project manager's core duty is to integrate all aspects of the project. AI agents can be used for new governance structures to clarify decision-rights and liability.

4.3.3. RQ3: IDENTIFIED RESEARCH GAPS

The following is the summary of the research gaps. (Refer Table 2.)

Table 2: Identified Research Gaps and Future Directions

Gap Category	Specific Gap Identified	Proposed Future Research Direction
Variables Identification	Foundational gap: ethical principles remain conceptual and there is a lack of operationalized variables for AI Agile context	Conduct large- scale surveys to identify, define, and prioritize key ethical variables in AI- PM
Theoretical & Framework Gaps	No PM- specific, actionable ethical framework adapted from generic AI ethics principles	Develop/pilot/validate an Ethics- by- Design for PM framework aligned with PMI/ISO
Empirical Evidence Gaps	Scarcity of longitudinal case studies and real- world measurements	Run longitudinal case studies to link AI usage with ethical and performance outcomes
Practical Tools & Guidance Gaps	Absence of practical tools (checklists, audits) for governing AI in projects	Create and test a Responsible AI Assessment Toolkit for Project Managers
Domain- Specific Knowledge Gaps	Over- representation of IT/Construction with limited work in healthcare, public sector, NGO, aerospace	Investigate ethical AI adoption in highly regulated, socially sensitive domains
Human & Organizational Factor Gaps	Under- explored effects on careers, skill shifts, and change management	Study reskilling pathways, team dynamics, and organizational policies enabling responsible AI- PM integration

Source: Authors' compilation

5. DISCUSSION

5.1. INTERPRETATION OF MAIN FINDINGS: THE NEED FOR PRECISE VARIABLE DEFINITION

Current PMBOK framework emphasizes planning, control, and roles and responsibilities [11]. This goes against the adaptive, probabilistic, and opaque nature of AI based projects. Thus, placing the five core ethical principles identified in RQ1 at risk. The current literature describes these frictions qualitatively but fails to operationalize them into measurable variables, hindering future testable frameworks and empirical studies.

5.2. THEORETICAL IMPLICATIONS – PRINCIPLES TO CONSTRUCTS AND PROPOSITION

Socio- Technical Systems (STS) Theory has been using in this research into the PM domain. That is ethical challenges are properties of human- technology interaction [32]. This calls for a PM- specific research framework grounded in Responsible Innovation (RI) [33] with testable framework linking RI to the stages of Agile development.

5.3. PRACTICAL IMPLICATIONS – GOVERNANCE

Key changes required in Governance are to shift focus to evidence-based management of Projects. Not just during initial phases of the project but throughout the PM or Agile lifecycle. This evidence should include explainability fidelity, fairness metrics, data lineage clarity, accountability mappings to name a few.

1. Variable-Based AI Governance: Checklists should be developed to assess an AI tool against defined metrics for critical variables such as explainability score, bias audit results across protected categories, data lineage clarity.

2. Evidence-Based Management: Project Managers or SCRUM Masters should demand evidence. They should also shift Project procurement or make-buy decisions to an evidence-based evaluation.

3. Competency in Variable Monitoring: The need is to monitor Critical ethical KPI's throughout the lifecycle of the project. This requires new competencies of interpreting algorithmic fairness reports, tracking trust metrics within the team, and understanding data privacy variable compliance.

5.4. FUTURE RESEARCH

Future studies could focus on areas including large- scale surveys to define critical ethical variables impacting project success, developing a Trustworthy AI for PM framework and longitudinal mixed methods studies, or interdisciplinary work on liability and contract law in AI- augmented projects.

6. CONCLUSION

This systematic literature review has systematically analyzed the emerging body of knowledge at the critical intersection of Artificial Intelligence, Ethics, and Agile. In answer to RQ1, it has identified five core ethical principles: Transparency & Explainability, Fairness & Bias Mitigation, Accountability & Liability, Trust & Human-AI Collaboration, and Privacy & Data Governance. For RQ2, it mapped the above principles, demonstrating they are not abstract concerns but create friction points within specific Knowledge areas as described in PMBOK. Lastly, addressing RQ3, the review identified an area which is rich in identified ethical dilemmas but critically underdeveloped in its capacity to address them. The key gap is absence of a variable-driven research foundation, a scarcity of empirical evidence, and a lack of practical, PM-specific frameworks.

For Managers and professional bodies like AGILE forum, PMI, this synthesis provides a clear call to action. It emphasizes that ethical AI adoption requires more than just moving to a new software. It highlights the need to have evolved competencies in ethical technology assessment, revised governance structures with clear accountability protocols. Project managers must not only become literate not only in what AI can do but also know how to measure and govern its ethical dimensions.

Future research must prioritize the large-scale, survey-based identification and validation of key ethical variables in the AGILE context. This will be the foundational step in developing robust, testable frameworks and conducting mixed-methods studies.

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