

Artificial Intelligence in Project Management: Techniques, Tools, and Applications

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Abstract: The field is artificial intelligence (AI) which has been causing havoc in the recent past in every industry and the project management is not the exception. It introduces revolution in the process of planning, execution and tracking of the projects since we can now make the processes, efficiency and decision making optimal with the aid of the AI technologies. The given paper is the summing up of the usage of AI in the project management and, to be more exact, planning, risk analysis, and resources. There is also the merging of machine learning (ML) and natural language processing (NLP) and the refinement procedure of AI usage into the tools of the project management to automate the project management tool, the project risks and the resource estimation and availability and special allocation of the resources respectively. The review that is given by the systematic review gauges readiness of the available AI tools, what one would get a bargain of, and what one is bound to come across after the tools are activated in the project management process. Through analysis, it has been agreed that AI has made a significant contribution in the area of supporting in the planning, identification of risks and their solution and maximisation of the available resources. Nevertheless, even the issues such as the quality of the data, its integration with the other parts of the systems and opposition to the changes are in fact forcing the barrier to the widespread use of the weapons. Finally, conclusion of the paper is arrived at on the potential future involvements of AI applications in the field of project management in terms of growth in the number of self-managed and the appearance of intelligent project assistants and their presence in the field in the future.

Keywords: Artificial intelligence, setting resources, risk, machine learning, Project Management meta-data.

Introduction

Artificial intelligence has swept through the contemporary project management and miraculously transformed the processes being adopted in project planning, implementation and assessment aspects. The remaining technologies of AI also make a difference as they make the work actions within the project easier, more productive in terms of accuracy-based decision-making process, and the elimination of mistakes made by human beings (Taboada et al., 2023). The other sphere, where the application of AI in project management is greatly noticed, is project planning; comprehensive coverage of the risk management and approaches to the distributions of resources (Alzeyani & Szabo, 2024). The use of the AI-driven tools will help the project administrators to examine enormous volumes of information and trace the complicated patterns, estimate a wide range of possibilities of the project occurrence and distribute the available resources in terms of the unmatched effectiveness. The emerging opportunities mentioned above can be utilized to minimize the risky circumstances of a project, amalgamate schedule of the project and the general quality of a project (Mahboob et al., 2024). The listed enterprises that employ AI deal with such spheres of work as projects and supply chains and anticipate their considerable alteration by 2030 (Georgiev et al., 2024). The paradigm shift above promotes the understanding that more potential of AI should be utilized to change the practice of project management (Georgiev et al., 2024).

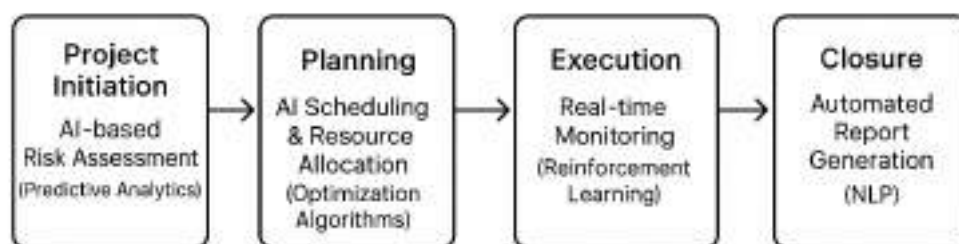


Figure 1: AI Integration in Project Management Workflow

Project managements have loose routes which entail techniques, tools and applications that change the regular routines due to the introduction of AI. There is a possibility of the AI algorithms automatizing the repeatable process and being able to predict the outcome of the projects and cooperate with the rest of the colleagues (- et al., 2024).

The decision of adding the AI to the process of project management has already become a paradigm shift and chances are great that the traditional toolkit would undergo revolution that would make the project efficiency and decision-making skills increase (Dam et al., 2019). The project management being rather conventional as it is, can