



NAC Executive Insights

Proper Reliance on Artificial Intelligence in Project Management

Key Points

- The predictive power of artificial intelligence (AI) is a powerful new tool in a project manager's toolbox.
- It is important to recognize that use of AI is still in its infancy, and we must verify that the complete picture is understood.
- AI may be able to identify the issue, but senior leaders must develop the action plan to resolve the issue.

Introduction

The interest in the deployment of artificial intelligence (AI) into the management of projects, especially large complex projects, is growing. Other NAC Executive Insights¹ highlight some of the limitations, cautions, and transparency required while at the same time outline the benefits available. They suggest that data looking at the broader project environment (stakeholder, regulatory, labor etc.) may provide even earlier insights given the propensity of large complex projects to frequently be adversely impacted by external factors outside the project team's direct control.

A second NAC Executive Insight² highlights some of the ethical challenges one may face in the proper use of AI. For projects, these include clearly understanding the scope and limitations of training data and ensuring that the specific AI algorithms being deployed are appropriate to the use-case at hand. Transparency, and arguably certified validation and verification processes, are essential to confident use of AI in predicting project trajectories and likely performance.

AI and Project Management

Many of the AI efforts aimed at project management today are focused on performance prediction, stopping short of addressing its role in a changed project management system. This is the equivalent of a state-of-the-art fire detection system that detects when a fire begins much earlier than traditional detectors, but stops there, without the balance of the "system" responding to assess the situation, suppress the fire, and confirm the fire is out, removing other similar flash points.

¹ NAC Executive Insight Impacts of Artificial Intelligence on Management of Large Complex Projects.

² NAC Executive Insight Artificial Intelligence Ethics in the Project Management and Civil Engineering Domains

Proper reliance on artificial intelligence in project management requires a comprehensive project management system encompassing:

- **Strong AI predictive tools**, with known confidence levels at various time frames (Less confident prediction of failure early on, but with a strengthening predictive confidence as more time lapses), including:
 - Transparent and robust AI algorithms, trained on known, relevant data sets and validated for intended use.
 - Knowledgeable deployment of validated AI to use-cases, verified to be consistent with the validated AI.
 - Recognition of AI limitations due to excluded data (external ecosystem data) and an assessment of the relevance of its consideration in the particular use-case (project).
- **Effective and meaningful project reviews**, undertaken regularly and using AI predictions to focus and strengthen the depth of project reviews and diagnosis. AI tells us the project has a “fever,” but management, especially more senior levels of management with broader and more holistic views, must seek the underlying causes and develop a treatment plan. An NAC Executive Insight³ on project reviews discusses the adverse impacts from perfunctory or nonexistent project reviews, which are becoming all too common.
- **Decisive action**, not delayed by a defensive response to what the AI is saying, but driven by the earliest diagnosis obtained from the now heightened regular project review process and any “deep-dive” review it may trigger. AI will produce “false positives,” or maybe in this context the term “false negatives” may be more apt. Its ability to predict project success is not yet well established, which may speak more to the nature of large complex projects than artificial intelligence. Even when the AI has made the right call, raising concerns on project performance and trajectory, initial diagnosis and treatment plans may evolve as more insight becomes available. The value of time, afforded by the AI’s predictive analytics, must not be lost.
- **Independent audit** of the project’s performance improvement as a result of the diagnosis and treatment undertaken. This independent audit must look not just at the new performance data, but also confirm the completeness of the diagnosis, thus ensuring that other systemic factors do not exist that will impact the project again at a later stage.

Artificial intelligence’s predictive advantage is a powerful new tool in a project manager’s toolbox. Like any tool, however, we must understand its proper use, limitations, and how to best use it with the other tools at our disposal.

³ NAC Executive Insight Effective Project Review Meetings

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About the Author

Bob Prieto was elected to the National Academy of Construction in 2011. He is a senior executive who is effective in shaping and executing business strategy and a recognized leader within the infrastructure, engineering, and construction industries.

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