

Is AI All Smoke and Mirrors, or Will It Transform Our Profession?

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Abstract

This research article delves into the impact of digital transformation on project management, specifically examining the role and effectiveness of Artificial Intelligence (AI) within this sphere. Amidst widespread claims of AI's transformative potential, this review adopts a critical perspective to distinguish between hyperbolic assertions and the practical utility of AI technologies in enhancing project delivery, highlighting how AI can automate repetitive tasks, provide predictive insights, and significantly augment the strategic capabilities of project managers. However, it also emphasises the necessity of a supportive organisational culture that embraces a data-driven approach and continuous learning to leverage AI effectively. The discussion outlines actionable steps for project teams to integrate AI meaningfully into their operations, starting with identifying project pain points, preparing data for AI, and initiating small-scale pilot projects.

Keywords: Artificial Intelligence, Digital Transformation, Project Management, Predictive Analytics, Strategic Planning, Organisational Culture

Introduction

The project management profession finds itself at a critical juncture. Every conference, webinar, and industry publication proclaims that Artificial Intelligence (AI) will fundamentally revolutionise how projects are conceived, planned, and executed (Brookes et al., 2020; Manh et al., 2024; Müller et al., 2024). However, amid this cacophony of technological enthusiasm, a fundamental question remains inadequately addressed: *is this transformative promise substantive, or are we witnessing a contemporary manifestation of technological determinism where the hype significantly outpaces the reality?*

This article adopts a deliberately critical stance, not to dismiss AI's potential contributions to project management but to ensure that the profession approaches its integration with analytical attention rather than uncritical acceptance (Dacre & Kockum, 2022a; Hashfi & Raharjo, 2023). The distinction between genuine innovation and technological technique is crucial, particularly given the profession's historical tendency to embrace new methodologies without sufficient empirical validation (Dong et al., 2024; Zaman et al., 2022). Recent research commissioned by the Association for Project Management into digital transformation and AI's impact on project delivery provides an evidence base for examining these claims more systematically (Dacre & Kockum, 2022a).

The Promise of AI

The theoretical foundations for AI's application in project management rest on several interconnected premises (Mohamed et al., 2024; Niederman, 2021). Fundamentally, AI technologies promise to augment human cognitive capabilities in managing the increasingly complex, data-intensive nature of contemporary projects (Dacre et al., 2020). This reinforcement occurs through three primary mechanisms: automation of routine tasks, provision of predictive insights, and enhancement of strategic decision-making capabilities (Corbin et al., 2024; Nenni et al., 2024).

The automation dimension addresses a longstanding challenge in project management whereby professionals expend significant cognitive resources on administrative and routine analytical tasks rather than strategic oversight (Bento et al., 2022; Dacre & Kockum, 2022a). AI's capacity to process vast datasets rapidly and identify patterns that would escape human analysts offers potential for fundamentally redistributing project managers' cognitive bandwidth towards higher-value activities requiring uniquely human capabilities such as stakeholder relationship management, strategic thinking, and ethical judgement (Georgiev et al., 2024; Kockum & Dacre, 2021).

Predictive analytics represents perhaps the most anticipated application of AI in project contexts (Brookes et al., 2020; Davahli, 2020). Traditional project management methodologies, even when carefully applied, often struggle with the inherent uncertainty and complexity of modern projects (Eggleton et al., 2021). AI algorithms, particularly those employing machine learning techniques, promise to identify early warning indicators of project distress by analysing patterns across vast datasets of historical project performance (Hsu et al., 2021a; Hsu et al., 2021b). This predictive capability theoretically enables more proactive risk management rather than reactive crisis response.

Digital Transformation and Organisational Readiness

However, the successful deployment of AI cannot be divorced from broader digital transformation dynamics within project-based organisations (Dacre et al., 2019; Gong et al., 2022; Zhang et al., 2023). Even when promising technologies are available, institutional challenges frequently impede adoption (Baxter et al., 2023). The examination of agile practices in UK public sector IT projects reveals how incongruence between innovative approaches and conventional organisational structures, funding mechanisms, and governance frameworks constrains realisation of theoretical benefits (Baxter et al., 2023; Dong et al., 2021; Dong et al., 2022).

This resonates with broader literature on technology adoption, which consistently emphasises that technological capability represents merely one component of successful implementation (Dacre et al., 2022; Srinivasan et al., 2002; Wisdom et al., 2014). Organisational culture, existing processes, data infrastructure quality, and workforce capabilities collectively determine whether AI integration generates tangible value or simply introduces additional complexity (Butler et al., 2021; Gong et al., 2022). The construction industry's relatively slow digital transformation progress, despite technological availability, illustrates how organisational impediments can substantially delay adoption (Corbin et al., 2024).

Examination of ChatGPT's performance in construction risk management based on ISO 31000 standards found that whilst the AI demonstrated high overall performance, particularly in providing relevant risk mitigation strategies, its consistency in risk assessment and prioritisation was notably weaker (Al-Mhdawi et al., 2023). This suggests that current AI capabilities may be more suited to certain project management functions than others, compelling matching of AI tools to appropriate use cases rather than wholesale adoption (Nenni et al., 2024).

Data Quality Imperative

A consistently emphasised theme across the literature concerns data quality as a fundamental prerequisite for effective AI deployment (Brookes et al., 2020; Dacre et al., 2020; Kockum & Dacre, 2021). Project managers compel both improved knowledge of AI technologies and, crucially, access to high-quality, appropriately structured data (AlJaloudi et al., 2024; Dacre et al., 2020). The familiar '*garbage in, garbage out*' principle applies with particular force to AI applications, since algorithms trained on poor-quality, inconsistent, or biased data will inevitably produce unreliable outputs (Budach et al., 2022).

This data quality imperative extends beyond technical concerns about data cleanliness. The project delivery profession faces considerable challenges in establishing data governance frameworks (Ladley, 2019; Plotkin, 2020). Many organisations lack systematic processes for data collection, storage, and curation across their project portfolios (Brous et al., 2020). Without addressing these foundational data infrastructure challenges, AI implementation efforts risk foundering regardless of algorithm sophistication (Dacre & Kockum, 2022a).

Hype Cycle and Technological Determinism

The current discourse surrounding AI in project management exhibits classic characteristics of what Gartner terms the '*hype cycle*' wherein inflated expectations precede a trough of disillusionment before more realistic assessment emerges (Dedehayir & Steinert, 2016; Linden & Fenn, 2003; Shi & Herniman, 2023).

Industry reports and vendor marketing materials frequently present AI as an inevitable and uniformly beneficial force, underplaying both implementation challenges and contexts where AI may offer limited value (Manh et al., 2024). This technological determinism, the assumption that technology adoption is both inevitable and inherently positive, obscures the reality that successful AI integration commands deliberate strategic choices and substantial organisational investment (Mohamed et al., 2024; Pontin & Dacre, 2024; Ren, 2019).

Moreover, much promotional literature tends to conflate different categories of AI technology, treating everything from basic automation to sophisticated machine learning algorithms as equivalent (Kühl et al., 2022). This conflation hinders meaningful evaluation, as the capabilities, requirements, and appropriate applications of rule-based automation differ fundamentally from those of adaptive machine learning systems (Naved & Luo, 2024).

Quick Wins

Nevertheless, dismissing AI entirely would be equally misguided (Klingbeil et al., 2024). The automation of routine administrative tasks represents perhaps the most immediately realisable value proposition (Corbin et al., 2024; Parycek et al., 2024). Tasks such as schedule updating, resource allocation optimisation within defined constraints, and generation of standard progress reports can be effectively automated, liberating project managers to focus on activities requiring human judgement and relationship-building capabilities (Dacre & Kockum, 2022a).

Predictive analytics applications, whilst requiring more sophisticated implementation, have demonstrated value in specific contexts (AlJaloudi et al., 2024; Wach, 2021). For instance, analysis of large project portfolios can identify statistical patterns associated with project distress, enabling earlier intervention (Hsu et al., 2021b). However, the effectiveness of these predictive models depends critically on having sufficient historical data, appropriate model selection, and recognition that predictions are probabilistic rather than deterministic (Brookes et al., 2020).

Natural language processing applications present another promising domain (Chen et al., 2021; Kang et al., 2020). Generative AI models show significant potential in supporting risk management processes, particularly in facilitating risk identification through analysis of project documentation and assisting in response strategy formulation (AlJaloudi et al., 2024).

Organisational Prerequisites

The literature emphasises that technological capability alone proves insufficient (Haenssngen & Ariana, 2018; Otioma, 2023). Successful AI integration requires supportive organisational prerequisites across multiple dimensions (Dacre & Kockum, 2022a; Kulkov et al., 2024; Manh et al., 2024). Technology and data have been identified as one of nine dynamic conditions for project success, but crucially this exists within a broader ecosystem including interpersonal skills, team ethos, knowledge management, and organisational culture (Eggleton et al., 2021, 2023).

Effective AI integration can benefit from a systems thinking approach, recognising the complex interdependencies between AI technologies, organisational processes, data infrastructure, workforce capabilities, and strategic objectives (Dacre & Kockum, 2022b). An Integrated Intelligence Framework positions AI not as a standalone solution but as one component within a broader strategic approach to managing complexity in modern projects. This systems perspective highlights that isolated AI initiatives often fail when institutional inertia reject technologies incompatible with existing structures and cultures (Dacre et al., 2022; Dacre & Kockum, 2022b).

Leadership is particularly critical, as institutional logics can both facilitate and constrain innovation adoption (Baxter et al., 2023; Zheng et al., 2017). Leaders play an important role in fostering a culture that values data-informed decision-making, openness to experimentation, and the development of workforce AI literacy, since without such conditions even technically effective AI implementations can struggle to deliver organisational value (Dacre et al., 2021; Dacre & Kockum, 2022b).

A Five-Step Strategic Approach

Given this complex landscape of opportunities and challenges, *how should project teams approach AI integration?*

Step 1: Identify Genuine Pain Points

The first imperative is through a clear assessment of where AI might address genuine problems rather than adopting AI for its own sake (Dacre & Kockum, 2022a). This requires analytical clarity about current project management challenges. Are routine administrative tasks consuming excessive time? Is risk identification consistently inadequate? Do projects lack visibility into early warning indicators of distress? Different problems suggest different AI applications, and attempting to solve non-existent problems wastes resources whilst generating cynicism about AI's utility (Sarker, 2022).

This pain point identification should be empirically grounded. Analysis of project performance data, structured feedback from project teams, and examination of where projects typically encounter difficulties provide evidence for prioritising AI applications. Project professionals have previously identified planning activities and decision-making enhancement as priority areas for AI support, suggesting these as logical starting points (Dacre & Kockum, 2022a).

Step 2: Establish Data Readiness

Before deploying AI tools, organisations need to ensure their data infrastructure can support them (Fontaine et al., 2019). This *data readiness* encompasses several dimensions. First, data needs to be clean, meaning free from errors, duplications, and inconsistencies. Second, data must be appropriately structured in formats that AI algorithms can process. Third, data must be accessible, with appropriate governance frameworks enabling AI tools to draw on relevant information whilst maintaining necessary security and privacy protections.

Establishing data readiness frequently requires substantial preliminary work. Many organisations discover that their project data exists in disparate systems, uses inconsistent taxonomies and definitions, and lacks adequate documentation (Brookes et al., 2020). Addressing these issues at an early stage, whilst unglamorous, will prove essential for subsequent AI success. The temptation to circumvent this preparatory work and proceed directly to AI deployment will nearly always prove counterproductive.

Step 3: Start with Low-Risk Pilots

Rather than attempting organisation-wide AI transformation, it is advisable to begin with small-scale, low-risk pilot projects. This approach offers multiple

advantages. It provides opportunities for experiential learning with AI capabilities and limitations in realistic contexts. It generates material examples of value creation that can build organisational support for broader adoption. It also allows identification and resolution of implementation challenges before they are likely to affect critical projects (Dacre & Kockum, 2022a).

Pilot projects should therefore be selected strategically (Turner, 2005). Ideal candidates will exhibit clear pain points that AI might address, possess reasonably good data quality, have supportive leadership, and occur in contexts where experimentation is culturally acceptable. The pilot phase should include explicit learning objectives alongside performance metrics, recognising that understanding what doesn't work proves as valuable as confirming what does.

Step 4: Develop AI Literacy Across Teams

Successful AI integration most likely requires that project teams understand, at minimum, what AI can and cannot do, how to work effectively with AI tools, and how to evaluate AI outputs critically. In this sense, this AI literacy differs from deep technical expertise.

As project managers don't necessarily need to understand neural network architectures, but they should comprehend basic principles of how AI generates predictions, what factors influence reliability, and when human judgement should override AI recommendations.

Substantial variation in AI understanding among project professionals has been previously documented, with many lacking basic conceptual frameworks for evaluating AI claims (Dacre et al., 2021; Dacre & Kockum, 2022a). Addressing this gap thus requires investment in accessible training that builds practical understanding rather than promoting either uncritical AI enthusiasm or reflexive resistance. Importantly, this training should emphasise AI as a tool that augments rather than replaces strategic professional judgement.

Step 5: Foster Collaborative Learning Communities

Given the nascent state of AI in project management, no single organisation possesses complete expertise. Collaborative learning through communities of practice therefore enables sharing of experiences, challenges, and emergent best practices. Knowledge management and communities of practice have been identified as critical enablers of project success, with organisations offering such collaborative structures demonstrating superior project performance (Eggleton et al., 2021).

These communities should in these cases, encompass both internal and external dimensions. Internally, organisations benefit from creating forums where project teams can share AI experiments, discuss what

worked and what didn't, and collectively build organisational AI capability. Externally, engagement with industry associations, academic researchers, and cross-organisational networks provides exposure to diverse approaches and helps avoid reinventing wheels or repeating others' mistakes.

Redefining Professional Competencies

The integration of AI into project management practice suggests a number of implications for how the profession defines necessary competencies (Dacre & Kockum, 2022a). Traditional project management competency frameworks typically emphasise planning, scheduling, budgeting, and stakeholder management (de Rezende & Blackwell, 2019). Whilst these remain essential, effective practice in an AI-augmented environment will require additional capabilities.

For example, data literacy will emerge as an increasingly fundamental requirement. In this vein, we are not expecting project managers to become data scientists, but they will require sufficient understanding to engage meaningfully with data-driven insights, ask appropriate questions of AI tools, and recognise when outputs seem questionable. This data literacy encompasses understanding of basic statistical concepts, data quality considerations, and the difference between correlation and causation (Dacre, Kockum, & Senyo, 2020).

Critical evaluation capabilities will also become more rather than less important in AI contexts. The seductive precision of AI-generated predictions can create illusions of certainty (Maleki et al., 2024; Sun et al., 2024), potentially suppressing the healthy scepticism that characterises effective project management.

Project professionals will therefore be expected to increasingly cultivate the intellectual independence to interrogate AI recommendations, understand their limitations, and exercise judgement about when to trust or override AI-driven suggestions.

Furthermore, the human-centric skills (Dacre et al., 2024) that distinguish effective project managers become more valuable rather than obsolete in AI contexts. In the sense that whilst AI can automate certain analytical tasks, it has still to demonstrate abilities in replicating relationship-building, ethical reasoning, contextual understanding, and adaptive leadership that successful project delivery typically requires. Paradoxically, as AI handles more routine analytical work, these distinctively human capabilities will likely become the primary source of professional value (Dacre et al., 2024; Vrontis et al., 2023).

Organisational and Institutional Considerations

At the organisational level, AI integration challenges existing institutional logics and processes (Minkinen & Mäntymäki, 2023). Even within organisations committed to innovation, institutional logics rooted in traditional approaches create persistent tensions with new methodologies (Baxter et al., 2023). AI adoption encounters similar dynamics, as existing governance frameworks, funding mechanisms, risk management processes, and performance metrics may inadvertently constrain effective AI application and deployment.

Organisations would benefit from examining whether their project governance processes accommodate the iterative, experimental approach that effective AI integration mandate. As such, traditional stage-gate processes that require upfront specification (Conforto & Amaral, 2016; Sonjit et al., 2021a, 2021b) may prove incompatible with AI applications that improve through iterative refinement based on operational experience. Procurement processes optimised for purchasing defined products may also struggle with AI solutions that require ongoing development and customisation.

The implications will likely extend to professional development and career progression (Dacre et al., 2019; Pontin & Dacre, 2024). This raises the point that, if AI literacy becomes a core professional competency, how should this drive project management qualifications and certifications? There will likely be a greater expectation as a result for educational institutions to prepare future project managers in balancing traditional project management content with emerging AI-related competencies, whilst recognising that specific AI technologies evolve rapidly and may become obsolete along the journey (Dacre et al., 2022).

Ethical Dimensions

From an ethical dimension, AI algorithms have been shown to perpetuate or amplify biases present in training data (Mittermaier et al., 2023; Roselli et al., 2019; Silberg & Manyika, 2019), potentially leading to discriminatory outcomes in resource allocation, team selection, or performance evaluation. Project managers adopting AI tools ultimately bear responsibility for understanding these risks and implementing appropriate safeguards. When AI influences project decisions, stakeholders also have legitimate interests in understanding how those decisions were made. However, many sophisticated AI models operate as 'black boxes' where the pathway from inputs to outputs lacks simple explanation. This tension between AI capability and explainability creates challenges, particularly in contexts requiring accountability and auditability (Al-Mhdawi et al., 2023).

Ultimately, if an AI tool provides inaccurate risk predictions that contribute to project failure (Al-Mhdawi et al., 2023; AlJaloudi et al., 2024; Mohamed et al., 2024), where does responsibility lie? With the project manager who relied on the tool? The organisation that deployed it without adequate validation? The vendor who developed it? Establishing clear accountability frameworks proves essential for responsible AI adoption.

Critical Ongoing Research

Substantial gaps remain in our understanding of AI's impact on project management. Much existing research relies on surveys of perceptions and intentions rather than longitudinal studies of actual implementation experiences and outcomes. More thorough evaluation is therefore needed in understanding whether AI adoption improves project performance, under what conditions, and through what mechanisms (Dacre & Kockum, 2022a).

The contextual factors influencing AI effectiveness also merit specific attention. Do certain project types, industries, or organisational contexts prove more amenable to beneficial AI integration? What organisational capabilities predict successful AI adoption versus failed implementations? How do human-AI interaction patterns influence outcomes? Addressing these questions requires methodologically credible research that moves beyond descriptive case studies to systematic comparative analysis.

Furthermore, research needs to maintain alignment with developments with rapidly evolving AI capabilities. The emergence of generative and agentic AI presents new possibilities and challenges that differ from earlier machine learning applications (AlJaloudi et al., 2024). Understanding how these technologies can be effectively and responsibly integrated into project management practice constitutes a pressing research priority for both the project profession and society as a whole.

Conclusion

Returning to our initial question, *is AI in project management merely smoke and mirrors, or will it genuinely transform the profession?* The arguments support a balanced conclusion.

AI is neither a panacea that will automatically revolutionise project management nor an empty promise devoid of practical value.

Rather, it represents a set of technologies that, when strategically deployed within appropriate organisational contexts, can provide genuine benefits in specific application domains.

The transformation, such as it is, will prove more evolutionary than revolutionary. AI's most immediate and reliable contributions lie in automating routine tasks and providing analytical insights that augment human decision-making.

These represent meaningful improvements but fall short of the radical transformation that promotional rhetoric often suggests.

More profound impacts may emerge over time as AI capabilities advance, organisational competencies mature, and the profession develops more sophisticated understanding of effective human-AI collaboration.

The critical determinant of whether AI delivers value is not the technology itself but the strategic and organisational context within which it is deployed. Organisations that approach AI integration thoughtfully, starting with clear problem definition, ensuring data readiness, investing in workforce development, and fostering cultures that embrace data-driven decision-making whilst maintaining critical thinking will likely realise genuine benefits.

However, those that pursue AI adoption superficially, driven by competitive pressure or technological fashion rather than strategic clarity, will likely find their efforts generating more complexity than value.

In this vein, for the project management profession, the imperative is neither uncritical embrace nor reflexive resistance, but rather thoughtful evaluation and strategic implementation. Project professionals need to develop sufficient AI literacy to make informed decisions about where these technologies can genuinely contribute to improved project outcomes. They must also advocate within their organisations for the prerequisites that enable effective AI integration whilst maintaining the human-centric capabilities that remain central to project success.

Ultimately, the most effective approach integrates AI's analytical strengths with the relationship-building, ethical reasoning, contextual understanding, and adaptive leadership that characterise excellent project management. This augmentation, properly implemented, can as such contribute to better project outcomes. Whether the profession successfully navigates this integration, avoiding both uncritical enthusiasm and unwarranted scepticism, will substantially influence project management's evolution in coming decades.

The question is not whether AI will transform project management, but rather how the profession will deliberately figure that transformation to serve its fundamental purpose. Delivering successful projects

that create value for organisations and society. This requires moving beyond debates about AI's revolutionary potential to focus on the practical, strategic work of thoughtful, evidence-based implementation. That work, unglamorous but essential, represents where genuine transformation will emerge.

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