



VAASAN AMMATTIKORKEAKOULU  
UNIVERSITY OF APPLIED SCIENCES

Sini Hassi

# Utilization of Artificial Intelligence in Project Management

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## TIIVISTELMÄ

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Tämän tutkimuksen tavoitteena on selvittää, miten tekoälyä voidaan hyödyntää toimeksiantoyrityksen projektinhallinnan tehtävissä, sekä kartoittaa projektipäälliköiden kokemuksia ja tietämystä tekoälystä ja sen käytöstä.

Teoreettinen viitekehys kattaa tekoälyn historiaa, sekä käy läpi sen keskeiset käsitteet. Lisäksi tutkimuksessa tarkastellaan tekoälyn roolia erilaisissa projektinhallintamenetelmissä.

Tutkimusmateriaali sisältää kirjallisuuskatsauksen sekä toimeksiantajayrityksen rajatun tiimin projektipäälliköille lähetetyn kyselyn. Kyselyn tavoitteena oli oppia lisää projektipäälliköiden nykyisestä tietämyksestä liittyen tekoälyyn, sekä kerätä ideoita tekoälyn mahdollisista käyttötarkoituksista projektinhallinnan tehtävissä.

Keskeiset havainnot paljastavat, että vaikka projektipäälliköt osoittavat merkittävää kiinnostusta tekoälyn tarjoamia mahdollisuuksia kohtaan, käytännön käyttöönotto on edelleen rajallista. Yrityksen omat tekoälyratkaisut ovat suhteellisen uusia sisäisessä käytössä, minkä vuoksi projektinhallinnan käyttötapauksia ei ole vielä analysoitu ja työkaluja räätälöity tiimin tarpeisiin. Kolmannen osapuolen työkalut on rajoitettu tietosuojasyistä vain koulutukseen.

Johtopäätökset viittaavat siihen, että toimeksiantajayritys hyötyisi analysoimalla ja kehittämällä omia tekoälypohjaisia ratkaisuja projektinhallinnan erityisiin tarpeisiin, sekä tutkimalla kolmannen osapuolen tarjoamia ratkaisuja. Tutkimustulosten ja analyysin perusteella tapausyritys voisi harkita pilottiprojektien aloittamista, joissa integroidaan tekoälytyökaluja tiettyihin projektinhallintaprosesseihin tai -tehtäviin.

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Avainsanat                      projektinhallinta,   tekoäly,   generatiivinen   tekoäly,  
koneoppiminen, luonnollisen kielen käsittely, scrum

## ABSTRACT

Author	Sini Hassi
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The main objective of this research is to explore how AI can be utilized in the project management tasks of the case company and to understand the company's project managers experiences and knowledge related to AI.

The theoretical framework covers the brief history of AI and its key concepts. Additionally, the research explores the role of AI in various project management approaches.

The research material includes a literature review, and a survey conducted among a specific team of project managers in the case company. The aim of the survey was to learn more about the project managers' current knowledge and skills with AI and to gather ideas for potential usage of artificial intelligence in project management tasks within the case company.

The key findings reveal that while project managers show strong interest in AI opportunities, but the practical usage is still limited. Since the company's internal AI capabilities are relatively new for internal usage, the functionalities have not yet been fully analyzed, nor have specific use cases been identified or tailored to meet specific project management needs. Third-party tools are restricted to training purposes due to data privacy concerns.

The conclusions suggest that the case company could benefit analysing its own AI capabilities and tailor to the specific project management needs or exploring third-party solutions that align with the requirements including data privacy. Based on the research findings and analysis, the case company could consider initiating pilot projects that integrate AI tools into specific project management processes or tasks.

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Keywords	project management, artificial intelligence, AI, generative AI, machine learning, natural language processing, scrum
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## **APPENDICES**

### **APPENDIX 1. Online Survey**

## **List of Abbreviations**

AI - Artificial Intelligence

AGI - Artificial General Intelligence (Strong AI)

ANI - Artificial Narrow Intelligence (Weak AI)

DL - Deep Learning

DNN - Deep neural networks

GenAI - Generative Artificial Intelligence

GPT - Generative Pre-trained Transformer

LLM - Large Language Model

ML - Machine Learning

NLP - Natural Language Processing

PM - Project Management



## **1 INTRODUCTION**

Project management has improved remarkably due to numerous tools and techniques which are simplifying processes and saving time on repetitive tasks. This is allowing the project managers to focus more on strategic decisions and communication. This chapter analyzes the growing role of AI in project management and outlines the primary goals and objectives of this research.

### **1.1 Background and Research Importance**

Project work is growing in many fields, which is increasing the growing need for efficient project management. By organizing specific set of tasks into projects, many advantages can be achieved. Projects can improve the manageability and measurability of organization's daily operations, and often when project organization owns shared goals, decision-making supporting those goals becomes much easier and faster as well. One reason for the increase in project activity is also that projects are clearly result-oriented, which assist in the prioritization of tasks. Project activities can be used to enhance the present condition of an organization towards its strategic ideal or target state. It is important for an organizational leadership to have appropriate skills and knowledge to ensure planning, directing, and controlling project execution activities. Improvement work is a part of ongoing, methodically planned operations in businesses that prioritize development. The integration of projects into organizational operations is growing. They are frequently employed to advance different development demands and targets that are generated from the strategic goals of the business, as well as to improve organizational functions. For instance, project management techniques seek to save operating costs, guarantee quality, launch new goods and services, increase profitability, and so forth. The goals and major duties of a project that is successfully carried out are always evident (Mäntyneva, 2016, p. 9).

To meet the rising complexity and demands of project management, organizations are increasingly turning to technological advancements, including AI. AI holds the

ability to solve various difficulties involved in managing modern and more complex projects, offering tools that enhance planning, execution, and monitoring processes.

AI is a topic that increasingly captures people's attention across all industries. While writing this research I realized that there isn't really any one right definition what AI is, and due to the significant progress in recent years, the definition is evolving and coming more complex all the time. On the website of the Ministry of Finance of Finland (2024), AI is described as follows:

“AI is the umbrella term that includes a collection of various technologies and applications, varying from data analysis to machine learning and natural language processing. AI enables machines, devices, programs, systems, and services to perform tasks intelligently, adapting to specific goals and situations. To function this way, AI must recognize different environments and respond to changing conditions” (Ministry of Finance of Finland, 2024).

Simply saying, AI refers to technology that allows machines and systems to do activities or tasks that usually need human intelligence. These activities involve processing language, analyzing data, gaining knowledge from experience, and making informed decisions.

Organizations are growingly seeing the potential to boost business operations and performance by using AI, but they do not have a clear AI strategy to use it effectively hence all the possibilities are not fully utilized. Clear and structured planning is required to get the most out of the AI usage. There has been lot of discussions recently about generative AI usage and large language models, but AI usage is much more than that. There are many technologies and capabilities that AI can offer including for example automation, pattern recognition and natural language processing. To get most out of AI, organizations should look at all the different tools and methods it offers, not just the popular ones.

With project management, AI can support helping to streamline and automate some repetitive or otherwise time-consuming tasks like generating meeting notes, analyzing project risks or even forecasting some project outcomes. When using AI managing these simple or routine kind of tasks, this allows project managers to dedicate more time on strategic tasks.

## **1.2 Importance for Case Company**

The case company is a global provider of information management solutions, and it is in a good position to benefit of using AI in project management processes. As the company focuses on efficiency, relies on data and operates worldwide, the analysis of utilizing AI in project management fits well to its goals and keeping up with the industry trends. AI usage could bring several benefits, like supporting faster decisions making, improving risk management and in overall using the resources more efficiently.

The case company has made AI as a key part of its long-term goals and plans to ensure working more efficiently and offer even better information management solutions to its customers unlocking the clear potential of AI and large language models solving complex problems.

One example of this strategy and plans is company's AI tool X, where a set of AI capabilities has been built into the company's main products and services. AI tool X is offering features like AI-led analytics or searches, different kinds of generative AI capabilities. In addition of this, the case company has also added AI to its analytics platform, combining open-source machine learning with advanced data analysis. These efforts are highlighting how dedicated and ready the case company is driving innovation with AI and staying as a leader in the information management industry. By offering AI capabilities in its products and services, this gives the customers more value while improving how it operates.

While the company is already skilled deploying AI-driven solution externally, this research has focused on assessing AI's potential within internal processes, focusing on project management activities in a specific project manager team at the case company. This study provides valuable insights into the effective implementation of AI tools in project management by examining two key areas: first, the expertise and knowledge of project managers within the case company regarding AI use; and second, the prevailing trends in AI-driven project management and provide insights on how these trends can be applied to enhance the company's project management processes and project efficiency. In this study, we have focused on a single specific team of project managers, and it is important to highlight that this study does not encompass all project managers within the case company.

To maintain confidentiality, the case company involved in this research will remain anonymous.

### **1.3 Purpose and Objectives of the Research**

The research explores how AI is used in project management within the case company. As AI technologies continue to evolve, understanding their role in optimizing project management processes is important for enhancing efficiency and productivity in projects. According to the World Economic Forum (2023), by 2027, 75% of companies are expected to adopt AI technologies, potentially disrupting 44% of employees' skills as a result. Skills such as people and talent management, customer service, complex problem solving, analytical and creative thinking will become increasingly essential during the next years. Companies will need to integrate AI training into their strategies to prepare their workforce for this shift. This research aligns with these broader trends by investigating AI's opportunities to improve project management approaches.

The aim of this research is to investigate the role of AI in project management, with a primary focus on the experiences, awareness, and practices within a specific

case company. In this research, we have analyzed only one specific team consisting of project managers, and it is crucial to highlight that this study does not take into consideration all project managers within the case company. By examining the current state of AI usage in project management, this study aims to provide insights into how AI technologies can enhance core elements of project management, specifically as efficiency, automation of administrative and repetitive tasks, decision-making, and the management of risks.

The research seeks to enhance the academic understanding of AI's transformative potential in project management while providing practical recommendations tailored to the case company. It investigates how AI can address challenges in project workflows and identifies strategies to leverage AI trends effectively to optimize processes.

This study aims to address the following research questions:

1. What kind of experiences and knowledge the project managers have regarding AI usage in project management in case company?
2. What are the current trends in utilizing AI in project management and how those trends could be utilized withing the case company project management processes also improving the efficiency of the work?

Additionally, this study includes a personal professional development objective to enhance my own understanding and competence in using AI, specifically in project management. This involves deepening my knowledge of AI tools, learning how to integrate them effectively into project workflows, and hopefully applying these insights directly in my professional work in the future.

## 2 ARTIFICIAL INTELLIGENCE

This section provides a review of AI beginning with a brief overview of history and evolution, and subsequently delves into the key concepts of AI. Understanding these foundational aspects is important for recognizing the significant impact of AI across diverse industries, specifically in this research in project management.

AI is defined in various ways. Merilehto (2018, p. 16) is describing AI to be a performance of tasks by a machine that can be thought of as intelligent actions like those performed by humans. He also says the capabilities of AI are not limited to the level of human ability.

Practical applications of AI in project management include tools that assist with learning from project data, reasoning through complex decisions, anticipating risks, making informed decisions, and even interpreting visual or textual project inputs. Current AI technologies, classified as weak AI (ANI), excel at performing specific tasks within project workflows. For instance, AI can automate routine activities such as scheduling, resource allocation, and progress tracking, or analyze patterns in project data to predict potential delays or risks (Merilehto, 2018, p. 16).

While the concept of strong AI (AGI), which could simultaneously perform a variety of complex tasks like managing an entire project portfolio while automating other organizational functions, remains a goal for future development, the focus in project management today is on utilizing ANI to enhance productivity, support decision-making, and improve overall project outcomes.

Overton (2018) agrees there is not a universally accepted definition of AI, but the best description without complicating it with technical details or making expansive promises is following: AI is any program that does something that we would think of as intelligent in humans (Overton, 2028).

When prompted with “What is Artificial Intelligence?”, the response generated by ChatGPT, a generative AI tool, describes that “The artificial intelligence is the field of computer science focused on creating systems or machines that can perform tasks typically requiring human intelligence. These tasks include learning, reasoning, problem-solving, understanding language, and recognizing patterns. AI can be divided into two categories: narrow AI, which is designed to perform specific tasks, and general AI, which aims to perform any intellectual task a human can do” (OpenAI, 2024).

Significance attention has recently been directed toward the use of project management, and its impact has become a popular topic when discussing the future of the project management profession. AI has the potential to become a powerful tool for project professionals in project delivery. According to a study by APM (2022), there are several benefits of using AI in project management, including improved decision-making, enhanced support for problem-solving functions and valuable assistance in project planning. The study highlights its usefulness specifically in large and complex projects. The importance of the convenience of use of AI was also raised as a critical point maximizing the high perceived usefulness.

## **2.1 A brief history of AI**

“Can machines think?”, was a question raised by Alan Turing in 1950, which is considered as a starting point of the modern concept of AI as intelligent machines that can replicate the reasoning process performed by a human using available information solving problems and making decisions (Müller et al., 2024).

AI research officially began in 1956 at a Dartmouth College workshop, when top academics predicted that machines may acquire human-level intelligence in a generation. They pursued this concept with strong financial backing, but by the 1970s, they discovered the obstacles were significantly bigger than they had anticipated. Decreased funding resulted the "AI winter," a period of poor

advancement of AI development. A brief comeback occurred in the 1980s, driven by the government programs, but AI still fell short of expectations, resulting in another drop in interest (Haenlein & Kaplan, 2019).

In the early 21<sup>st</sup> century AI development fully activated again. The benefits of using machine learning expanded specifically in fields like healthcare and finance, and it was the first time when AI was used in practice for example natural language processing and image creation. ChatGPT which is a generative AI chatbot, was rolled out to consumer usage in November 2022 by an organization named OpenAI. ChatGPT have achieved totally a new level of AI, and these kinds of smart chatbots can run searches, generates human-like text or generate realistic videos, images or audio, and the development is rapidly going forward all the time (Foote, 2024).

AI is nowadays affecting in several industries. AI boosts technologies such as speech recognition, picture recognition, and driverless cars. AI will continue to develop, but there will also be difficulties, related to ethical questions and how it will affect the employees. When the AI technologies are developing further, it is important to remember to balance between the benefit and responsible use (Haenlein & Kaplan, 2019).

## **2.2 Key Concepts of AI**

AI is rapidly growing and evolving field focusing to develop different kinds of systems that can do work which would be traditionally performed by a human for example understanding or creating text. After the first steps made in 1950's around AI, there has been major steps with the development as explained in the previous chapter. The next chapter will explore the key concepts of the AI including machine learning and algorithms, deep learning and deep neural networks, natural language processing, generative AI and generative pre-trained transformers (GPT's).



### 2.2.1 Machine Learning

Majority of AI applications rely on machine learning. Machine learning refers to an area of AI where the model learns from data instead of following rules. This basically means the human does not instruct the system separately, but it works mostly independently after learning from data and patterns. Machine learning can be categorized into three types based on the problem to be solved and the available data (Janiesch et al., 2021, p. 3):

- Supervised learning requires a training dataset that includes both input instances and labeled output values.
- Unsupervised learning involves detecting patterns without labels or specifications.
- In a reinforcement learning system, input and output pairs are not provided. Instead, the system's current state is defined, a goal is specified, and a set of allowable actions within environmental constraints is outlined. The machine learning model learns by trying different actions and finding what works best to achieve the goal.

Machine learning is becoming an important tool in project management by improving tasks like scheduling, forecasting, and risk assessment. It analyzes past project data to predict delays, estimate resource needs, and identify potential risks. By recognizing patterns, ML can suggest more efficient ways to manage tasks and resources. This leads to better planning, real-time monitoring, and faster decision-making, helping project managers stay ahead of issues and deliver projects more smoothly (Uddin et al., 2022).

**Figure 1.** presents the example cases where Machine Learning is utilized comparing the capabilities of AI.

	Case 1	Case 2	Case 3
<b>ML</b>	Recognizes faces	Predicts equipment breakdown	Predicts the likelihood of disease
<b>AI</b>	Infers you are upset	Schedules a repair	Finds a new treatment
	Case 4	Case 5	Case 6
<b>ML</b>	Clusters documents by similarity	Learns to recognize obvious defects	Predicts the performance of a system
<b>AI</b>	Sorts documents by priority	Infers hidden defects	Designs a system to meet performance goals

**Figure 1.** Example cases utilizing ML and AI (Overton 2018).

### 2.2.2 Algorithms

Algorithms are rules or instructions designed to accomplish a specific task or address a particular issue. Those are used in machine learning, and in this context, learning practically means the process during which an AI model learns to predict a specific outcome based on data. The principles of machine learning are usually categorized into three groups: supervised learning, reinforced learning, and unsupervised learning. In context of AI the most relevant technique is supervised learning which why we are focusing on that in this study. In supervised learning the developers already know based on the data what result they want the AI model to reach. Simply saying the training is completed after the desired outcome has been achieved (Edukamu, 2023).

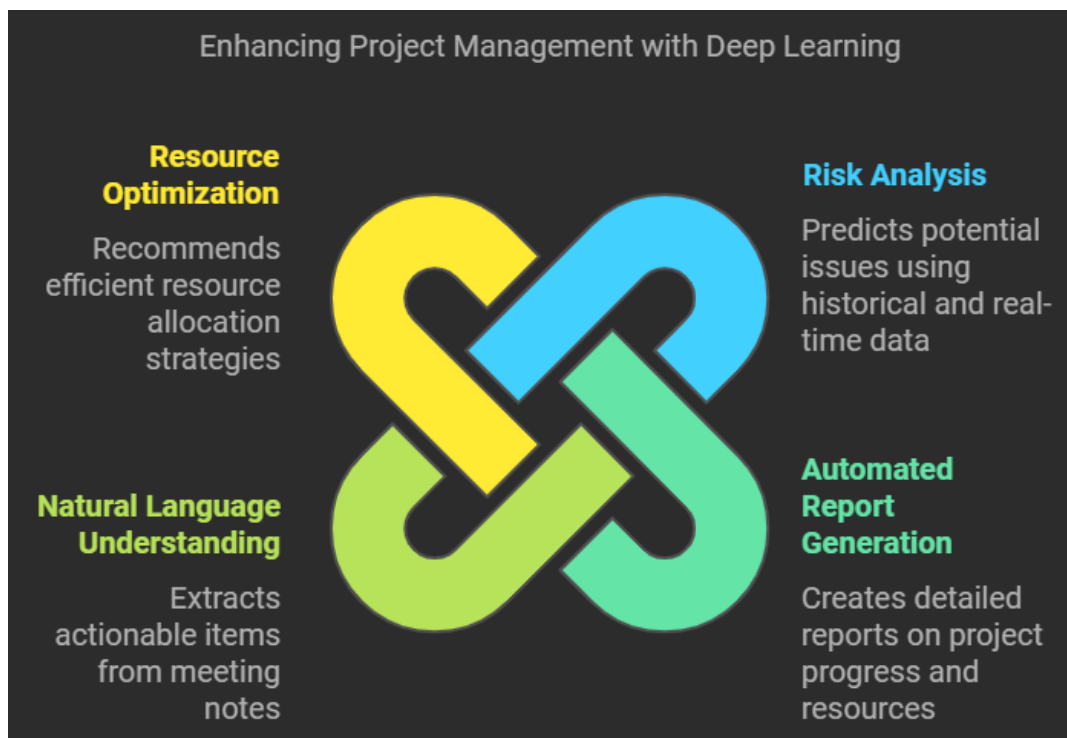
### 2.2.3 Deep learning and Deep Neural Networks

Deep learning is a machine learning model which is based on artificial neural networks. DNNs are type of artificial neural network which contains multiple layers of combined neurons, allowing them to learn complicated patterns in data. The networks are using neuron layers transforming input data through complex processes, where each neuron will activate specific function creating non-linear and complex patterns. The learning process optimizes algorithms minimizing errors in result prediction. Because of their ability to automatically learn and process large amounts of data, DNNs have already been used successfully in many different areas like recognizing images and processing natural language. The

training process of DNN's is taking significant number of computational resources and large datasets, which is bringing own challenges to the processing (Janiesch, Zschech & Heinrich, 2021, p. 2-3).

Deep learning models greatly improve project management by automating complex tasks and enhancing decision-making. For example, risk analysis uses deep learning to predict potential issues based on historical and real-time data, enabling better mitigation strategies. Automated report generation leverages DNNs to create detailed reports on project progress, budgets, and resource usage, saving time and effort (Janiesch, Zschech & Heinrich, 2021, p. 2-3).

In communication, natural language understanding helps extract actionable items from meeting notes or prioritize emails, ensuring critical tasks are addressed. Additionally, resource optimization benefits from DNNs analyzing past project data to recommend efficient resource allocation strategies. These applications showcase how deep learning drives smarter and more efficient project management (Janiesch, Zschech & Heinrich, 2021, p. 2-3). **Figure 2.** Has been created using AI tool Napkin prompting the chapter content.

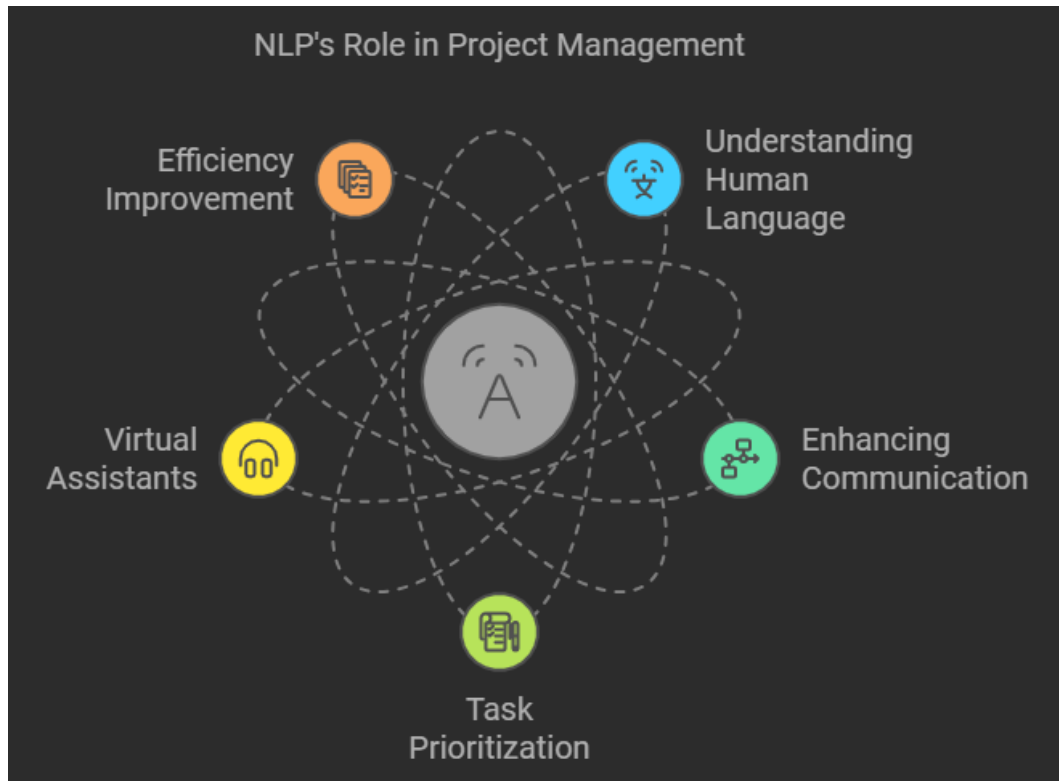


**Figure 2.** Enhancing Project Management with Deep Learning

#### 2.2.4 Natural Language Processing

NLP, a branch of AI and computer science, uses machine learning to interpret and interact with human language. It integrates rule-based language models with machine learning and deep learning to process and generate text and speech, see **Figure 3.** (NLP's Role in Project Management, created by Napkin AI tool). NLP is behind many tools like search engines, voice-activated GPS, and virtual assistants such as Alexa and Siri. NLP research has helped make generative AI possible by creating the foundation for tools that generate text, images, and other content. NLP a branch of AI, enhances project management by allowing systems to understand and interact with human language. NLP-driven tools streamline communication by extracting actionable insights from meeting notes, emails, and other project documents. These tools can also assist with task prioritization and delegation by analyzing text-based project data (IBM, 2024).

In addition, NLP drives virtual assistants and chatbots that respond to project-related queries, provide updates, or offer guidance on workflows. By automating routine communication tasks, NLP helps project managers focus on strategic activities, improving efficiency and team coordination (IBM, 2024).



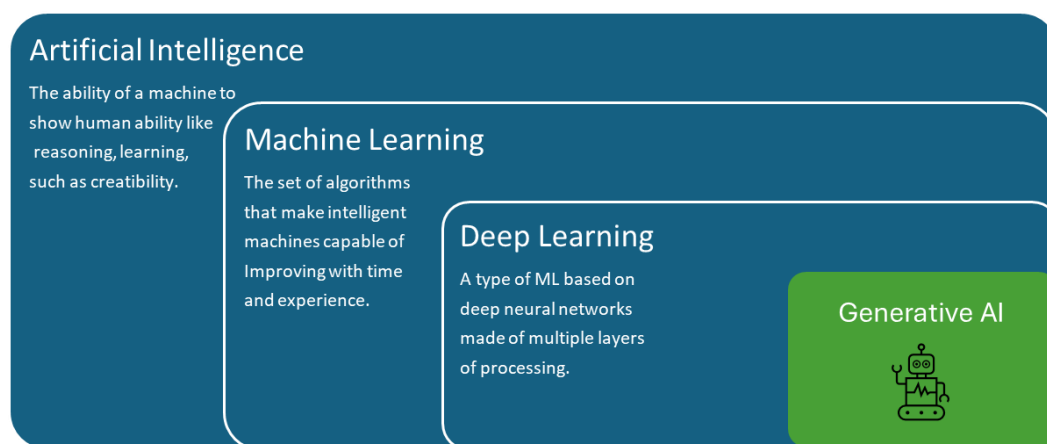
**Figure 3.** NLP's Role in Project Management

### 2.2.5 Generative Artificial Intelligence

GenAI is a subfield of AI and DL, focusing on creating new content such as images, text, music and video by utilizing algorithms and models trained on existing data through ML techniques. AI serves as the foundation, while ML, DL and GenAI represent increasingly specialized and focused areas (Alto, 2023). See also **Figure 4.** Relationships between AI, ML, DL and GenAI).

The primary target of ML in this context is to create models utilizing algorithms with which the model that train itself and improve its efficiency. Deep learning refers here to deep models which can be also called as deep neural networks.

Deep neural networks are particularly well-suited for fields like computer vision and NLP. In machine learning and deep learning, the focus is often on discriminative models, which are used to make predictions. Generative AI does not use deep Neural Networks to cluster, classify or make predictions on existing data, but it uses those models generating brand new content like images, text, videos, music and natural language (Alto, 2023).



**Figure 4.** Relationships between AI, ML, DL and generative AI. (Alto, 2023).

One of the most significant applications of generative AI is its capability to produce new content in neural language. Giving in an example such as GPT (generative pre-trained transformer) chatbot, developed by OpenAI, can be trained on large amounts of text data and based on that data to generate new, coherent and grammatically correct text in many different languages, as well summarizing text or finding some key topics or words from larger amounts of text (Alto, 2023).

In **Figure 5.** (Example of asking ChatGPT to draft you an email template) we have created very simple example of working with GPT-4o (example created with ChatGPT, OpenAI). It is also possible to create your own GPT's with some custom instructions that apply to all prompts, reducing repetitive details such as to whom the email should be drafted, tone preferences, your own email signature etc.

Write a short, professional email to the customer management team informing them about delays in the project timeline caused by incomplete or missing pre-requirements. The email should be polite yet assertive, requesting their immediate attention to resolve the issue. Include the key points: (1) acknowledgment of the ongoing project, (2) specific mention of the missing requirements, (3) the impact on the timeline, and (4) a call to action for providing the necessary information promptly.



**Subject:** Immediate Attention Required: Missing Pre-Requirements Impacting Project Timeline

Dear [Customer Management Team],

I hope this message finds you well. As part of our ongoing collaboration on [Project Name], we have encountered a challenge related to incomplete or missing pre-requirements essential for progressing to the next phases of the project.

This gap is currently affecting our ability to maintain the planned timeline and may lead to delays if not addressed promptly. To mitigate further impact, we kindly request your immediate assistance in providing the necessary information or clarifications at your earliest convenience.

Please let us know if you require any additional details from our side to facilitate this process. Your timely input will ensure the project remains aligned with its objectives and deadlines.

Thank you for your prompt attention to this matter.

Best regards,

[Your Name]

[Your Position]

[Your Contact Information]



### Figure 5. Example of asking ChatGPT to draft you an email template

Another more advanced prompt you could ask: “As a project manager, I am drafting a project plan for an IT solution aimed at supporting e-invoicing, considering the latest invoicing regulations in France. Create a project plan that includes task durations, resources, and potential risks. Our team consists of project manager, analyst and two integration analysts. Create a high-level plan with no more than 50 tasks.” First ChatGPT gives the high-level plan, which based on the findings consist of main 7 phases with specific tasks outlined for each phase and a summary. After this I asked it to provide the details in table format (see **Table 1**). ChatGPT provided below table in couple of seconds. As much as possible detailed project related information can be provided to the tool, always the better solutions the tool can provide. This example was very simple, not containing any sensitive information for the project itself, but it demonstrates how quickly and efficiently the tool can provide the templates, from which the project manager can

start building up the formal plan with all required details (or to continue plan creation with an AI tool with more precise prompts).

**Table 1.** Example of AI generated project plan (OpenAI, 2024).

Phase	Task	Duration	Resources	Potential Risks
Project Initiation	Project Kick-Off Meeting	1 day	Project Manager, Analyst, Integration Analysts	None
	Define Project Objectives and Scope	2 days	Project Manager, Analyst	Incomplete understanding of project objectives
	Stakeholder Identification & Communication Plan	2 days	Project Manager	None
Requirements Gathering	Identify Regulatory Requirements	3 days	Analyst	Changes in regulations
	Analyze Functional Requirements	5 days	Analyst	None



	Conduct Requirement Workshops with Stakeholders	3 days	Project Manager, Analyst	Misalignment on requirements
	Document and Approve Requirements	2 days	Project Manager, Analyst	None
System Design	High-Level System Architecture Design	5 days	Analyst, Integration Analysts	None
	Data Flow and Interface Design	4 days	Analyst, Integration Analysts	None
	Define Compliance and Validation Mechanisms	3 days	Analyst	Difficulty ensuring end-to-end compliance
	Review and Approve Design Documents	2 days	Project Manager, Analyst	None
Development	Set Up Development Environment	2 days	Integration Analysts	None

	Develop Core E-Invoicing Modules	10 days	Integration Analysts	Technical complexities in integration
	Build Compliance Validation Features	5 days	Integration Analysts	None
	Initial Module Testing (Unit Testing)	5 days	Integration Analysts	Identifying unexpected technical issues
Integration and Testing	Develop Test Cases and Test Plan	3 days	Analyst	None
	Perform Unit Testing	5 days	Integration Analysts	None
	Integration Testing with ERP Systems	7 days	Integration Analysts	ERP system compatibility issues
	User Acceptance Testing (UAT) Preparation	2 days	Project Manager, Analyst	None
	Conduct UAT	5 days	Project Manager,	User feedback causing delays

			Analyst, Stakeholders	
Deployment	Deployment Planning and Scheduling	2 days	Project Manager	None
	Prepare Production Environment	3 days	Integration Analysts	None
	Deploy Solution to Production	3 days	Integration Analysts	Deployment issues causing downtime
	Post- Deployment Testing	2 days	Integration Analysts	None
Project Closure	Create Project Documentation	3 days	Project Manager, Analyst	None
	Final Review with Stakeholders	2 days	Project Manager, Analyst	None
	Handover to Maintenance Team	2 days	Project Manager, Analyst, Integration Analysts	Knowledge transfer gaps

	Post-Implementation Review & Sign-Off	1 day	Project Manager	None
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Different kind of an example for Generative AI is using generative AI for image generation for example to be used in new presentation. Here we used text prompt: "Can you create me an image which I can use in my presentation? I would like the image to contain people working around a table solving one key project problem.". Below are the AI generated images by ChatGPT DALL-E and Mistral Le Chat in **Figure 6. and Figure 7.**



Here are the images with people working in an office environment. If these meet your needs or if you want any changes, feel free to let me know!

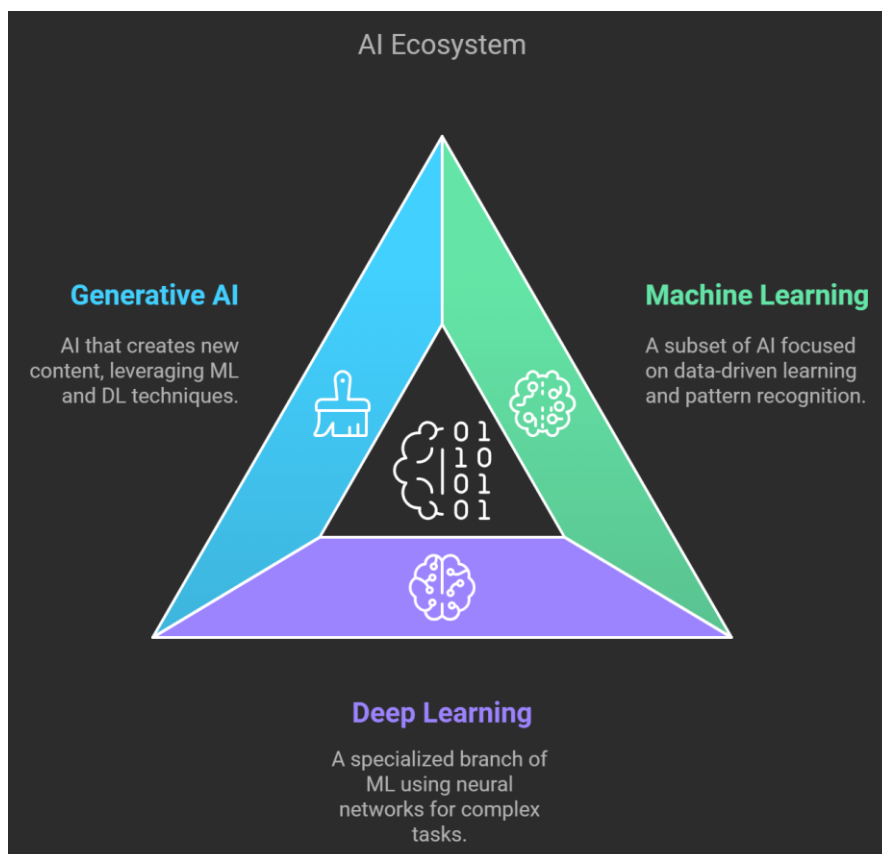
**Figure 6.** Example of asking ChatGPT to create you a new image.



**Figure 7.** Example of asking Mistral Le Chat to create you a new image.

Another example of using generative AI for transforming text into visuals, enhancing business storytelling by converting written content into diagrams, infographics and flowcharts. **Figure 8.** has been generated in seconds only providing a simple prompt “Create graphs with a subject Relationships between

AI, ML, DL and GenAI” to GenAI tool Napkin. Napkin provided many options to first select the part of the text you’d need the graphs created for. In this example, we only used one sentence and very simple prompt, which why we requested graphs for whole text. You can also select just part of your text to be used. After this you can select what kind of visualization you prefer, after which you can even select the preferred style to it and download the picture.



**Figure 8.** Graph created by Gen AI tool Napkin

The swift advancement of AI and the release of public applications like ChatGPT, Microsoft Copilot, and Mistral Le Chat has spread the knowledge of AI and the possibility to utilize it also by normal people and smaller companies. These technologies are examples of GenAI, which creates new content like text and images by analyzing patterns in existing data (Brynjolfsson, Li, & Raymond, 2023).

### **3 AI IN PROJECT MANAGEMENT**

A project is a short-term endeavor with the goal of creating something unique, whether it's a product, service, or outcome. It has a clear start and finish, specific goals, a set budget, and designated resources. Projects are typically executed to achieve a desired outcome that contributes to the organization's goals or objectives using specific project management approaches. Project management can be a profession, full-time job, a role, or an activity depending on how the company works and what kind of project work it is executing. Sometimes, it's formal with specific people in charge, or it can be done by anyone when needed. Project management as an activity itself means actions by leading the team to find out what is the project for (planning, scheduling, requirement gathering), guiding the project through execution (communication, decision making, project time strategies) and navigating and pushing forward project to successful completion (leadership, risk management) (Berkun, 2005).

There exist various methods that offer unique frameworks on how the project can then be delivered, each having its own approach, methodology and practice. Project management methodology is commonly defined as a collection of methods, techniques, procedures, rules, templates, and best practices applied in a project. Methodology is more specific and detailed than an approach, providing project managers with a clear operational guidance on how to manage the project effectively. Examples of project management methodologies are PRINCE2, Scrum, Kanban, Waterfall. Methodologies are collections of practices, which can be described as a method, or a process employed to oversee a particular aspect of a methodology within a project. The main project management approaches are traditional, agile and hybrid. Based on an international study focusing on 477 cross-industry projects, 52% of all projects could be categorized as hybrid approaches (Gemino, Horner, & Serrador, 2021, p. 2).

Gartner (2019) predicted that 80% of today's project management tasks will be automated using AI by 2030. Organization must stay ahead of emerging technology trends to fully advantage of the benefits of AI usage in project management, improving the productivity and efficiency, and ultimately increasing project success. The following are some examples presented by process-based project management methodology PRINCE (2024), how AI is anticipated to be used in project management in the future:

**Administrative Task Automation:** AI is streamlining repetitive tasks like report generation, document management, and scheduling meetings. In the future, AI will handle most of these tasks allowing team members to focus on more meaningful work.

**Faster Project Selection:** Based in statistics, currently 70% of projects are failing. AI can use predictive analysis and data to identify the ones most likely to succeed, helping organizations direct their efforts more effectively.

**AI as Part of the Team:** AI is already boosting productivity, but soon it will become an active part of project teams by handling tasks, answering questions, and offering real-time support.

**Evolving Role of Project Managers:** As AI automates routine tasks, project managers will shift toward leadership and strategic roles, focusing on keeping projects aligned with business goals.

### 3.1 Traditional Project Management

The main goal of the traditional project management approach, like the Waterfall model, is to optimize to achieve efficiency by strictly following the initial detailed project plan. This approach aims to complete the project within the planned time frame, budget, and scope. It can be said that the traditional project management approach is defined in the world of engineers and construction professionals



where the team expected a clear statement from clients saying what they wanted, when they wanted and how much they were ready to pay for it (Wysocki, 2009).

**Figure 9** (Traditional Project Management Approach – Waterfall, IT project) shows how this method follows a clear, step-by-step process. Each phase including Initiating, Planning, Executing, and Project Closure happens in sequence. The entirety of this was presented to the project manager in a tidy bundle to start delivering the project. Simply saying when the goal and solution are clear, the clearest choice would be to use traditional project management approach (Wysocki, 2009).

AI strengthens the traditional methodology by enhancing its predictive capabilities and addressing its primary limitation: inflexibility in adapting to unexpected changes.

In traditional project management, plans are very often fixed and might not always take into consideration some of the changing variables, for example resource availability and new risks. AI-powered tools can analyze past and real-time data to predict delays, resource shortages, or unexpected costs. This will help project managers make changes to their plans earlier to avoid bigger problems at the later stage (Nenni et al., 2024).

AI can improve efficiently by handling repetitive tasks like updating Gantt charts, preparing project status reports or tracking project progress. Automating these tasks reduces the manual workload and minimizes human errors, allowing project managers to spend more time making decisions and communicating with stakeholders. AI tools can also monitor if projects are staying on schedule, within budget, and meeting their goals, providing valuable insights to keep everything moving forward (Nenni et al., 2024).

Adding AI into traditional project management processes, organizations can retain the advantages of a structured and sequential framework while gaining flexibility

through improved predictions, automation and risk management. This combination helps projects remain efficient and resilient, even in complex or changing environments (Nenni et al., 2024).

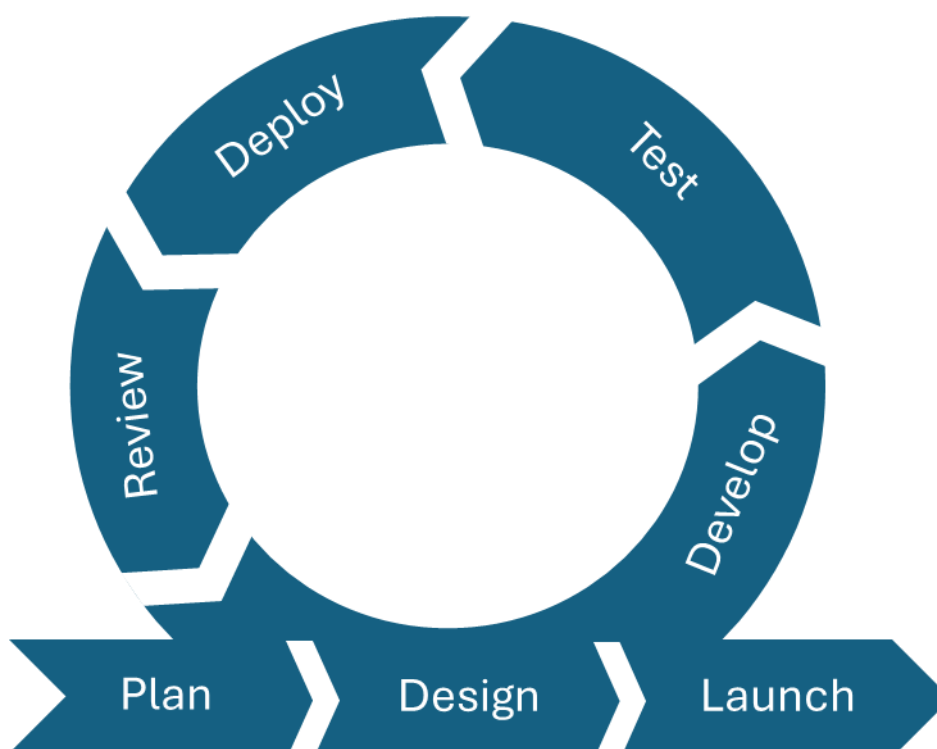


**Figure 9.** Traditional Project Management Approach – Waterfall, IT project

### 3.2 Agile Project Management

Agile methodologies were developed to modernize project management practices and tackle the difficulties of dynamic and complex project environments. To understand the transformative impact of agile methodologies on projects, it's beneficial to delve into the historical context and objectives of project management, as well as the contemporary challenges faced by projects. Agile

project management emphasizes promptly delivering business value, constantly refining both the project's product and processes, embracing scope adaptability, valuing team collaboration, and providing thoroughly tested products aligned with customer requirements (Layton & Maurer, 2012). **Figure 10.** (Agile Project Management Process) divides the Agile cycle into several key components: Plan, Design, Develop, Test, Deploy, Review and Launch.



**Figure 10.** Agile Development Process

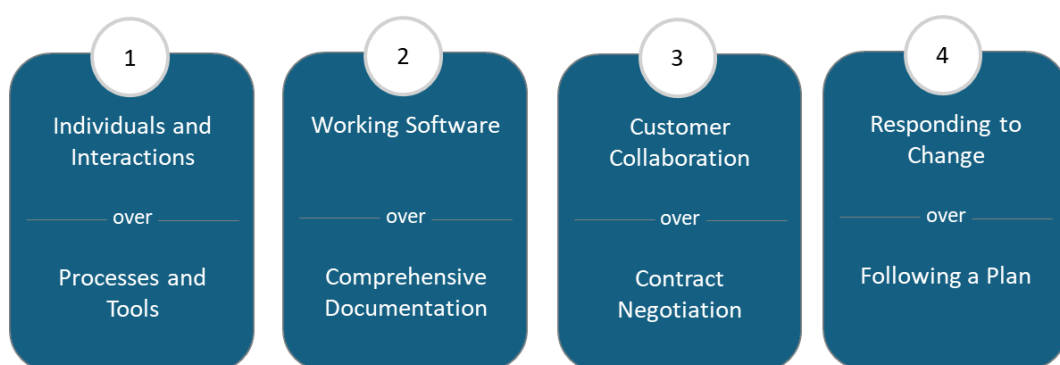
Initially developed for the software industry, agile methodologies have since been widely adopted across various sectors beyond information technology. A major benefit of Agile is its capacity to incorporate AI tools that boost adaptability and efficiency, particularly in managing iterative development cycles. For example, AI can assist with sprint planning by predicting workload distribution or flagging potential bottlenecks in real time.

There is not any specific guideline or book describing practical guidance on how you should manage agile projects, but there are specific characteristics defining

agile way of working. The key concepts include prioritizing customers, embracing changing requirements, working closely with end-users, maintaining strong level of team self-organization, and continuously reflecting on project progress. In academic literature Scrum is often identified as a most common agile framework, as it is recognized to be representing the Agile Manifesto most efficiently (Gemino, Horner & Serrador, 2021, p. 2).

AI technologies complement Agile's emphasis on flexibility by enabling dynamic prioritization of tasks through predictive analytics and automating repetitive activities like backlog grooming or progress reporting. This enables teams to adapt more quickly to changing requirements and focus on innovation. In the rapidly evolving software development industry, where traditional methods struggle with frequent changes in requirements, Agile has proven to be a revolutionary framework (Dam et al., 2018).

The Agile Manifesto, established in 2001, refined how software development teams operate. The core philosophy of Agile is to prioritize people, collaboration, and flexibility to deliver high-quality projects efficiently and effectively. The Agile Manifesto is defined by four key values and twelve principles, which are described in the following **Figures 11. & 12.** (Carter & Hurst, 2019).



**Figure 11.** The key values of Agile Manifesto (Carter & Hurst, 2019).



**Figure 12.** The key principles based of Agile Manifesto. (Carter & Hurst, 2019).

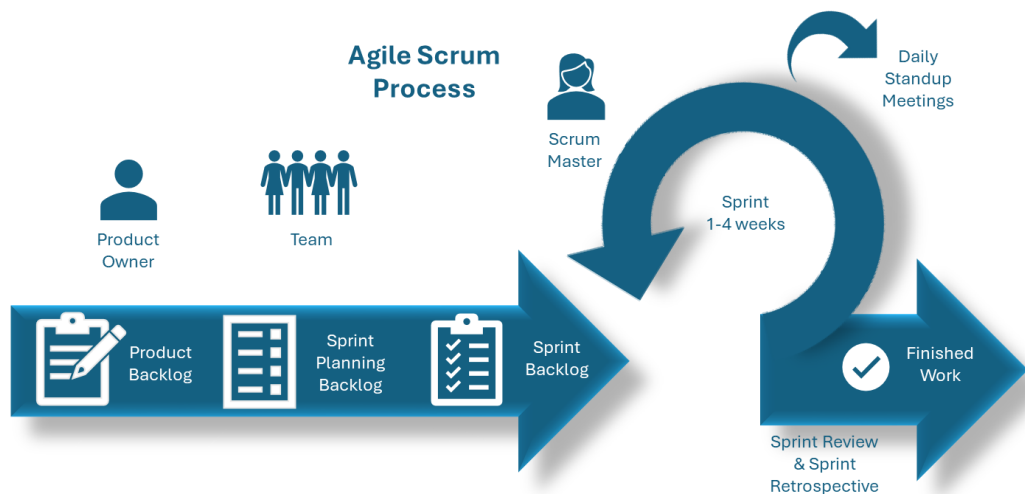
### 3.2.1 Scrum

The most popular agile project management method is called Scrum. Scrum is a process framework which encourages project teams to iteratively assess and improve their processes based on the specific circumstances. It encourages teams to work in an organized manner within a defined timeframe, completing a clearly defined set of features. This approach is beneficial because the features they may need to work on can be unpredictable due to the changes, based on the feedback from the customers or because of any other factors (Scrum.org, 2024).

The Scrum process begins with the creation and prioritization of the Product Backlog. The Product Backlog is maintained and controlled by the Product Owner.

During Sprint Planning, the team will choose items or user stories to work on in the upcoming Sprint. One sprint usually takes 1 to 4 weeks depending on the project and its requirements. The team then collaborates daily in the Daily Scrum monitoring the progress, solving any problems, and balancing the workload between the team members. At the end of each Sprint, the team holds a Sprint Review meeting to assess the outcomes of that previous sprint, and a Sprint Retrospective to discuss improvements for the upcoming Sprints. The cycle then repeats, fostering continuous improvement and delivery. (Scrum.org, 2024).

**Figure 13.** (Agile Scrum Process) visually represents the key stages of the Scrum process, highlighting the iterative nature of planning, execution, and review. It illustrates how the team collaborates through each phase, emphasizing the importance of the Product Backlog, Daily Scrums, and the Sprint Review and Retrospective meetings in fostering effective teamwork and ongoing enhancement of project outcomes (Scrum.org, 2024).



**Figure 13.** Agile Scrum Process

AI can improve Scrum project management by speeding up tasks like creating user stories and breaking them into tasks. For example, you can feed project details into an AI tool like ChatGPT to quickly generate user stories, write mission

statements, and suggest tasks for the backlog. While the AI provides a starting point, project managers still need to review and refine the output to fit their needs. Additionally, AI tools can help with task prioritization and even integrate with project management platforms to track progress, making Scrum processes faster and more efficient (Cogswell, 2024).

AI can also help with task duration analysis and predictions based on data from similar tasks and the specific team members involved. AI tools can also suggest splitting larger tasks into smaller, more manageable ones, helping ensure they fit within a single sprint. This approach reduces surprises and keeps the project running smoothly. AI tools can now even handle notetaking during standups and sprint retrospective, whether it's through online or an in-person meeting. Tools can listen, transcribe, and create summaries, eliminating the need for a team member to take on this task. Thanks to advancements in language processing, AI can generate clear summaries and bullet points that are just as good as a human, saving time and effort for everyone involved (Cogswell, 2024).

Creating reports for stakeholders can be stressful and time-consuming. AI tools can step in here, quickly generating concise, well-structured reports with clear visuals. These tools gather relevant data, format and present it clear. Instead of spending hours building reports manually, AI does it almost instantly, allowing you to review and tweak them before presenting. This saves time and frees time for project managers to concentrate on more important tasks (Cogswell, 2024).

### **3.3 Hybrid project management**

Being adaptable enough to evaluate the project, deliverables, environment, and stakeholders ascertaining the most effective way to accomplish the desired results is the essence of hybrid project management. Numerous hybrid projects employ a waterfall framework at a high level and, where necessary, apply Agile techniques to specific deliverables. Developing a new sport watch is a good example of using both predictive and adaptive approaches. When people are using the sport

watches, giving feedback and development ideas, company can flexibly create or modify new features to the operating system following more agile way of working. As the physical watch itself won't change, the manufacturing part can follow more predictive and traditional approach with clear and fixed planning and development (Snyder Dionisio 2022). **Figure 14.** (Traditional vs. agile approaches) below illustrates the key differences between traditional and agile project management methods. The traditional approach emphasizes clear initial requirements, formal documentation, and linear planning, typically used for larger, critical projects with less involvement from users. In contrast, the agile approach is more adaptive, embracing uncertainty, frequent collaboration, and iterative planning, typically applied in smaller projects with flexible and creative requirements, where user involvement and rapid adjustments are crucial (Špundak 2014, p. 7).

Hybrid methodologies blend the strengths of traditional and Agile approaches while integrating AI capabilities to enhance project outcomes. AI-driven predictive analysis can complement the traditional aspects of hybrid projects by forecasting risks, resource needs or flagging potential manufacturing bottlenecks. These analytics are beneficial for the project managers to adjust schedules and make more accurate plans using reliable data (Taboada et al., 2023).

AI enhances collaboration in hybrid projects by evaluating team performance, identifying bottlenecks, and recommending process improvements suited to the project's mixed approach (Taboada et al., 2023).

Hybrid project management combines the structured traditional methods with the flexibility of agile and becomes even more effective when supported by AI tools (Taboada et al., 2023).

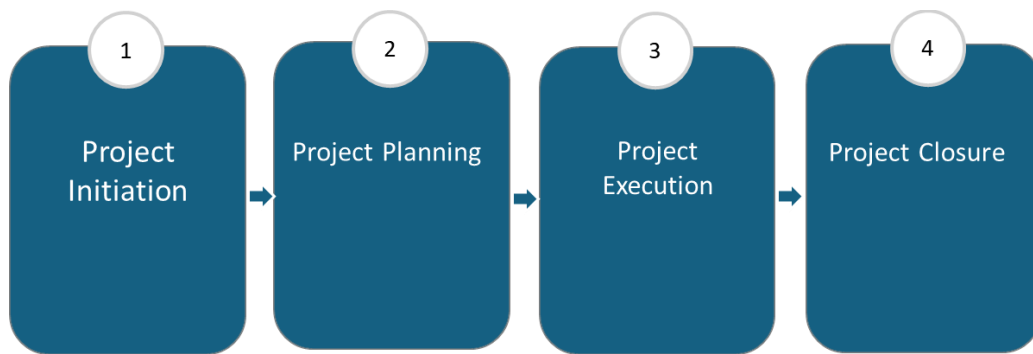


Characteristic	Traditional Approach	Agile Approach
Requirements	clear initial requirements; low change rate	creative, innovative; requirements unclear
Users	not involved	close and frequent collaboration
Documentation	formal documentation required	tacit knowledge
Project size	bigger projects	smaller projects
Organizational support	use existing processes; bigger organizations	prepared to embrace agile approach
Team members	not accentuated; fluctuation expected; distributed team	collocated team; smaller team
System criticality	system failure consequences serious	less critical systems
Project plan	linear	complex; iterative

**Figure 14.** Traditional vs. agile approaches (Špundak 2014, 7).

### 3.4 AI Utilization During Different Project Phases

Looking at the project life cycle is another effective method of getting an overview of the project. The project has a specific start and end point therefore the time required is the duration of the project. On the other hand, feasibility for the project could be planned and developed many years before the commencement of the project. The project is divided into multiple phases throughout its lifecycle. These phases differ from each other in terms of activities, characteristics, and working methods (Mäntyneva, 2016, p. 13). This chapter covers the key project phases (**Figure 15**): Project Initiation, Project Planning, Project Execution and Project Closure, and explores how AI can be effectively utilized throughout each stage.



**Figure 15.** Project phases (Mäntyneva, 2016, p. 16).

### 3.4.1 Project Initiation

As a starting point for a project, a business justification, or a reason why the project is needed, recommended or even required. A business case is typically used to provide the preliminary details of a proposed project. A business case is a document used in project management that explains why a project should be undertaken. In addition, it should identify affected stakeholders, define the project scope and objectives, consider other alternative options, and explain the project delivery approach and methods (Jonathan L. P, 2022).

During the Project Initiation Phase, AI can be utilized in several ways to enhance efficiency and support strategic planning. The ChatGPT (OpenAI) tool was used to brainstorm the ideas how AI could be utilized during the Initiation Phase (OpenAI, 2024).

- **Idea Brainstorming:** AI tools like OpenAI ChatGPT or Microsoft Copilot can help generate creating project ideas and analyze different approaches by analyzing industry trends, historical data, and relevant case studies.
- **Feasibility Analysis:** AI can support assessing the feasibility of project ideas by running predictive analytics to forecast potential outcomes, risks, and resource requirements.

- **Stakeholder Identification:** By evaluating the past project data, AI- tools can analyze data to identify which key stakeholders needs to be involved in the project.
- **Requirement Gathering Support:** AI chatbots or language models can assist in the initial requirement-gathering process by facilitating discussions with stakeholders, documenting key points, and organizing inputs into structured formats for review.
- **Initial Risk Assessment:** AI can help identify potential risks early by analyzing similar projects and industry data to spot common issues that may arise during the project lifecycle.

### 3.4.2 Project Planning

After the decision to start the project, the project is planned in sufficient detail. Regardless of the method how the project will be delivered, it is fundamental for the project success that the project have a proper project plan. Project plan is a guideline for the project during its lifetime and it may be reviewed and revised as often needed depending on the circumstances and project type. The project plan is expected to include agreed-upon deliverables based on the contract or statement of work, and in a summary the project plan should reply to questions; What, How, Where, When and Why the project will be accomplished? (Kerzner, 2013, p. 556-563).

Barcaui and Monat (2023) present a comparative study of generative AI, specifically the GPT-4 model, and a human project manager in the context of creating a project plan. The research concludes that both AI and human project managers have unique strengths, but they complement each other well. AI's ability to rapidly generate structured plans makes it ideal for automating repetitive tasks, scheduling, and risk identification. However, it struggles with contextual understanding, nuanced decision-making, and deeper market analysis, areas where human expertise is required. The research suggests that

integrating AI with human oversight, particularly through prompt engineering (refining AI inputs for better outputs), can significantly improve project outcomes. AI can act as a valuable tool for preliminary project plans, while human project managers can refine and adapt these plans to real-world conditions, ensuring that project goals, quality standards, and stakeholder needs are met effectively. In essence, the article advocates for a collaborative approach where human expertise and AI capabilities are integrated, forming a synergistic model for future project management that harnesses the advantages of both. This human-AI collaboration can result in more efficient, accurate, and comprehensive project planning, by combining the speed of AI with the adaptability and contextual understanding of human professionals.

### **3.4.3 Project Execution**

In the project execution phase the focus is on carrying out the tasks outlined in the project plan. If changes to the plan are needed, appropriate actions will be taken. Project monitoring and control involve tracking the project's progress and resource usage. The most important point here is to identify the problems hindering the progress and completion of the project, allowing for quick corrective measures (Mäntyneva, 2016, p. 16).

In the project execution phase, AI offers valuable tools to improve efficiency, decision-making, and overall project outcomes. The project execution phase is often the most resource-intensive, requiring the project manager to balance time, cost, scope, and quality while responding to challenges. AI's ability to process large amounts of data, automate routine tasks, and provide actionable insights can ease the project manager's workload and lead to better decision-making. For example, project management tools like Microsoft Project or Smartsheet are using algorithms to automate task scheduling. When some changes occur, like team members' availability or project delays, AI recalibrates the schedule, adjusting deadlines and reassigning tasks automatically, ensuring

optimal resource usage without the project manager needing to intervene manually. Another practical example is Microsoft 365 Copilot, which is an AI-powered assistant in Microsoft 365 applications (for example Word, Excel, PowerPoint, Outlook, and Teams), offering a range of possibilities to streamline daily tasks and improve productivity. With natural language processing and machine learning, Copilot can help you work smarter by automating tasks, providing insights, and facilitating collaboration for example by generating a summary of meetings or meeting notes/ task list, build excel pivot tables or create different kinds of graphs, drafting emails and lot more. Microsoft Copilot significantly enhances day-to-day work specifically during the project execution phase by automating routine tasks, streamlining communication, and facilitating collaboration (Microsoft, 2024).

#### **3.4.4 Project Closure**

The project can officially be closed after the agreed deliverables are completed and the project manager completes the final project report. This document typically provides the project outputs and an evaluation of the project success and is a concise summary of the project implementation and possible deviations in relation to the project plan. Preparing this report not only documents the project but also provides valuable lessons that can benefit future projects. The steering group reviews the project's deliverables and confirm that its objectives have been achieved and all the tasks have been completed (Mäntyneva 2016, p. 16).

AI can be highly beneficial during the project closure phase by automating key processes and enhancing the accuracy of final project evaluations. For example, AI tools can assist in generating closure reports by analyzing project performance data and offering insights on key success factors and areas for improvement. Additionally, AI can help document lessons learned, ensuring future projects benefit from past experiences by creating detailed summaries based on project

documentation and stakeholder feedback. AI can also aid in the administrative aspects of closing a project, such as ensuring all deliverables have been completed, verifying project documentation, and helping to confirm that all stakeholder approvals are in place. This can streamline the wrap-up process and ensure no critical tasks are overlooked, reducing the administrative burden on project managers (Islam Shamim, 2021).

## 4 RESEARCH METHODS AND APPROACH

This study employs a qualitative research method. Qualitative research delves into the nuances of human experiences which means that we are interested in the experiences, thoughts, perspectives of the individuals who are the subject of research and the meanings that people give to the subject of research. Qualitative research is typically inductive, meaning it draws conclusions from data. In qualitative research, a lot of concepts and words appearing in the material are used, as well as phrases that have been used by the interviewees or the persons being observed. It is very typical that in qualitative research there is a dialogue between theory and material, however, so that in terms of planning, analyzing and interpreting the acquisition of materials, the theory is only an aid for different stages (Puusa & Juuti, 2020).

The research is divided into three main sections: a literature review, an online survey featuring open-ended questions, and an analysis of findings with practical recommendations (**Figure 16.**).

Firstly, a literature review on AI and project management was made reviewing existing literature gathering industry insights. Understanding theoretical foundations is essential for evaluating how AI can be effectively applied to the field of project management.

Secondly, an online survey with open-ended questions was sent out to the case company's specific team consisting of project managers to gather an in-depth understanding of their experiences and knowledge regarding AI usage in project management. The survey also aimed to explore how project managers feel about using AI technologies, especially for managing project tasks.

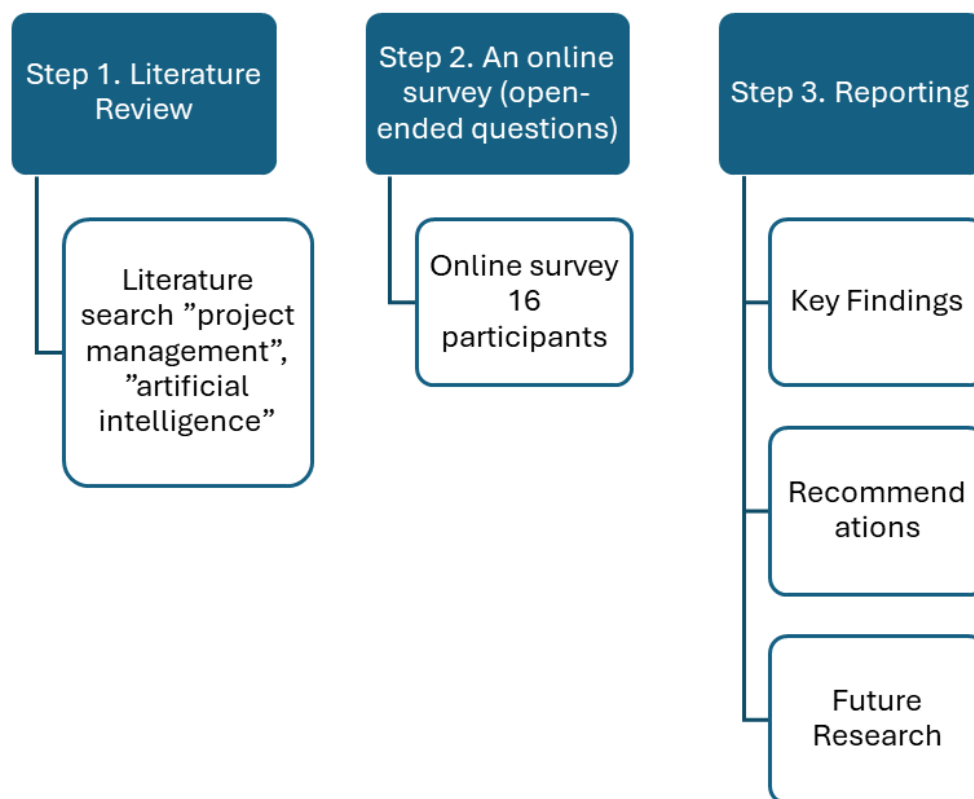
An online survey was chosen as the primary method for data collection instead of interviews for multiple reasons in this qualitative research.

First, the survey format allowed bigger group of project managers from different backgrounds to participate.

Second, surveys offer more anonymity than one-on-one interviews. This anonymity made respondents feel more comfortable when sharing honest feedback, especially about sensitive topics like own views and experiences with new technologies. During the interviews, people might feel pressured to give “right” answers or avoid mentioning any negative experiences. The survey helped reducing this kind of bias and encouraged more authentic responses.

Finally, the survey contained open-ended questions, giving participants a chance to share detailed information about their experiences. While interviews often provide deeper conversations, those also take more time and resources. The survey was a better option for collecting detailed and meaningful input from a larger group of people, while still allowing for in-depth analysis of the answers.





**Figure 16.** Research process.

Based on findings from project managers through the survey and studying the existing literature and company's own AI capabilities and tools, this research aims to provide practical recommendations and insights for leveraging AI technologies in project management tasks and looking opportunities for future research and development.

#### **4.1 Target Group**

This research focuses on identifying the experiences and knowledge regarding AI usage in project management. The target group for this research consists of IT-focused project management professionals, actively managing small, medium and large projects. This group was ideal for the study due to their extensive experience with digital tools and technology-driven workflows, which align closely with the AI-focused nature of the study. Their expertise in implementing and utilizing

advanced software solutions makes them uniquely positioned to provide insights into the integration of AI in project management.

The technical expertise also gives the project managers a deeper understanding of the potential applications and limitations of AI tools, making their perspectives especially valuable. These individuals come from different backgrounds and have varied experiences working as a project manager and with AI. This diversity is important for understanding the current level of knowledge and interest related to AI, and to identify the factors affecting the future usage of AI with project management.

Participants were selected from a specific team of project managers within the case company, and the research findings are not intended to represent the entire company. To provide focused and comprehensive data, this study involved individuals from different countries. Cultural and geographical factors can shape project managers' perspectives on AI in project management. For example, countries like the US may prioritize innovation and rapid AI adoption, while European countries may focus more on ethics and data privacy due to stricter regulations. In this research, all project managers worldwide are using the same project management methodologies, which likely contributes to having similar experiences and perspectives on AI.

In qualitative research, the responder amount is often smaller than in quantitative research because the goal is to gather in-depth insights rather than statistical generalizations.

#### **4.2 Data Collection Methods & Tools**

The survey was conducted with Microsoft Forms application, and it was separated into two main sections. The first section focuses on gathering basic professional background information helping to establish a foundation understanding the responders professional context. The second section explores into the project

managers knowledge and interest related to AI. It includes questions that investigates their familiarity with AI, ideas on how AI could assist them in their work, and whether they have received any training in AI or have an interest in learning more about it.

The questions in the survey are mostly open-ended, which is allowing responders to provide detailed feedback. Addressing possible issues with response length limitations, all the open-ended questions were updated to allow responses up to 4,000 characters.

The usage of open-ended questions was selected in purpose to provide more detailed data and allow more comprehensive understanding of the responder's perspectives related to AI and project management. This also takes less time than participation to one-to-one interview and gives opportunity for more higher level of anonymity in the responses. There are also certain challenges while using open-ended questions. Difficulties can be the complexity of analyzing results to understand the diverse feedback, and additionally the open-ended questions require more time than close-ended questions which can sometimes lead to lower response rates.

Analyzing and understanding diverse feedback can be difficult and take a lot of time, especially when people share their thoughts in different ways. To make this process easier, AI tools will be used to help analyze the responses and write clear conclusions. Generative AI will assist by making it easier to identify patterns and insights, helping to draft clearer conclusions and more meaningful reports. In this study, ChatGPT from OpenAI has been used for helping to analyze the survey responses.

## 5 SURVEY RESULTS AND KEY FINDINGS

The online survey was sent out to a specific team of 26 project managers located across the world including UK, Finland, US, Germany, Ireland and France, and total of 16 project managers responded to the research survey. Rather than seeking large numbers of responders, this qualitative research values exploring participants perspectives, experiences and thoughtful explanations with depth. For these reasons, having 16 participants is a reasonable and sufficient for this research.

The survey invitation was initially sent to all participants on the 11<sup>th</sup> of September 2024, with a response deadline set for the 20<sup>th</sup> of September 2024. At the end of this original timeframe, only five responses had been received. To accommodate busy schedules and encourage more responses, the deadline was extended until the 1<sup>st</sup> of October 2024. After sending a few extra reminders, 11 more responses were received. In overall, the participants enthusiasm to support with the research, even with their busy schedules, was encouraging and greatly appreciated. The responses have provided important insights that will enrich the quality of this study.

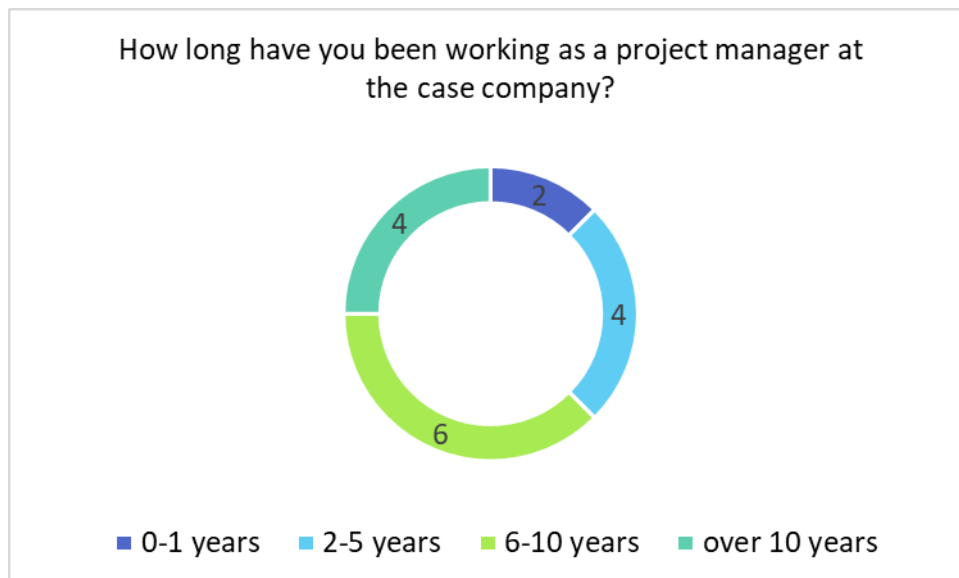
The analysis of survey data, particularly when most responses are open-ended, presents unique challenges in combining different viewpoints into clear, unified insights. In this research, ChatGPT, a generative AI tool developed by OpenAI, was used to assist with drafting, organizing, and exploring potential interpretations of the data gathered from project managers. While the final analysis and conclusions were researcher-driven, ChatGPT provided valuable support in structuring preliminary drafts and suggesting ideas for how to approach complex qualitative responses.

## 5.1 Project Managers Professional Background Information

In the first part, the survey explored the professional background of participating project managers to understand their experience and expertise in the field. The respondents came from diverse geographical locations and different project management experiences and backgrounds, which contributed to the richness of the data.

### 1. How long have you been working as a project manager at the case company?

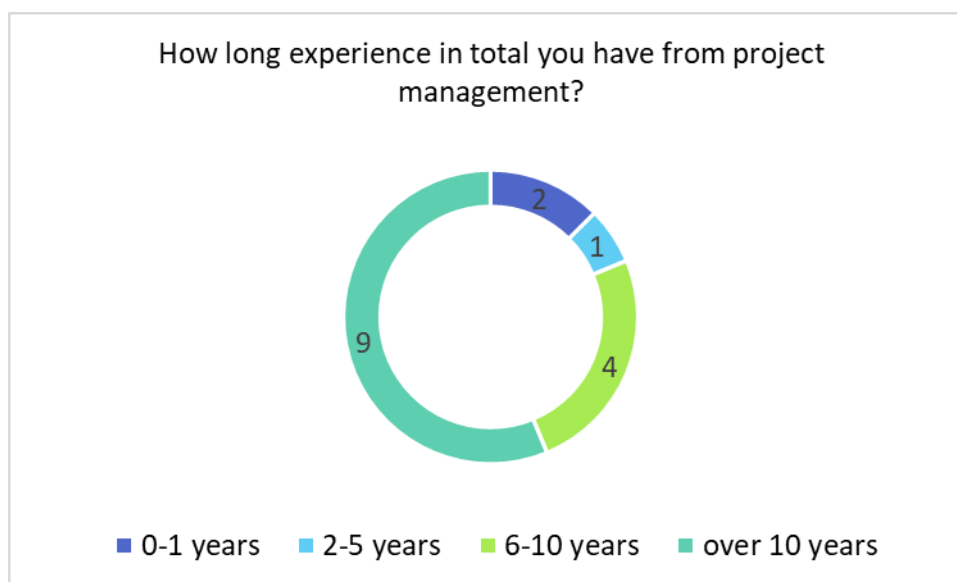
The first question aimed to determine how many years responders had been working as project managers at the case company. Responses revealed a broad range of experience within the organization. Four project managers had been with the company for over 10 years, 6 respondents had been with the company for 6 to 10 years, while four others reported being with the company for 2 to 5 years. Two project managers indicated they had been with the company for 0 to 1 year. (Figure 17.).



**Figure 17.** Duration of employment as a project manager at the case company

### 2. How long experience in total you have from project management?

The second question aimed to identify the total years of experience respondents have in project management. This information helps to contextualize the responses and understand how the level of experience might influence the current understanding and experiences with AI in project management. Over the half of respondents (9 project managers) reported having over 10 years of experience in project management, and in addition of this, four responders indicated they had between 6 to 10 years of experience. This highlights the depth of expertise of project management within the responders. Remaining project managers reported 2 to 5 years (1 responder) or 0-1 years (2 responders) of experience (Figure 18.).



**Figure 18.** Total project management experience

### **3. How do you see the project manager role evolving, and what are the most important skills today?**

The third question in the survey aimed to explore how respondents perceive the evolution of the project manager role and identify the key skills required in today's changing working environment. Below chapters summarizes the results and insights provided by the respondents, highlighting the key trends and skills that are shaping the evolution of project management.

## **Introduction to Role Evolution in Project Management**

The role of the project manager is transforming significantly, driven by changes in methodologies, digital tools, remote work dynamics, and evolving customer expectations. Project management is increasingly seen not only as an organizing role but as one requiring strategic adaptability and the ability to guide teams through varied methodologies. This evolution reflects the increased specialization in project roles and the rise of remote and cross-functional team structures across global settings, demanding a reimagined skill set and approach from project managers. It was also highlighted in the responses that there has been a greater attention on the project financial due to the changes within the case company revenue reporting processes.

## **Adaptation to Methodologies and Tools**

Project managers today face growing interest in agile methodologies. While "agile" is frequently referenced by customers, its application often varies widely, diverging from traditional Agile principles. Agile and hybrid approaches are gradually replacing waterfall methodologies, as customers expect even more flexibility and rapid adaptability. As the focus shifts towards efficiency and collaboration, it was highlighted by multiple project managers that it would be important to move towards real-time project management tools like Microsoft Teams, Jira, Miro, ClickUp and SmartSheet.

Responders also highlight that AI tools also play a important role in this transformation by optimizing project tasks, streamlining documentation, enhancing risk prediction, and improving decision-making processes. It was also mentioned, that in this rapidly changing world, project managers are encouraged to adopt AI technologies, enabling them to shift focus from repetitive administrative tasks to areas where judgment, experience, and strategic insight add the most value.

## **The Effects of Remote Work on Project Management**

The shift to remote work, accelerated by the COVID-19 pandemic, has reshaped project management, increasing the frequency of virtual interactions and challenging traditional collaboration methods. Many project teams are scattered across multiple time zones and countries, requiring flexible working hours and highly adaptable communication skills. This shift requires extra effort to build relationships because working remotely can sometimes make teamwork harder. Project managers now need to focus on keeping the teams connected and encouraging open communication, often using digital tools that used to be secondary but are now essential.

### **Possible Challenges and Opportunities**

As project management evolves, managers need to handle more complex environments with different methods, advanced tools, and remote work setups. While technology, especially AI, can automate administrative burdens and offer analytical insights, project management still fundamentally centers around human interaction and collaboration. Effective project management will increasingly depend on a balanced integration of soft skills, methodological flexibility, and digital literacy.

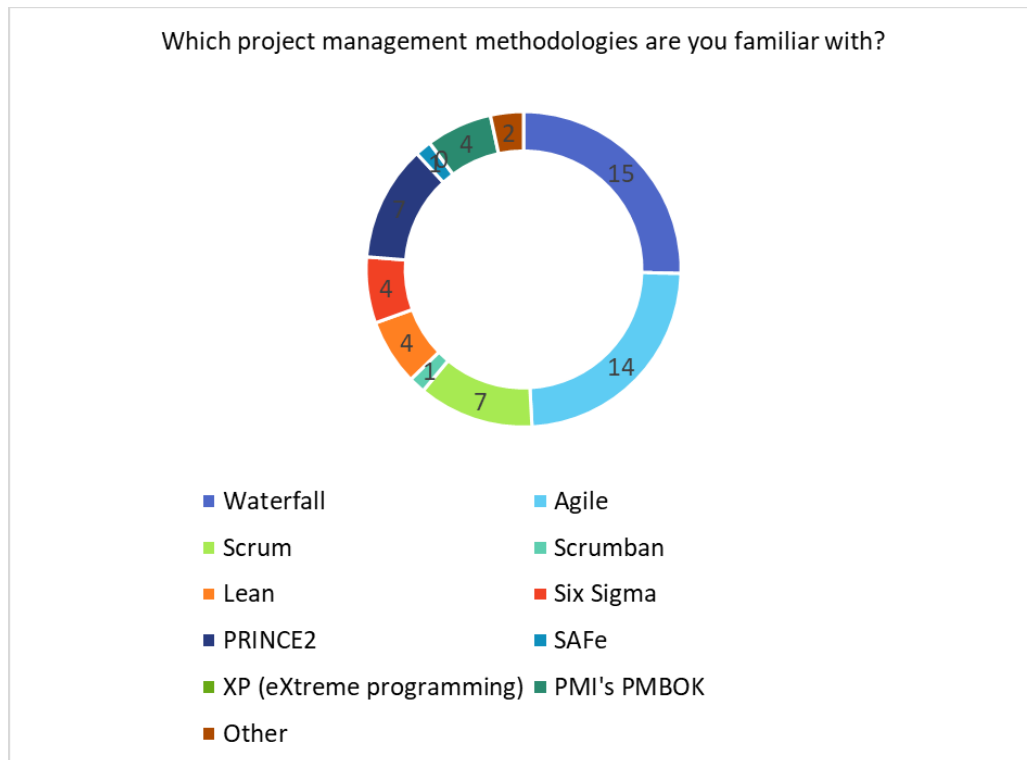
The findings suggest that that even though tools and methods may evolve, the core goals of project management, organizing people and tasks effectively, will stay essential. However, the role will likely require more flexibility and a stronger ability to lead teams through a constantly changing project environment.

- 4. Which project management methodologies are you familiar with?**
- 5. Do you have any project management certifications?**
- 6. If yes, which certifications do you have?**

The questions 4-7 in the survey aimed to identify which project management methodologies respondents are familiar with, and do they have some project



management certifications. Agile and traditional waterfall methodologies were the most chosen, as almost all the responders were familiar with those methodologies. It is important to remember that Agile is not just a single methodology; rather, it is an umbrella term covering a range of flexible, iterative practices designed to adapt to changing project needs. Scrum was familiar to almost half of the project managers, same with PRINCE2. Lean, Six Sigma and PMI's PMBOK got all four responders saying they are familiar with those methodologies, while Scrumban and SAFe only got one responder. Two responders also selected the option "Other" and specified that are familiar with "Hybrid" and "APM". **(Figure 19)**. Exactly half of the responders so 8 project managers are having some certification for project management (PRINCE2, Agile PM, PMI, Scrum Master, APMP, Managing Successful Programs, PM/ PO Safe).



**Figure 19.** Project management methodologies

## 5.2 AI Knowledge and Ideas Among Project Managers

The second section of the survey explored project managers knowledge and interest in AI. Questions asked were about the familiarity with AI, how responders think AI could help in their work, and whether they've received any training or are interested in learning more about it. This section aims to gather their insights and perspectives on AI especially within the scope of project management.

### 7. How would you define Artificial Intelligence (AI) in your own words?

The 7<sup>th</sup> question asked respondents to define AI in their own words. This question aimed to capture their personal understanding and interpretations of AI, while also encouraging them to start thinking more deeply about the concept and its implications.

## **Project Managers Perspectives on AI**

Project managers had different ideas defining a word AI. Some are seeing it as a powerful tool for processing or creating data, while others think of it as an overhyped buzzword. Most project managers are describing AI as a mix of machine learning, data processing, and automation that helps with tasks or processes which usually are done by humans.

### **Key Elements of AI Definitions**

1. **Automation and Task Efficiency:** Many respondents see AI as a collection of tools or programs that can handle repetitive tasks automatically, allowing people to pay attention to more strategic work. For example, in some responses it was mentioned that with AI it is possible to generate and analyze content or create documentation. It is seen as a helpful tool for improving efficiency, especially to handle large amounts of data.
2. **Machine Learning:** A recurring theme is that AI relies on machine learning and extensive datasets to function effectively. Many of the project managers describe AI as a system that "learns" from data and improves its responses and predictions over time based on feedback. When processing significant amounts of structured and unstructured data, AI tools can provide valuable observation, forecast outcomes, and help with decision-making.
3. **Human-Like Intelligence and Actions:** Some project managers define AI as the possibility of machines to simulate or imitate human intelligence. Although true human-like awareness is still argued, AI is increasingly expected to act in ways that resemble human thinking.
4. **Data Processing:** Respondents also see AI as a flexible tool that does more than just automate tasks; it can analyze data, make predictions, and even create something new like images, voice, and text. This makes AI useful in

many areas of project management, from simple task automation to complex problem solving.

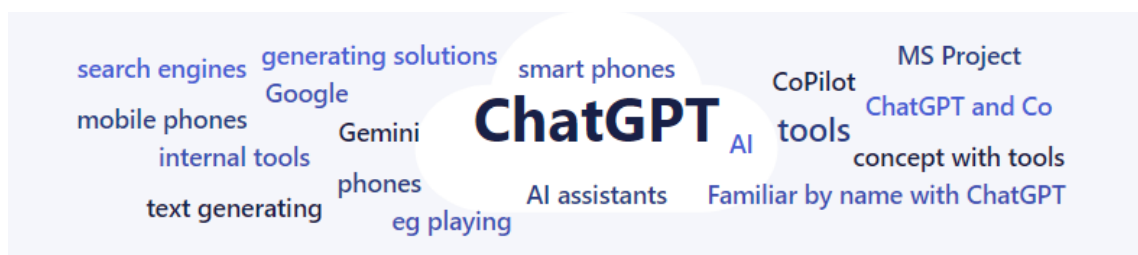
5. **AI as a Buzzword:** Some respondents express doubt about the term "AI," pointing out that it has turned out into a broad term that can blur its true meaning. "AI" is increasingly perceived as a marketing term, often applied to various computational technologies, many of which do not align with the traditional definition of true intelligence. For these respondents, AI feels like a somewhat confusing concept, with multiple forms and applications that aren't always well-understood.

### **Summary: AI's Role in Project Management from a Practical Viewpoint**

In summary, project managers largely view AI as a practical tool for automation, data processing, and enhancement of productivity within project management. While some may question the term's scope, there is broad recognition of AI's potential to streamline operations, from risk analysis to task automation. As project managers continue to integrate AI-driven tools into their workflows, the technology's impact on efficiency and decision-making is expected to grow, reshaping project management in the process.

### **8. Which AI technologies or tools have you used or are familiar with?**

The eighth question asked respondents to list the AI technologies or tools the project managers have used or are familiar with. This question aimed to gather information on the practical experience with AI. There was wide range of different kinds of responses, but some answers were provided more often including ChatGPT, Microsoft Copilot and Google Gemini. There were some responses saying they are familiar using AI with their smartphones using the available AI capabilities like editing photos (**Figure 20.**). There were also four responses indicating that there are no AI tools or technologies they are familiar with.



**Figure 20.** AI technologies and tools

**9. Can you think of some practical examples of how AI could assist with your project management tasks in your current role?**

The 9<sup>th</sup> question invited respondents to provide practical examples of how AI could support their project management tasks in their current role. The goal was to gather detailed insights into the potential applications of AI in the daily work, encouraging participants to consider ways AI could improve their efficiency and effectiveness.

Project managers identified several ways AI could be leveraged to streamline and enhance project management processes. A common theme across responses was the capability for AI to handle routine administrative tasks automatically, allowing project managers to concentrate on higher-value tasks such as team coordination and strategic decision-making. Key areas where the responders are seeing possibilities utilizing AI in their current role are reviewed below separated in specific key areas.

The majority of the responders saw significant opportunities for AI to reduce administrative workload, improve decision-making, and support the broader project management processes.

**Risk Management and Notifications**

Respondents emphasized the usefulness of AI in identifying and assessing project risks using past project data, including project timelines, quality measures, and resource allocation patterns. AI can generate proactive alerts for potential risks

based on historical data providing suggested mitigations for risks based on past successful projects across teams. Automated monitoring tools and different kind of notifications were also noted as ways to enhance risk management, ensuring project managers remain informed of emerging risks in real time.

### **Automating Document and Reporting**

Many participants observed that AI could help automating project documentation creation and status reporting, potentially reducing the administrative workload from project managers. This includes pre-filling project documentation based on contractual information or system data and producing automated reports on project progress and risk assessments. By handling these tasks, AI allows project managers to use more time to team management and strategic planning.

### **Improving Efficiency and Resource Management**

AI's role in optimizing resource allocation was also mentioned, that it could help forecasting resource needs based on ongoing project data and historical resource utilization. AI could evaluate project completion rates, remaining scope, and resource performance, allowing project managers to make more informed decisions regarding resource planning.

### **Enhancing Project Visualization**

It was also highlighted that AI tools could help creating more interactive and visual project plans. For instance, linking tasks with associated risks and issues in real time could provide project managers with a comprehensive overview of project health. AI could further assist by generating clear visualizations of dependencies, risk factors, and change requests (CRs), improving the understanding and communication of project complexities.

### **Document Retrieval and Summarization**

AI's ability to search and summarize information from large document collections was recognized helpful for tasks like creating presentations or drafting emails. Examples included summarizing meeting notes, tracking key project events, and highlighting important details, saving time for project managers. This allows them to quickly find and use information without going through long documents manually.

### **AI-Assisted Communication**

Respondents also noted the possibility of AI to streamline everyday communication tasks. AI tools could help manage and organize emails, extract key information from long email threads, and even generating email drafts. For project managers working across multiple platforms, AI could collect important information from various places, making it easier to stay updated and respond promptly.

### **Supporting Testing Processes**

Another mentioned use case was AI's capacity to assist in testing, a task that often relies on input from various business functions and teams. AI could help generating initial frameworks for test cases by analyzing order histories and project requirements. Although not a complete solution, this capability could serve as a foundational support, streamlining the testing phase and reducing preparation time for the core project team.

In overall, respondents expressed a positive outlook on AI's potential to enhance project management tasks, particularly those involving routine data handling and documentation.

## **10. Are you familiar with AI tool X? \* If so, have you used it in practice, or are you familiar with it in other ways?**

\* The name of the AI tool has been changed for confidentiality reasons.

The 10<sup>th</sup> question asked respondents if they are familiar with case company's own AI tool X, and if so, whether they have used it in practice or are familiar with it in other ways. This question aimed to understand their direct experience with this specific AI tool, while also encouraging them to reflect on their broader familiarity with it. Only three responders said they are familiar with the tool, and two responders have made a small testing with it. The tool is not yet used in this specific project management team. It is under development and the teams are currently evaluating the possible use cases internally, which clearly explains the reason why the project managers are not familiar with it or used it yet.

**11. If you have used AI with some tasks (work or personal), what challenges or barriers have you encountered when using AI? For example any technical issues or user adoption problems?**

The 11<sup>th</sup> question asked respondents to share any challenges or barriers they have founded out when using AI for tasks, whether in their work or personal life. This question aimed to identify common technical issues or user adoption problems, encouraging respondents to reflect on their experiences and the obstacles they have faced.

Most project managers said they had little to no experience using AI in their work or personal lives. Many haven't tried out AI tools yet, so they haven't faced any specific problems with them.

For those who have used AI, some concerns were mentioned. Some highlighted that AI relies on good quality data, so if the data is bad, the results can be unreliable or misleading. Some responders were worried about the accuracy of AI, noting that it doesn't always give the right answers and anyway needs human supervision to make sure its responses are correct.



Overall, while a small portion of respondents identified specific barriers, including data quality and accuracy concerns, the limited use of AI across the group suggests that challenges with AI adoption remain minimal at this stage.

**12. Have you received any training related to AI?**

**13. If yes, what type of AI training have you received?**

The 12<sup>th</sup> question asked respondents whether they have received any training related to AI, and question 13<sup>th</sup> followed up by asking those who had received AI training to specify the type of training they had undergone. This question was targeting to understand the level of formal education or training the participants have undergone in the field of AI.

Only one responder has received training related to AI. This training was purely technical, and responder mentioned it was not relevant for the current position.

**14. Are you interested in learning more about AI and how it could be applied to your role as a project manager?**

The 14<sup>th</sup> question asked people if they want to learn more about AI and how it could be used in their job as a project manager. Out of 16 project managers, 15 said they are interested in learning more about AI and its potential applications in the project manager role.

**15. How do you feel about AI in general related to your own role as a project manager?**

The 15<sup>th</sup> question asked respondents about their feelings regarding AI in their role as project managers. The goal was to understand their overall attitude toward AI, including both their enthusiasm and any concerns about its impact on their work.

Overall, respondents expressed a combination of enthusiasm and cautious interest toward AI's potential in project management. Many project managers viewed AI as a promising tool to streamline administrative tasks, enhance

efficiency, and support data-driven decision-making. For example, some respondents noted AI's potential to perform predictive analysis with large amounts of data, helping project managers with planning making better risk assessment. Some responders viewed it as an opportunity to automate repetitive tasks, allowing project managers to focus more on leadership and strategic responsibilities.

Some of the participants had concerns related to AI, and compared the current excitement around AI to the "dotcom" era, suggesting that not all implementations may be valuable or well thought out. It was also pointed out that even AI can handle some routine tasks, it does not replace the human skills which are needed with team building, decision making and managing relationships between all the stakeholders, being important parts of a project manager's role.

As a summary, respondents view AI positively, recognizing its potential benefits in improving efficiency, but also emphasizing that project management relies heavily on human interaction and leadership, areas where AI's contributions remain limited.

**16. Is there anything else you would like to share about your experiences or thoughts on AI in project management? Do you have any specific success stories related to AI usage?**

The 16<sup>th</sup> question asked respondents to share their experiences or thoughts related to AI in project management, and to provide any success stories related to AI usage. This question aimed to gather further insights and personal stories that could provide a deeper understanding of AI's impact in the field.

Most respondents indicated limited exposure and minimal hands-on experience with AI, and several mentioned they have not yet had the opportunity or time to explore AI in-depth.

However, some of the respondents shared some stories of personal AI usage outside of project management, like generating sales posts or assisting with emails and document proofreading. Some highlighted also that AI tools could be helpful for summarizing calls, tracking some tasks, set reminders, and suggest email responses in challenging situations.

## 6 UTILIZATION OF AI IN PROJECT MANAGEMENT

Project management has been developing over the years and it is becoming a key part for organizations aiming to succeed in a competitive world. Utilizing all the new technology, the teamwork between human and machine opens new possibilities also for the project manager work. Automating tasks and providing useful insights, AI is helping project managers to make smarter decisions and use more time on important project goals. This shift can lead to better project outcomes and more dynamic role for project managers in the future (Hashfi & Raharjo, 2023).

This chapter explores how AI can be used in project management, combining findings from both online survey results and literature review. The usage of AI in project management is becoming more and more important for improving efficiency, making better decisions and achieving project success. The research identifies key strategies and best practises for organizations to take AI technologies in use.

This chapter aims to offer a practical guide for project managers in the case company on using AI in project management. The next sections will analyse specific methods and examples, demonstrating how AI can be integrated to different areas of project management to achieve better outcomes.

AI can be used in many ways in project management. For example, AI algorithms can help allocate resources by predicting project needs and matching team members' skills to the right tasks. Predictive analytics can help risk management by analyzing data to predicting delays or budget overruns, allowing managers to address issues early. AI also supports decision-making by processing big project datasets and providing insights for better results. Automated tools can also track project progress real time, alerting managers if things start to go off track. Additionally, AI-driven chatbots have improved communication between teams

and other project stakeholders, making it faster and more efficient to share information (Tominc et al., 2024).

### **6.1 Stakeholder Communication and Engagement**

Good communication and efficient information sharing are key for successful project execution in today's fast-paced project environments. AI can majorly enhance the communication channels ensuring the information is shared across the necessary teams and project stakeholders. AI-powered tools are capable of analysing communication patterns, ensuring all critical information is shared with all stakeholders in a timely manner. NLP algorithms can scan emails, create and send messages, and taking meeting notes automatically summarizing them and preparing for distribution. Based on a study made by McKinsey & Company, companies implementing AI-driven communication tools saw a 20% increase in project transparency, and 15% reduction in communication misunderstandings. With help of AI, it is also possible to automate routine communication tasks such as scheduling meetings and sending reminders, which can easily save project managers time (Fairfax, 2024).

Specifically in globally distributed teams, language barriers can bring difficulties to effective communication. With AI-powered real-time communication tools can support with these barriers, allowing team to seamlessly communicate in different languages. AI-based translation tools like those developed by Google or Microsoft, it is possible to translate text and speech in real time, ensuring the language is no longer a troublesome factor to collaboration (Fairfax, 2024).

Chatbots and virtual assistants which are using AI can act as valuable communication intermediaries within project teams. With the help of these tools, it is possible to execute variable project tasks such as answering common questions, accessing to important project information or facilitating other routine tasks like updating task statuses and track project milestones. AI chatbots can be integrated with project management tools like JIRA or Trello, ensuring real time

project data delivery. Traditional communication tools like Microsoft Teams and Slack have evolved significantly over the recent years, and those tools can already streamline conversation, automate routine queries, and provide meeting summaries automatically together with key points and action item lists (Fairfax, 2024).

## **6.2 Reporting and Document Creation**

AI-driven tools such as ChatGPT (OpenAI) or Copilot (Microsoft) have evolved over the last years not only being a conversational agent, but a powerful tool supporting also in project documentation and reporting. These AI tools are for example capable of generating test plans and detailed test cases based on the project specific details. The plans and test scripts will need to be reviewed and adjusted by the project team, but with these tools the team can save a lot of valuable time. If your organization have already existing templates available, AI can fill those templates automatically with the pre-information given from the project. This same applies to all project documentation and reporting like status reports, project plans, project closure reports, emails etc. Again, all the AI created content will need to be reviewed, but this will save time for the project manager admin work (Khankhoje, 2018).

AI-driven reporting during the testing is also game-changing, addressing the challenges of traditional reporting by offering advanced data analysis, visualization, and real-time insights. AI tools provide possibilities for predictive analytics and automated reporting, linking test results with actionable intelligence. The approach speeds up decision-making, enhances product quality, and reduces time by delivering fast and accurate data analysis. Overall, adopting AI-driven reporting boosts operational efficiency and helps organizations stay competitive in today's data-intensive environment (Khankhoje, 2018).

### **6.3 Project Planning and Admin Work Automation**

Project planning is a key step in project management because it sets the foundation for the whole project. AI-driven tools can make this process easier by automating tasks. These tools are using algorithms and machine learning to analyse the previous data, find patterns, and predict future outcomes (Spair, 2024).

There are many benefits of using AI with project planning. It saves time and effort by handling repetitive administrative tasks by minimizing the need for manual steps, and this allows project managers to focus more on strategic parts of planning and decision-making. AI can also process large amounts of data fast giving useful insights guiding into better decisions and make resource allocation more efficient by optimizing it using historical data and predictive insights (Spair, 2024).

### **6.4 Risk Management**

Risk management is one of the key components which are influencing the project success. AI-driven tools can analyse data from the previous projects, and based on it identify potential risks, and suggest ideas for handling them (Spair, 2024).

Using AI in risk management has multiple key benefits. It improves how accurately risks are identified by quickly analysing large amounts of data, which helps project managers to find risks that might otherwise be missed or overlooked. AI tools can also suggest ways for managing risks based on past data and predictions (Spair, 2024).

### **6.5 Available AI Tools with Practical Use Cases**

This chapter gives practical examples of how AI can be used in project management. These examples illustrate real-world examples and demonstrate how project managers can use AI to simplify processes, improve efficiency, and

decision-making. The following table lists specific AI tools along with their use cases, offering a clear overview of how these tools can be applied to different project management activities.

The goal is to encourage project managers to think about how AI could fit into their own tasks and start exploring available tools for learning purposes. Many of the tools are free or come with some trial version for testing. This chapter acts as a guide to help project managers to understand how AI works in practice and to find some key use cases from their daily tasks to possible utilize AI.

**Note:** to protect sensitive information, please avoid sharing any confidential data with AI tools online. Many platforms may not guarantee full data privacy or compliance with security protocols.

**Table 2.** Examples of available AI Tools with Practical Use Cases

Tool	Feature	AI Use Case
<b>Microsoft Word (Microsoft Copilot)</b>	Summarization, Document Creation	Drafts reports based on prompts, refines documents, and generates summaries, reducing time spent on documentation (Microsoft, 2024)
<b>Microsoft PowerPoint (Microsoft Copilot)</b>	Design Ideas, Presentation Creation, Summarizations	Suggests slide layouts, design options, and imagery based on content to create visually appealing presentations quickly. Create new presentations (created from blank or using company templates). Summarize your presentations (Microsoft, 2024).



<b>Microsoft Outlook (Microsoft Copilot)</b>	Content Generation, Summarization, Communication	Helps drafting, summarizing, and respond to emails, could organize your inbox, and suggest meeting times, making communication more efficient and timesaving (Microsoft, 2024).
<b>Microsoft Excel (Microsoft Copilot)</b>	Data Analysis	Uses AI to analyze complex datasets and identify insights, highlight, sort and filter your data, generate formulas, create charts or PivotTables (Microsoft, 2024).
<b>Microsoft OneNote (Microsoft Copilot)</b>	Content Creation	Summarize your notes, create to-do or task lists, create project plans in OneNote, rewrite texts. Chat with Copilot and ask questions based on your data (Microsoft, 2024).
<b>Microsoft Teams (Microsoft Copilot)</b>	Intelligent Recap	Summarizes meeting discussions, highlights key points, and creates follow-up action items for team alignment (Microsoft, 2024).
<b>Power BI (Microsoft)</b>	Q&A and Automated Insights, Predictive Trends	Converts natural language questions into visual reports, simplifying data analysis without complex queries. Analyzes project metrics to identify trends, helping teams spot risks early and adapt strategies (Microsoft, 2024).

<b>Microsoft Planner (Microsoft Copilot)</b>	Smart Suggestions for Task Grouping	AI groups similar tasks together for efficient planning, helping teams organize and prioritize their workload. Create plans and goals, track the progress (Microsoft, 2024).
<b>ChatGPT (OpenAI)</b>	Content Generation, Idea Brainstorming, Translations, Summarization, Training	Drafts project plans and reports, brainstorms ideas, assists with code, translates, summarizes, supports training, and automates replies (OpenAI, 2024).
<b>Gemini (Google)</b>	Content Generation, Planning, Learning	Generates reports and presentations, assists with brainstorming, offers coding support, translates content, summarizes documents, and automates responses (Google, 2024).
<b>ClickUp</b>	Smart Suggestions for Task Allocation	Manages tasks, tracks time, customizes workflows, facilitates collaboration, and integrates with other tools for streamlined project execution (ClickUp, 2024).
<b>Notion</b>	Productivity and Notes	Organizes project documentation, creates collaborative workspaces, manages tasks and databases, integrates AI for content generation and summaries (Notion, 2024).

<b>Jira (Atlassian)</b>	Task and Project Tracking	Tracks and manages agile project workflows, supports issue tracking, automates reporting, and offers AI-assisted backlog prioritization and sprint planning (AITechfy, 2024).
<b>Asana</b>	Task and Project Tracking	Manages tasks and projects with customizable workflows, supports team collaboration, and provides AI for task automation, reminders, and workload balancing (AITechfy, 2024).
<b>Taskade</b>	Chat, Task Tracking, Summarizon	Task tracking, project management, and collaboration (Forbes, 2024).
<b>Trello</b>	Visual Task Management	Organizes tasks and projects using boards, lists, and cards; integrates AI for automating task updates, reminders, and workflow suggestions to streamline project tracking (Trello, 2024).
<b>Wrike</b>	Task Management, Project Management	Task management, real-time collaboration, project tracking, Gantt charts, time tracking, and integration with other tools (AITechfy, 2024).
<b>SmartSheet</b>	Automated Alerts and Notifications,	Spreadsheet-style project management, task tracking, team collaboration, workflow automation, and tool integration (AITechfy, 2024).

	Task Management	
<b>Slack</b>	Team Communication	Summarize conversations, get answers to questions, and channel recaps, automating notifications (Slack, 2024).
<b>Napkin</b>	Visualization	Transforms text into visuals, enhancing business storytelling by converting written content into diagrams, infographics, and flowcharts.
<b>Mistral AI</b>	Content Generation, Idea Brainstorming, Translations, Summarization, Training.	Drafts project plans and reports, brainstorms ideas, assists with code, translates, summarizes, supports training, and automates replies.

### 6.5.1 Effective Prompts when using Gen AI in Project Management

To effectively use Generative AI tools like OpenAI ChatGPT, Microsoft Copilot or Google Gemini, it requires a structured approach, especially when preparing materials for real-world projects. Here are five key parts of effective prompt engineering (Lukasiak, 2024):

1. **Specify Your Professional Context:** Include details about your role, industry, and project goals. For instance, you might say, “As a project manager, I am drafting a project plan for an IT solution aimed at supporting e-invoicing, taking into account the latest invoicing regulations in France.”

2. **Provide Project Details:** Mention tasks, resources, and team structure clearly. An example would be, “Our team consists of two analysts, a project manager, a tester, and two integration specialists.”
3. **Be Specific:** Ensure your prompt outlines all necessary elements. For example, “Create a project plan that includes task durations, resources, and potential risks.”
4. **State Constraints:** Outline limits like budget and timelines. For instance, “Create a project plan with no more than 100 tasks.”
5. **Specify Output Format:** Be clear about how you want the response presented. For example, “Generate a list of tasks in table format.”

Providing context and detailed prompts can make instructions long, but it is also possible to create customized bots with specific instructions. Custom instructions let users add preferences that apply to all prompts, reducing repetitive details. Project managers can use custom instructions to include:

- **Professional Background:** Describe your role and the industries you work in.
- **Location and Time Zone:** AI tool can add this info to documents automatically.
- **Tone Preferences:** Specify a formal but friendly tone, with neutral suggestions, and identify opinions versus facts.
- **Form of Address:** For a professional tone, request that AI tool use your name when addressing you.

## 7 RESEARCH SUMMARY

This chapter concludes the findings of this research on how AI can be integrated into project management, keeping the focus on the case company. By combining insights from the existing literature and project managers, this study provides detailed look at how AI can revolutionize project management practices. The research aimed to understand AI capabilities, benefits, challenges, and practical steps for effectively using it in the case company's processes.

The research started explaining the basics of AI and its importance in modern and future project management, highlighting its potential to improve areas like risk management, scheduling, communication, and documentation. The online survey analyzed project managers familiarity with AI tools and technologies within the case company, and their views on opportunities and challenges with those. These findings serve as the basis for the final conclusions and recommendations for future research.

### 7.1 Conclusions and Key Findings

The findings indicate that while AI's role in project management is still evolving, it holds significant promise for enhancing efficiency, decision-making, execution of routine tasks and adaptability. The main conclusions drawn from this research are as follows:

- **Project Managers AI Awareness and Adoption:** The research findings reveal that project managers at the case company have a foundational understanding of AI, mainly focused on its potential rather than extensive practical usage. Respondents recognize AI as a promising tool for streamlining administrative tasks, automating routine processes, and supporting decision-making with data-driven insights.

The case company has developed its own AI tool with several functionalities; however, these functionalities have not been analyzed,

tailored, or adopted for use in project management tasks within this specific team. Project managers have expressed significant interest in using AI for project management tasks and are highly motivated to gain the skills needed to work with AI. While formal AI-related training sessions have yet to be conducted, the company strongly encourages and supports employees in pursuing professional development opportunities. This approach to supporting learning and development shows that the company is preparing well for using AI in project management in the future.

- **Benefits of AI Integration:** The research confirmed that AI can substantially improve project management processes by automating routine tasks (e.g., report generation and meeting summaries), enhancing risk management through predictive analytics, and optimizing resource allocation based on data insights. These improvements can lead to more strategic project oversight, allowing managers to focus on leadership and creative problem-solving.

## 7.2 Challenges and Limitations

While AI has the possibility to improve project management, its use comes with several challenges that can slow or limit its adoption. These challenges can be related to people, organizations, and technology, and those all will need to be addressed to improve AI's effectiveness in project management.

One of the biggest challenges is making sure that the employees will get a proper training. Using AI successfully, project managers must know how to work with the AI capabilities, understand the results it produces, and integrate them into their work tasks. Without proper training, employees might find AI tools confusing or hard to trust, which can lead to them not using the tools. It is also possible that employees might not fully understand what AI can and cannot do, which could create unrealistic expectations or doubts.

Another major challenge is figuring out the key areas where AI can be utilized in specific project management tasks. It is important that organizations will determine how AI can fit with their specific needs in project management processes to ensure it delivers real benefits. Without a clear understanding of these use cases, AI implementation efforts could be unfocused and fail to produce desired outcomes.

Technical and resource-related challenges might also make it harder to adopt AI. Organizations will need to allocate resources to identify specific use cases for certain project management tasks and either develop and use internal AI tools to effectively support those needs, or to identify other 3<sup>rd</sup> party tools to be used. In addition to that, organizations must also ensure the continuous development and maintenance of AI technologies, as the tools and capabilities are rapidly moving forward. This includes employee training and knowledge transfer, and tool and technology maintenance and development.

There are also technical data-related challenges to using AI. AI systems will need large amounts of high-quality data to function optimally, but in some cases the available data might be incomplete, poorly organized, or stored in separate systems that are not integrated with each other. Keeping data private and secure is a major concern, especially in industries dealing with sensitive information. Adhering to data protection laws and guidelines can complicate AI implementation and may require additional resources.

Here is a list of possible risks, issues, and concerns related to the usage of AI in project management tasks. These might have significant impacts but these are not covered in detail in this research:

- **Bias in AI Algorithms:** AI tools rely on historical data, which may carry biases that can lead to inaccurate recommendations or decisions, potentially impacting fairness and accuracy.



- **Overdependence on Technology:** Project managers might trust too much on AI, which could reduce the ability to think critically and make decisions when AI fails or doesn't fit the purpose.
- **Ethical Concerns:** AI decision-making processes may raise ethical questions, particularly in scenarios where decisions affect people's roles or responsibilities.
- **Financial Aspects:** The costs of adopting AI can be a challenge specifically for smaller teams or organizations. Those costs are mainly related to software, hardware, training, or ongoing maintenance.
- **Existing systems and Processes:** Integrating AI tools into existing project management processes can be complex and time-consuming, requiring major effort to ensure compatibility and usability.
- **Compliance, Regulations and Data Privacy:** AI usage must comply with data protection laws, like GDPR or HIPAA, which may need enhanced safety measures and resources.
- **Workplace Security Concerns:** The possibility that AI might replace some human roles in project management can cause fear or uncertainty among employees.
- **User Experience:** Poorly designed AI tools can result in a frustrating user experience, reducing adoption rates and limiting their effectiveness in project management tasks.

### **Study Limitations**

This study provides beneficial insights on how AI is used in project management, but it is important to inform the limitations. The research focused only on project managers from one company and team, which means the findings might not represent the wider industry results.

The data for this study was collected through online surveys with open-ended questions. The answers reflected each participant's personal experiences and views, which may vary a lot. While the survey aimed to gather a wide range of

opinions, it did not include the deeper insights that might have been received from follow-up interviews or group discussions.

AI technology is developing quickly, which makes it difficult to keep findings in this research fully up to date. Some of the insights from this study may soon become outdated as new AI tools and methods are developed. This highlights the need for ongoing research and regular updates to how AI is used in project management.

By addressing these challenges and building on the findings of this study, organizations can better prepare themselves for the AI usage. With the right strategies, AI can help improve the processes, support decision-making, and boost overall productivity.

### **7.3 Future Research and Development**

Future studies could expand this research by involving a wider variety of participants including project managers from different teams across the case company, or other project stakeholders and team members gathering more comprehensive and practical view of AI's impact. Getting input from different roles in project teams can help show how AI impacts teamwork, decisions, and efficiency.

Studying AI's role in different project environments and industries can reveal useful insights, highlighting best practices and challenges unique to different organizations. This kind of research could create guidelines tailored to specific areas, making it easier for organizations to adapt AI to their unique needs.

Future research can also review how AI will affect team dynamics. This includes studying its impacts on communication, trust and team cohesion, as well as changes in roles and responsibilities. As AI tools increasingly automate key tasks, it will be critical to examine how these changes affect team interactions, morale, and productivity. Questions like whether AI improves teamwork or unintentionally causes isolation will be important to explore in the future.

Ethical considerations should have a key role in future studies as well. Topics such as data privacy, algorithmic bias, and transparency are essential to ensure that AI implementation aligns with organizational values and societal norms. Research should investigate strategies for mitigating ethical risks, fostering trust with all stakeholders, and encouraging the ethical and effective use of AI in project management.

As the AI is continuing its development, it is important to keep studying all new tools and technologies. Future research should focus tracking AI advancements and understand how they affect project management practices. This iterative approach will help organizations stay ahead of technological trends while managing the challenges and benefits of using AI in their processes.

#### **7.4 Practical Steps for AI Development**

Accordingly to the results of this study, it may be helpful to explore pilot projects that bring AI capabilities into project management processes or tasks of this specific team of project managers. This could begin with an evaluation of the current state and potential of the company's own AI tools, analyzing how these might be applied to internal project management processes based on identified use cases. The assessment could also include evaluating the feasibility of adopting third-party solutions.

It is important to note that these suggestions in this research are based on limited survey findings and target group within the case company, and it is possible that some initiatives in this area are already underway but were not highlighted in the available data.

By using the company's own AI capabilities and tools, the company can have greater control over its features, customization, and compliance with security standards. Alternatively, carefully selected third-party tools could provide advanced functionalities and reduce the development burden, assuming the data

protection measures are met. Both options could address current limitations, enhance practical knowledge among project managers, and support broader AI adoption in project workflows.

Encouraging project teams to experiment with AI tools in controlled settings would offer practical insights into their effectiveness and facilitate smoother adoption. Furthermore, training programs tailored to project managers would be valuable, enhancing their understanding of AI capabilities and limitations. Workshops and collaborative learning environments could foster the development of practical skills and promote innovative thinking around AI use cases.

#### **7.4.1 Action Plan for AI Development in Case Company**

This action plan is according to the results and observations from this research. It is important to note that similar initiatives or projects related to AI development may already be underway within the case company, as the research data was limited to a specific team of project managers and does not reflect activities in other teams or departments.

##### **Phase 1: Initial Design and Planning**

- **Identify Use Cases:** Convene a cross-functional team, including project managers and product managers, to brainstorm and prioritize potential AI cases. Focus on addressing practical use cases in project management workflows, such as meeting note automation, or status report generation.
- **Select Low-Risk Use Cases:** Narrow the focus to a few low-risk, high-value use cases that can be tested with minimal disruption.

##### **Phase 2: Capability Assessment and Tool Evaluation**

- **Evaluate Internal Capabilities:** Conduct a comprehensive analysis of the case company's existing AI tool, not only for the specific pilot use cases but

also for its potential to support a broader range of functionalities. This assessment should consider:

- **Current Functionality:** Evaluate how well the tool addresses the selected use cases and its performance in other similar tasks used by other teams within the organization.
  - **Scalability:** Analyze the tool's capacity to handle increased complexity, larger datasets, and integration across multiple project management processes and tools.
  - **Flexibility and Extensibility:** Assess whether the tool can be customized or expanded to accommodate future organizational needs.
  - **Technical Feasibility:** Collaborate with the internal product team and technical experts to validate the tool's readiness for broader deployment, including any technical upgrades required.
- **Explore Third-Party Solutions:** Research available third-party tools to determine their suitability. Evaluate factors such as ease of integration, data privacy compliance, and customization options.
  - **Decide on Development Path:** Based on these evaluations, decide whether to tailor and take in use an in-house AI tool for greater control and customization or to adopt a third-party solution for possible quicker implementation and advanced features to support with a specific project management task.

### **Phase 3: Stakeholder Engagement and Pilot Planning**

- **Involve Key Stakeholders:** Include the following roles to ensure a well-rounded approach:

- **Project Manager:** Manages and coordinates the case company project team members and deliverables.
  - **Selected Project Managers:** Support initial planning and testing efforts.
  - **Product Manager:** Provide consultancy to align AI initiatives with organizational objectives.
  - **Technical Team:** Assist with evaluating and implementing AI tools, whether in-house or third-party.
- **Develop Pilot Projects:** Design pilot projects tailored to selected use cases, ensuring clear goals and metrics for success.

#### **Phase 4: Training and Hands-On Sessions**

- **Focus on Generative AI Tools:** Organize training sessions covering the basic functionalities of generative AI tools.
- **Practical Scenarios:** Provide hands-on practice for scenarios such as drafting meeting summaries, automating documentation, and generating project reports or email drafts.
- **Collaborative Learning:** Encourage participants to share ideas and best practices, fostering a culture of innovation.

#### **Phase 5: Pilot Execution and Feedback Loop**

- **Run Pilot Projects:** Deploy selected AI tools in controlled settings, monitor their performance, and gather detailed feedback from users.
- **Refine Implementation:** Use insights to address challenges, optimize workflows, and identify additional use cases.

#### **Phase 6: Long-Term Adoption and Continuous Improvement**

- **Scale AI Implementation:** Expand AI integration across broader processes and teams, guided by pilot outcomes.
- **Maintain Stakeholder Involvement:** Regularly engage project managers, product managers, and technical teams to ensure the initiative aligns with evolving needs.
- **Review Emerging Technologies:** Continuously evaluate new AI tools and updates to keep pace with industry advancements and maintain a competitive edge.

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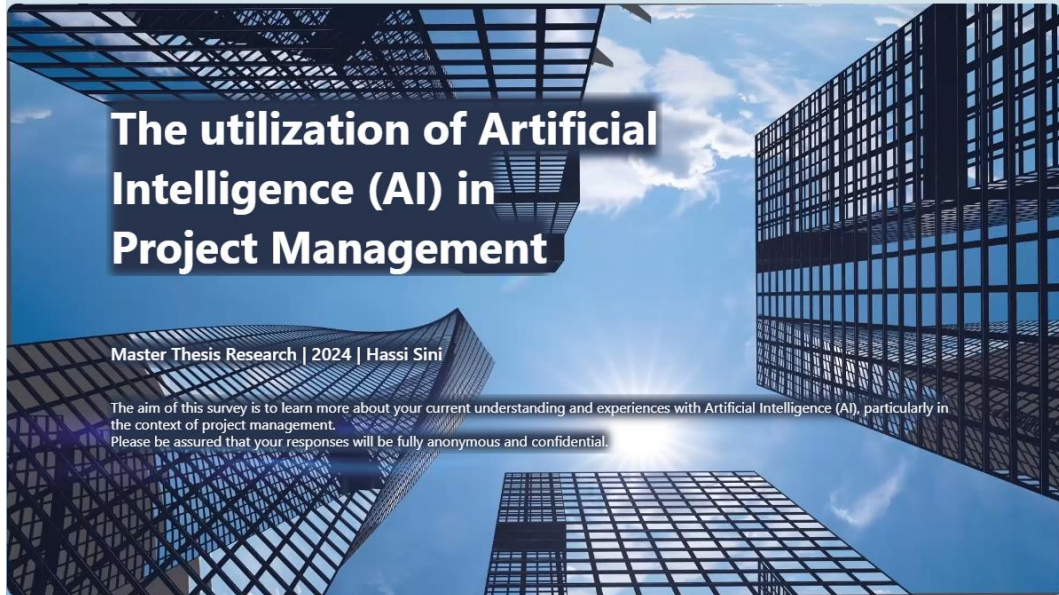
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## APPENDICES

### APPENDIX 1 Online Survey



\* Required

Project Management / General



1

How long have you been working as a project manager at the case company? \*

- 0-1 years
- 2-5 years
- 6-10 years
- over 10 years

2

How long experience in total you have from project management? \* 

- 0-1 years
- 2-5 years
- 6-10 years
- over 10 years


3

How do you see the project manager role evolving, and what are the most important skills today?

(Consider changes in methodologies, tools, remote work, etc.) 


Enter your answer

4

Which project management methodologies are you familiar with? \* 

- Waterfall
- Agile
- Scrum
- Scrumban
- Lean
- Six Sigma
- PRINCE2
- SAFe
- XP (eXtreme programming)
- PMI's PMBOK
- Other

5

Do you have any project management certifications? \* 

- Yes
- No

6

If yes, which certifications do you have? 

Enter your answer

Next


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## The utilization of Artificial Intelligence (AI) in Project Management

\* Required

Artificial Intelligence in Project Management



**7**

How would you define Artificial Intelligence (AI) in your own words? \*

Enter your answer

**8**

Which AI technologies or tools have you used or are familiar with?

Enter your answer

**9**

Can you think of some practical examples of how AI could assist with your project management tasks in your current role?

Enter your answer

**10**

Are you familiar with case company own AI tool? If so, have you used it in practice, or are you familiar with it in other ways? \*


Enter your answer

**11**

If you have used AI with some tasks (work or personal), what challenges or barriers have you encountered when using AI? For example any technical issues or user adoption problems?

Enter your answer


12

Have you received any training related to AI? \* 

Yes

No

13

If yes, what type of AI training have you received? 

Enter your answer

14

Are you interested in learning more about AI and how it could be applied to your role as a project manager? \* 

Yes

No

15

How do you feel about AI in general related to your own role as a project manager? 

Enter your answer

16

Is there anything else you would like to share about your experiences or thoughts on AI in project management? Do you have any specific success stories related to AI usage?



Enter your answer

Back

Submit

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