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Artifical Intelligence Use in Project Management
by Ivano di Filippo, Dr. Josh Ramirez, Darrell Mesa
Claudia Alcelay & Rebecca Winston

Artificial Intelligence Use in Project Management [1]

Projects, Project Managers, and Organizations Functioning in an AI Information Age [2]

By Ivano di Filippo, Dr. Josh Ramirez, Darrell Mesa, Claudia Alcelay and Rebecca Winston

Italy, Spain & USA

Introduction

Generative AI has permeated all aspects of our lives from work to leisure and everyday activities. Thousands of applications have demonstrated the transformative capability of Generative AI, showing us how it can potentially and actually enhance our daily routines. We can benefit from and create our own AI-powered tools, even without programming knowledge. In our professional lives, Generative AI can save significant time by automating daily tasks, such as summarizing meetings in seconds and generating images through voice commands.

In the field of project management, whenever data, its access, and relevance are in place, the technology significantly enhances project performance by facilitating informed decision-making. It helps identify and prioritize potential threats and risks, making data-informed decisions essential for proactive and preventive risk management. The capability of deep learning to handle unstructured data is particularly beneficial, helping to produce project lessons learned, risk reports, and stakeholder feedback, uncovering hidden patterns that enable better decisions. Additionally, once the organization has a solid program or portfolio guidance and the necessary governance to make this approach work, AI algorithms can monitor project performance in real-time, adapting to changing circumstances and optimizing resource allocation. This adaptability is crucial for a project's success, influencing its

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budget, schedule, and financial outcomes. Under these circumstances, this technology can also help the project manager predict potential outcomes with unprecedented precision, empowering them to make decisions collaboratively with stakeholders and team members.

While AI offers significant advantages by integrating data into everyday tasks and augmenting many aspects of our jobs, it is not without its challenges. AI can produce results with questionable accuracy, hallucinations, and lists that require interpretation both from the perspective of the lists and the scenario used to produce them. On the input side, the data feeding AI or Generative AI solutions remains an issue, with project managers over-reliant on AI tools, neglecting human interaction, or disregarding the project management team and other stakeholder input.

Generative AI is increasingly being used to shape work processes, directly influencing product and project outcomes to align with overall business strategies and objectives. This evolution requires a more business-oriented approach to the application and use of AI, focusing on data safety and quality, providing that the use of AI adheres to data protection standards to prevent unauthorized access and safeguard sensitive or business proprietary information; evaluating the financial implications and potential returns of integrating AI into business operations; and assessing the long-term benefits of AI implementation to guide AI governance and enable sustainable business growth.

This paper investigates two pivotal aspects of project management: the project manager's knowledge base and unique skill set as crucial assets, and the necessity for robust governance as AI becomes increasingly integrated into project management.

The project manager: Key to scaling AI in companies

In a project economy environment, so-called data-driven enterprises are on the rise. While it can be argued that organizations have always been led by data to varying extents, the massive amount of data now easily accessible introduces the idea that greater data access automatically leads to improved outcomes. However, this is not necessarily true, as evidenced by a 70% failure rate among such enterprises. Availability of massive amounts of data, changes in our tools, or learning how to prompt does not imply success.

In project management, the necessity of data and analytics is undeniable. Nevertheless, switching to a heavily data-reliant approach might foster a decontextualized approach to projects and result in biased decisions. A shift from a

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data-centered approach to a human-centered one is required, where people remain the driving force in projects, leveraging their knowledge and skills to interpret data holistically, integrating, and engaging teams and main workflows in the company. This approach involves combining the project manager's expertise with AI capabilities, maintaining a human-in-the-loop focus, as well as enabling the human-in-the-loop to be aware that their input is also valued. This approach enables project managers can remain key agents of change, balancing technological tools with human cognition and stakeholder engagement through the project manager's emotional and social communication practices.

Overall, this human-in-the-loop approach is already showing the need for project managers in AI-related decisions, across PMOs, teams, and projects, showing their teams and stakeholders what Generative AI can do, how data should be considered and tackled, and how it can impact structures, people, and processes. And within communities, sharing their learning as a collective effort and providing context to the profession. This shift involves some first-order considerations:

- **A knowledge-based approach becomes crucial for identifying misinformation and discerning the truth.**

The role of a project manager cannot be reduced to that of a data manager. The rise of a data-centric AI model, more than ever, emphasizes the need for a knowledge-based approach that is crucial for identifying misinformation and discerning truth. This approach highlights the need for an active role in interpreting data, contextualizing it, and adding value to potentially decontextualized lists of outcomes. It showcases the unique value project managers bring, enabling them to continue playing a pivotal role in the evolving landscape of organizations, projects, clients, and communities.

- **The role of a project manager requires a deep understanding of data flows and their impact on projects.**

This focus requires a committed approach to data flow management, understanding where to acquire data, how to retrieve it, its budgetary impact on the project, and legal, security, and privacy concerns. Being able not only to interpret data with expert knowledge but also to become an active member of the organization, helping other areas understand the impact of data on their projects. For example, participating in large language model (LLM) training processes leverages project management expertise within the organization and, through active communication with Project Management Offices (PMOs), enhances the use of generative AI in projects.

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- **The project manager is a key connector supporting teams productively.**

Involving various departments, disciplines, roles, and perspectives in comprehending project outcomes has been particularly embraced in agile-driven approaches. Now, the field of Generative AI is witnessing a collaborative fusion of different domain-experts knowledge, where the development of impactful AI models demands the combined expertise of technologists and industry specialists.

AI reinforces the fact that projects require multiple disciplines to be brought to bear to provide better analysis and decision-making. Furthermore, AI's transformative impact on industries highlights the growing importance of skills traditionally associated with project management, such as creativity, critical thinking, problem-solving, and storytelling. As AI continues to evolve, adaptive and collaborative skills and behaviors are becoming increasingly crucial. The project manager needs to be more self- and socially aware in the team environment as solution sets provided by AI are analyzed, broken into activities, and fed into the technical requirements. This shift requires the adaptation and enhancement of these competencies to be cognitively ready to thrive in an AI-integrated future.

Governance

Data has evolved from being mainly an entry point for decisions to influencing value streams within our organizations. This broader impact makes data-based decision-making aligned with business outcomes more crucial than ever. However, reality is showing us an over-reliance on decontextualized data in the form of downloadable templates, plans, or endless lists of suggestions for project improvements. AI-generated information is integrated into projects without checking it against the organization's values, strategic objectives, ethics, or other internal metric. In fact, all these items do not necessarily reflect the governance within an organization for project or program management. Furthermore, projects do not respond to the one-size-fits-all approach that most of these items require for their application.

While project managers, team members, users, and other stakeholders, in general, search for generative AI tools to assist with daily tasks, a broader perspective on how generative AI can benefit the organization is needed. A governance model that aligns AI project outcomes with strategic objectives is essential, enabling the development and implementation of AI technologies that are in line with the organization's overall objectives and values and promote ethical standards, compliance, and process improvement.

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Implementing an AI governance model involves more than selecting tools or tech platforms. It requires understanding how AI will revolutionize or impact business processes, handle and analyze information, and integrate into productivity and operational efficiency models. Not all companies require an AI shift, and not all are ready for it. A robust governance model should include:

- **Personnel aspect**

Data-driven companies are evolving into data-informed ones, where people are central to decision-making. Identifying key roles like data scientists, AI specialists, data engineers, and ethical officers is essential. These roles provide AI systems that are developed responsibly and directed towards being organizationally and project effective, and adhering to governance frameworks. Project management profiles are crucial in providing a holistic approach. Shifting to a data-informed framework implies a cultural change, with education, training, mentoring, and knowledge-sharing to maximize positively the impact on teams, stakeholders, and other relevant parties.

- **Data readiness**

Measuring and enabling data readiness is a significant challenge, affecting all areas of an organization and underscoring a commitment to ethics, transparency, and effectiveness in management. Compliance with data regulations attempts to protect confidential information and aligns with the organization's and industry's ethical standards. Ultimately, a robust governance model enhances user safety by implementing comprehensive measures and policies that protect data integrity, privacy, and security. Having data encryption and access controls, regular security audits that include discussion about the algorithms and the prompts, and risk mitigation processes in place strengthens the framework.

- **Investment Requirements and Structure**

A critical question when adopting an AI framework is the initial, maintenance, and upgrade costs. Being specific about our AI governance model needs allows for detailed investment planning, including subscription costs, training, and maintenance. Identifying the right cloud environment or Large Language Model (LLM) is crucial for security and ease of use, as well as developing modes to validate and verify the solution sets before implementation. These decisions should align with the organization's objectives, task complexity, and budget concerns. A proper governance model has to be tailored to specific needs and has to maximize the uniqueness of each business. Development can be incremental, starting with small AI projects to test

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frameworks and refine processes. Using agile methodologies to iterate and improve based on feedback minimizes risks and organizational disruption.

In summary, the role of project managers and the practice of project management are evolving with the advent of AI technologies and more recently with Generative AI. AI can automate and assist with routine tasks, but the true enhancement of project management depends on meeting the right business conditions. A solid AI governance framework, encompassing ethics, compliance, data integrity, privacy, social concerns, and bias mitigation, is essential. Concurrently, project managers must leverage their knowledge, skills, and team engagement to interpret data accurately, avoid misinformation, and shape organizational workflows. This symbiotic evolution guarantees that Generative AI maximizes its impact within a robust AI governance framework.

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LinkedIn Profile | Official Website | Publications | Link to the book

Ivano di Filippo is a distinguished scientist in Applied Cognitive Neuroscience, focusing on project management and artificial intelligence. He currently leads the Cognitive Readiness Research Program, which is dedicated to advancing the mental preparation of leaders. From 2017 to 2019, Ivano served on the Board of Directors at the Italian Institute of Project Management (ISIPM), where he also holds certification as a Project Manager.

Educated in medicine at La Sapienza University of Rome, Ivano furthered his technical skills in computer science, working for ten years as a professional IT and Web programmer. His diverse expertise is enriched by over 30 years of studying and practicing Zen, integrating oriental disciplines into his professional and personal life.

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In 2011, Ivano joined forces with Prof. Dr. Russell Archibald and Dr. Daniele Di Filippo in the international research program on Cognitive Readiness, eventually succeeding Dr. Archibald as the Program Director at his request.

In November 2022, he was appointed the Scientific Referent at ISIPM, continuing to impact the field with his innovative approach to integrating neuroscience into project management practices.

He is the co-author of the book "Cognitive Readiness in Project Teams - Reducing Project Complexity and Increasing Success in Project Management". He can be contacted at

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Dr. Josh Ramirez, PMP, NPPQ, is CEO of the Institute for Neuro & Behavioral Project Management, which he founded with Dr. Jodi Wilson. Josh is also co-author of the NeuralPlan (www.neural-plan.com) NPPQ master planner certification with Dr. Shari De Baets from Belgium, and he is an adjunct professor of project management, with experience that includes project management and project controls, including work at several national laboratories and other projects throughout the U.S. Department of Energy (DOE) complex. He has authored best practices for the DOE Energy Facilities Contractors Group and wrote for other project management periodicals. His doctoral dissertation is titled Toward a Theory of Behavioral Project Management. You can view an introduction to Josh and his colleagues' work in Behavioral Project Management at https://youtu.be/miqbagN_4dQ. The future of project management is designing PM methodologies around the beings that predict and deliver projects: humans. You can also listen to some of the podcasts Josh and his colleagues have been featured on, here: Behavioral PM: the Freakonomics Approach to Project Delivery with Dr. Josh Ramirez - https://pmhappyhour.com/ep077/; Neuroscience in Project Management - https://www.pmi.org/chapters/wdc/pmi-resources/pm-podcasts/pm-point-of-view-69; Tips from Behavioral Science - https://www.pmi.org/chapters/wdc/pmi-resources/pm-podcasts/pm-point-of-view-95.

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Darrell Mesa, a Senior Program Planner / Scheduler and a dynamic intrapreneur, with extensive expertise in project management, including program planning, scheduling, and risk management. As a certified Project Management Professional (PMP), he has a demonstrated history of steering large-scale projects to success by applying industry best practices, with special proficiency in Earned Value Management (EVM), Critical Path Schedule Management, and Work Breakdown Structure. His role as a Microsoft Project Practitioner at Denver Corporate Search showcases his ability to develop and update intricate MS Project schedules, adhering to stringent government regulations.

Darrell's professional journey is marked by significant roles that have allowed him to leverage his skills effectively. At Projitz LLC, as a Senior Program Planner / Scheduler, he enhanced project efficiency through meticulous application of Work Breakdown Structure and Critical Path Analysis. As a Senior Integrated Master Scheduler at Highbury Defense Group, he made notable improvements in program efficiencies through the execution of Integrated Master Schedules and the integration of Earned Schedule methodologies. A key achievement in his career was the development of 89 Project E-cademy training courses, which increased team productivity by 10%. In his capacity as a Learning Management Administrator, he demonstrated dedication to knowledge dissemination, using WordPress Tutor LMS to bolster team skills in Project Scheduling using Microsoft Project Professional and Project Web App.

In addition to his corporate roles, he is the founder of Influence IPM LLC, a business focused on Integrated Project Management, where he leverages his vast experience to provide cutting-edge project management solutions. More about his entrepreneurial venture can be found at influenceipm.com. Beyond traditional project management, he is also an active AI Influencer through his YouTube channel (Restless Minds), where he creates and shares content on AI advancements, fostering a community of tech enthusiasts and professionals keen on the latest in artificial intelligence. Based in Murrieta, California, he is keen on connecting with like-minded professionals and can be reached via email at darrell.mesa@pm-ss.org or through LinkedIn at https://linkedin.com/in/darrell-mesa-pmp-csm-4bbb8955.

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Rebecca (Becky) Winston, Esq., JD, PMI Fellow, is a former Chair of the board of the Project Management Institute (PMI®). Becky has over 30 years of experience in program and project management, primarily on programs funded by the US government or their contractors.

Active in PMI since 1993, Rebecca Winston helped pioneer PMI's Specific Interest Groups (SIGs) in the nineties, including the Project Earth and Government SIGs, and was a founder and first co-chair of the Women in Project Management SIG. She served two terms on the PMI board of directors as director at large, Secretary Treasurer, Vice Chair (for two years), and Chair (2002). She was elected a PMI Fellow in 2005. She is also a member of the American Bar Association and the Association of Female

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Executives in the United States. She currently is the Executive Vice President of the College of Performance Management and the lead for their ISO standards committee given her 25 plus years of ISO experience.

She has served as an advisor to organizations such as the National Nuclear Security Administration (USA), U.S. Department of Energy (DOE) and the U.S. Department of Homeland Security (DHS) on topics ranging from Program and Project Management to project reviews, risk management, vulnerability assessments, software development and artificial intelligence. She served on the Air Force Studies Board for six years and serves the Intelligence Science Technology Engineering Group for the National Academies of Science, Engineering, and Medicine, as well as actively serving on many studies for the National Research Council. She can be contacted at rebeccawinston@yahoo.com