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UNLOCKING THE POTENTIAL OF ARTIFICIAL INTELLIGENCE IN ROJECT MANAGEMENT: INSIGHTS FROM THE POLISH IT SECTOR

Helena STAROWICZ-RAJCA[1*], Dagmara LEWICKA[2*], Agnieszka LASYK[3*], Arkadiusz WILCZEWSKI[4*], Monika PEC[5*]

[1] AGH University Krakow, Faculty of Management; helena.starowicz.rajca@gmail.com, ORCID: 0009-0000-2672-9762
[2] AGH University Krakow, Faculty of Management; dagal@poczta.fm, ORCID: 0000-0002-6955-7371
[3] AGH University Krakow, Faculty of Management; agnieszka@lasyk.info, ORCID: 0009-0001-2028-5125
[4] AGH University Krakow, Faculty of Management; arkadiuszwilczewski@gmail.com, ORCID: 0009-0001-6418-6276
[5] AGH University Krakow, Faculty of Management; mpelczar@interia.pl, ORCID: 0000-0002-3060-4572
* Correspondence author

Purpose: This article examines the application and impact of Artificial Intelligence (AI) in Project Management within the IT sector in Poland. It provides insights into how AI tools are utilized in project planning, execution, and decision-making processes, contrasting findings with existing studies predominantly focused on reviewing AI tools rather than their practical implementation. By shifting the focus to real-world usage, this research aims to provide a deeper understanding of how AI is integrated into the daily workflows of IT companies, highlighting both the benefits and challenges faced in applying AI technologies to Project Management.
Design/methodology/approach: The research combines a comprehensive literature review with a multiple-case study approach. Four firms operating in the IT sector in Poland were analyzed: three international companies with substantial market presence in Poland and one small, local enterprise. The study explores their adoption of AI-driven Project Management tools, examining practical implementations and outcomes.
Findings: The study identifies varied adoption levels and applications of AI in Project Management among the selected firms. While international companies showcased advanced AI integration, the local enterprise demonstrated innovative, tailored approaches to address specific challenges. Findings reveal that AI enhances efficiency in resource allocation, risk management, and team collaboration. However, barriers such as cost, employee training, and organizational resistance were noted, particularly in smaller firms. In larger companies, privacy concerns, regulatory requirements, and the necessity for secure data storage and processing significantly limit AI adoption. These organizations must also ensure thorough legal vetting and compliance with Data Protection Agreements (DPAs), adding layers of complexity to the implementation process
Research limitations/implications: The scope is limited to IT companies operating within the Polish market, which may not fully represent trends in other sectors or regions. Future research could expand the sample size and explore cross-industry applications of AI in Project

Management. The findings underscore the need for tailored strategies to overcome challenges in AI adoption, particularly for small and medium-sized enterprises (SMEs).
Practical implications: This paper offers actionable insights for IT companies seeking to implement AI in Project Management. It highlights the importance of organizational readiness, and alignment of AI tools with project objectives. Lessons from international firms and the innovative practices of local enterprises provide a balanced perspective for practitioners and policymakers.
Originality/value: While most of the current literature emphasizes theoretical analyses of AI implementation in Project Management, including discussions on challenges, potential benefits, and conceptual frameworks, this study takes a more practical approach. By conducting interviews and examining real-world applications of AI in four IT firms operating in Poland, the research provides unique insights into the tangible use cases, organizational strategies, and contextual factors shaping AI adoption. This practical orientation offers valuable guidance for practitioners and researchers aiming to bridge the gap between AI assumption and implementation.
Keywords: Artificial Intelligence, Project Management, Project Planning, Tender Phase, Data-driven Decisions.
Category of the paper: Research paper.

1. Introduction

In today's fast-evolving business landscape, achieving agility in Project Management has become essential for organizations aiming to stay competitive. Traditional Project Management methods, such as the waterfall approach, often struggle to adapt to changing requirements and unexpected challenges, resulting in delays and inefficiencies. Agile methodologies have gained prominence as a solution, focusing on iterative development, continuous feedback, and collaborative teamwork to address uncertainty and deliver value incrementally. However, even agile approaches face limitations, particularly in resource management, accurate forecasting, and risk identification, which can impede project success (Zhou et al., 2024).

Artificial Intelligence (AI) has emerged as a game-changer in Project Management, providing tools that help overcome these limitations. AI can automate repetitive tasks, support faster and more informed decision-making, and foster improved collaboration and communication among team members. AI-powered tools analyze project data, forecast outcomes, and propose solutions for potential issues (Weng et al., 2024). Additionally, they learn from past projects, enhancing precision and efficiency in future efforts. Such capabilities enable project managers to allocate resources better, predict risks, and respond to challenges effectively, driving improved performance across project lifecycles (Bi et al., 2024).

However, integrating AI into Project Management also brings challenges, such as ethical concerns and fears of job displacement. Understanding AI's role and impact in Project Management is critical to harnessing its benefits while mitigating potential risks. Furthermore,

while much of the existing research explores AI's theoretical potential—discussing its challenges and benefits—there is a lack of studies examining its practical applications. This gap is particularly evident in less-studied markets like Poland, where the unique organizational, economic, and cultural context may influence AI adoption. The Polish IT sector offers a compelling case for exploring AI in Project Management. Unlike markets such as Australia, where AI-driven Project Management has been more extensively documented (Tan, 2023), the Polish market provides an opportunity to examine real-world applications in a less mature context. Additionally, projects' inherently unique and temporary nature often challenges AI adoption, as the limited availability of project-specific data can hinder AI's effectiveness. These factors highlight the importance of studying AI use in a practical, context-driven manner.

This study aims to fill this research gap by analyzing how AI is applied in Project Management within the Polish IT sector. Using a combination of literature review and case studies involving four firms—three international companies operating in Poland and one smaller, local enterprise—this research examines practical implementations of AI and the challenges faced during its adoption. The findings offer actionable insights into how AI tools can enhance project outcomes, particularly in emerging markets. By investigating AI's role in automating tasks, supporting decision-making, and improving team dynamics, this study provides a detailed understanding of both the opportunities and obstacles in AI adoption. It emphasizes the need for organizations to tailor AI solutions to their specific contexts to realize their potential benefits fully. This research contributes to the growing body of knowledge on AI in Project Management and offers practical guidance for companies and policymakers seeking to leverage AI effectively while addressing its inherent challenges.

2. Literature Review

The incorporation of Artificial Intelligence (AI) into Project Management (PM) has gained considerable attention in recent years, reflecting its growing importance in enhancing agility and efficiency in project execution (Karamthulla, 2024). The literature highlights the transformative potential of AI in PM, particularly in Agile Project Management, by addressing complex challenges and improving project outcomes. This literature review explores the key applications of AI in Agile Project Management, focusing on its innovations, the problems it helps resolve, and the benefits it can offer (Muda, 2023). AI's application in Project Management is an emerging field, as its rapid evolution has led to significant advancements in various domains, including PM. Gil et al. (2021) emphasize the transformative potential of hybrid computational models and machine learning systems in PM, although they note that these technologies are still in their early stages. Their work provides a taxonomy of AI applications in different PM subfields, offering a foundational resource for researchers and

practitioners interested in exploring AI's role in project leadership. Similarly, Victor (2023) underscores the growing adoption of AI in business, pointing out that its impact on PM is still in its nascent phase. Victor suggests that the integration of AI into PM aligns with the theory of evolution, where success depends on adaptability. By analyzing data inputs, AI facilitates more informed decision-making, allowing project managers to navigate uncertainty and predict project outcomes more accurately (Odejide, 2024).

AI's application in PM is not always intuitive due to the unstructured nature of project data compared to more structured fields, as noted by Russell and Norvig (2021). However, the existing literature and AI tools demonstrate their utility in critical areas such as cost estimation, risk assessment, and resource allocation (Lewicka, 2024). For instance, Rankovic et al. (2021) apply artificial neural networks and linear regression to predict project effort based on cost drivers and software size. Similarly, Nayebi et al. (2018) developed a decision-support system using natural language processing to enhance effort estimation and manage change requests. These applications underscore AI's potential to improve PM decision-making by providing more accurate forecasting and insights. Despite these promising advancements, AI's role in PM software has mainly been limited to input-output interactions, rather than directly performing core PM tasks. Chatbots like Stratejos and Redbooth assist project teams with task management and workflow coordination, automating daily project updates.

Meanwhile, tools such as PMOtto and Cloverleaf integrate AI to handle core PM functions. PMOtto provides AI-powered recommendations on time, cost, and resource allocation, while Cloverleaf offers insights into team dynamics, helping project managers optimize team composition and skill development. These applications illustrate AI's potential to improve both the planning and execution phases of projects.

However, despite these advancements, many organizations struggle to fully comprehend the benefits of AI and how to align AI solutions with their specific needs (Rakova, 2021). This gap highlights the need for a structured approach to identify suitable AI applications for organization-specific challenges (Zadeh, 2024). Current research suggests a more tailored methodology is required to help organizations realize AI's full potential in PM. AI also transforms Agile Project Management by automating repetitive tasks, improving decision-making, and optimizing project outcomes (Manchana, 2022). One of the key benefits of AI in Agile Project Management is its ability to automate time-consuming tasks, such as scheduling, resource allocation, and status updates. By automating these routine tasks, AI allows project teams to focus on higher-value activities like strategic planning and problem-solving. AI-powered Project Management tools, for example, can automatically assign tasks based on team members' skills and availability, reducing administrative burdens on project managers (Bi, 2024).

Another important application of AI in Agile Project Management is predictive analytics. AI, fueled by machine learning algorithms, analyzes historical project data to identify patterns and forecast potential risks, resource requirements, and project timelines (Karamthulla, 2024).

These insights assist project managers in making informed decisions about project scope, timelines, and resource allocation, helping to reduce the uncertainty that often characterizes Agile projects. By using predictive analytics, Agile teams can anticipate challenges and proactively take action to mitigate risks. AI also enhances collaboration and communication within Agile teams. AI-powered communication tools can analyze team interactions, identify communication bottlenecks, and suggest improvements to optimize collaboration (Kasaraneni, 2021). Chatbots and virtual assistants also serve as communication hubs, providing team members quick access to project updates, task lists, and other relevant information. This fosters a more collaborative and efficient working environment, ensuring all team members remain aligned and focused on achieving project goals. Moreover, AI significantly enhances real-time monitoring and feedback, vital components of Agile Project Management (Adegbite, 2023). AI tools continuously analyze data from various project sources, providing real-time insights into project progress, task completion, and emerging risks. These tools can flag issues as they arise, enabling project managers and teams to take corrective actions promptly, and ensuring that the project stays on track. Furthermore, AI-driven feedback loops allow for continuous improvement by offering data-driven insights that guide project teams in refining their approaches and strategies over time (Bainey, 2024). This real-time monitoring and feedback ensures that Agile projects align with their objectives.

Integrating AI into Agile Project Management offers many benefits, including the automation of repetitive tasks, predictive insights, enhanced communication, and real-time monitoring. These capabilities allow Agile teams to work more efficiently, adapt to changing conditions, and achieve successful project outcomes (Ciric, 2022).

While the current literature and available tools demonstrate the potential of AI in PM, further research is needed to tailor AI applications to specific organizational needs and to unlock their full potential. As AI technologies continue to evolve, their applications in Agile Project Management are likely to expand, further transforming how projects are managed in today's fast-paced and dynamic business environment.

3. Methodology

This study employs a qualitative research approach, combining thematic analysis (Castleberry, 2018) and case study methodology (Priya, 2021) to examine AI integration in project management. The case study approach was chosen for its ability to provide in-depth insights into the unique experiences and strategies of the participating organizations, while thematic analysis was selected to identify patterns and themes in the data. This combination enables a comprehensive understanding of the AI tools used and their impact on project management processes. The primary goal of the research is to identify and analyze the AI tools

utilized by four companies and explore how these tools are integrated into their project management practices. Qualitative data was gathered through semi-structured interviews with key stakeholders: Company A (Engineering Director), Company B (Lead Functional Architect), Company C (Engineering Manager), and Company D (CEO). Each case study reflects a distinct organizational perspective and approach to AI adoption.

The IT companies in this study chose to remain anonymous to protect their competitive position, intellectual property, and proprietary know-how—key assets in the tech industry. Strict confidentiality policies and concerns about misinterpretation of findings, which could harm reputation or trust, also influenced this decision (Lewicka, 2016; Lewicka, 2022; Lewicka et al., 2022). Legal or contractual obligations with partners further reinforced the need for discretion in this competitive and innovative sector.

Company A, a global technology provider with an "AI-first" strategy, applied tools like ChatGPT for project scoping, requirements analysis, and benchmarking. Microsoft 365 Copilot enhanced resource planning, communication, documentation, and multilingual support, while GitHub Copilot improved code delivery. AI also facilitated risk analysis, reporting, and executive summaries, enabling efficiency gains and strategic, human-centric activities despite privacy concerns.

Company B, a global provider of hospitality software solutions embedded in a non-IT-centric industry, adopted AI cautiously. ChatGPT was used selectively for API documentation and work breakdown structures, while other tools supported drafting, transcription, and document review. However, manual processes predominated due to trust issues, stringent data privacy requirements, and reliance on human judgment.

Company C, a digital media house, balanced exploratory AI applications with human oversight. Confluence's AI search provided quick information retrieval, Jira's AI supported ticket summarization, and GPT facilitated retrospective analysis. While these tools reduced manual effort, concerns about security and the limitations of AI judgment persisted.

Company D, a Polish micro-business and software house, leveraged Claude.AI to streamline tender participation. AI processed tender requirements, identified risks, and developed schedules, reducing analysis time significantly. Claude.AI built a knowledge base in a fixed-price project, generated requirement reports, and recommended team structures. The AI-prepared offer included a detailed budget, schedule, and risk plan, enhancing efficiency and competitiveness, particularly for smaller firms.

These cases highlight AI's transformative potential in project management, emphasizing diverse applications, challenges, and benefits tailored to organizational contexts. The study offers a broad yet nuanced perspective on AI adoption across varied project management environments by analyzing three globally operating companies and one micro-business.

4. Findings

The analysis of case studies from these organizations revealed some common patterns in how artificial intelligence (AI) tools are being adopted and implemented across different project management knowledge areas and process groups. Our research identified several improvements introduced by AI to project planning, execution, monitoring and control, and closure phases, along with different implementation approaches across the studied organizations.

Impact on Project Planning Processes. The research has shown significant benefits in project initiation and planning processes through adoption of AI tools. ChatGPT surfaced as a valuable tool for gathering information, requirements analysis and work breakdown structure (WBS) creation in the project scope management area. Company B's Lead Functional Architect noted, "Very helpful in WBS - work-breakdown structure, a deliverable-oriented breakdown of a project into smaller components with the help of the GPT." This adoption significantly reduced the time required for initial project scoping and planning while improving the robustness of project documentation. In project resource planning, AI tools were found useful or promising in team structure planning and resource allocation. Company D successfully used Claude.ai for matching team member skills with project requirements in public sector tenders. At the same time, Company A is testing and will soon benefit from enhanced resource and capacity planning with the help of Microsoft 365 Copilot.

These findings align with the research by Ruchit and Mitchell (Ruchit, Mitchell, 2024), which describes the potential of AI in enhancing project planning through improved forecasting, resource optimization, and risk assessment.

Enhancement of Project Execution. During the project execution phase, AI tools led to significant efficiency gains, especially within the communication management space. Microsoft 365 Copilot and ChatGPT were used for meeting documentation and stakeholder communications. The Engineering Director at Company A highlighted that "Communication preparation/review - preparation/redaction of emails during the whole project lifecycle, proofreading, translation, language adjustments" had become significantly more efficient.

The impact of AI on project execution resonates with the findings of multiple papers (Tursunbayeva, Chalutz-Ben Gal, 2024; Bahi et al., 2024; Karamthulla et al., 2024), which emphasize the role of AI in facilitating collaboration, knowledge sharing, and decision-making in project teams.

Monitoring and Control Processes. In analysed cases, AI tools also brought value to project monitoring and control processes. The Atlassian AI Suite improved task tracking and progress monitoring capabilities, particularly Jira AI. Company C's Engineering Manager reported that "Using Jira AI to summarize long tickets having a lot of text and comments or conversations to get the overview in no time" significantly helped monitor project progress and

identify potential issues early. In project risk management, AI tools help with risk identification and analysis. Company B utilized ChatGPT for "high-level risk analysis, brainstorming with GPT to understand risk & possible mitigation strategies." By utilizing Claude.AI, Company D identified and mitigated risks that could lead to exclusion. It presented a more thoughtful and polished consultant offer, increasing its competitiveness.

AI systems enhance the ability to monitor tender statuses and forecast outcomes, contributing to more efficient coordination in the tender evaluation process and enabling earlier decision-making regarding bid submissions, which resonates with Pesqueira (2024). These applications of AI in monitoring and control align with the research by Odejide and Edunjobi (Odejide, Edunjobi, 2024), which shows the potential of AI in project performance tracking, predictive analytics, and proactive risk management.

Project Closure and Knowledge Management. The case studies demonstrated significant efficiency gains in project closure and organizational learning processes through AI implementation. Confluence AI and ChatGPT were particularly valuable for knowledge management and documentation of lessons learned. Company C reported that "Confluence documentation holds tons of knowledge organized into separate docs" and highlighted how AI tools helped make this knowledge more accessible for future projects. In the same time the use of GPT helped analysed project retrospectives, "producing a document gathering all the categories, rates, and proposed action plans and providing insights and suggestions".

This finding resonates with the work of Gil et al. (Gil et al., 2021), who highlight the importance of effective knowledge management in project-based organisations and the potential of AI in facilitating knowledge capture, sharing, and reuse.

Tender Management Process. The micro-business (Company D) demonstrated innovative approaches to AI implementation in public sector project management, particularly in tender management processes. Their success in reducing tender analysis time from several hours to minutes showed how AI could enhance project planning and proposal development processes even in smaller organizations. AI significantly accelerates the stages of offer preparation and tender submission. Automating processes such as collecting and analyzing tender data enables companies to respond to opportunities more quickly and minimizes the risk of manual errors (Pesqueira, 2024).

Table 1 summarizes the AI tools the researched companies utilized during various project management phases. It highlights the specific tools implemented, their application areas, and the corresponding project stages, offering a concise overview of AI integration practices across the organizations studied.

Table 1.
Tools used in Project Management Phases in examined Companies (based on own research)

Project Management Phase	Company A (Global Technology Provider)	Company B (Global Hospitality Service Provider)	Company C (Scandinavian Media House)	Company D (Software House)
Scoping and planning	ChatGPT is used for gathering market insights, verifying existing use cases, and brainstorming ideas for project development, Microsoft 365 Copilot is being tested for resource and capacity planning	ChatGPT is employed to gather market insights, brainstorm ideas, and work breakdown structure; Gemini/Bard was also tested for a similar purpose, but it wasn't proved helpful at the point	ChatGPTused for gathering insights and brainstorming ideas, as a helpful assistant in the scoping phase	Claude.ai for matching team member skills with project requirements
Execution	Microsoft 365 Copilot is applied to meeting documentation and stakeholder communication processes; GitHub Copilot is used for "documentation from the code" and ensuring business and engineering alignment.	ChatGPT is used for meeting documentation and stakeholder communication processes, including creating various documents, presentations and training materials with graphics.	Jira AI and Confluence AI proved helpful for monitoring project progress and identifying potential issues early.	Claude.AI is used for the automated processing of tender documentation: analysis of the mandatory conditions, including qualification criteria, to ensure that the company meets all formal requirements.
Monitoring and Control	ChatGPT is used for high-level risk assessment and mitigation strategies, enhanced reporting, and forecasting while operating on big datasets	ChatGPT helped with high-level risk assessment and mitigation strategies	Jira AI and Confluence AI are employed for monitoring project progress and identifying potential issues early	Claude.AI is used for identifying key risks associated with the tender, including contractual penalties for delays in providing specialists, tight deadlines requiring intensive planning and the obligation to provide bid security, impacting the firm's financial liquidity analysis
Closure and Knowledge Management	Microsoft 365 Copilot is used for improved documentation management	ChatGPT is treated "as StackOverflow or Google" for enhanced research and knowledge base	Atlassian AI (Jira AI, Confluence AI) for improved documentation and ChatGPT for analysis, summary, and conclusions/key takeaways from project retrospectives	Final offer generation with Claude.ai, including - a detailed schedule - budget divided into stages - proposed team

Source: own work.

The experimentation, use, and integration of AI tools have also led to an evolution in the project manager role. Project managers have shifted focus toward more strategic management aspects, with AI handling routine and research-intense tasks across various areas. As observed by all interviewees, there has been "increased focus on strategy, AI oversight, or upskilling in data and AI tools," indicating a transformation in how project managers perceive and approach their changing core responsibilities.

This evolution aligns with the trend described by Odejide and Edunjobi (Odejide, Edunjobi, 2024), with AI expanding human capabilities by providing support, insights, and recommendations. The role of the project manager is evolving towards a more technical and analytical approach while maintaining a key focus on human resource management and stakeholder communication. (Mohammad, Chirchir, 2024) The changing role of project managers in the case studies illustrates that they leverage AI tools to improve the efficiency of different project management aspects while maintaining strategic oversight.

Despite the benefits, organizations face several challenges in implementing AI within project management processes. Privacy and security concerns were often considered significant, particularly in companies handling sensitive project data or lacking enterprise data protection agreements with tool providers. Company B emphasized the challenge of balancing AI tool adoption with data protection requirements in project documentation and communication processes, while for Company C, not having enterprise “sand-boxed” solutions was a clear obstacle for broader AI adoption. An important aspect is managing the ethical and social risks associated with AI, such as data privacy and the transparency of algorithmic decisions. Project managers must actively participate in developing governance frameworks that ensure appropriate ethical standards and compliance with regulations (Pesqueira 2024). Technical limitations such as model “hallucinations” or AI tool shortcomings also presented challenges across various project management areas. The need for human validation of AI-generated content was often raised, with Company C's Engineering Manager noting that "Every response has to be carefully evaluated for false information" and Company B’s Lead Functional Architect stating that “The answer you get from ChatGPT can be as good as bad”. In project management practice, AI hallucinations can impact the effectiveness of project planning by leading to incorrect conclusions about resources, costs, or schedules. This highlights the need to integrate human expertise with AI-generated outputs (Mohammad, Chirchir, 2024).

These findings demonstrate the importance of proper AI governance and human oversight, as emphasized by multiple authors, including Rakova et al. (2020) and Odejide and Edunjobi (2024).

5. Conclusion

Integrating Artificial Intelligence (AI) into project management processes represents a transformative shift, as evidenced by our research findings and supported by a comprehensive review of existing literature. Our case studies demonstrate that AI adoption enhances various project management phases, from planning and execution to monitoring, control, and closure. These findings align with broader trends in the literature, solidifying the understanding of AI's growing role in modern project management practices.

Our research revealed significant improvements in project planning processes, particularly in scope and resource management. Tools like ChatGPT and Microsoft 365 Copilot have been pivotal in reducing the time needed for tasks like work breakdown structure creation and resource allocation while enhancing documentation accuracy. These observations echo findings in the literature (Ruchit, Mitchell, 2024), highlighting AI's potential in forecasting, resource optimization, and proactive risk assessment. During project execution, AI has driven efficiency gains in communication and task coordination. Tools like Microsoft 365 Copilot and Atlassian AI Suite were instrumental in streamlining stakeholder interactions and documentation, as corroborated by studies that emphasize the role of AI in promoting collaboration and decision-making (Tursunbayeva, Chalutz-Ben Gal, 2024).

Furthermore, our findings underline the value AI brings to monitoring and control processes, such as risk identification, progress tracking, and tender evaluation, mirroring the insights of Odejide and Edunjobi (2024) on AI's predictive and proactive capabilities. Knowledge management and project closure processes have also been notably enhanced through AI adoption. AI tools like ChatGPT and Confluence AI facilitated capturing, organizing, and disseminating project learnings, supporting continuous improvement in future initiatives. These findings align with the work of Gil et al. (2021), which underscores the importance of AI in fostering knowledge sharing and reuse in project-based organizations.

The literature also provided a vital context for understanding the evolution of the project manager's role in light of AI integration. Our research confirmed a shift toward more strategic responsibilities, with project managers increasingly focusing on AI oversight, stakeholder engagement, and upskilling in data and AI tools. This transition resonates with observations by Odejide and Edunjobi (2024) and others, who describe the growing importance of technical and analytical skills in project management. However, both our findings and the literature highlight critical challenges in AI adoption, including privacy concerns, ethical risks, and technical limitations like AI hallucinations. Organizations need robust governance frameworks and human oversight to mitigate these issues effectively. Additionally, the literature and our research underscore the necessity of balancing AI insights with human expertise to ensure accurate and contextually relevant outcomes.

The integration of AI into project management, as observed in our research and supported by the literature, offers significant benefits while presenting challenges requiring thoughtful navigation. As AI tools evolve, their potential to enhance project planning, execution, monitoring, and knowledge management will only increase. Organizations can harness AI's capabilities to drive efficiency, adaptability, and success by addressing ethical considerations and technical limitations. Our findings contribute to this growing body of knowledge, offering practical insights into the transformative impact of AI on project management

6. Limitations and Future Research

The study identified clear trends in how AI is reshaping project management practices. All organizations anticipated increased AI integration across the board, including project management processes, though with different approaches to implementation. Company B's Lead Functional Architect noted, "AI adoption in our work routine will still come". However, this was consistently balanced with an emphasis on maintaining human-centered project management approaches, with AI serving as a support tool or an extension rather than a replacement for project manager judgment across all knowledge areas.

Future research should focus on several critical areas to address the limitations of integrating AI into agile Project Management. Firstly, exploring advanced AI techniques, such as deep learning and reinforcement learning, is essential for tackling more complex Project Management tasks. These technologies could offer stronger predictions and optimizations for intricate project scenarios, improving decision-making and project outcomes. Additionally, investigating the interplay between AI and agile methodologies across various industries and project types will provide insights into how AI can be applied more effectively in different contexts, maximizing its potential benefits.

Another critical focus should be on improving the quality and availability of data used to train AI models. Research into data cleansing methods, integrating diverse data sources, and creating frameworks for data governance will ensure that AI tools are based on high-quality, accurate data. Moreover, ethical considerations around AI implementation in Project Management must be addressed. This includes tackling AI bias, ensuring transparency, and establishing clear guidelines for the ethical use of AI in project environments.

Additionally, examining the dynamics of human-AI collaboration in project teams will be key to enhancing the overall effectiveness of AI integration. Understanding how AI can complement human decision-making and help project managers make better-informed choices is vital for maximizing utility. Future studies should also explore the development and testing of new agile frameworks that incorporate AI as a core component. These frameworks would

allow AI to function effectively within agile environments while preserving the flexibility and adaptability that agile methodologies prioritize.

The cases analyzed in our study involved three international companies operating in the Polish IT sector and one small Polish IT enterprise. These case studies provided valuable insights into the application of AI in agile Project Management across different organizational contexts. However, future research would need to be conducted on a larger scale and across different sectors to validate and expand upon these findings. This broader scope will help better understand the full potential of AI in agile Project Management and its adaptability to various industries and organizational sizes.

Future studies will contribute to a deeper understanding of how AI can be optimally integrated into agile Project Management by focusing on these research areas. This will drive further improvements in project outcomes, efficiency, and innovation. As AI continues to evolve, its thoughtful and adaptive implementation will allow project managers to leverage its full potential, enabling more significant success in an increasingly complex and dynamic business landscape.

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