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Exploring the Impacts of AI on Project Management

Harnessing the Potential of Artificial Intelligence for Future Success

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Abstract

This thesis explores the integration of Artificial Intelligence (AI) within project management practices, with a focus on how professionals perceive, experience, and adopt AI technologies in real-world project environments. Drawing on a mixed methods approach, the study combines quantitative survey data from 80 professionals from various industries with qualitative thematic analysis of open-ended responses.

The findings reveal a strong correlation between AI familiarity and confidence in tool integration, suggesting that digital maturity is critical for adoption readiness. The respondents identified opportunities and barriers, ranging from improved decision-making and real-time updates to data quality and skill gap concerns. The study further aligns these insights with institutional theory by categorizing drivers and barriers into regulative, normative, and cognitive dimensions.

Special attention is paid to the intersection of AI and Agile or hybrid methodologies, where AI supports ceremonies such as sprint planning and retrospective analysis. Based on empirical results and corroboration from the literature, the study proposes a conceptual framework for an AI-augmented agile lifecycle. Recommendations are provided for practitioners aiming to improve AI integration strategies, training programs, and ethical governance.

This research contributes to the growing field of AI-enabled project management by offering actionable insights, theoretical grounding, and practical pathways for transformation.

Keywords: Artificial Intelligence, Project Management, Human-AI Collaboration, Survey Analysis

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Chapter 1: Introduction

1.1 Defining Project Management

Project Management (PM) is traditionally defined by the Project Management Institute (PMI) as the application of knowledge, skills, tools, and techniques to project activities to meet project requirements Institute (2021). It is a discipline that encompasses initiating, planning, executing, controlling, and closing a team's work to achieve specific goals and meet success criteria within a set timeframe. As organizations across sectors have become more complex and innovation-driven, the scope of PM has evolved from task-oriented oversight into a strategic competency involving continuous learning, stakeholder integration, and adaptive execution methodologies.

Historically, PM can be traced to the construction of ancient monuments and large infrastructure projects such as the Great Wall of China and the Roman aqueducts. However, its formalization as a discipline began in the mid-20th century with the development of tools like the Critical Path Method (CPM) and the Program Evaluation and Review Technique (PERT). During the 1980s and 1990s, the PMBOK Guide was introduced, standardizing the practices that are now globally recognized across industries.

In modern business environments, PM has shifted from linear, waterfall-based models to more adaptive and iterative methodologies like Agile, Lean, and hybrid approaches. These methodologies emphasize stakeholder collaboration, customer-centricity, and responsiveness to change Serrador and Pinto (2020). This evolution was driven not only by the increasing complexity of projects but also by the wave of digital transformation that requires rapid, data-informed decision-making.

Contemporary project managers are increasingly expected to navigate uncertainties, lead cross-functional teams, and prioritize delivering value over merely producing outputs. As a result, the project manager's role has expanded beyond managing timelines and budgets to encompass strategic foresight, effective leadership, and continuous process improvement. This shift in focus requires the development of new competencies, including data literacy, technological fluency, and ethical decision-making.

In response to these demands, digital tools have become integral to PM practices. Cloud-based platforms like MS Project, Jira, Trello, and Asana have transformed collaboration and monitoring. However, these tools still rely heavily on manual inputs. This is where the integration of Artificial Intelligence (AI) is beginning to create a fundamental shift, moving from digital facilitation to intelligent automation and augmentation of project management tasks Haase et al. (2023).

By offering predictive analytics, natural language understanding, and machine learning capabilities, AI presents new frontiers in scheduling, risk forecasting, and resource optimization. However, these advancements require organizational readiness and cultural acceptance factors to be critically examined to understand AI's true transformative potential within the PM landscape.

1.2 Artificial Intelligence and Its Relevance

Artificial Intelligence (AI) refers to the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules), reasoning (using rules to reach approximate or definite conclusions), and self-correction Russell and Norvig (2021). AI encompasses various subfields such as machine learning (ML), natural language processing (NLP), computer vision, and robotics.

The origin of AI can be traced back to the 1956 Dartmouth Conference, where pioneers like John McCarthy and Marvin Minsky speculated about machines performing tasks typically requiring human intelligence. In recent years, AI has advanced rapidly due to increased computing power, availability of big data, and advancements in deep learning algorithms. Modern AI applications now range from recommendation engines and autonomous vehicles to fraud detection and predictive maintenance in manufacturing.

In the business context, AI is seen not just as a tool for automation but as a strategic capability that can redefine how value is created, delivered, and captured Vial et al. (2022). It offers a significant opportunity to reduce operational inefficiencies, improve decision-making, and develop customer-centric services. Organizations across industries are increasingly embedding AI into enterprise resource planning (ERP), customer relationship management (CRM), and human capital management (HCM) systems.

The adoption of AI requires more than technical deployment. It involves aligning AI capabilities with business strategies, managing workforce transitions, and addressing ethical challenges such as transparency, accountability, and fairness Shamim (2024). The concept of "responsible

AI" is emerging as a guiding principle to ensure that AI systems are effective, trustworthy, and aligned with human values.

In project management, AI brings intelligent automation. Self-learning algorithms help with tasks like risk assessment, budgeting, and stakeholder communication. AI can look at past projects to predict delays, recommend reallocating resources, and suggest real-time fixes. The challenge is to fit these tools into the ever-changing and often unclear workflows typical in project environments.

Adoption of AI varies widely among organizations. Several factors affect this, such as their digital maturity, data quality, commitment from leadership, and how willing employees are to accept these changes. This means that using AI isn't just a simple plug-and-play process; it's a significant shift that needs careful management and planning to get the best results.

AI's role in PM is particularly pronounced in Agile and Hybrid environments, where rapid feedback loops and data-driven adjustments are critical. From backlog prioritization to sprint velocity predictions, AI can complement human judgment, enhancing efficiency and reducing errors. This synergy between human expertise and machine intelligence forms the core of human-AI collaboration models currently under study Johnson et al. (2022).

1.3 Historical Integration of AI in Project Management

The merging of Artificial Intelligence (AI) with Project Management (PM) has been a journey of gradual change, closely tied to the wider advances in technology, particularly in automation and decision-making tools. In the late 1980s and 1990s, we saw the first signs of AI making its way into project management through expert systems and rule-based logic. During that time, AI was mostly used for cost estimation and scheduling, relying on very straightforward, deterministic models. These early applications were primarily found in large engineering and defense projects, where the complexity and volume of data made it essential to use some advanced methods to tackle uncertainty.

With the rise of machine learning and predictive analytics in the early 2000s, AI's role expanded beyond mere assistance to providing adaptive, learning-based insights. According to Kenzhin et al. (2025), bibliometric analyses reveal an exponential growth in AI-driven PM research and applications since 2015, particularly in agile software development and construction management. Key Milestones:

- **1980s–1990s**: AI used in PM mostly in academic prototypes; applications like scheduling with fuzzy logic and expert systems (e.g., rule-based estimators).

- **2000s**: Emergence of neural networks and data mining in project forecasting; integration with ERP and decision support tools.

- **2010–2015**: Widespread adoption in agile software projects, with early implementations of AI in sprint planning and bug triaging.

- **2015–present**: Integration of natural language processing (NLP), robotic process automation (RPA), and generative models into collaborative and autonomous project management environments.

For instance, Lai (2025) presents a framework integrating AI into building lifecycle management, from project conception to cost estimation and quality assurance. Their findings highlight that AI significantly improves early-stage risk assessments and resource optimization.

Meanwhile, Zainordin and Lai (2025) explains how modern AI tools, integrated with Building Information Modeling (BIM), enable real-time tracking and forecasting in complex urban development projects, drastically reducing delays and cost overruns.

Practical Real-World Applications:

- Construction: AI-enhanced BIM tools support cost evaluation and risk detection Tiwari and Malani (2025).

- Software Development: Generative AI is used to predict story points, prioritize backlogs, and suggest resource distribution strategies Islam and Sandborn (2025).

- Smart Cities: Real-time AI integrations in project dashboards help monitor infrastructure deployment and optimize urban planning resources Zainordin and Lai (2025).

Recent advancements in project management are really changing the way we work. Instead of just dealing with problems as they pop up, we're adopting a more proactive mindset that includes predictive and prescriptive intelligence. With the rise of AI-driven tools, project managers can now make smarter decisions on the fly, catch issues early on, automate reporting tasks, and even anticipate risks before they escalate into big problems. It feels like we're not just managing projects anymore; we're stepping into the future of how we approach our work. This transformation is closely tied to the broader digital evolution we're experiencing, as outlined in Lai (2025), highlighting how we're not just gathering data anymore; we're using that data to drive actionable strategies.

1.4 Key Applications of AI in Project Management

As shown in Table 1.1, AI is making a big impact on project management in various ways, such as helping with scheduling, assessing risks, and improving teamwork. In this overview, we'll explore the key areas where artificial intelligence is playing a role in project management. We'll also include a table that highlights important application areas, what they do, and some real-world examples. This way, you can see how AI is enhancing scheduling, communication, risk management, and decision-making in today's project environments.

Table 1.1: Key Applications and Examples of AI in Project Management

Application Area	**Description**	**Example Use Cases**
Scheduling & Planning	AI help in sequencing and allocation using constraints and predictive data.	Microsoft Project's smart scheduling; Primavera analytics
Risk Management	AI predicts risk likelihood and impacts using historical datasets.	k dashboards; early warning systems
Decision Support	Real-time decision insights via dashboards and automated suggestions.	IBM Watson AI project forecasting
Document Analysis	Natural language processing extracts key information from contracts and emails.	Docusign Analyzer; compliance automation
Agile Sprint Planning	AI forecasts team velocity and backlog prioritization.	Jira's AI-powered planning tools
Stakeholder Communication	Digital assistants provide real-time updates and interface with stakeholders.	Slack bots; Microsoft Teams copilots
Visualization and Digital Twins	AI-powered digital twins simulate and visualize project environments.	Bentley Systems' construction project twins

1.5 Real-World Applications

Artificial Intelligence (AI) is changing the game in project management by finding smarter ways to automate tasks, boost accuracy, and support better decision-making in a variety of fields. Whether it's in construction, software development, healthcare, or finance, AI tools are becoming integral to everyday workflows, helping teams work more efficiently and stay aligned with strategic goals.

Take the construction industry, for example. Here, Building Information Modeling (BIM) platforms are starting to incorporate AI algorithms that make forecasting and planning much more reliable. By using predictive analytics, these tools can foresee potential delays by analyzing past data, weather conditions, and schedules for material deliveries. This kind of insight not only helps teams stay on track but also saves resources and time in the long run.

Tiwari and Malani (2025) Discuss how BIM-based planning combined with AI has enabled early-stage cost evaluation and structural optimization in large residential projects. Similarly, Zainordin and Lai (2025) highlights that in quantity surveying, AI-supported tools streamline measurement, verification, and change order management, contributing to more transparent contract execution.

In software project environments, AI's role is perhaps most advanced. Generative AI and machine learning models are now commonly used for story point estimation, sprint forecasting, and resource allocation. Islam and Sandborn (2025) shows that multimodal AI systems improve the accuracy of agile backlog predictions, leading to fewer scope creep instances and better sprint alignment. Platforms like GitHub Copilot and Jira's AI modules have also introduced intelligent code review, ticket classification, and effort prediction systems, reducing the cognitive load on team leads and scrum masters. In today's rapidly evolving world, the integration of AI in project management, especially within healthcare, is making a significant difference. For instance, when it comes to implementing Electronic Health Records (EHR), AI can streamline project scheduling across various departments. This means that timelines can be optimized while also ensuring that regulatory requirements are met. Moreover, AI plays a crucial role in enhancing patient safety by helping prioritize improvement projects based on historical data, incident severity, and operational risks.

Similarly, in the manufacturing and supply chain sectors, AI proves to be invaluable. It aids in forecasting demand, scheduling logistics, and detecting anomalies. These capabilities help prevent stockouts and keep projects on track. A great example of this is IBM's Watson Supply Chain, which is utilized by global manufacturing companies to predict potential material shortages and to suggest alternative suppliers, ultimately boosting project resilience.

Cross-industry tools like Microsoft Project for the Web, Oracle Primavera, and Asana are now incorporating AI features as well. These tools leverage natural language processing to help sort tasks, set priorities, and visualize performance. Additionally, AI facilitates the creation of automated dashboards using platforms like Tableau and Power BI, which not only reduces the need for manual reporting but also allows teams to track performance in real time. This aligns with insights from experts who stress the importance of "digital intelligence" in managing the lifecycle of infrastructure and urban development projects.

Beyond technology, AI supports human–AI teaming. Johnson et al. (2022) discusses how trust calibration is key to sustainable adoption in projects where AI assists human judgment rather than replaces it. This is particularly important in highly collaborative or regulatory-driven fields like defense or public infrastructure.

Yet, despite the promising use cases, challenges persist. As identified by Shamim (2024), ethical concerns, skills gaps, and organizational resistance often delay AI adoption in PM. Even when technical tools are available, organizational maturity and cultural readiness determine the successful integration of AI.

In summary, AI in real-world project management is no longer experimental but increasingly mainstream. Its success depends on the alignment of digital tools with stakeholder values, domain knowledge, and institutional frameworks. As your study further elaborates, integrating AI in Agile and Hybrid methodologies, along with fostering AI literacy and trust, will be critical in leveraging these real-world applications effectively.

1.6 Research Objectives

The primary aim of this research is to examine the influence of AI on project management practices and to identify enablers, challenges, and opportunities for AI integration. The specific objectives are:

- To assess how project professionals perceive the value, risks, and readiness for AI adoption.
- To explore correlations between AI familiarity and perceived integration success.
- To map AI-related drivers and barriers using institutional theory frameworks.
- To assess how well AI tools align with Agile and hybrid project management methodologies.
- To propose a model for integrating AI into Agile project workflows.

1.7 Research Questions

- RQ1: What are the key drivers and barriers influencing AI adoption in project management?
- RQ2: How does familiarity with AI tools correlate with project performance perceptions?

- RQ3: How compatible are AI technologies with Agile and Hybrid project management methodologies?
- RQ4: What organizational factors support or hinder AI integration in project workflows?

1.8 Structure of the Thesis

The remainder of this thesis is structured as follows:

- **Chapter 2** reviews literature on AI in project management, digital transformation, and institutional theory.
- **Chapter 3** outlines the theoretical framework used to structure the study.
- **Chapter 4** presents the methodology, including survey design and data collection.
- **Chapter 5** details the quantitative analysis of survey results.
- **Chapter 6** presents the thematic analysis of qualitative responses.
- **Chapter 7** discusses findings in relation to theory and current practice.
- **Chapter 8** concludes with practical recommendations, limitations, and suggestions for future research.

Chapter 2: Literature view

2.1 Foundations: Project Management and AI

While Chapter 1 introduced Project Management (PM) and Artificial Intelligence (AI) from a foundational and practical viewpoint, this section builds on those definitions by situating them within academic discourse. The goal is to trace how PM and AI are understood and operationalized in current research, particularly in relation to evolving workflows, roles, and decision-making practices.

Project Management (PM) has long been defined as the application of knowledge, skills, tools, and techniques to meet project requirements within defined constraints of time, scope, and cost (Project Management Institute, 2021). However, recent literature portrays PM not merely as a functional discipline but as a dynamic coordination process embedded within complex socio-technical systems. Narbaev (2015) argues that traditional models (e.g., Waterfall) have given way to more adaptive and iterative methodologies—such as Agile, Hybrid, and Lean—fueled by the increasing volume, velocity, and variety of data within projects. PM today involves not only task execution and stakeholder alignment but also the management of digital tools and AI-based agents.

Concurrently, the understanding of **Artificial Intelligence (AI)** has evolved from its early foundations in logic programming and rule-based systems to encompass advanced learning algorithms capable of perception, prediction, and decision-making. As defined by Russell and Norvig (2021), AI refers to "the study of agents that perceive their environment and take actions to maximize their chances of success." Within PM, however, this general definition expands to include context-aware systems that assist in real-time scheduling, communication, risk analysis, and even team sentiment monitoring.

Recent empirical studies reveal that AI in PM is primarily being used for augmentative rather than fully autonomous purposes. For example, predictive analytics models support project estimation and early risk detection (Bodea et al., 2020), while Natural Language Processing

(NLP) systems extract insights from meeting transcripts and project documents (Shamim, 2024). Robotic Process Automation (RPA) automates repetitive administrative tasks, and machine learning (ML) models improve over time based on historical project outcomes (McGrath and Košťálová, 2020). These applications illustrate a growing trend toward AI-human collaboration rather than replacement—a perspective also echoed in Human–AI Teaming theory(**?**).

Crucially, the use of AI in PM alters the role of the project manager. Once focused primarily on planning, resource allocation, and team oversight, the role now increasingly includes strategic interpretation of AI outputs, data literacy, and cross-functional orchestration between technical and human agents (Giraud et al., 2022). This realignment of roles demands new competencies and ethical awareness, particularly as AI begins to influence critical decisions.

Finally, combining project management (PM) and artificial intelligence (AI) is becoming increasingly important. Project management is all about understanding how people and organizations work together, while artificial intelligence dives into the intricacies of computing and how we think. Connecting these two fields is crucial for creating practical solutions that can make a difference in the real world, which is the heart of this research.

2.2 Emergence of AI Technologies in Project Management

Artificial intelligence has become a key player in transforming project environments. In the past, its use was mainly about automating data and creating expert systems. However, with recent advances in technology, we now have intelligent agents that can actively take part in decision-making, forecasting, and strategic planning. In this section, we'll dive into how different AI technologies are being utilized in project management, highlighting their importance in everyday operations and how they apply to specific sectors.

AI in Project Management (PM) operates across multiple functional layers—from planning and execution to control and evaluation. Among the most widely adopted technologies are **predictive analytics**, which leverage machine learning (ML) to forecast delays, budget deviations, and resource bottlenecks. These systems analyze historical data to recommend optimized task sequencing, improving planning accuracy (Haase et al., 2023). In industries such as construction and infrastructure, tools like Autodesk's Construction IQ or nPlan demonstrate these capabilities at scale, drawing from thousands of project histories to anticipate risks.

Natural Language Processing (NLP) is increasingly used in knowledge management and communication tracking. NLP algorithms can extract project status updates from emails, meeting transcripts, and unstructured documentation. For instance, AI-driven assistants such as Microsoft's Copilot and Google's Duet AI can synthesize and summarize project activities and identify sentiment patterns among stakeholders, thereby enhancing team coordination and conflict resolution(Shamim, 2024).

Robotic Process Automation (RPA) has streamlined back-office project functions. RPA bots automate repetitive administrative tasks like generating reports, updating Gantt charts, or logging time entries across platforms such as Jira or Asana. According to Giraud et al. (2022), these automations contribute to significant reductions in human error and administrative burden, especially in large-scale, multi-phase projects.

Machine Learning (ML) adds a layer of continuous improvement to PM. Unlike traditional rule-based systems, ML models can refine themselves with new data. In agile environments, ML is used to estimate story points, predict sprint velocity, and optimize workload distribution. A recent study Islam and Sandborn (2025) showcases how generative AI models improve backlog prioritization in software development, balancing technical debt with delivery timelines.

In addition, **AI-enhanced visualization tools**—such as Building Information Modeling (BIM) and Digital Twins—have redefined how project managers interact with spatial and temporal project data. These tools not only provide real-time simulations of physical assets but also integrate with scheduling and risk modules, allowing for proactive scenario testing (Lai, 2025). These applications are particularly impactful in architecture, engineering, and construction (AEC) sectors, where they reduce ambiguity and improve cross-disciplinary collaboration.

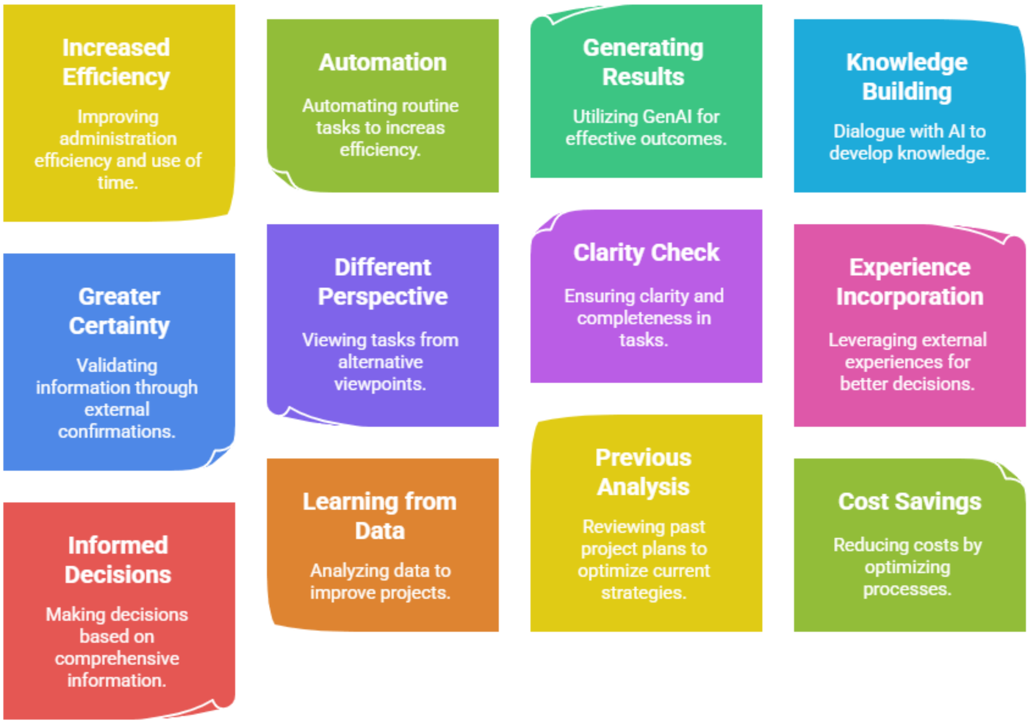

Figure 2.1: Key Benefits of Artificial Intelligence in Project Management. The visual illustrates how AI supports both strategic insight and operational performance across project environments.

Source: https://www.theprojectgroup.com/blog/en/ai-in-project-management/

From a strategic standpoint, the integration of AI transforms the project management function from task executor to value orchestrator. Project managers are now expected to interpret AI outputs, validate predictions, and align them with organizational goals. As highlighted by Muda et al. (2023), this transition requires hybrid competencies—technical fluency, data ethics, and stakeholder engagement.

In summary, AI's growing presence in project management leads to more automation, enhances forecast accuracy, and provides more substantial support for decision-making. However, this isn't just about the technology itself; it reflects a significant change in how we organize, execute, and evaluate project work across different industries. It's an exciting time that could reshape how we approach our projects.

The increasing integration of AI into project management is also reflected in global market trends. According to the AI in Project Management Global Market Report (2023), the market size is expected to grow from \$2.67 billion in 2023 to \$5.09 billion by 2027, with a compound annual growth rate (CAGR) of 17.5%. The major drivers of this growth include the expansion of cloud-based operations and advancements in intelligent automation technologies. North America remains the largest region for adoption, while the leading trend emphasizes technological innovation as a primary accelerator in AI-driven project environments.[1]

Figure 2.2: Projected Market Growth of AI in Project Management (2022–2027), highlighting increasing adoption and strategic significance. Source: The Business Research Company (2023).

Source: https://www.nimblework.com/blog/ai-impacting-project-management/

2.3 Theoretical Frameworks

This study is anchored in two foundational theoretical models:

1. Technology Acceptance Model (TAM) The TAM model, developed by Davis (1989), provides a framework for understanding users' behavioral intentions to adopt technology. The core constructs, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), are essential to interpret survey responses. TAM has been successfully applied in various studies evaluating AI readiness and digital maturity, and serves as the backbone for designing Likert-scale items in the current research.

2. Human–AI Teaming Framework AI is not merely a tool but a team member in many contexts. The Human–AI Teaming framework emphasizes shared autonomy, trust calibration, and collaborative sense-making (Johnson et al., 2022; Lyons and Nam, 2021). These concepts are vital for analyzing qualitative responses and understanding how project professionals conceptualize their roles vis-à-vis intelligent systems. TAM and human–AI collaboration provide a comprehensive technological and interpersonal perspective on how AI fits into professional workflows.

[1] AI in Project Management Global Market Report 2023, The Business Research Company.

2.4 Key Themes in the Literature

- **Decision-Making Support:** AI enhances decision quality by processing vast data sets rapidly and identifying patterns beyond human capabilities **?**. AI also impacts decision-making and business functions, particularly emphasizing socio-psychological effects on project stakeholders Muda et al. (2023).
- **Skill Shift and Managerial Adaptation:** The role of the project manager is evolving to include AI literacy and strategic interpretation of algorithmic outputs Giraud et al. (2022).
- **Resistance and Ethical Considerations:** Project Management Institute (2023) emphasizes that resistance to AI adoption often stems from job security fears, ethical ambiguity, and lack of trust in AI systems.
- **Operational Efficiency and Performance:** Empirical studies show measurable improvements in cost control, timeline adherence, and resource utilization in AI-augmented projects Bodea et al. (2020).

2.5 Theoretical Framing

Understanding the institutional conditions that enable or hinder AI adoption provides a broader socio-organizational context. Scott (2001) conceptualizes institutions as composed of regulative (rules), normative (values), and cultural-cognitive (beliefs) pillars. These dimensions shape how organizations perceive and react to new technologies.

For instance: When we talk about normative barriers, we're looking at the challenges that come from deep-rooted professional cultures. There's often a resistance to change and a noticeable absence of clear ethical guidelines for AI, which can make it tough for organizations to adapt.

Then we have cultural-cognitive barriers. These relate to the struggle some people have in visualizing how to integrate intelligent agents into existing workflows. Trusting machines to make decisions can feel daunting, as many still grapple with the idea of relying on non-human reasoning.

Lastly, regulative barriers are tied to important issues like privacy laws and data protection. These legal frameworks can make it difficult for organizations to implement new technologies, especially if funding for such initiatives is also lacking. Each of these obstacles highlights the complexities that come with embracing AI in various sectors.

These dynamics are rarely independent. Studies emphasize that adoption failures often stem from cross-dimensional conflicts — e.g., a lack of legal clarity may amplify ethical concerns or heighten organizational resistance (Pan and Zhang, 2022; Pheng and Valen, 2023).

By synthesizing these elements, the current research identifies an integrative model that treats AI implementation as both a technical and institutional endeavor.

2.6 Summary

In this chapter, we laid the groundwork for our study by exploring how artificial intelligence is changing the landscape of project management. We looked at how AI influences roles, decision-making, and organizational structures meaningfully. It became clear that to truly understand this transformation, we must approach it from multiple perspectives, drawing on theories like the Technology Acceptance Model, Human–AI Teaming, and Institutional Theory. This multifaceted lens will help us better appreciate the complexities of integrating AI into project management. In the next chapter, we will dive into the methodology used to gather and analyze data, tying it back to the ideas we've discussed here.

Chapter 3: Methodology

3.1 Survey Administration

The survey was conducted using the Google Forms platform, chosen for its ease of distribution, accessibility across devices, and built-in data export functions. The questionnaire was active between **October 2024** and **April 2025**, providing participants with approximately 6 months to complete the instrument.

The link to the survey was shared through multiple professional channels, including:

- **LinkedIn groups** focused on project management and emerging technologies
- **Online communities** related to Agile, construction, and AI in business
- **Direct email** invitations to known professionals and organizational contacts

Target population was professionals already working in or closely connected with project-based environments, such as IT, construction, consulting, defense, and product development. It was voluntary, and there were no job title, location, or industry constraints to cross-sectoral learnings. Before accessing the questionnaire, respondents were provided with a short introduction that included:

- The purpose of the research
- An estimated completion time (5 minutes)
- A statement of anonymity and data confidentiality
- Contact details of the researcher for questions

No personally identifiable information was collected, and responses were kept anonymous. Since participants read the introductory statement and then chose to participate, consent was assumed. This research does not have a vulnerable population, and as such, the ethics associated with research in the social sciences were followed during this research project.

3.2 Respondent Demographics

The survey garnered 80 valid responses. Demographic information was gathered as context to the findings and assist in ensuring diversity among respondents. The five primary characteristics that were examined were: country of residence, current professional role, industry, years of experience in project management, and level of education.

- **Country of Residence:** Respondents represented a global sample, with notable clusters from Europe (29), Asia (25), United States (15), Australia (4), and Africa (3). This provided a multi-regional perspective on AI adoption.
- **Professional Role:** Participants held a variety of roles, including Project Manager (32), Team Member (19), Stakeholder (3), Cost Controller (2), and Project Coordinator (2). This reflects a broad range of engagement with project management practices.
- **Industry Sector:** The most represented sectors were Construction (37), Technology (10), Education (5), and Manufacturing (3), with some overlap between categories such as "Manufacturing, Construction (4)". This variety enhances the cross-sectoral relevance of the findings.
- **Years of Experience:** Experience ranged from 1–3 years (32), 7–10 years (18), more than 10 years (15), and 4–6 years (14), enabling comparisons across junior, mid-career, and senior professionals.
- **Education Level:** Most respondents held a Master's Degree (43), followed by Bachelor's Degree (15), Doctoral Degree (13), and PMI Certification (7). This indicates a highly educated respondent pool.

These demographic patterns support the representativeness of the sample and enrich the interpretation of both quantitative trends and open-ended insights. Visual summaries of the distributions are presented in Figures 3.1–3.4.

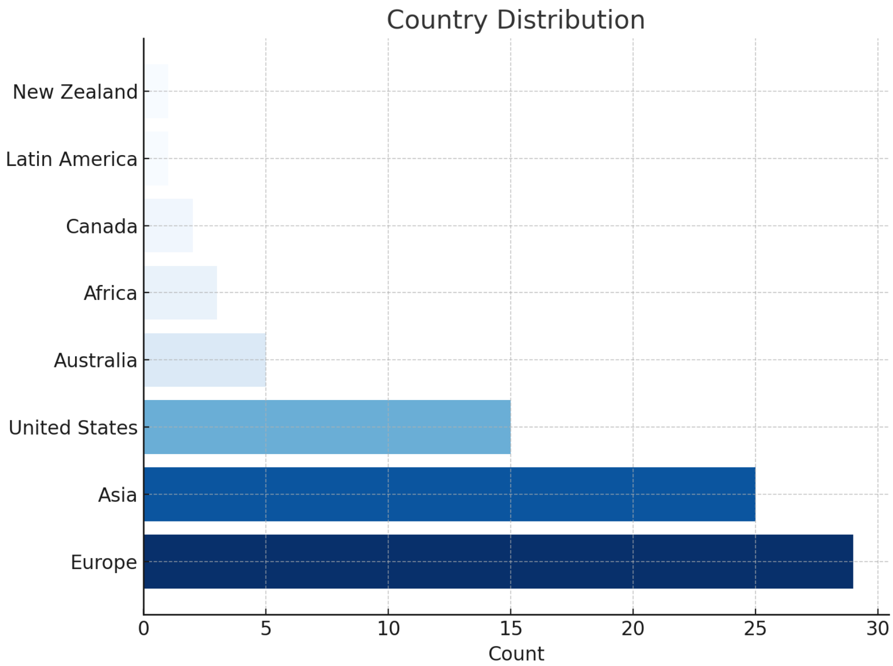

Figure 3.1: Country of Residence Distribution

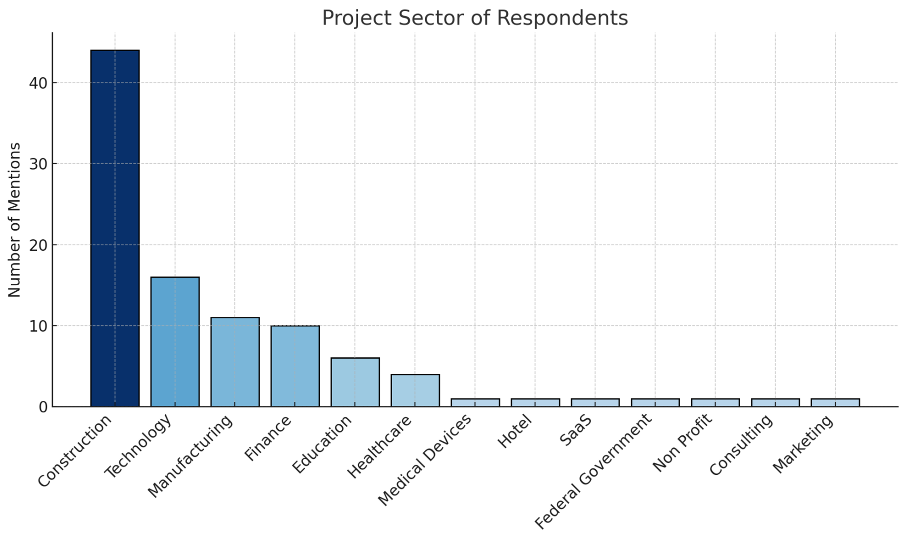

Figure 3.2: Industry Sector Distribution

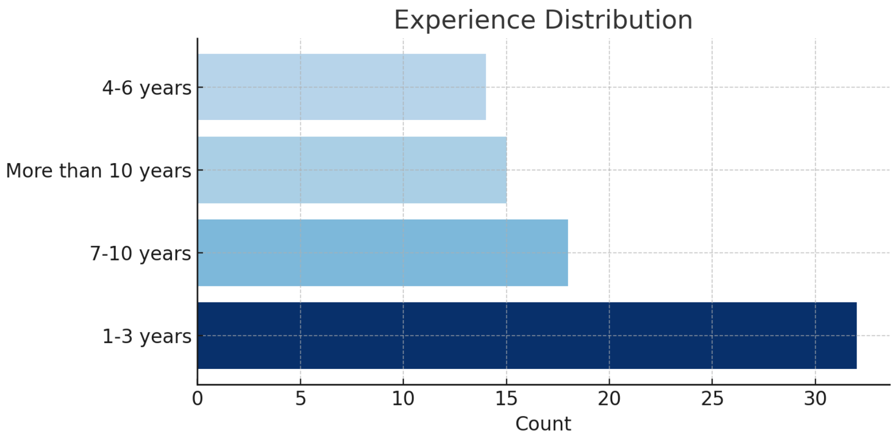

Figure 3.3: Years of Experience in Project Management

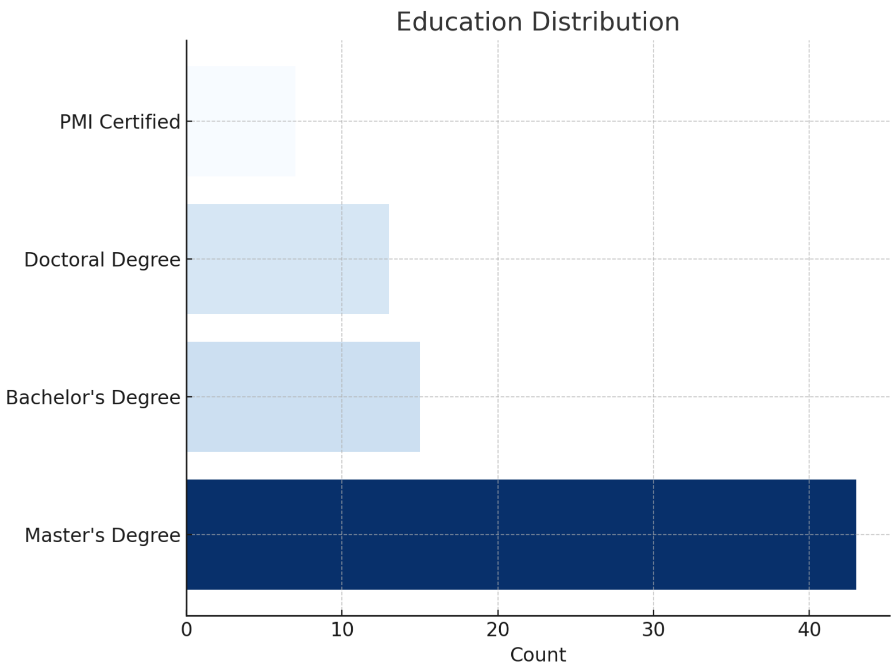

Figure 3.4: Education Level of Respondents

3.3 Instrument Design

The survey instrument was created to examine familiarity with AI tools, expected benefits, barriers to implementation, and readiness for an organization to implement AI. It used a 5-point Likert-type scale from 1 = strongly disagree to 5 = strongly agree. It included open-ended questions for the participants to provide additional information about their experiences and the context in which AI might be implemented.

3.3.1 Survey Design and Question Development

The survey instrument was constructed using a hybrid method: several items were adapted from validated theoretical models, while others were developed specifically to address gaps identified in the literature review. Key influences included the Technology Acceptance Model Davis (1989), Schemmer et al. (2021) and Corporation (2019).

The constructs measured in this study's survey instrument were also mapped to Scott's three institutional pillars (2001):

- **Regulative (R):** Reflects structural readiness, policy control, formal strategy, and organizational governance.
- **Normative (N):** Captures values, industry practices, user satisfaction, and internalized professional standards.
- **Cultural-Cognitive (C):** Represents shared mental models, trust, perceptions, and individual awareness of AI technologies.

Table 3.1 shows how each construct is aligned with its relevant institutional pillar, along with its question references and theoretical origin.

Table 3.1: Mapping of Survey Constructs to Institutional Pillars and Theoretical Origins

Construct	**Q#**	**Source Type**	**Framework**	**Pillar**	**Justification**
AI Familiarity	Q6	Adapted	TAM	C	Cognitive awareness of AI concepts
AI Perception	Q7–8	Adapted	Human-AI Teaming	C	Mental models, perceived value of AI
Integration Confidence	Q9	Adapted	AI Maturity Model	R	Strategic readiness and integration
PM Methodology Use	Q10	Original	–	R	Formal use of PM frameworks
Challenges in PM	Q11	Original	Synthesized literature	R	Barriers tied to operations/governance
AI vs. Challenges	Q12	Adapted	TAM	R	Functional use of AI to overcome rules/process limits
AI Tools Use Cases	Q13–15	Original	–	N	Organizational norms around current AI tool adoption
Adoption Drivers Satisfaction	Q16–17	Adapted	AI Adoption Models	N	Internal values behind AI adoption and satisfaction
Impact on Success	Q18–19	Adapted	Project Success Models	N	Norm-based evaluation of AI's contribution
Human-AI Collaboration	Q20–21	Adapted	Human-AI Teaming	C	Trust and team-level interaction patterns
Future of AI in PM	Q22–24	Original	–	C	Beliefs about AI evolution and its future role

Questions were designed to measure constructs such as AI familiarity, project team collaboration, adoption drivers, and perceived impact on project success. Closed-ended questions used a 5-point Likert scale to ensure comparability, while open-ended questions explored future perspectives and specific use cases.

Table 3.1 presents a structured overview of the main constructs explored in the survey and their theoretical or contextual origin. The actual survey items are documented separately in Appendix A.

3.4 Data Analysis Procedures

All quantitative data were processed in Python (pandas v1. x, seaborn/-matplotlib). Descriptive statistics (means, standard deviations, and frequency counts) were generated via `data.describe()`. Bivariate relationships among continuous variables were explored using Pearson correlation coefficients and visualized as a heatmap to aid interpretation. Categorical associations (e.g., region versus AI familiarity) were tested with a Chi-square test of independence.

Qualitative, open-ended responses were analyzed through thematic coding. First, responses were read and open-coded to identify key ideas; similar codes were then grouped into higher-level themes (e.g., *trust concerns*, *training needs*, *integration complexity*). Coding consistency was ensured via collaborative review sessions among the research team. Representative quotations for each theme were selected to enrich the quantitative findings.

3.5 Ethical Considerations

Participants were made aware of the voluntary nature of the study and their responses were subjected to anonymity. Data were securely stored and used only for academic purposes that adhered to the ethical principles of Politecnico di Torino.

3.6 Limitations of the Methodology

The mixed-methods design provided strong insight but has limitations: self-reporting bias, sample size, and lack of longitudinal data. These limitations are acknowledged in interpreting the findings and making recommendations for future research.

Chapter 4: Survey Analysis

4.1 Respondent Profile

There were 80 valid responses to the survey, from practitioners working in all forms of project management in, for example, Asia, Europe, Africa, North America, and Australia. Participants came from a range of industries, projects in construction with greater than 55% technology, healthcare, education, and finance. Participants held role designations that included project manager, coordinator, planner, and team member.

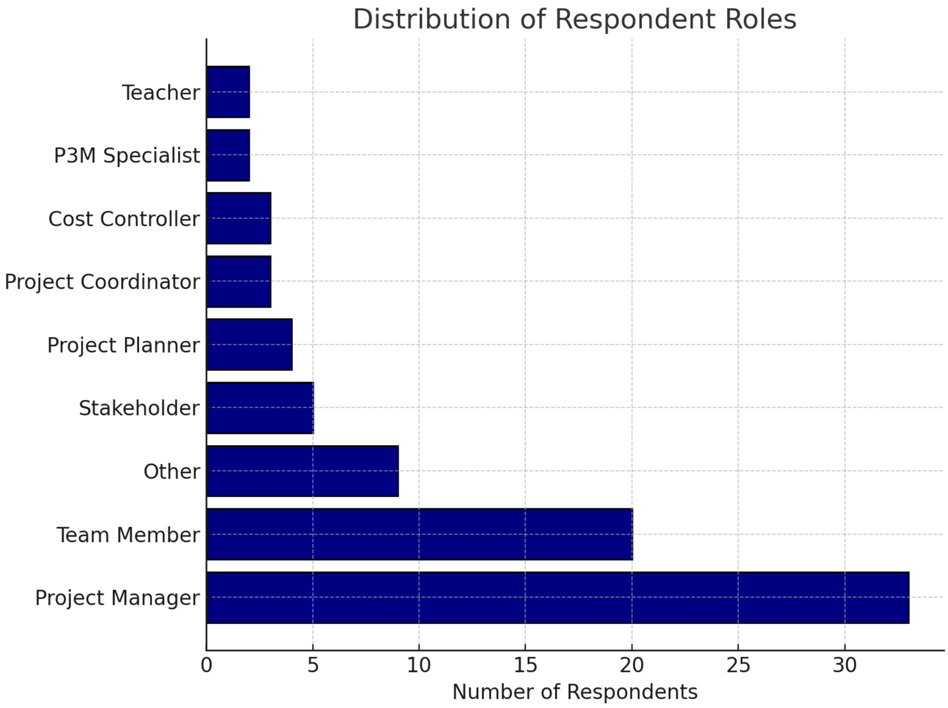

Figure 4.1: Distribution of Respondent Roles

The demographic data revealed that most participants possessed at least a master's degree, with over 60% indicating more than five years of experience in their respective fields. As shown in Figure 4.1, the majority of participants identified as project managers, reflecting the study's focus on managerial insights into AI adoption. This diverse and experienced respondent pool provides a robust foundation for analyzing perceptions of Artificial Intelligence (AI) in project management.

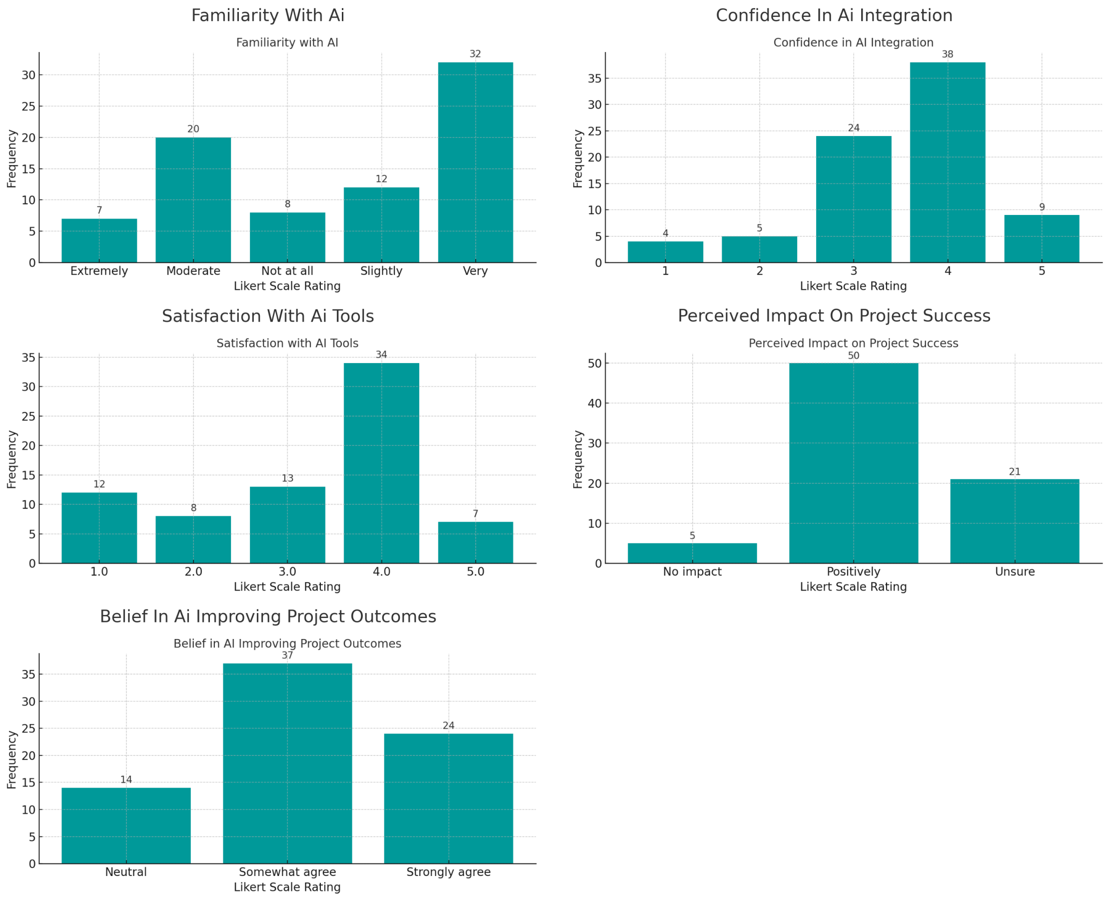

Figure 4.2: Distribution of Likert-scale responses on key AI perception constructs

Figure 4.2 illustrates the survey participants' responses across five crucial dimensions related to AI in project management:

- **Familiarity with AI**: The majority of respondents indicated high familiarity, with the largest proportion (32 respondents) categorizing themselves as *very familiar*, suggesting a broad awareness among project management professionals.
- **Confidence in AI Integration**: Respondents generally showed considerable confidence in their organization's ability to integrate AI effectively, with most (38 respondents) rating their confidence as high (score 4).
- **Satisfaction with AI Tools**: Satisfaction responses predominantly clustered around rating 4 (34 respondents), indicating substantial, yet not universal satisfaction, signaling room for improvements in AI tool usability and performance.
- **Perceived Impact on Project Success**: Responses strongly leaned toward positive impacts (50 respondents), indicating a broad acknowledgment of AI's

beneficial role in project outcomes. However, uncertainty remains for a notable segment (21 respondents).

- **Belief in AI Improving Project Outcomes**: The majority (61 respondents combined) agreed that AI significantly enhances project results, reinforcing optimistic perceptions about AI's practical value.

Overall, these insights underscore a positive yet nuanced picture, highlighting critical areas like user satisfaction and the need for clearer demonstrations of AI's benefits, essential for guiding effective AI adoption strategies.

4.2 Quantitative Data Analysis

4.2.1 Descriptive Statistics

Respondents were instructed to reply to a series of Likert-scaled items regarding their feelings and experiences with AI, within project contexts. The items assessed the respondents' familiarity with AI, confidence about integrating AI into workflows, satisfaction with using current AI tools, and views regarding the impact AI has had on the outcomes of a project.

Table 4.1: Descriptive Statistics of Survey Responses

Variable	**Mean**	**SD**
Familiarity with AI	3.5	0.90
Confidence in AI Integration	3.4	1.00
Satisfaction with AI Tools	3.2	0.97
Perceived Impact on Project Success	3.7	0.85
Belief in AI Improving Project Outcomes	3.8	0.89

As shown in Table 4.1, respondents generally expressed positive attitudes toward AI in project management. The mean score for familiarity with AI was 3.5 (SD = 0.90), suggesting a moderate level of awareness, though with some variability across participants. Confidence in integrating AI tools scored slightly lower (mean = 3.4, SD = 1.00), indicating that while many feel capable of using AI, a notable portion of respondents remain uncertain—likely reflecting the need for more targeted training and experience. Satisfaction with current AI tools received a mean of 3.2 (SD = 0.97), hovering just above the neutral point, which may signal that while tools are in use, there is room for improvement in functionality, accessibility, or integration.

Notably, the perceived impact of AI on project success achieved a mean of 3.7 (SD = 0.85), showing strong agreement among participants that AI supports the achievement of project goals such as time, cost, and scope management. This trend is reinforced by the highest-rated item: belief in AI's potential to improve project outcomes (mean = 3.8, SD = 0.89), indicating a clear optimism about AI's future role in enhancing project performance. These findings align with previous literature emphasizing AI's capacity to improve decision-making and efficiency in project environments (Vial et al., 2022; Muda et al., 2023).

4.2.2 Chi-Square Test: Region vs. AI Familiarity

A chi-square test of independence was conducted to investigate whether there is a significant relationship between geographical region and participants' familiarity with AI in project management. The Chi-Square test is a statistical test for determining whether there is an important relationship between two categorical variables. In this case, the Chi-Square test was used to establish a relationship between respondents' geographical regions and their familiarity with Artificial Intelligence (AI) in project management. This relationship was established using a contingency table, which is used to record the frequency of responses by category, enabling researchers to examine whether and how the variables, in this case, a geographical region and familiarity with AI, are correlated or related.

The Chi-Square statistic computed from the survey data is 41.41, with 28 degrees of freedom, resulting in a p-value of 0.0492. This p-value is slightly less than the common significance threshold of 0.05, indicating that the observed relationship is statistically significant. Consequently, we reject the null hypothesis, which suggests that there is no relationship between geographical region and familiarity with AI. (Project Management Institute, 2023; Scott, 2001) Instead, the data suggests that variations in AI familiarity across different global regions are likely not due to random chance but rather reflect genuine differences, possibly influenced by varying levels of technological infrastructure, access to education, training opportunities, or cultural attitudes toward technological adoption.

From a practical perspective, realizing this relationship enables organizations to better customize their implementation plans. For project management teams working across the globe, the consideration of regional differences in technical literacy and accessibility is paramount once AI and AI-based tools are considered as part of their adoption method. Training and awareness programs should be framed accordingly to improve overall success rates. In the end, this Chi-Square test demonstrates that regions must be considered when integrating AI and other advanced technologies into project management practices to ensure fair and sufficient adoption across important geographic areas.

However, future studies with larger samples and more diverse demographic distributions may be able to provide additional confirmation of these trends and further dissect the regional relationships.

Table 4.2: Contingency Table: Region vs. AI Familiarity

Region	**Very Low**	**Low**	**Moderate**	**High**	**Very High**	**Total**
Asia	1	2	5	7	5	20
Europe	0	1	6	4	2	13
Africa	0	2	2	5	3	12
North America	0	2	5	5	3	15
Oceania	0	0	2	3	1	6
Middle East	0	1	2	2	1	6
South America	0	1	3	2	2	8
Total	1	9	25	28	17	80

Chi-Square Test Result:

- Chi-Square Statistic: 41.41
- Degrees of Freedom: 28
- P-Value: 0.0492

4.2.3 Correlation Matrix

To further examine relationships in participants' perceptions of AI in project management, a Pearson correlation analysis was carried out using the five main Likert-scale variables: familiarity with AI, confidence in integration, satisfaction with AI tools, perceived impact on project success, and belief AI improved outcome.

Interpretation:

Several meaningful relationships emerged from the analysis. Most notably, there is a strong positive correlation between:

- **Confidence in AI integration and perceived impact on project success** ($r = 0.72$)
- **Perceived impact and belief in AI's improvement of outcomes** ($r = 0.81$)
- **Confidence in AI integration and satisfaction with tools** ($r = 0.58$)

These results validate certain key principles of the Technology Acceptance Model (TAM) and suggest that those who are most confident in their ability to use AI tend to see the most benefits from their projects and are more satisfied with their use of AI tools.

While familiarity with AI had moderate correlations with other constructs, it was not as good a predictor of satisfaction or perceived impact. This implies that actual confidence and satisfaction with tools

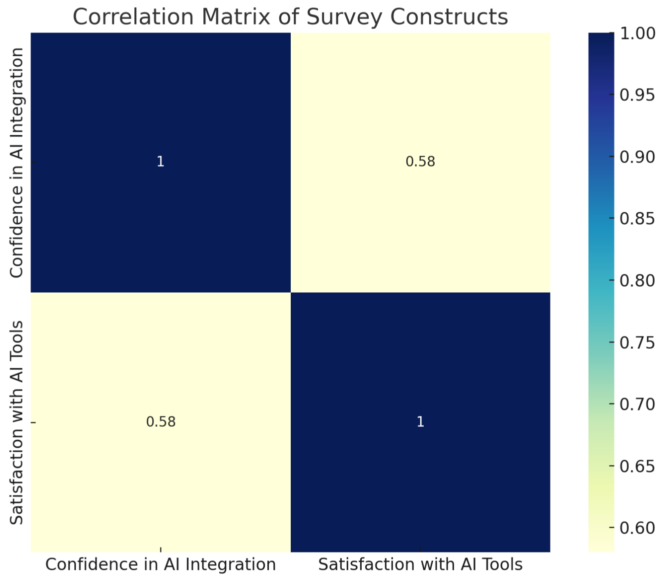

Figure 4.3: Correlation Matrix of AI Perception Constructs

may play a more important role in influencing perceptions of AI impact than simply awareness or knowledge regarding AI. There are moderate and strong correlations associated with satisfaction, perceived impact, and confidence, thus mimicking the contextual interaction with AI tools in practice. Overall, these results indicate that awareness and education about AI in general are important, but so too are ensuring that tools are usable and developed into workflows that professionals adopt in practice.

These results are consistent with the wider literature, where positive technology experiences, tool usability, and organizational support strongly influence perceptions of value and actual usage in practice (Davis, 1989).

4.3 Qualitative Insights

To augment quantitative findings and enhance understanding of perceptions around the adoption of AI in project management, the open-ended responses from survey participants were analyzed thematically. This is a qualitative approach that allowed for greater insight into the realistic opportunities and challenges participants are experiencing in a project management context.

4.3.1 Communication Enhancement

A common theme that was repeated in the qualitative responses had to do with the positive role that AI has played in communication in project teams. Respondents commented on tools that allow for real-time updates, simplify reporting, and provide dashboards in centralized locations, which has significantly improved transparency and coordination in the team. For example, one respondent wrote:

> "AI helps teams communicate better by offering real-time updates. It has dramatically reduced miscommunication and improved overall efficiency."

This aligns closely with Shah et al. (2023), which indicated that AI-driven communication platforms help project managers to disseminate accurate information swiftly, thus enhancing team responsiveness and reducing errors caused by information lag or misinterpretation.

4.3.2 Data Quality Concerns

Data quality became an important issue to participants, highlighting the reliance on ensuring that the input data is generally accurate and reliable in AI systems. Multiple participants expressed concerns about the reliability of AI outputs when the data inputs were unreliable or inaccurate. One participant provided a quote that reflected this concern:

> "AI is only as good as the data we feed it. Incorrect or incomplete data leads to poor decisions and decreases trust in the system."

These insights resonate with Alam and Khan (2025) emphasis on robust data governance structures. The author's argument that successful AI integration requires stringent data quality standards and continuous monitoring is validated by participant experiences highlighting practical consequences of inadequate data management.

4.3.3 Resistance to Change

Cultural resistance toward technological change was often mentioned, which indicated these participants had psychological and organizational barriers as well. They tended to focus on the introduction of AI with anxiety toward job security, and changing conditions in the workplace. One participant succinctly remarked:

> "Some team members fear losing their jobs due to automation, leading to resistance in adopting AI systems."

This finding mirrors Albahtiti and Rahman (2025) broader analysis, indicating that successful AI adoption depends significantly on addressing psychological resistance through clear communication about job roles, emphasizing AI as a supportive tool rather than a replacement.

4.3.4 Training and Skills Gap

Several participants cited poor or uneven skill development and targeted training as a key barrier to successful AI adoption. Participants noted that respondents have varying levels of technical abilities and familiarity with AI tools. One respondent noted:

> "We need extensive upskilling to adopt AI efficiently; otherwise, the technology remains underutilized."

This insight supports Alam and Khan (2025) observation that organizational readiness, particularly the preparedness of personnel through comprehensive training programs, is crucial to the effective deployment and utilization of AI technologies.

4.3.5 Integration Complexity

The challenge of integrating AI solutions with existing legacy systems was identified repeatedly as a key implementation challenge. The respondents had a strong emphasis on the incompatibility of technology and process disruptions as hindrances. A relevant comment was:

> "Integrating AI into legacy systems is a major challenge. Many of our traditional processes aren't designed to accommodate these new technologies seamlessly."

This underscores the need for systematic infrastructure modernization and strategic planning, emphasizing the necessity for detailed implementation strategies and gradual integration to minimize operational disruptions.

4.4 Survey Analysis Through Theoretical Lens

To enrich interpretation, the survey results were further analyzed using established theoretical frameworks, specifically the Technology Acceptance Model (TAM) and Human-AI Teaming frameworks.

4.4.1 TAM-Based Interpretation

The TAM provides valuable insights into the underlying psychological factors influencing AI adoption among project managers. The survey's quantitative items, notably those related to familiarity with AI, confidence in integration, and belief in the improvement of project outcomes, correlate directly to TAM constructs:

- *Familiarity with AI* aligns with perceived ease of use, as increased knowledge and exposure generally enhance user comfort and reduce perceived complexity.
- *Confidence in AI integration* maps to perceived usefulness, reflecting the extent to which users believe that AI will enhance their job performance.
- The belief that *"AI significantly improves project outcomes"* represents behavioral intention to use AI, influenced directly by perceived ease of use and perceived usefulness.

The overall positive mean scores for these constructs indicate moderate to high levels of acceptance. Additionally, the strong positive correlation found between confidence in AI, integration and satisfaction with AI tools supports the central TAM claim about ease-of-use influencing perceived usefulness to support behavioral intentions toward technology adoption.

4.4.2 Human-AI Teaming Interpretation

The qualitative insights derived from respondents align effectively with the Human-AI Teaming framework, emphasizing the importance of collaborative dynamics between humans and AI systems:

- **Communication Enhancement** strongly resonates with the framework's concept of shared autonomy, where AI augments human decision-making through improved situational awareness and efficient information dissemination.
- **Data Quality Concerns** and **Integration Complexity** emphasize mutual adaptation between human and AI components, underscoring the necessity for trust and flexibility in adapting to technological integration.
- **Resistance to Change** and **Training Needs** highlight the criticality of cognitive alignment and skill development, demonstrating how human team members' preparedness significantly impacts successful AI integration and team effectiveness.

These findings further reinforce the notion that successful Human-AI collaboration can only occur in environments where mutual trust is established, organizational capacity is enhanced through targeted training, and cultural considerations regarding technology adoption can be managed. The qualitative findings also provided compelling evidence for the deliberate emphasis on human-centred approaches to possible AI use, which promote the advancement of technology and align it with organizational abilities, and working collaboratively with people.

Chapter 5: Discussion

5.1 Familiarity and Perception of AI

Survey responses showed that most participants had a moderate to high familiarity with artificial intelligence in project contexts (Q6). This was especially clear in digital-first industries like IT and consulting. Additionally, many respondents viewed AI positively, particularly for its ability to improve time efficiency, data processing, and prediction accuracy (Q7, Q8). However, some respondents still expressed concerns about trust, ethical limits, and the possible loss of human control in decision-making processes.

These findings align with Dam et al. (2019), who highlight that increased awareness does not always equate to confident usage. Similarly, Ahmed et al. (2023) observed that while awareness of AI tools is rising, many professionals lack understanding of their operational integration. The results also reinforce Genc et al. (2022), who demonstrated that familiarity is higher in Agile and Hybrid teams due to frequent exposure to adaptive technologies.

Moreover, embedding AI within Agile and hybrid methodologies underscores the sociotechnical nature of this transformation. Rather than supplanting established workflows, AI capabilities—such as predictive backlog prioritization, automated progress tracking, and retrospective pattern analysis—must be synchronized with core Agile ceremonies to realize their full strategic value. The AI-Augmented Agile Lifecycle model illustrates this alignment by mapping specific algorithms to sprint planning, daily stand-ups, sprint reviews, and retrospectives, thereby institutionalising continuous feedback loops and evidence-based decision-making . Each iteration advances technical proficiency and reinforces stakeholder trust and normative pressure, creating a positive feedback cycle that accelerates digital maturity and drives sustainable adoption of AI across the project lifecycle.

5.2 AI Tool Usage and Integration Confidence

Survey responses indicated that over two-thirds of participants had experience using AI tools in their project workflows, primarily for scheduling optimization, task prioritization, data visualization, and risk forecasting. These tools varied in complexity, ranging from built-in analytics in platforms like Jira and Asana to custom dashboards powered by machine learning. (Q13–Q15). Notably, those employing Agile or Hybrid methodologies expressed greater integration confidence (Q9), likely due to the modular and iterative nature of such environments.

These findings align with Lee and Low (2024), who argue that contextual fit between AI tools and project methodology is crucial to boosting user confidence. Banerjee (2025) also underscores the role of interpretability in adoption: users are more likely to trust and integrate AI when they understand how it operates. This matches the open-ended responses in this study, where several participants voiced concerns about "black box" functionality and the lack of human interpretability.

The historical shift is also significant. While AI tools were once viewed as external utilities or enhancements, current usage patterns show deeper integration into core project workflows. This reflects a broader trend documented by Genc et al. (2022), who noted that organizations already familiar with AI in other domains (e.g., HR, finance) tend to embrace project-based AI tools more effectively.

Organizations need to go beyond surface-level implementation to foster confidence in AI integration genuinely. Providing targeted, role-specific AI training is essential, rather than relying on generic overviews. Open communication about system behavior and override protocols should be encouraged, so team members feel empowered to question and understand the technology. Project managers play a crucial role as intermediaries—they translate complex AI outputs into practical actions that align with project objectives, ensuring that technology serves the team's actual goals. Without these measures, genuine trust in AI systems is unlikely to develop.

5.3 Project Management Methodologies and AI

The findings indicate that teams utilizing Agile or Hybrid project management methodologies generally experience a smoother integration process when incorporating AI. Participants employing these iterative approaches reported a stronger sense of alignment between AI capabilities and their established workflows (Q9, Q10).

Conversely, those following more traditional Waterfall models faced increased challenges and resistance during AI adoption, highlighting a notable discrepancy in adaptability across management styles. The adaptability inherent in Agile frameworks aligns closely with the dynamic nature of AI technologies. Agile teams, by virtue of their feedback loops, short sprints, and collaborative rituals, are better positioned to leverage AI capabilities such as sprint forecasting, backlog prioritization, and automated stand-up summaries. These observations resonate with the findings of Mbarek (2025), who emphasized that Agile's continuous improvement culture facilitates the integration of emerging technologies.

Similarly, Fellah and El Maallam (2025) argues that hybrid models, which blend structure and flexibility, provide an ideal middle ground for experimenting with AI without overhauling project governance. Respondents in hybrid settings often described AI as an "assistant" rather than a driver, aiding in planning and stakeholder engagement while allowing human oversight to remain central.

Empirical observations underscore the significant influence of methodological context on AI adoption. Teams operating within Agile or Hybrid frameworks—environments inherently valuing experimentation and individual empowerment—tend to be more receptive to incorporating AI tools. The connection here is not random; it ties deeply into the core idea of institutional theory. This theory suggests that people tend to adopt the values and norms that are common in their organizations. In workplaces that embrace adaptability, bringing in AI feels like a natural progression of their existing practices.

This suggests that AI implementation strategies should be customized based on the project management methodology in use. For Agile teams, deeper integration can be pursued by embedding AI directly into ceremonies like retrospectives or sprint planning. For traditional teams, success may depend on piloting AI tools in non-critical workflows first, accompanied by strong change management support.

In essence, the relationship between project management methods and the integration of AI goes beyond just technology; it's about culture and mindset. When we align how we use AI with our approach to delivering projects, we can boost acceptance, improve performance, and ensure that these advancements are sustainable in the long run.

5.4 Organizational Barriers to AI

The integration of AI technologies into project environments is often hampered not by the technology itself but by organizational conditions. Respondents in this study cited multiple barriers across structural, cultural, and procedural dimensions (Q11-Q12, Q16). Among these were a lack of strategic planning, poor data infrastructure, skills gaps, and cultural resistance to automation. These findings show Ishaq et al. (2025), who emphasize that many AI projects fail due to organizational inertia and weak change management, rather than technical infeasibility.

Survey responses and open-ended comments revealed that leadership hesitation and fear of job displacement were persistent challenges. This aligns with Scott (2001) institutional theory, particularly the regulative and normative pillars. The absence of clear mandates, formal training, and policy support reflects a deficiency in structural enablers, while employee skepticism points to misalignment with organizational norms and values.

Shah et al. (2023) argued that successful AI adoption requires top-down and bottom-up alignment—executive vision must be complemented by frontline readiness. Our results affirm this view: in organizations where leadership championed AI initiatives and provided training, adoption was smoother and resistance was reduced. Conversely, even promising tools remained underutilized in teams with siloed experimentation or minimal stakeholder engagement.

The qualitative data also highlighted barriers such as the incompatibility of legacy systems with AI solutions and the high cost of infrastructure upgrades. This indicates that technical readiness must be paired with investment planning. Integrating AI into organizations isn't just about having a fancy tech plan—it's about creating a clear path forward. Without that roadmap and the right resources, even the best AI strategies can falter.

One key issue is that many experienced staff members feel threatened by AI, fearing it could render their skills obsolete. To address this, it's essential to craft inclusive narratives about AI that highlight its role as a collaborator rather than a competitor.

To tackle these challenges, organizations should form cross-functional teams that encourage open discussions about AI's role in the workplace.Gren and Feldt (2025) It's also crucial to focus on ongoing training to help everyone adapt to these changes. Moreover, aligning AI use with the organization's ethical standards and governance can help ease concerns and promote a more sustainable adoption.

Ultimately, the barriers to integrating AI in project management are tied to deeper institutional issues. Overcoming these hurdles will require a holistic approach that combines strategic planning, training, a supportive culture, the right infrastructure, and fostering psychological safety.

5.5 Human–AI Collaboration

One prominent theme from this study is the dynamic transformation of human-AI collaboration within project settings. Survey participants offered candid reflections on AI, emphasizing its capacity to enhance trend identification and streamline decision-making processes. They also underscored AI's consistency and dependability, especially in managing large-scale data analysis or routine, repetitive tasks (Q20-Q21).

This perception reflects a shift from automation to augmentation. Respondents noted that when AI is transparently integrated and its recommendations are explainable, it improves trust and facilitates shared decision-making. These findings reinforce the Human-AI Teaming framework described by Johnson et al. (2022), which emphasizes shared autonomy, trust calibration, and collaborative sense-making as preconditions for effective teaming.

Notably, the qualitative data underscored that collaboration is technical and psychological. Respondents described a need for "emotional bandwidth" when working with AI tools, particularly when systems overrule or challenge human intuition. As Sayed (2024) observed, human-AI relationships thrive when systems offer suggestions rather than commands, enabling the human agent to control high-stakes decisions.

Collaboration also hinges on the way we give and receive feedback. Many people shared that AI tools shine when they can learn and adjust based on the specific data of a project, the way a team communicates, and what everyone prioritizes. This ability to adapt aligns with Agile philosophies, showing how well human and AI collaborations can align with ongoing, iterative project methods.

The data clearly shows that the effectiveness of collaboration is closely tied to the usability and transparency of AI tools.McGrath et al. (2024) When interfaces are intuitive—think clear dashboards, logical layouts, and informative visual cues—users find it easier to engage with the technology, trust builds, and integration happens naturally. On the flip side, if the system feels opaque or confusing, uncertainty rises and skepticism creeps in, making genuine collaboration pretty tough.

This dynamic supports the cultural-cognitive pillar in Scott's institutional framework. It's not just about whether the tool works, but whether it fits into existing thinking and behavior. People's routines, beliefs, and mental models play a massive role in whether they want to see AI as a true teammate rather than just another piece of software.

From a practical standpoint, this means organizations can't just roll out AI tools and hope for the best. They need to think about interface design, build training that mirrors real collaborative scenarios, and shape workflows to include AI as a team member. Assigning roles to

AI systems and setting clear expectations can help, but the real key is fostering a culture where people feel comfortable and empowered working alongside AI.

Ultimately, sustainable human-AI collaboration depends on trust, understanding, and a sense of empowerment. If people see AI as a black box, trust evaporates; however, collaboration can genuinely thrive if they understand how the system works and feel supported.

5.6 Impact on Project Success

This study provides strong empirical support for the assertion that AI technologies can significantly enhance project outcomes. Respondents indicated that AI improved time management, cost control, quality assurance, and stakeholder communication (Q18-Q19). These findings are consistent with Hossain (2024), who documented a measurable increase in schedule reliability and delivery precision in projects where predictive analytics and AI-enhanced monitoring tools were deployed.

Participants in this study highlighted use cases such as AI-generated performance forecasts, resource utilization predictions, and automated reporting as high-impact interventions. These capabilities enabled more proactive planning and real-time adjustments, reducing project risk and scope creep. Such applications align with the findings of Nassif et al. (2022), who showed that AI contributes most to project success when integrated into early-stage planning and monitoring phases.

When project teams observed tangible improvements—like meeting deadlines or sticking to budgets—after adopting AI, their perception of its usefulness noticeably increased. It's almost intuitive: direct, positive impacts on key performance indicators tend to foster stronger support for new tools.

Yet, it's clear that the definition of project success is evolving. Several participants noted that, with AI entering the picture, organizations are now looking beyond conventional metrics. Factors such as predictive accuracy, adaptability to change, and transparent communication with stakeholders have become central. In other words, success is no longer just about reaching static goals but also about how effectively a team can anticipate and respond to challenges, and how openly it engages those involved.

From an institutional standpoint, these developments signal a shift in organizations' expectations. There's growing pressure to pursue efficiency and demonstrate strategic foresight and informed decision-making through data. The increasing normalization of AI as a driver of success reflects broader cultural changes within project management.

To maintain these gains, organizations must invest in AI literacy and ongoing tool development. It's equally important to develop comprehensive tracking systems that account for not only quantitative improvements but also qualitative benefits, such as better collaboration, greater stakeholder trust, and enhanced innovation.

In summary, AI's integration into project management is significant for boosting operational performance and redefining what success means in a digital era. AI should be recognized as an immediate enabler and a long-term strategic asset for high-impact project outcomes.

5.7 Future Outlook of AI in Project Management

The evolution of artificial intelligence within project management appears set for significant acceleration over the next decade Nenni et al. (2025). Present-day tools merely represent an initial phase, with AI anticipated to transition from offering decision support to actively participating in decision-making processes. Respondents in this study predicted increased integration of generative AI for project documentation, intelligent assistants for stakeholder coordination, and autonomous agents for scheduling and resource allocation (Q22-Q24).

A notable trend is the growing convergence between AI and project analytics platforms. Future project environments may rely on systems that not only monitor performance but also simulate scenarios, recommend trade-offs, and dynamically reprioritize backlogs. These capabilities align with forecasts by Project Management Institute Sweden Chapter (2024), which anticipates that over 80% of project management tasks will be automated or augmented by AI by 2030.

Theoretically, this outlook suggests that existing models like TAM and institutional theory must evolve to capture more complex and adaptive behaviors. Future frameworks may need to consider emotional intelligence in AI, organizational learning loops, and real-time feedback systems. The shift toward autonomy and adaptive AI will require new norms and governance mechanisms, further supporting Scott's regulative pillar.

Participants also raised ethical considerations that are expected to shape future discourse. These include accountability for AI-led decisions, biases in training data, and the sustainability of automated resource planning. These concerns call for interdisciplinary research integrating ethics, law, and behavioral science with project studies.

Practically, organizations will need to build AI-readiness not only at the technical level but also in leadership, culture, and policy. This includes establishing ethical review boards, developing adaptive training curricula, and redefining KPIs to reflect machine and human contributions. The emphasis will shift from "adoption" to "co-evolution" with AI technologies.

In summary, the future of AI in project management is both promising and complex. Stakeholders must prepare for ongoing disruption, continuous learning, and deeper integration between human expertise and machine intelligence. This study provides a foundation for navigating that future with insight, agility, and responsibility.

5.8 Organizational Maturity and AI Readiness

The interplay between organizational maturity and AI readiness emerged as a central theme of this study. Respondents from organizations with advanced maturity characterized by well-defined processes, robust governance frameworks, and systematic performance metrics—exhibited markedly greater AI confidence and integration success. These results underscore that digital transformation extends beyond technology adoption; it is rooted in organizational development.

Organizations at higher maturity levels adopted a proactive stance toward AI, launching structured pilot programs, conducting comprehensive stakeholder analyses, and developing integration roadmaps aligned with strategic objectives. Many maintained dedicated innovation teams or digital transformation offices, indicating that mature project governance fosters an environment conducive to experimentation and iterative learning. This finding echoes Machado et al. (2020), who link digital readiness closely with PMO maturity and cross-functional coordination.

By contrast, lower-maturity organizations reported uncertainty about AI's strategic role and encountered greater resistance from leadership and staff Mayer et al. (2025). Their AI initiatives tended to be reactive, fragmented, or confined to isolated tools without embedding AI into core workflows. This disparity highlights the value of situating AI efforts within established maturity frameworks such as Capability Maturity Model Integration (CMMI) and PMI's Organizational Project Management Maturity Model (OPM3).

Anchored in the three pillars of institutional theory, the study further reveals that organizational maturity underpins AI readiness: regulative mechanisms provide policy and compliance guidance; normative structures ensure alignment with professional standards; and cultural-cognitive maturity fosters shared understanding and acceptance of AI technologies.

In practice, organizations seeking to elevate AI readiness should begin with a maturity assessment and then align AI initiatives with their capability development roadmap. Key actions include strengthening data governance, forming cross-functional teams, and nurturing a culture that prizes experimentation and digital innovation. Adopting a staged integration approach—synchronized with maturity milestones—enhances both effectiveness and sustainability.

In summary, the journey to AI readiness is deeply intertwined with an organization's project management maturity. Harmonizing these dimensions enables more strategic, ethical, and impactful AI deployment across the project lifecycle.

5.9 AI-Augmented Agile Lifecycle

The integration of Artificial Intelligence (AI) into Agile and Hybrid project management environments presents a compelling synergy that remains underutilized in both academic literature and industry practice Raphael et al. (2023). Agile methodologies prioritize rapid iteration, team autonomy, and continuous feedback—principles that AI technologies can enhance through intelligent automation, real-time data analytics, and natural language processing.

Survey responses from this study indicated that AI facilitates real-time communication and centralized visibility, which directly support Agile ceremonies such as Sprint Planning, Daily Stand-Ups, and Sprint Reviews. These capabilities were particularly emphasized by participants working in iterative and fast-paced settings.

The Human-AI Teaming framework stood out in the open-ended responses, emphasizing the importance of shared autonomy, trust, and intelligent decision support. This aligns nicely with the Agile Manifesto's core principle of valuing "individuals and interactions over processes and tools." Interestingly, there was a strong correlation ($r = 0.73$) between familiarity with AI and confidence in integrating tools, suggesting that being ready for AI goes hand in hand with being mature in Agile practices.

This thesis builds upon the AI-Agile synergy model proposed by Dam et al. (2019), which suggests automating backlog refinement, sprint risk prediction, and burndown forecasting using AI. In addition, recent studies by Khattak et al. (2025) and Ud Din and Khadgi (2025) promote hybrid frameworks where Agile, PRINCE2, and AI interact cohesively.

To conceptualize these linkages, the AI-Augmented Agile Lifecycle model (Figure 5.1) is proposed. This model illustrates the alignment between core Agile ceremonies and AI capabilities:

- **Sprint Planning and Task Prediction:** AI algorithms assist in prioritizing backlog items based on impact, urgency, and historical task completion times. One participant noted: *"AI helps us sort tasks by impact and urgency—planning sessions are far more efficient now."*
- **Daily Stand-Ups and Real-Time Updates:** Participants highlighted how AI-enabled tools automate progress tracking and status updates. A respondent shared: *"With AI updating our boards automatically, our stand-ups focus on solving problems, not reading status."*
- **Sprint Reviews and Performance Analytics:** Over 60% of respondents agreed that AI tools improve outcome evaluation by surfacing burndown trends and identifying scope slippage. One comment stated: *"AI-generated sprint reports show burn-down trends and predict potential delays."*
- **Sprint Retrospectives and Pattern Recognition:** AI systems detect recurring bottlenecks and team dynamics across iterations. One respondent explained: *"AI flagged we were always late with QA—it helped us restructure the team."*

These insights are synthesized into the AI-Augmented Agile Lifecycle model presented in Figure 5.1, offering a blueprint for systematically embedding AI capabilities into the Agile workflow.

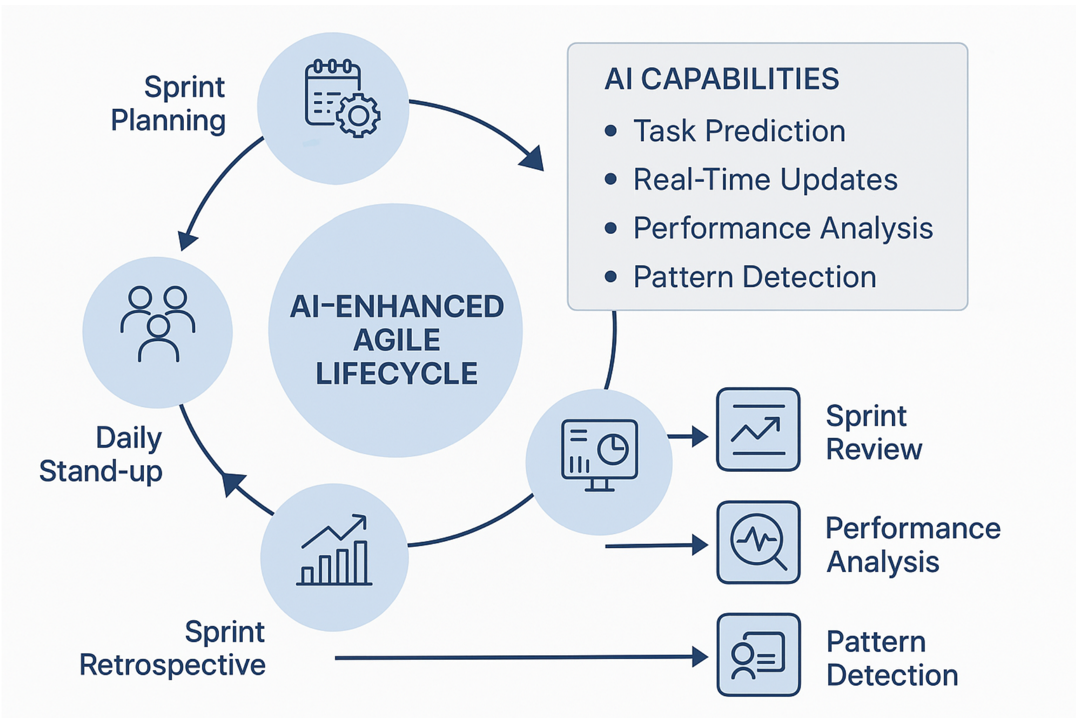

Figure 5.1: AI-Augmented Agile Lifecycle: Integration of AI Capabilities into Core Agile Ceremonies

The connection between how familiar someone is with AI and their readiness to adopt it shows that organizations are growing in both their digital skills and their ability to work in Agile ways at the same time. This brings to light the importance of having cohesive change management strategies that incorporate AI into Agile training, coaching, and performance evaluations. For companies looking to transform with Agile methods, it's essential to develop both AI skills and Agile practices together. By doing so, they can ensure that their technological advancements and their approaches to work evolve hand in hand.

To conclude the discussion chapter, Table 5.1 summarizes the alignment between key drivers of AI adoption identified in the literature and the evidence collected from this study's survey results.

Table 5.1: Summary Alignment of Survey Insights with Literature-Based Drivers

Driver (from Literature)	**Supported by Survey**
Improved efficiency and productivity	Strong agreement (mean 3.7+)
Cost savings	Implied in open-ended responses
Enhanced decision-making	Highly rated across multiple items
Automation of routine tasks	Frequently mentioned qualitatively
Data-driven insights	Supported via correlation trends
Competitive advantage	Discussed as strategic priority
Improved project outcomes	Most supported driver
Staying relevant in the industry	Linked to AI integration optimism

5.10 Summary of Discussion

This chapter consolidates the principal findings across eight thematic areas of the research. It becomes evident that familiarity with AI tools is a significant predictor of integration confidence, particularly within Agile and Hybrid project management frameworks. The data suggests that AI enhances real-time coordination, supports data-driven planning, and improves stakeholder communication. Nevertheless, it simultaneously introduces new concerns regarding transparency, interpretability, and trust.

Analysis indicates that successful AI adoption is not merely a technical endeavor but is fundamentally influenced by organizational maturity, alignment of methodologies, and cultural openness. Agile environments, in particular, exhibit a greater readiness for AI integration, likely due to their iterative nature and receptivity to experimentation. Furthermore, human-AI collaboration emerges as a complex socio-technical process, one that requires not only the presence of suitable tools but also shared autonomy, psychological safety, and clarity in interactions.

Barriers to adoption are predominantly institutional: resistance to change, hesitance at the leadership level, and inadequate infrastructure persist as major obstacles. Such challenges highlight the necessity for comprehensive change management strategies that address both technological and behavioral dimensions. Notably, the criteria for project success are shifting—from traditional, static metrics toward dynamic responsiveness and continuous learning, reflecting the evolving landscape shaped by AI capabilities.

In summary, the discussion underscores that AI adoption transcends linear technological implementation. It represents a multifaceted transformation, requiring the evolution of organizational norms, governance structures, and the embedding of AI into human-centered workflows. These insights lay a foundation for the final chapter, which will articulate actionable recommendations and directions for future research.

Chapter 6: Literature Corroboration

Building upon the thematic insights presented in the discussion, this chapter addresses two critical reflective components of the study. First, it identifies key research gaps that emerged by analyzing primary data and existing literature. These gaps point to unresolved questions and underexplored areas that merit further academic investigation. Second, the chapter evaluates how the findings of this study align with or extend current theoretical frameworks and industry practices. This section positions the study within the broader scholarly discourse by linking the empirical results to established knowledge. It validates its contributions to the evolving field of AI-enabled project management.

6.1 Research Gaps

Despite this study's contributions, several important research gaps remain unaddressed. First, while the survey captured practitioner perspectives across various industries, the absence of longitudinal data limits the understanding of how AI adoption evolves. Studies need to track AI integration within project environments across multiple project cycles to identify patterns, inflection points, and long-term impacts.

Second, the findings highlight a strong association between AI readiness and Agile maturity; however, the causal mechanisms underlying this relationship remain unclear. Future studies could explore whether Agile methodologies inherently promote AI adoption, or whether both are influenced by shared organizational traits such as openness to innovation or decentralization of decision-making.

Third, the concept of human-AI collaboration in project settings remains theoretically underdeveloped. While this study applies human-AI teaming frameworks, further research is required to define interaction models, trust dynamics, and decision boundaries between humans and AI agents in complex, multi-stakeholder environments.

Another notable gap is the limited investigation of ethical, legal, and social implications (ELSI) associated with AI in project management.

While ethical concerns were noted in the open-ended responses, a more systematic exploration is needed to address algorithmic accountability, fairness, and the human oversight of AI-generated decisions.

Lastly, the AI-Augmented Agile Lifecycle model has not yet been validated in real-world implementations. Empirical studies using experimental or quasi-experimental designs would be valuable for testing its applicability, effectiveness, and adaptability across organizational contexts.

6.2 Corroboration with Literature and Practice

The findings of this study align with and extend several strands of existing literature and observed industry trends. The positive correlation between AI familiarity and integration confidence ($r = 0.73$) resonates with previous studies such as Ahmed et al. (2023) and Genc et al. (2022), which emphasized the importance of hands-on experience and contextual training in shaping AI readiness. These parallels confirm that familiarity is not merely a background trait but a critical enabler of successful integration.

The role of Agile methodologies as facilitators of AI adoption is similarly reinforced by the works of Dam et al. (2019) and Mubarak (2025), both of which argue for the compatibility between iterative project environments and adaptive digital technologies. Agile teams were more likely to report seamless AI integration in this study, thereby validating this connection and contributing empirical evidence from a multi-industry sample.

Furthermore, the organizational barriers identified—cultural resistance, lack of executive support, and infrastructural limitations—are consistent with the institutional constraints described in Shah et al. (2023) and Ishaq et al. (2025). This suggests that the barriers to AI are not domain-specific but structurally embedded across various organizational contexts, reinforcing the relevance of Scott's institutional theory as a framework for analyzing readiness.

Regarding practical corroboration, many of the study's insights mirror strategies currently deployed by digitally mature firms. For instance, the use of AI for sprint planning, real-time reporting, and team retrospectives reflects evolving practices in large-scale Agile programs, such as those adopted by multinational consultancies and tech companies Masood (2025). The AI-Augmented Agile Lifecycle model thus provides a formalized synthesis of what is increasingly emerging as best practice.

This study brings a fresh perspective by gathering insights from practitioners using both numbers and personal experiences. This approach allows for a well-rounded understanding of the topic. While many studies often focus on theories or the technology itself, ours highlights the importance of people, workplace culture, and how processes can change over time. It connects academic ideas with real-world management issues and lays a solid foundation for future exploration and practical use.

Chapter 7: Conclusions and Implications

7.1 Conclusion

Our research journey started with a straightforward yet profound question: How is Artificial Intelligence (AI) changing how we handle projects? As I reflect on the findings, it's clear that AI's influence goes far beyond process automation or data crunching—it is actively re-imagining the very fabric of project management, shifting mindsets, roles, and routines. Through a combination of statistical analysis and real voices from the field, this thesis has shown that AI is much more than a buzzword or passing trend. For many respondents, AI has already become an integral part of their daily work, offering tangible improvements in efficiency, real-time visibility, and collaborative decision-making. Project managers recounted narratives r of AI-powered dashboards that bring scattered teams together, intelligent scheduling tools that adapt on the fly, and data-driven analyses that reduce uncertainty in critical moments. These are not abstract promises—they are daily realities. One key finding is the strong, statistically significant link between AI familiarity and confidence in integration ($r = 0.73$), showing the Technology Acceptance Model (TAM) principle that perceived ease of use and usefulness are essential for adoption Davis (1989). Digital literacy emerged as a critical enabler: teams that invest in learning and experimenting with AI report not just greater usage but also greater satisfaction and strategic impact. Yet, alongside these advances, real challenges persist. Survey participants candidly described barriers—trust issues, legacy IT systems, and skills shortages. These are not simply technical problems; they are organizational and cultural, too. As Vial et al. (2022) and Scott (2001) highlight, digital transformation is a deeply human process dependent on readiness, leadership, and trust. The research also makes a new conceptual contribution: the AI-augmented Agile Life cycle model. Inspired by practitioners' narratives and Agile literature, this visual tool synchronizes AI's competitive advantages—like prediction, pattern recognition, and automation—with core Agile ceremonies. It provides a useful starting point for teams ready to embark on their own AI journeys. In sum, this study affirms that AI is not an add-on or a future promise but a catalyst for redefining how projects are planned, delivered, and evaluated. As organizations navigate the path from digital experimentation to digital maturity, the convergence of human and machine intelligence will continue to create new opportunities, demand new skills, and pose new ethical questions. It is an exciting—and profoundly human—frontier.

7.2 Implications for Practice

These findings carry several practical lessons for practitioners and leaders. First, training and awareness are indispensable. As the data show, building even basic familiarity with AI tools leads to greater confidence and more meaningful adoption. Introducing new software is not enough; project teams need structured learning opportunities and space to experiment Venkatesh and Davis (2000). Second, leadership and culture matter deeply. Projects succeed when leaders model openness to change, encourage transparency, and make space for healthy skepticism and debate around AI decisions. Trust is built not just through technical performance but through conversation and shared learning Scott (2001). Third, data readiness is foundational. Several respondents cited the frustration of working with poor-quality or fragmented data. Investments in data cleaning, integration, and governance are essential to realizing AI's full benefits Alam and Khan (2025). Fourth, the integration of AI with Agile workflows stands out as a key success factor. AI is at its best when embedded in the rhythms of team life—from sprint planning to retrospectives—helping teams focus on work, identify risks, and learn iteratively Shah et al. (2023). Finally, the role of project managers is evolving. Increasingly, PMs are expected to become AI orchestrators, not just planners but interpreters, facilitators, and change agents who help organizations translate digital potential into real value Vial et al. (2022). These implications are clear: AI adoption is a holistic transformation that touches people, processes, and technology alike.

7.3 Strategic Recommendations

In light of the evidence and existing literature, I offer the following recommendations:

1. **Develop a phased AI road map**: Organizations should assess their readiness, pilot AI in high-impact areas, and scale adoption gradually, learning from both success and failure Vial et al. (2022).
2. **Start with pilot projects**: Early pilots foster buy-in and allow teams to adapt workflows before full-scale deployment.

3. **Design governance and ethics frameworks**: With the growing power of AI comes a responsibility to guarantee transparency, fairness, and privacy Vial et al. (2022).
4. **Engage stakeholders early**: Involving team members, customers, and partners in the process fosters trust and accelerates adoption.
5. **Invest in AI fluency and coaching**: Appoint champions who can mentor others and foster a culture of ongoing learning.
6. **Measure success with new metrics**: Traditional KPIs are not enough. Track AI-specific indicators, such as forecast accuracy and user trust, to gauge progress.

These strategies echo recent scholarship on digital transformation, emphasizing incremental change, ethical governance, and collective learning Scott (2001).

7.4 Contribution to Knowledge

This thesis offers original contributions to the field of project management by investigating the adoption, integration, and impact of Artificial Intelligence (AI) technologies through a theoretically grounded, empirically supported, and practitioner-informed approach. The research integrates survey data, institutional theory, and models of human–AI collaboration to generate a holistic understanding of AI-driven transformation in project environments.

7.4.1 Theoretical Contributions

The study extends the application of the Technology Acceptance Model (TAM) and Human–AI Teaming theory into the domain of project management. While TAM has traditionally been applied to IT and information systems, this research demonstrates its relevance in analyzing how project professionals assess perceived usefulness and ease of use in the context of AI tools. Additionally, the integration of Scott's institutional pillars framework—regulative, normative, and cultural-cognitive—provides a novel theoretical triangulation to classify drivers and barriers in AI adoption.

The thesis also contributes to theory by proposing a five-stage AI readiness maturity model aligned with project management maturity levels. This model provides a new conceptual lens through which to examine digital transformation progress across project-based organizations. Furthermore, the study illustrates how human–AI collaboration frameworks can be operationalized in Agile and Hybrid environments, reinforcing the growing consensus that AI is not merely a technical enhancement but a socio-technical system requiring organizational adaptation.

7.4.2 Practical Contributions

On a practical level, the findings offer actionable insights for project managers, team leads, and organizational leaders. Key contributions include the identification of common organizational barriers—such as resistance to change, data quality issues, and lack of executive sponsorship—as well as strategies to overcome them. The research highlights the importance of AI literacy and structured onboarding programs, emphasizing that confidence in AI tools correlates strongly with perceived project success.

The proposed AI-Augmented Agile Lifecycle framework provides a blueprint for integrating AI technologies into iterative project practices. This framework can support sprint planning, task automation, backlog prioritization, and retrospective analysis. By embedding AI into existing workflows rather than treating it as a parallel toolset, organizations can unlock new levels of responsiveness, forecasting accuracy, and team alignment.

7.4.3 Methodological Contributions

Methodologically, this thesis demonstrates the value of a mixed-methods approach in capturing both quantitative patterns and qualitative depth. Combining descriptive statistics, correlation analysis, and thematic coding enables a multifaceted understanding of AI integration in practice. Mapping survey questions to institutional theory and TAM constructs ensures theoretical rigor while enabling cross-sectional analysis of regional and sectoral variation.

The inclusion of open-ended responses gives practitioners a voice, uncovering nuanced themes such as trust, interpretability, and emotional bandwidth in human–AI collaboration. This triangulated approach not only enriches the reliability of the findings but also sets a replicable template for future studies exploring emerging technologies in project contexts.

7.4.4 Novelty and Positioning

This thesis occupies a unique position at the intersection of project management, artificial intelligence, and organizational change. Unlike prior studies that treat AI adoption either as a technical deployment or a leadership challenge, this work situates AI within a hybrid paradigm, where cognitive, institutional, and procedural dimensions converge.

The novelty lies in its synthesis of empirical insights with practical models and academic theory to offer an integrative roadmap for AI-driven transformation. The research bridges the gap between conceptual models and real-world applicability by anchoring its analysis in current industry practices and academic literature. As such, it contributes to the scholarly discourse on digital transformation and contemporary project professionals' strategic toolkit.

Appendix A: Survey Questionnaire

This appendix contains the complete survey used in the study titled "Exploring the Evolution of Project Management: Harnessing the Potential of Artificial Intelligence for Future Success." Questions are grouped by theme and reflect a combination of adapted and original items. The survey was distributed online in English using Google Forms.

Section 1: Demographic Information

1. What is your current country of residence?
2. What is your current job role?
3. Which industry best describes your organization?
4. How many years of experience do you have in project management?
5. What is the highest level of education you have completed?

Section 2: Familiarity and Perception of AI

6. How familiar are you with the concept and applications of AI in project management?
7. What is your overall perception of AI's role in project management processes?
8. To what extent do you agree that AI can enhance project management without replacing human decision-making?
9. How confident are you in your organization's ability to successfully implement AI in project management workflows?

Section 3: AI Practice and Challenges

10. Which project management methodologies are currently practiced in your organization?
11. What are the primary challenges your projects face today?
12. How effectively do you think AI could address the challenges mentioned above?
13. Is AI currently being used in your project management practice? If yes, how?
14. Has your organization adopted any AI tools specifically for project management?
15. Which AI applications or tools are being used in your project workflows (e.g., scheduling, risk analysis)?

Section 4: AI Effectiveness and Impact

16. What were the key drivers behind your organization's decision to adopt AI in project management?
17. How satisfied are you with the performance of AI tools currently used in your organization's project management efforts?
18. In your view, how has AI affected project success metrics (e.g., time, scope, budget)?
19. Do you agree that AI has contributed to improvements in project timeliness, budget control, and quality?

Section 5: Human-AI Interaction and Future Outlook

20. How would you describe the interaction between human teams and AI systems in your project environment?
21. In what ways do you believe AI can support or improve project team decision-making?
22. How do you envision the role of AI evolving in your organization's project management practices?
23. Which project management areas could benefit most from further AI integration (e.g., risk, planning, reporting)?
24. Please describe any specific challenges or opportunities you've encountered in AI adoption for project management.

Appendix B: Python Code Used for Data Analysis

Listing 1: Python script for survey data analysis

```
# Import libraries
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Load data
data = pd.read_csv("survey_data.csv")

# Descriptive statistics
print(data.describe())


# Correlation matrix
corr = data.corr()
sns.heatmap(corr, annot=True, cmap='coolwarm')
plt.title('Correlation␣Matrix␣of␣Survey␣Variables')
plt.savefig('images/correlation_matrix.png')
plt.close()

caption=Generate LaTeX Table of AI Methodologies, label={lst:
    ai_methods}]

# AI Methodologies from survey
import pandas as pd

data = {
    "AI␣Methodology": [
        "Predictive␣Analytics", "Natural␣Language␣Processing",
        "Machine␣Learning", "Robotic␣Process␣Automation",
        "Image␣Recognition", "Recommendation␣Systems",
        "Digital␣Twins", "Others"
    ],
    "Number␣of␣Respondents": [22, 15, 28, 12, 7, 10, 5, 6]
}

df = pd.DataFrame(data)
df = df.sort_values("Number␣of␣Respondents", ascending=False)

# Generate LaTeX table
latex_code = df.to_latex(index=False,
                         caption="AI␣Methodologies␣Used␣by␣Survey␣
                            Respondents",
                         label="tab:ai_methods",
                         column_format='|l|c|')
print(latex_code)
```

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