

# Intelligence Projects: Analyzing and Reviewing AI Capabilities in IT Project Management

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**Abstract**—Businesses are increasingly looking for new technology to improve Project Management (PM) techniques, and one such innovative factor is Artificial Intelligence (AI). The usage of AI in information technology (IT) PM ranges from AI algorithms and tools to specialized AI solutions targeted to specific use cases. This research digs into the use of AI in IT PM, providing a thorough examination of its applications and determining its impact. The study underlines the importance of AI in decision-making, risk management, and overall PM. The study examines the inclusion of AI and the associated advantages and cons by evaluating several AI and PM systems. The study conducts a comparison of various tools and seeks to provide practitioners and organizations with useful information.

**Index Terms**—Artificial Intelligence, IT Project Management, Decision-making, Automation, Project Management Tools

## I. INTRODUCTION

The integration of Artificial Intelligence (AI) is drastically changing outdated methodologies across multiple domains in the fast-expanding realm of Information Technology (IT), with project planning and management standing out as a primary area undergoing rebellion. AI technology and tools are transforming IT project planning and management methodologies, tools, budgets, and established procedures [1]. According to the Project Management Institute's (PMI) worldwide annual survey in 2023, 21% of respondents indicated current AI use in Project Management (PM), while 82% of senior executives predicted its influence on PM in the following five years [1]. PMI suggests undertaking a thorough review of project planning activities and outputs before introducing AI into PM. This examination considers existing AI technologies to assess if AI can automate, aid, or enhance various activities based on task complexity.

In this research, complexity is a crucial indicator, with simple actions like creating reports and taking notes classified as low complexity and those containing several variables, needing particular human skills, expertise, or business context perspectives classified as high complexity. These difficulty

characteristics help identify jobs that might benefit from AI integration. Furthermore, assessing activities depending on the degree of human contact necessary elucidates how AI technologies may be smoothly incorporated into PM, improving overall efficiency [1].

It is known that the scope of IT products can require the collaboration of many projects and teams and organization strategies. Researchers have looked into the need of AI integration into the process of IT project portfolio selection [2]. For project portfolio selection, several techniques have been used, ranging from financial models to subjective committee judgments, each with its own set of advantages and disadvantages. In this environment, Multi-Criteria Decision Making (MCDM) arises as a critical difficulty, necessitating strategic judgments under non-deterministic situations and it can be tackled using AI. Some AI approaches, with a focus on Fuzzy Logic (FL) and Artificial Neural Networks (ANN) which mimics the human brain and has the capability to handle uncertainty in unpredictable environments have been analyzed to enhance the performance of project selection processes.

The purpose of this article is to give significant insights into the integration of AI in IT PM by explaining the obstacles and advantages in decision-making and risk management within IT PM. This paper is laid out as follows. Section 2 highlights the methods of integrating AI with IT PM, AI's applications, and its impact on IT PM, while Section 3 reviews the PM tools in the literature. This is followed by Section 4, which showcases different IT PM tools and their AI features and drawbacks. Section 5, on the other hand, summarizes the results of the integration as per the findings. Finally, Section 6 concludes the paper and recommends future works.

## II. INTEGRATING AI IN IT PROJECT MANAGEMENT

The integration of AI in IT project planning and management extends to big data management, quality control, automation, risk awareness, and increased project productivity. It can generally enhance PM and increase the success rate. To address the problems identified in IT PM, a study by Fotso et

al. [3] underlines the use of AI in technology PM. When AI is implemented into IT projects, it has shown the capacity to alleviate issues and enhance PM by addressing project scope, time, cost, and resource management [4].

Researchers study AI and Machine Learning (ML) algorithms that use data from old projects to give project managers relevant insights for decision-making. The use of AI in PM heralds a new era in which autonomous AI systems may not only identify risks and opportunities but also make choices on their own [5]. ANN is one of the ML algorithms that can help in decision making, in addition to Neural Networks of High Order (HONNS), Hopfield Neural Network (HNN) for combinatorial optimization problems, FL, which enables automated systems to describe subjects that are exceedingly complicated and difficult to analyze Fuzzy Cognitive Maps (FCMs) for strategic planning. According to research on the relevance of fuzzy to project planning, fuzzy theory is primarily utilized to cope with uncertainty to overcome ambiguity [2].

#### *A. AI Applications in IT Project Management*

As PM solely depends on human experiences and different skills that derive the project taking into consideration multiple inter-dependencies variables and uncertainties by evacuating environment and possible circumstances, AI can perform many of the tasks done by humans as it mimics the human brain as it is inspired by the humans' biological learning methods. Not all IT project managers are familiar with the AI algorithms tools and bots that can be applied to derive the PM tasks but it is possible to utilize the tools that are proposing AI-powered solutions without digging into the actual algorithms and machine learning behind them. Existing research shows the adoption of different AI algorithms in PM. Varying between AI-enabled PM such as the assistant bot strategies which is an AI bot that assists the project team in scheduling daily tasks. PMotto is another assistant bot that is utilized in deicing task time, cost, and resources based on machine learning [6]. But AI has wider capabilities that can form rule-based, AI-enabled, AI-based, and full AI solutions. The adoption of AI in IT PM can be classified as automation, assistance, and augmentation [7].

AI in IT PM can be employed in three different aspects, firstly automation [1]. AI can automate some tasks of project planning that are not complex and can be automated without the need for human interference to complete them. Simple tasks may include generating reports, debugging, enhancing codes, documentation of codes, and evaluating reports, documents, and such tasks that can be fully done by AI. When the project managers and their team members attempt these simple tasks, they might be more time-consuming than computers. Project managers can create prompts and assign tools that can accomplish these tasks in less time and more efficiently across all the projects.

Other tasks might be more complex, and need different steps and resources to complete, for these the AI role can be as an

assistant tool to assist the human work [1]. At this level of AI integration, a project manager can use different tools and technologies to supplement his analysis, generate first drafts, generate draft analysis, proofread his own reports, develop schedules, and so on. As these tasks need comprehensive and precise outputs, these tasks require intervening for refining, testing, and enhancing and sometimes AI can be used to only generate a sample to customize it later.

Augmentation is another level of sophisticated AI integration in project planning [1]. AI can improve and add to the existing capabilities in IT project planning. Many AI tools nowadays are capable of forecasting and predicting the outcomes of decisions. This capability can be utilized in project planning to derive a more valuable decision-making procedure that takes in account a large amount of data, cases, and possibilities. While human experience remains a critical factor in making decisions and studying their scope, AI can help by taking calculated and measured steps that consider multiple inter-dependencies. The final results of forecasts are still dependent on the skills and experience of the project manager who will derive the AI forecast.

#### *B. The Impact of AI on IT Project Management*

The integration of AI in IT PM has a direct impact on different aspects of the project plan. More importantly, it can define the success of the project as it can help derive the most critical task in project planning which is critical decision-making. This task also involves estimating risks and calculating them. All these success factors are interconnected and effect the project cost timeline and outcomes directly.

From a study by Gunnarsdottir [8] on AI's impact on PM and its effects on project schedule management, project cost management, and project risk management, it was found that every endeavor has its own set of unknowns. Risk management has always relied heavily on a manager's expertise and intuition. Figure 1 shows how AI has the highest impact on project risk management which is a critical area for the success of any project. Estimating risks, evaluating, and mitigating risks is a critical process in project planning as it defines the project's success. Any miscalculations could lead to a major failure bringing along major financial and reputational losses. AI, on the other hand, can foresee future hazards, rank them based on probable effects, and even offer mitigation solutions based on rigorous data analysis using ML technologies to estimate risks from previous project data. AI also has a wide impact on project cost and its management. Besides helping to manage the budget and cost more efficiently, AI also lowers the cost by shortening the duration of some automated tasks and avoiding failure through efficient risk management assessment which reflects on the project's success and its resource allocation directly. Additionally, AI integration in PM can enhance project schedules by estimating the realistic duration of tasks depending on previous project data and speeding up simple and sophisticated tasks through automation [8].

### III. PROJECT MANAGEMENT TOOLS IN LITERATURE

According to Gorgadze's research [9], the integration of AI with PM represents a disruptive paradigm. AI has progressed from simple administrative chores to complicated decision-making processes, notably in the context of PM. He emphasizes the critical role of AI in improving PM efficiency through better decision-making, increased productivity, and superior performance reporting. The article digs into the changing landscape of AI technologies, focusing on their use in predictive analytics tools, chatbots, and Robotic Process Automation (RPA). Furthermore, the study shows the expanding importance of AI in project planning, resource allocation, budget formulation, and other critical aspects of PM.

Another tool is Bitrix24 [16], which distinguishes itself on the proprietary front with integrated Customer Relationship Management (CRM), employee management, and reporting features. Jira [17], which was originally designed for issue tracking, has expanded to suit agile development processes and includes a plethora of plugins. Microsoft Project [13], a PM classic, blends a user-friendly interface with powerful time and task management features. Finally, Asana [18], which was established by a Facebook cofounder, is notable for emphasizing team communication and cooperation. While proprietary tools often have more polished interfaces, open-source alternatives demonstrate creativity and adaptability, emphasizing the need for matching tool selection to unique project requirements [10].

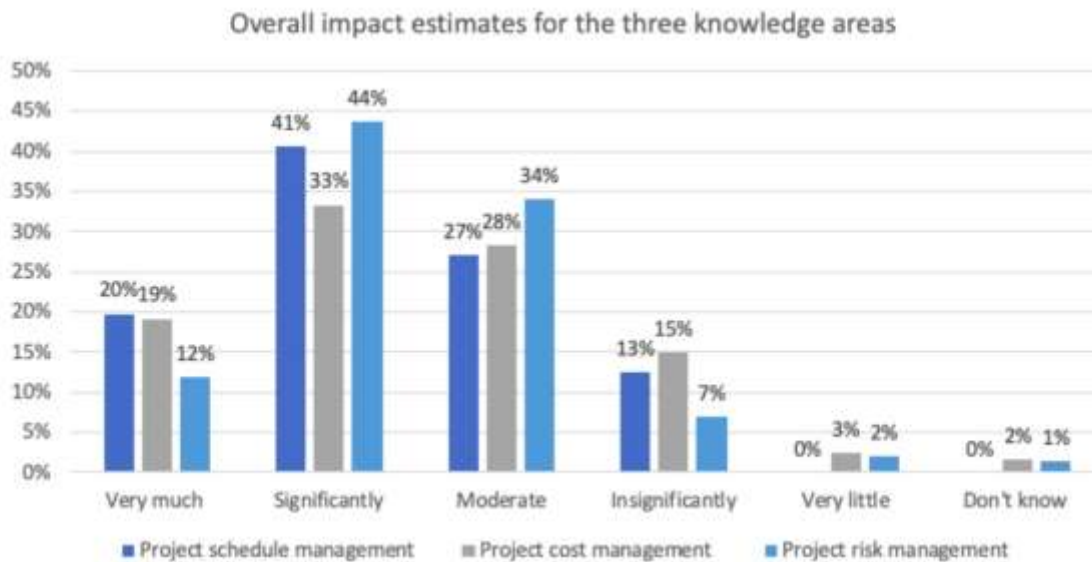


Fig. 1: AI's Impact on Project Plan Based on a Survey [8]

As businesses worldwide, including those in Georgia, face the challenges of a more dynamic business environment, the adoption of AI technologies emerges as a critical aspect for improving PM capabilities and assuring flexibility to change.

When open-source and proprietary PM solutions are compared, they reveal a diversified environment responding to the various demands of project teams in Small and Midsize Enterprises (SMEs) as stated by Abramova et al. [10]. OpenProject [11] is notable for its emphasis on agile development, including capabilities such as task and time tracking, Gantt charts, and human resource management. ProjectLibre [12], an open-source alternative to Microsoft Project [13], places a strong emphasis on compatibility, providing a multiplatform solution with a familiar ribbon-style interface. On the other hand, Redmine [14], which was built in Ruby on Rails, has significant plugin support, allowing users to extend its features. Then we have, LibrePlan [15], which originated in the naval auxiliary industry, and distinguishes itself by including Monte Carlo simulation for risk

A paper by Kaur [19] assessed collaboration and PM tools and underscores Trello's distinct advantages when compared to counterparts such as Atlassian Jira [17], Microsoft OneNote Staff Notebook [20], Microsoft Planner [21], and Zoho [22]. The paper highlights Trello's user-friendly interface and visual appeal, emphasizing its suitability for library and information science professionals dealing with information overload. The article underscores Trello's lower learning curve and its roots in the Kanban system, originating from Toyota's continuous improvement practices, contributing to its efficiency. Through practical examples, the article demonstrates Trello's versatility in collaborative projects, instructional design workflows, and systematic review endeavors. Within the hospital library context, Trello emerges as a flexible tool for tasks related to systematic review teams, the creation of publicly viewable boards for resource lists, and the facilitation of external collaborations. The publication's exploration positions Trello as a web-based tool that not only addresses the specific needs of librarians but also enhances

collaboration and PM within and beyond the hospital library setting [19].

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#### IV. IT PROJECT MANAGEMENT AI-POWERED TOOLS

This section introduces some of the available IT PM tools on the Internet. Many of these tools have AI built-in out of the box, and some offer AI option as an add-on to the application. The following subsections will introduce the tools with their key features and drawbacks.

##### A. Ayanza

It distinguishes itself as a collaborative platform that prioritizes team bonding and PM. It includes features such as a consolidated news feed for updates, strategy alignment tools, and work management tools. Through daily writing, the platform fosters clarity of vision and team cooperation. Ayanza's technique is analogous to building a customized Lego set for team requirements. Its straightforward style appeals to those looking for unified solutions for strategy, workflow, and team emotion [24].

##### B. Fellow

It is an AI-powered meeting productivity software that aims to change meeting cultures. It includes meeting guideline prompts, templates, and collaborative agendas. The emphasis is on encouraging fewer, shorter, and more productive meetings, both in person and virtually. Fellow's integration features guarantee that it seamlessly integrates with existing workflows [25]

##### C. Zapier

It stands out by offering a robust automation platform for easy connection across a wide range of online apps. Zapier outperforms several competitors in terms of integration, with an emphasis on avoiding repetitive chores. Its strength rests in its ability to seamlessly link equipment, increasing overall efficiency. The variety of features, on the other hand, may result in a longer learning curve for some users [26].

##### D. Trello

It is a visual collaboration application, that markets itself as a versatile solution for various teams. Trello is a customizable business tool with a simple User Interface (UI) evocative of arranging sticky notes on a wall. It supports cross-team communication with over 100 connectors, including Google Drive and Slack. Trello's simplicity and versatility make it a popular choice, particularly for smaller teams [23].

##### E. Notion

The tool Notion provides a unified workspace for teams, allowing them to create papers, take notes, manage tasks, and more all from a single platform. Notion presents itself as a solution that adapts to specific processes due to its customization features. The addition of Notion AI expands its potential by effortlessly integrating AI into daily chores [27].

##### F. ClickUp

The all-in-one productivity platform as claimed on their website includes tasks, documents, chat, objectives, whiteboards, and other features. The platform's major feature is its adaptability, which enables teams of different sizes to efficiently plan, coordinate, and cooperate. With a promise to replace multiple tools, ClickUp targets time-saving by providing a centralized hub for diverse team needs [28].

#### V. RESULTS AND ANALYSIS

Table I presents a quick summary and comparison of Ayanza, Zapier, Trello, Notion, Fellow, and ClickUp's key features and price structures. The table covers critical features including strategy, customization, integration, meeting tools, workflow, and scalability, providing customers with a fast reference guide for assessing various collaboration solutions. The addition of price information (as of December 2023) improves the table's value by giving a thorough picture to aid in informed decision-making.

Collaboration and PM software such as Ayanza, Zapier, Trello, Notion, Fellow, and ClickUp offer a variety of functionalities to meet the demands of various organizations. Ayanza distinguishes itself by emphasizing cooperation through the integration of strategy, tasks, processes, and team sentiment in a single platform. Zapier, known for its adaptability, excels in automating tasks across a wide range of web services without the need for technical knowledge. Trello is a visual collaboration technique, giving teams a unified perspective and making PM more flexible and enjoyable. Notion is a linked workplace that combines documentation,

note-taking, task management, and AI capabilities into a cohesive and configurable solution. Fellow specializes in AI-enabled meeting productivity, altering meeting cultures to assure fewer, more productive, and well-organized meetings. ClickUp distinguishes itself as an all-in-one productivity tool by providing tasks, documents, chat, objectives, and more inside a fully configurable framework.

Each technology offers its own set of benefits, such as strategic alignment, automation, visual collaboration, unified workspaces, meeting productivity, and all-inclusive

productivity platforms. They do, however, have some limits, such as variable degrees of integration, meeting-centricity, or scalability. A comparison of their features, customization possibilities, integration, meeting tools, workflow support, and scalability is critical for businesses looking for a solution that meets their unique needs. Furthermore, pricing models are critical in decision-making. All the tools provide a variety of programs to meet the demands of diverse users, which can be

TABLE I: Comparison of Features and Pricing

| Feature         | Ayanza       | Zapier       | Trello          | Notion          | Fellow          | ClickUp         |
|-----------------|--------------|--------------|-----------------|-----------------|-----------------|-----------------|
| Strategy        | ✓            | ×            | ×               | ×               | ×               | ×               |
| Customization   | ✓            | ×            | ✓               | ✓               | ×               | ✓               |
| AI Capabilities | Built-in     | Built-in     | Built-in        | Add-on          | Built-in        | Built-in        |
| Meeting Tools   | ×            | ×            | ×               | ×               | ✓               | ✓               |
| Scalability     | ×            | ✓            | ✓               | ✓               | ×               | ✓               |
| Price           | Free to \$15 | Free to \$69 | Free to \$20/mo | Free to \$18/mo | Free to \$10/mo | Free to \$19/mo |

expanded with an enterprise subscription to meet all the needs. The selection of these technologies is, therefore, influenced by corporate goals, workflow preferences, the type of collaborative environment, and the size of the organization.

## VI. CONCLUSION

In conclusion, this study highlights the revolutionary influence of AI on IT PM, notably in decision-making and risk management. The findings, which are classified according to the extent of automation of AI applications, give a sophisticated insight that guides strategic decision-making in project planning.

Furthermore, comparing AI-integrated IT PM systems improves our understanding, providing significant insights for practitioners and businesses. This research, which is situated at the intersections of technical innovation and PM methods, serves as a practical guide, pointing out the capability of AI to improve efficiency and demonstrate success in the constantly evolving landscape of IT project planning.

Future research might investigate the expanding role of AI in tackling emerging difficulties and responding to the changing IT PM landscape. Further study into the long-term effects of AI integration, continual breakthroughs in AI technology, and potential adjustments to existing PM frameworks might give scholars and practitioners with a forward-looking perspective.

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