AI Integration in Project Management: Insights from Recent Student Theses

(2022-2024)

Daniel Karlsson

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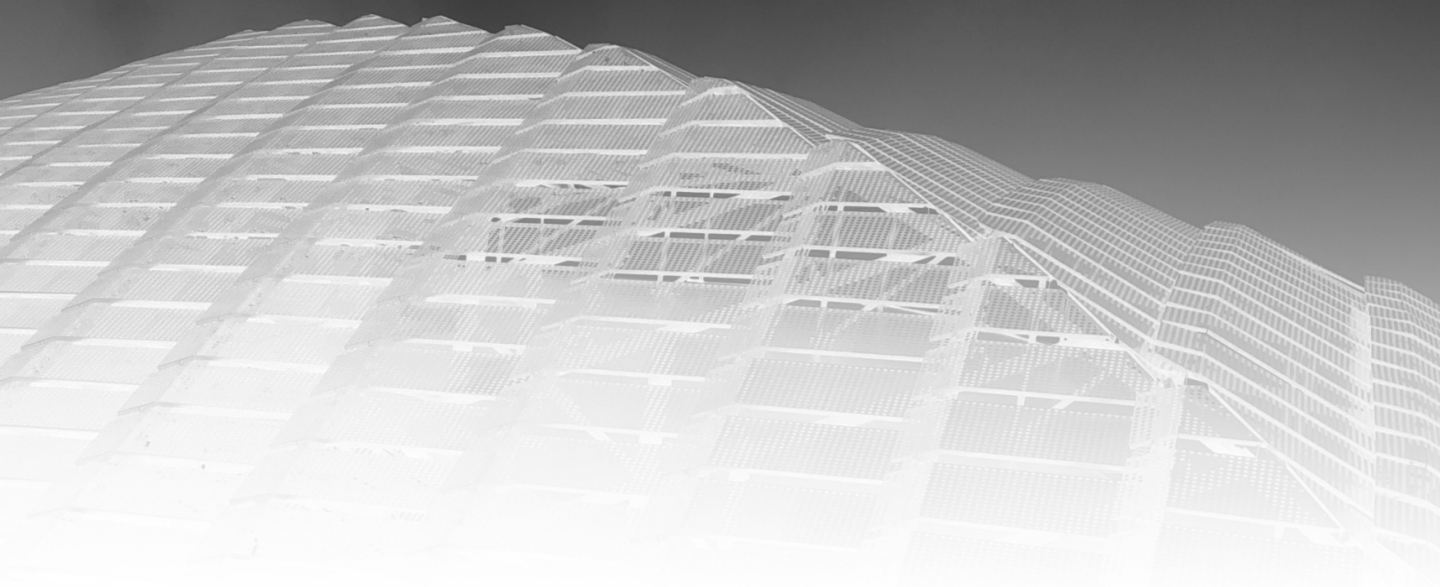

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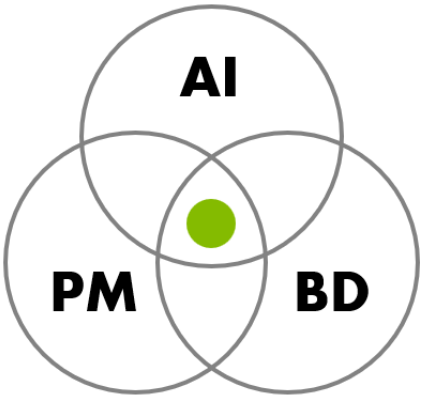


Founders

Daniel Karlsson
PhD

Experienced project leader with passion to empowering individuals and organizations to achieve their objectives through the pillars of transparency, efficiency, and trust. With a robust background in the life sciences-, technical-, and IT sectors, Daniels career spans various roles within companies of different sizes and stages of their development journey.

Martin Tilly
MSc & BBA

Described as a hardworking and result-driven person, with a strong track record of managing several strategic corporate projects at international companies. Martin loves to deliver result through inspiring others to join up towards a common goal.

Table of Content

Introduction

The students of today are shaping our future and transforming the way we work, just as we and previous generations have done. This inspired us to explore what current students with ambitions in project management are curious about regarding the influence of artificial intelligence on our practices.

"AI has the potential to revolutionize the way we work, bringing a new level of efficiency and accuracy to our projects." (Report 3)

Artificial intelligence (AI) is rapidly transforming industries worldwide, and project management is no exception. The need for accurate project planning and time estimation has never been greater. One study (Report 7) found that previous projects at a life science company took, on average, 55.1% longer to complete than initially estimated, highlighting the significant costs associated with inaccurate planning.

This meta-study analyzes seven recent student theses written between 2022 and 2024, to uncover the key trends, challenges, and opportunities that will shape the future of AI-driven project management, offering valuable insights for project management professionals and organizations navigating this exciting new possibility.

Methodology

The Swedish "Digitala Vetenskapliga Arkivet" (DiVA, Digital Scientific Archive) at https://www.diva-portal.org/ was used as the database to find student theses.

The keyword "Artificial Intelligence" was used to search for full-text reports from 2022 to 2024, with the search conducted on June 25, 2024. This search yielded 609 reports.

The reports were exported to Excel and then imported into ChatGPT. ChatGPT was prompted to find all reports related to project management, resulting in approximately 12 reports, which were manually filtered down to seven based on their titles and abstracts. The reports are found in the reference section and referred to with numerical, e.g., Report 1.

The seven reports were downloaded and imported into Google Gemini 1.5 Pro via Google AI Studio, using about 200k tokens out of the available 2,000k, leaving plenty tokens for further analysis.

The text was then refined using ChatGPT-4, Claude 3.5 Sonnet and Google Gemini 1.5 Pro. The use of three models was motivated primarily by the desire to compare the different models and user interfaces.

Overview: AI Reshaping the Project Management Landscape

Analysis of the seven student theses reveals six overarching themes that provide a comprehensive picture of how AI is influencing project management:

① AI's Evolving Role in Project Management: AI is rapidly moving beyond simple automation towards becoming a powerful tool for enhancing project efficiency, decision-making, and innovation. While AI is not expected to replace project managers, it will undoubtedly transform their roles and responsibilities.

② The Rise of Human-AI Collaboration: A collaborative future is emerging in project management, where humans and AI work together to achieve better outcomes. This requires project managers to embrace AI, develop new skills, and adapt to a changing work environment where human-AI interaction is increasingly common.

③ The Urgency of Upskilling and Training: The reports consistently highlight a significant skills gap in the project management workforce. Investing in training and development is crucial to equip project professionals with the knowledge and skills needed to effectively leverage AI tools, interpret data, and navigate ethical considerations.

④ Navigating the Ethical Landscape of AI: The ethical implications of AI in project management are paramount. Organizations must prioritize responsible AI implementation, addressing concerns about data privacy, algorithmic bias, transparency, and accountability. Maintaining human oversight and developing robust ethical frameworks are essential for mitigating risks and ensuring that AI is used for good.

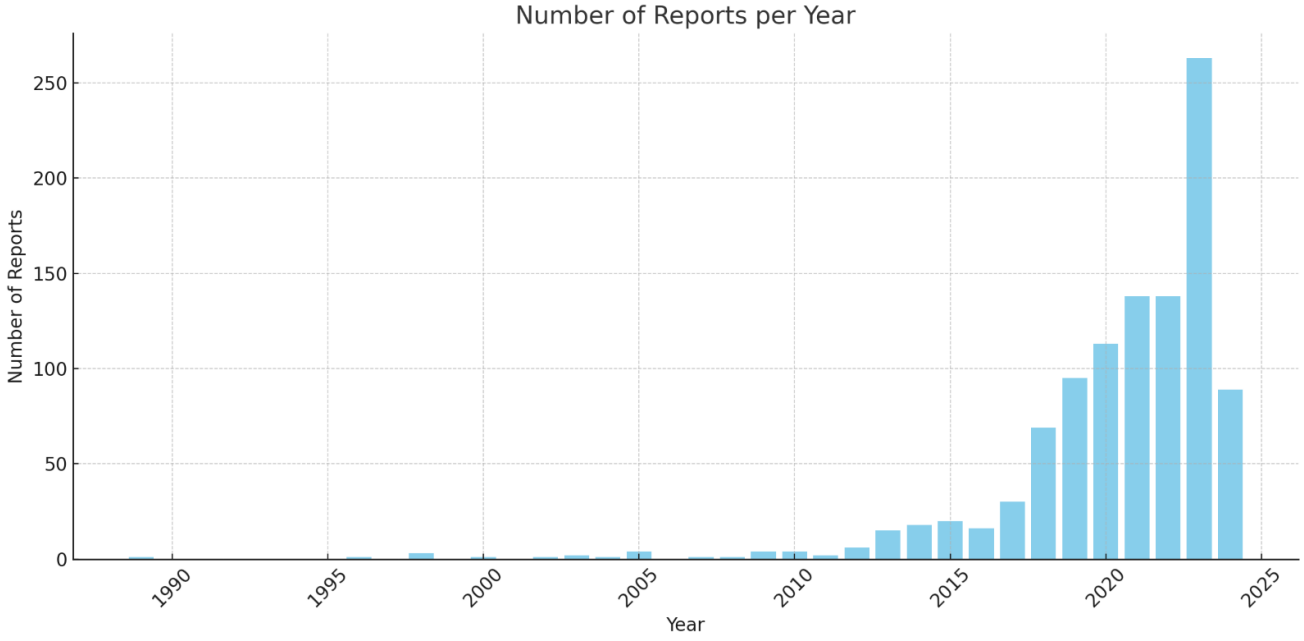
⑤ Overcoming Challenges to AI Adoption: Widespread AI adoption faces various challenges, including organizational readiness, resistance to change, and the need for new business models that incentivize AI investment. Addressing these challenges proactively is critical for unlocking the full transformative potential of AI in project management.

⑥ Innovation & Creativity: AI has the potential to generate novel solutions, enhance creativity, and foster innovation in project management, such as through generative design or natural language generation.

Background

The number of AI student reports has been increasing rapidly since 2012. This was a big year for AI as deep learning techniques gained attention, leading to breakthroughs in tasks like image recognition and natural language processing, widespread adoption of AI-powered voice assistants, and a resurgence in AI interest and funding, overcoming the cycles of "AI winters".

This surge in research underscores the importance of understanding how AI is transforming the world and also the of project management.



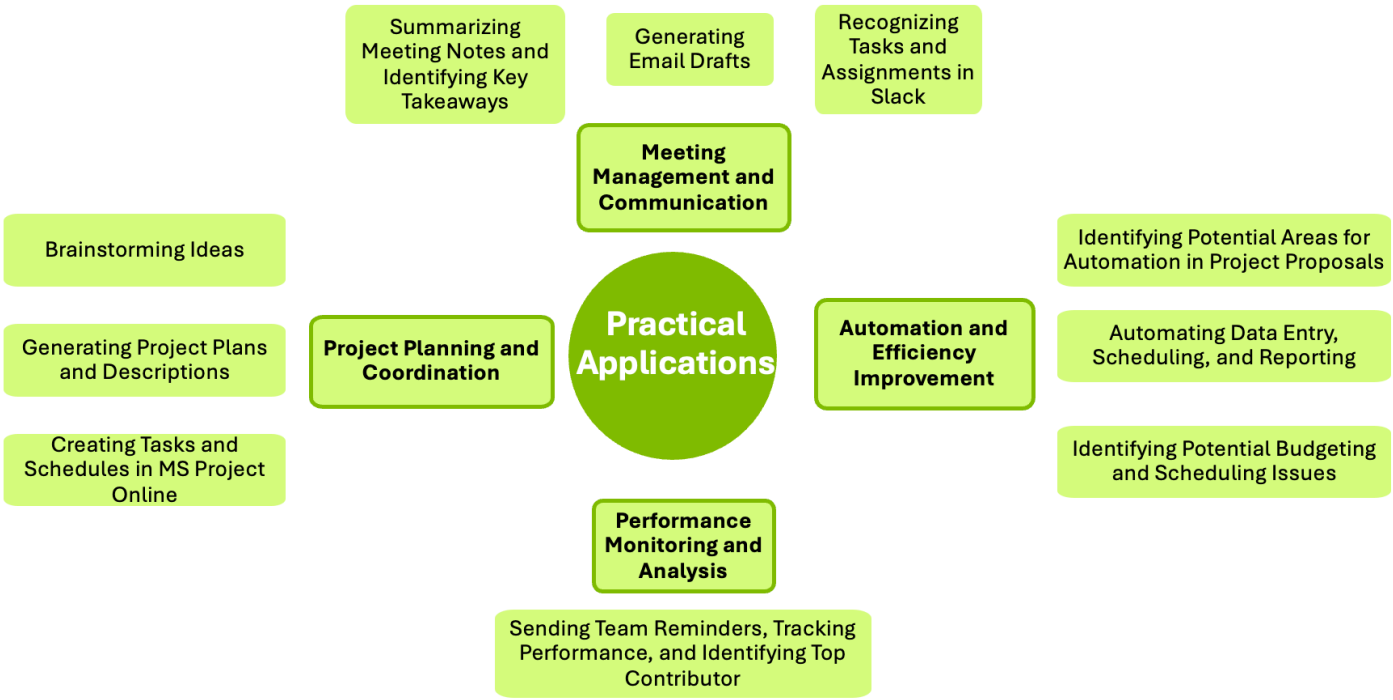
Part 1

Practical Applications

Practical Applications

Limited Current Adoption: Despite the widespread discussion of AI's potential, the real-world use cases described in the reports suggest that practical implementation of AI in project management is still relatively limited, especially in larger organizations. This is also evident in the frequent use of literature reviews and interviews in these theses and not real world case studies.

Varying Levels of AI Readiness: The reports reveal that organizations are at different stages of AI readiness. Some are already experimenting with advanced AI applications, while others are still in the early phases of adopting basic automation. This discrepancy suggests that a one-size-fits-all approach to AI implementation may not be suitable and that organizations need to carefully assess their own readiness and develop tailored strategies.



Practical Applications

Meeting Management and Communication

Summarizing Meeting Notes and Identifying Key Takeaways using ChatGPT

One project manager used ChatGPT to process lengthy meeting notes taken during an important steering committee meeting. The AI was able to clean up the notes, improve their clarity, and extract the key decision points and action items, allowing for efficient communication of the meeting's outcomes.

Generating Email Drafts using ChatGPT

One project manager used ChatGPT to create drafts for emails, saving time and improving the quality of their communication. The AI helped the project manager with grammar, vocabulary, and structuring the emails effectively.

Recognizing Tasks and Assignments in Slack using Fireflies.ai

This AI chatbot integrates with Slack and processes conversations to identify tasks, deadlines, and assignments. It helps automate task management and ensures that important details are captured from team communication.

Project Planning and Coordination

Brainstorming Ideas with ChatGPT

One project manager used ChatGPT to brainstorm ideas for marketing campaigns and for planning a large launch event. The AI provided suggestions for creative approaches and logistical arrangements, acting as a virtual brainstorming partner.

Generating Project Plans and Descriptions in Swedish using a GPT model (internal to the organization)

A project manager, working with international resources, used the organization's internal GPT model to generate project plans and descriptions in Swedish. The AI processed Swedish documents and materials and translated them into coherent and professionally structured project documents, bridging language barriers.

Creating Tasks and Schedules in MS Project Online with Wunderlist integration with MS Project Online

Project managers are using AI-powered integration to streamline task creation and scheduling. They can use Wunderlist to quickly create tasks with metadata (deadlines, assignments, etc.), which are then automatically synced with their project schedules in MS Project Online.

Practical Applications

Automation and Efficiency Improvement

Identifying Potential Areas for Automation in Project Proposals with GPT model (internal to the organization)

The technology manager at the AEC firm observed that project managers are increasingly seeking his assistance to identify areas within project proposals where AI and automation can be incorporated. The GPT model helps analyze project requirements and suggests potential applications for AI to enhance efficiency and create a more competitive bid.

Automating Data Entry, Scheduling, and Reporting using Microsoft AI Builder (in Microsoft Power Platform)

Project managers are using AI Builder to automate tasks such as data entry into project management software, creating project schedules, and generating reports.

Identifying Potential Budgeting and Scheduling Issues using Online templates and workflows in tools like Slack and MS SharePoint.

Project managers are using pre-built AI-powered templates and workflows within their collaboration platforms to monitor project progress, track budgets, and receive alerts if potential issues are detected. This proactive identification of problems helps prevent cost overruns and delays.

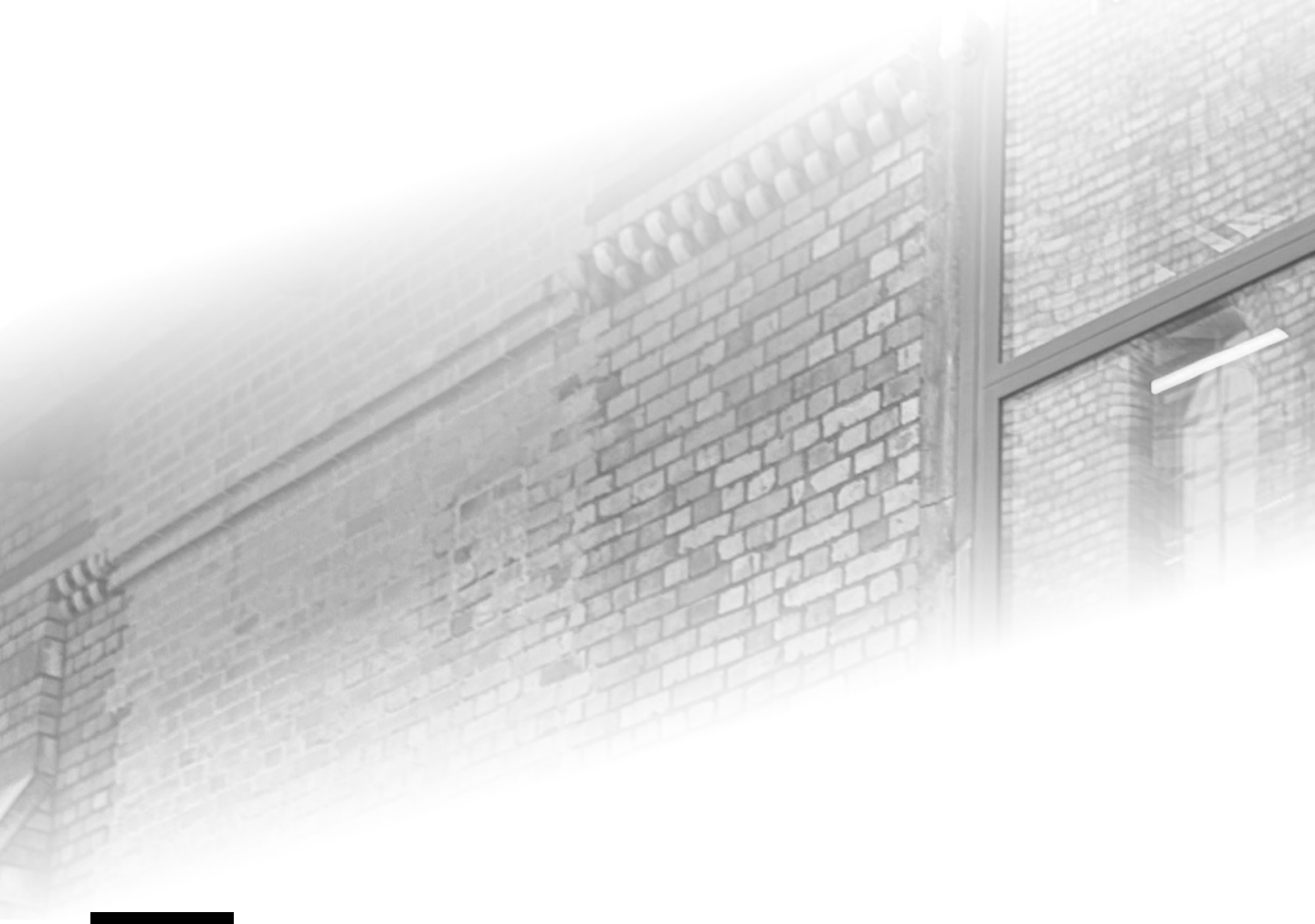
Performance Monitoring and Analysis

Sending Team Reminders, Tracking Performance, and Identifying Top Contributor using Stratejos.ai

This AI chatbot sends reminders to team members, tracks their progress on tasks, and analyzes performance data to identify individuals who are consistently making significant contributions to the project.

Part 2

Recommendations for AI Adoption in Project Management



Recommendations for AI Adoption in Project Management

This section outlines key recommendations for organizations and project managers to successfully navigate the adoption and integration of AI into their practices.

Building Organizational Readiness

Challenge

Successfully integrating AI into project management requires more than just investing in technology. Organizations need a strategic vision, robust infrastructure, and a culture that embraces innovation.

- Lack of strategic direction

Absence of a clear roadmap and leadership commitment for AI adoption. Without clear goals, dedicated resources, and a commitment to fostering a culture of AI adoption, initiatives often lack direction and fail to gain traction.

- Inadequate Data Infrastructure

The effectiveness of AI in project management is heavily reliant on access to high-quality, comprehensive, and standardized data, yet this often presents a significant hurdle for organizations.

Many lack the robust data infrastructure, including sophisticated data management systems and skilled personnel, needed to effectively collect, store, analyze, and standardize large project datasets.

This often results in time-consuming and resource-intensive challenges related to data cleaning, management, and standardization, ultimately hindering the successful implementation and impact of AI initiatives.

- Resistance to Change

There is a risk of hesitancy and pushback from project managers and team members who may be unfamiliar with AI, fear job displacement, or prefer traditional project management methods.

Recommendations

- Develop a Clear Vision and Strategy

Develop a Clear Vision and Strategy: Define specific, measurable goals for AI adoption aligned with business objectives. Establish a cross-functional AI task force with leadership buy-in to drive implementation. Develop a phased roadmap with clear milestones and success metrics.

Address Business Model Challenges: Explore innovative business models, such as value-based pricing, to incentivize AI adoption and capture its long-term benefits. This may require shifting from traditional hourly billing to models that recognize the value of AI-driven efficiency and insights.

Recommendations for AI Adoption in Project Management

Recommendations for AI Adoption in Project Management

- Invest in Robust Data Management and Infrastructure

Invest in Data Infrastructure: Develop robust data management systems to capture, store, and analyze project data effectively. This includes data collection tools, storage solutions, and analytics platforms.

Improve Data Quality & Detail: Ensure data is accurate, comprehensive, and standardized to enable effective AI model training and analysis. Implement systems for capturing granular time reporting data and documenting project information.

Categorize Projects: Explore ways to categorize projects based on similarities, allowing for more targeted AI model training and improved accuracy.

- Foster a Culture of Innovation and Promote Collaboration

Encourage experimentation with AI tools, promote a learning mindset, and celebrate successes. This will help overcome resistance to change and build enthusiasm for AI adoption.

Continuously Evaluate & Adapt: Implement systems for monitoring and evaluating AI's impact on project outcomes. Regularly assess the effectiveness of AI tools and adjust strategies to optimize results.

Facilitate knowledge sharing and teamwork between AI experts and project management professionals to ensure effective implementation and integration.

Establish communities of practice or knowledge-sharing platforms to foster learning and best practice exchange

- Start with Targeted Automation and Strategic Tool Selection

Start with Simple Automation: Begin with simpler AI applications like task automation to build familiarity and confidence before progressing to more sophisticated tools.

Select Tools Strategically: Carefully select AI tools that align with specific project needs and goals, avoiding unnecessary investments in complex technologies that may not deliver value.

Ensuring Ethical and Responsible AI Implementation

While the potential benefits of AI in project management are significant, organizations must proactively address the ethical considerations surrounding its implementation. As one project manager aptly noted, "The success of AI in project management will ultimately come down to how well we're able to balance the benefits with the potential risks. We need to approach this technology with both excitement and caution." (Report 3).

Recommendations for AI Adoption in Project Management

Embedding ethical principles into AI adoption strategies is not just a matter of compliance but a fundamental requirement for building trust, ensuring fairness, and achieving sustainable success with AI. This section outlines key steps organizations can take to ensure responsible and ethical AI integration into their project management practices.

Challenges

- Data Privacy and Security

AI systems rely on data, making the protection of sensitive project information and compliance with data privacy regulations (like GDPR) paramount. Organizations must be vigilant in implementing robust data security measures and selecting AI providers with strong privacy safeguards. Failure to do so risks data breaches, legal issues, and damage to stakeholder trust.

- Algorithmic Bias

Mitigating bias in AI systems is critical for ensuring fair and equitable outcomes. Organizations must address the risk of bias by using diverse and representative training data, critically evaluating AI-generated insights for potential bias, and maintaining human oversight in decision-making processes. Otherwise, AI could perpetuate existing societal inequalities and lead to discriminatory practices within project management.

- Transparency and Explainability

Understanding how AI systems arrive at their recommendations is essential for building trust and accountability. Organizations should prioritize the use of AI tools that offer transparency and explainability, allowing project managers and stakeholders to understand the reasoning behind AI-driven decisions. Lack of transparency can lead to skepticism, resistance to AI adoption, and difficulty in identifying and correcting errors or biases in AI systems

Recommendations

- Establish Ethical Guidelines and Governance

Define Clear Principles: Develop a comprehensive AI ethics policy for project management that addresses data privacy, algorithmic bias, transparency, accountability, and human oversight.

Create Oversight Mechanisms: Establish an AI ethics board or committee to review AI-related projects, assess risks, and ensure alignment with ethical guidelines.

Conduct Ethical Impact Assessments: Conduct regular assessments of AI systems and their potential impact on stakeholders, identifying and mitigating potential harms.

Recommendations for AI Adoption in Project Management

- Maintain Human Oversight and Control

Define Human-in-the-Loop Processes: Establish clear procedures for human review and approval of critical AI-driven decisions, particularly those with significant ethical or risk implications.

Empower Human Intervention: Build mechanisms for humans to override AI recommendations or outputs in cases of potential bias, unfairness, or unintended consequences.

Foster Responsible AI Culture: Train project managers and teams on ethical AI principles, promoting critical thinking and responsible decision-making when using AI tools.

- Prioritize Transparency and Explainability

Select Explainable AI Systems: Whenever possible, prioritize AI tools and systems that provide insights into their decision-making processes, making it easier to understand how outcomes are reached.

Communicate Transparently with Stakeholders: Proactively communicate with project stakeholders about how AI is being used, addressing concerns and building trust through openness.

Document Assumptions and Limitations: Clearly document the assumptions, limitations, and potential biases of AI systems to ensure informed and responsible decision-making.

Cultivating AI-Ready Teams

Challenge

Bridging the skills gap and empowering project management professionals with the competencies needed to thrive in an AI-driven world is crucial.

- Skills Gap and AI Literacy

There is a significant skills gap in the project management workforce when it comes to AI and data literacy, resulting in a need for upskilling. Project managers and team members need training and development to acquire the knowledge and skills to work effectively with AI tools, interpret data, and make informed decisions based on AI insights.

- Evolving Role of Project Managers

The integration of AI necessitates a shift in project manager responsibilities, demanding a new blend of technical and soft skills.

- Navigating Change and Building Buy-In

Successfully adopting AI requires a thoughtful approach to change management, ensuring buy-in from project teams and aligning AI solutions with real-world workflows.

Recommendations for AI Adoption in Project Management

While leadership support is crucial, the studies also reveal the limitations of top-down AI initiatives that are disconnected from the realities of project work. As one project manager pointedly stated, "What we get from higher up doesn't work... It must be driven in the operations where it will be used." (Report 2).

This underscores the need for collaborative approaches, where AI solutions are developed and implemented in partnership with project teams, ensuring that they align with real-world project needs and workflows.

Recommendations

- Prioritize Training and Upskilling

To thrive in the AI era, project management professionals must adapt and develop new competencies. As AI becomes more integrated into project management processes, certain tasks may become automated, shifting the focus towards skills that are uniquely human and difficult to replicate with technology.

Essential Soft Skills: While technical skills are important, soft skills become even more crucial in an AI-driven PM environment. These skills, such as communication, leadership, problem-solving, strategic thinking, and adaptability, are essential for effective human-AI collaboration, managing teams, and navigating the complexities of an evolving workplace.

"Project managers will need to adapt to a new world of AI-assisted project management, focusing on skills like leadership, communication, and understanding the ethical and social implications of AI."

AI-Related Competencies: As highlighted in one report, "Project managers will need to adapt to a new world of AI-assisted project management, focusing on skills like leadership, communication, and understanding the ethical and social implications of AI." (Report 6). This includes developing data literacy to interpret AI-generated insights, understanding AI technologies and their limitations, and navigating the ethical considerations of AI implementation.

By investing in comprehensive training programs that address both AI-related competencies and essential soft skills, organizations can equip their project managers with the tools they need to thrive in the AI era. This will not only enable them to effectively leverage AI's potential but also to lead their teams through this transformative period in project management.

- Reimagine Project Management Roles

As AI takes on more routine tasks, project managers will need to evolve into strategic decision-makers, AI collaborators, and champions of ethical AI implementation. This includes:

Leveraging AI for Insights: Analyzing AI-generated data to inform project planning, risk assessment, and decision-making.

Recommendations for AI Adoption in Project Management

Focusing on Value-Added Activities: Prioritizing strategic planning, stakeholder management, creative problem-solving, and team leadership.

Championing Ethical AI: Ensuring responsible AI use, mitigating bias, and promoting transparency in AI-driven decisions.

- Implement Proactive Change Management

To ensure a smooth and successful transition to AI-powered project management, organizations should clearly communicate the benefits of AI adoption for both individuals (e.g., increased productivity, enhanced decision-making, more engaging work) and the organization as a whole (e.g., improved project success rates, reduced costs, competitive advantage). Involving project managers and teams in the design and implementation of AI solutions is crucial to encourage ownership, address concerns proactively, and ensure the solutions align with real-world needs. Providing ongoing support, training, and resources will empower individuals to adapt to new workflows and confidently utilize AI technologies, fostering a culture of continuous learning and innovation.

Part 3

Outlook and Conclusion

Future Outlook

By synthesizing these insights, the meta-study demonstrates that AI has the potential to dramatically improve project management, but success depends on a human-centric approach that addresses ethical considerations, promotes collaboration, and equips individuals with the necessary skills to navigate an AI-driven future.

Practical Implementation: More research is needed on the practical aspects of implementing specific AI tools in PM, including case studies that demonstrate successful integration and measure its impact on project outcomes.

Business Model Innovation: Research could explore new business models and pricing strategies that encourage AI adoption and help organizations capture the long-term value of AI in project management.

Human-AI Collaboration Dynamics: Further investigation is needed into the evolving dynamics of human-AI collaboration in PM, including how trust is built, how responsibilities are shared, and how to mitigate potential conflicts or biases.

While some reports express concern about AI potentially replacing project managers, others emphasize its role as a tool to augment human capabilities. This difference in perspective might be influenced by factors such as the specific AI applications considered, the industry context, or the individual project manager's experiences and beliefs. The studies generally agree, however, that AI will significantly change the nature of project management work, requiring project managers to adapt their skills and embrace new ways of collaborating with technology.

This shift in focus towards uniquely human skills underscores the need for a collaborative approach that combines AI's strengths with human expertise. While AI offers powerful capabilities for automation and data analysis, human judgment, ethical decision-making, and strong leadership remain essential for successful project outcomes.

Conclusion

This meta-study, analyzing seven recent student theses, reveals that artificial intelligence is expected to revolutionize the field of project management. The potential is immense: increased efficiency, enhanced decision-making, and a new era of innovation are within reach. However, our analysis also reveals significant challenges that must be addressed to fully realize AI's transformative power.

Organizations face crucial hurdles related to data infrastructure, technical expertise, and leadership support. Overcoming resistance to change, both among project managers and team members, will be essential for successful AI adoption. A prevailing skills gap necessitates robust training programs that not only equip project professionals with essential AI and data literacy skills but also strengthen the core human skills of communication, leadership, and adaptability – qualities that become even more crucial in an AI-driven world.

The ethical implications of AI in project management cannot be overstated. Data privacy, algorithmic bias, and the long-term impacts on the workforce demand careful consideration. Organizations must prioritize responsible AI implementation by establishing clear ethical guidelines, ensuring transparency in AI-driven decisions, and maintaining human oversight to safeguard against potential risks.

This meta-study underscores that the future of project management is one of collaboration—a partnership between human expertise and AI capabilities. Project managers will play a vital role in this new era, not as passive observers but as active leaders who leverage AI strategically while upholding ethical principles and preserving the human elements essential for project success.

The path forward is clear: Embrace AI's potential while actively addressing its challenges. Invest in upskilling and foster a culture of innovation that embraces responsible AI implementation. By taking these steps, project management professionals and organizations can unlock the transformative power of AI and navigate a future where human ingenuity and intelligent technology work together to achieve extraordinary project outcomes.

Part 4

Reference and Appendices

References

Report Number	Reference
1	Nguyen, H., & Scheff, D. (2023). “Hey Siri, will AI replace project managers?” Navigating the AI era: Impact of Machine Learning on Project Manager’s Core Competencies.
2	Kubar, A., & Skol, P. (2024). Expectations and Perceptions on Artificial Intelligence and Innovation in the AEC Sector: A Case Study on Project Managers.
3	Kelepouris, P. (2023). Implementation of Artificial Intelligence in Project Management and effect in working personnel: Literature Review and Case Studies in Athens, Greece and Stockholm, Sweden.
4	Hashfi, M. I., & Raharjo, T. (2023). Exploring the Challenges and Impacts of Artificial Intelligence Implementation in Project Management: A Systematic Literature Review.
5	Tosic, D. (2023). Artificial Intelligence-driven web development and agile project management using OpenAI API and GPT technology: A detailed report on technical integration and implementation of GPT models in CMS with API and agile web development for quality user-centered AI chat service experience.
6	Alshaikhi, A., & Khayyat, M. (2021). An Investigation into the Impact of Artificial Intelligence on the Future of Project Management.
7	Bonnedahl, M. (2024). Using artificial intelligence to improve time estimation for project management. Uppsala University.

Appendix 1 Reflections on using AI for compiling reports into a meta study

The data filtering and writing of this meta-study was mainly done using AI assistants. I have a few subjective observations with regard to the process.

☑️ If AI tools were not available, I would not have executed on my idea to make the meta study without AI, it would simply have taken too much time and effort

☑️ The work was greatly simplified by having an enormous context window (Google Gemini), this allows to upload all student thesis, several versions of this meta-study for review, without having any concerns.

☑️ My mindset has been quite different compared to doing similar work without AI, now the focus is on the requirement side: "How do I get the AI to do what I want it to do?". It was easy to "fall asleep behind the wheel" and just do what the AI told without being critical. Important to align the purpose of writing this kind of report with the process. If one of the goals is for yourself to learn the subject you have to put in the effort.

☑️ With ChatGPT plus it was not possible use it for full workday without hitting any usage limits

☑️ It still took a considerable amount of time to finalize it.

Appendix 2 Limitations and Future Research Directions

This chapter evaluates the seven student theses analyzed in this meta-study, highlighting their strengths in exploring AI applications in project management while identifying key gaps in coverage.

Strengths

The reports provide a comprehensive overview of AI's potential to transform project management practices, covering a wide range of use cases, challenges, and opportunities. Their focus on ethical considerations and the importance of human-AI collaboration is particularly notable.

Gaps

Practical Implementation: The reports lack detailed case studies showcasing the successful integration of specific AI tools into real-world project management workflows and their tangible impact on project outcomes.

Long-Term Societal Impact: Further exploration is needed on the broader societal implications of AI adoption in PM, particularly its potential effects on job roles, workforce development, and the evolving structure of the profession.

Recommendations and what future research should prioritize

Detailed Case Studies: Developing in-depth case studies that examine real-world AI implementations in project management, highlighting best practices and demonstrating the measurable impact on project success.

Societal Impact Analysis: Exploring the long-term societal and economic consequences of AI adoption in PM, including potential job market shifts and the ethical challenges of increasingly autonomous AI systems.

Practical Guidelines: Creating practical guidelines and frameworks to help organizations assess their AI readiness and develop strategies for responsible and effective AI implementation.

Appendix 3 The Studies

Overview of Student Theses on AI in Project Management (2022-2024)

This table provides a summary of seven recent student theses exploring the multifaceted impact of artificial intelligence (AI) on the field of project management. Conducted between 2022 and 2024, these theses represent a snapshot of current academic interest and thinking about AI's transformative potential in how projects are planned, executed, and managed.

No	Thesis Title	Research Objective(s)	Reserach method(	Key Findings
1	"Hey Siri, will AI replace project managers?"	To understand how AI is impacting the role of project managers and what competencies they need to develop.	Narrative Literature Review Semi-Structured Interviews	AI is unlikely to fully replace PMgrs but will transform their roles, requiring them to focus on human-centric skills like leadership, communication, and understanding technology.
2	Expectations and Perceptions on Artificial Intelligence and Innovation in the AEC Sector: A Case Study on Project Managers	To explore the perceptions and expectations of AI in project management among project managers in the Architecture, Engineering, and Construction (AEC) sector and to understand the challenges of	Qualitative Case Study Semi-Structured Interviews Literature Review	AEC PMgrs are generally positive about AI's potential but face challenges, including: a decentralized organizational structure; lack of leadership support; focus on short-term profits; client conservatism; and inadequate knowledge transfer.
3	Implementation of Artificial Intelligence in Project Management and effect in working personnel	To examine how AI implementation in PM impacts working personnel, including potential power shifts and required skills adjustments.	Literature Review Semi-Structured Interviews	AI can enhance efficiency, accuracy, and provide insights, but ethical considerations and proper personnel training are critical. AI adoption will likely lead to a shift in PM roles towards more strategic tasks.
4	Exploring the Challenges and Impacts of Artificial Intelligence Implementation in Project Management: A Systematic Literature Review	To analyze existing literature on AI in PM to identify key trends, challenges, and opportunities and propose a model for integrating AI into PM practices.	Systematic Literature Review	Successful AI implementation in PM requires: consideration of technical, organizational, and ethical factors; a balance between benefits and risks; strategies to mitigate job displacement and increase worker autonomy; and a human-centric approach to AI adoption.
5	Artificial Intelligence-driven web development and agile project management using OpenAI API and GPT technology	To demonstrate the practical applications of AI in web development and explore the use of OpenAI API and GPT technology to enhance user engagement and drive sales.	Case Study (Project-Based) Action Research User Testing	AI can be effectively used in web development for content creation, code refactoring and validation, and data analysis to support project management. Agile project management can be enhanced by AI-powered tools.
6	An Investigation into the Impact of Artificial Intelligence on the Future of Project Management	To investigate AI's potential to transform project management practices and explore its implications for the profession and the workforce.	Conceptual Investigation Literature Review	AI is poised to fundamentally change PM, impacting all phases of the project lifecycle. PMgrs need to adapt by developing new skills and understanding AI's ethical and social implications. While AI can automate tasks, the human element remains vital.
7	Using artificial intelligence to improve time estimation for project management	To explore using AI and machine learning to produce time estimates for projects at Biotage and to determine if AI can create more accurate estimates than humans.	Quantitative Analysis of Project Data Application of Linear Regression Models	Existing time estimations at Biotage are inaccurate, with projects taking 55% longer than initially estimated. Simple AI models were not able to match human estimates. Accurate AI models require: more detailed project data; larger sample sizes of previous projects; and greater project similarity.

Appendix 4 Research Methods - definitions

This table provides an overview of the various research methods employed in the seven student theses examined in this meta-study. The diversity of methods reflects the multifaceted nature of AI's impact on project management and the different approaches researchers use to explore this evolving field..

Research Method	Explanation
Narrative Literature Review	A comprehensive review and summary of existing literature on a topic. Often used to provide a broad overview and identify key concepts and themes.
Semi-Structured Interviews	Interviews with a pre-defined set of questions, but with flexibility to explore additional topics based on the participant's responses. Useful for gathering in-depth qualitative data.
Qualitative Case Study	An in-depth exploration of a specific situation or organization to understand a complex phenomenon. Focuses on rich, descriptive data, often collected through interviews and observations.
Systematic Literature Review	A rigorous and structured approach to reviewing existing literature, using a pre-defined set of criteria to identify, select, and analyze relevant studies. Aims to minimize bias and provide a comprehensive overview of the evidence.
Case Study (Project-Based)	A type of case study that focuses on a specific project or initiative, examining its processes, outcomes, and lessons learned.
Action Research	A research approach that involves taking practical action to address a real-world problem while simultaneously conducting research to understand the impacts of those actions.
User Testing	Gathering feedback from users on the usability, functionality, and overall experience of a product or service.
Conceptual	An exploration of a topic through theoretical analysis, conceptual frameworks, and
Quantitative Analysis of Project Data	Analyzing numerical data using statistical methods to identify patterns, relationships, and trends.
Application of Linear	A statistical technique used to model the relationship between a dependent

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